

# Lakeland Industry & Community Association

Cold Lake Monitoring Site

Ambient Air Monitoring

Data Report

For

April 2011

Prepared By:



May 17, 2011

# Lakeland Industry & Community Association

## Cold Lake Monitoring Site

### Ambient Air Monitoring

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# Introduction

The following Ambient Air Monitoring report was prepared for:

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**Lakeland Industry & Community Association**  
Box 8237  
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Bonnyville, Alberta  
T9N 2J5

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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION COLD LAKE SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)
						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO <sub>2</sub> (PPB)	172	48	0	0	0.43	4	8	13	14.2	219(SW)	0.9	8, 9	100.0
TRS (PPB)	-	-	-	-	0.95	1	VAR	VAR	VAR	VAR	1.0	VAR	100.0
NO <sub>2</sub> (PPB)	212	106	0	0	3.38	23	21	5, 6	1, 0.7	80(E), 197(SSW)	6.7	21	100.0
NO (PPB)	-	-	-	-	0.40	33	21	5	1	80(E)	3.6	21	100.0
NO <sub>x</sub> (PPB)	-	-	-	-	3.79	56	21	5	1	80(E)	10.3	21	100.0
O <sub>3</sub> (PPB)	82	-	0	-	38.07	60	4	16	12.3	231(SW)	47.0	9	100.0
THC (PPM)	-	-	-	-	2.14	3.2	27	5, 6	4.6, 4.1	246(WSW), 233(SW)	2.3	VAR	100.0
PM 2.5 (UG/M <sup>3</sup> )	-	30	-	0	5.02	29.0	4	4	1.7	168(SSE)	10.0	4	98.3
TEMPERATURE (DEG C)	-	-	-	-	2.92	16.4	25	15	10	144(SE)	8.6	25	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	62.32	98	28	5	2.3	254(WSW)	89.1	28	100.0
VECTOR WS (KPH)	-	-	-	-	6.26	18.4	10	11	-	272(W)	12.8	14	100.0
VECTOR WD (DEGREES)	-	-	-	-	237(SW)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS    NA: NOT AVAILABLE

# Monthly Non-Continuous Data Summary

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

### Passive Ambient Monitoring Network – April 2011

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO <sub>2</sub>	#27	1.0	0.36
H <sub>2</sub> S	#27	0.29	0.10
NO <sub>2</sub>	#28	2.4	0.7
O <sub>3</sub>	#34	42.5	36.0

## Volatile Organics Data Summary

### LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

#### Xontech Model 910A – April 3, 2011

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

#### Xontech Model 910A – April 9, 2011

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

#### Xontech Model 910A – April 15, 2011

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

#### Xontech Model 910A – April 21, 2011

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

#### Xontech Model 910A – April 27, 2011

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

# Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

### PUF cartridge – April 3, 2011

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

### PUF cartridge – April 9, 2011

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

### PUF cartridge – April 15, 2011

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

### PUF cartridge – April 21, 2011

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

### PUF cartridge – April 27, 2011

<b>Maximum reading (ng/m3)</b>	<b>Semi-Volatile Organic</b>
<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. One hour of the maximum concentration was invalidated due to a small power outage on April 29<sup>th</sup> at 19:00. 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. One hour of the maximum concentration was invalidated due to a small power outage on April 29<sup>th</sup> at 19:00. 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. One hour of the maximum concentration was invalidated due to a small power outage on April 29<sup>th</sup> at 19:00. Furthermore, one hour of maximum data on April 27<sup>th</sup> at 09:00 was invalidated, as the collection time was less than 100% of an hour; reason unknown. 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 issues observed during the month. The inlet filter was changed before the monthly calibration was started. The H2 gas cylinder was replaced on April 5<sup>th</sup>. The H2 gas cylinder was replaced again on April 18<sup>th</sup> as well as the CH4 gas cylinder. One hour of the maximum concentration was invalidated due to a small power outage on April 29<sup>th</sup> at 19:00. Data was corrected using daily zero information.

### Nitrogen Dioxide (PPB)

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

No operational issues observed during the month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration was invalidated due to a small power outage on April 29<sup>th</sup> at 19:00. Data was corrected using daily zero information.

### Particulate Matter 2.5 (ug/m<sup>3</sup>)

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

A routine Teom audit was performed on April 18<sup>th</sup>. The Teom filter and the FDMS filter were replaced and the inlet was cleaned on April 18<sup>th</sup>. 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. 12 hours of data were invalidated as the data were below -3.0 ug/m<sup>3</sup>. The Teom flow was changed from “Standard” to “Actual” as per an AE requirement on April 4<sup>th</sup>.

### 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.

# General Monthly Summary - Cold Lake

## AQM STATION – LICA – COLD LAKE

### 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 April 5<sup>th</sup>.

# 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. Ninety hours of AQI values recorded in April 2011 were in the Fair range, and they were all due to ozone. Others were within the Good range. The highest hourly concentration of PM<sub>2.5</sub> was 29.0 ug/m<sup>3</sup> and an AQI value of 24, hour 4 on April 4<sup>th</sup>. The highest hourly concentration of Ozone was 60 ppb and an AQI value of 33 on April 4<sup>th</sup>, hour of 16.

### Passive Network

H<sub>2</sub>S sample at station #17 was found on the ground.

### Volatile Organics (VOCs)

The volatile organics were sampled from April 3<sup>rd</sup> to April 27<sup>th</sup>. 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/m<sup>3</sup> in 3 significant figures.

### Polycyclic Aromatic Hydrocarbons (PAHs)

The PAHs were sampled from April 3<sup>rd</sup> to April 27<sup>th</sup>. 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/m<sup>3</sup>.

# Continuous Monitoring

# Monthly Summaries, Graphs & Wind Roses

# Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2011

AIR QUALITY INDEX (AQI)

MST		DAILY																							
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
1	24	24	23	23	23	22	22	22	23	24	25	25	27	28	28	28	26	-	29	28	25	19	17	18	29
2	14	15	12	9	12	-	6	18	21	22	23	24	25	25	26	26	-	24	24	24	22	23	21	20	26
3	18	14	11	12	14	16	17	21	22	22	23	23	24	24	-	25	25	24	23	22	23	-	22	25	
4	19	18	19	22	24	18	21	22	23	24	24	25	26	28	-	33	33	32	28	24	19	18	22	22	33
5	18	18	20	19	19	19	15	-	-	-	-	-	-	-	-	-	-	-	24	23	23	20	16	14	24
6	14	14	12	19	20	14	11	18	22	23	24	28	-	28	28	29	29	28	25	20	15	18	21	29	
7	21	24	22	16	15	14	13	15	18	20	22	-	25	25	25	25	23	23	23	21	17	14	14	-	25
8	11	10	8	-	11	-	15	18	22	23	-	26	28	26	28	28	27	28	27	27	26	26	26	25	28
9	24	24	22	20	16	19	19	19	20	-	25	26	28	28	28	28	28	27	27	28	25	23	22	28	
10	22	23	22	21	20	19	19	22	-	25	28	31	32	32	32	30	29	28	26	25	23	22	14	10	32
11	9	8	15	20	24	21	20	-	22	22	23	24	25	28	25	24	24	24	28	27	25	24	23	23	28
12	23	22	20	18	17	16	-	14	13	12	13	15	15	18	18	17	20	20	20	18	14	13	15	16	23
13	15	14	14	13	13	-	13	13	13	14	17	19	21	22	22	22	22	22	21	20	15	18	19	17	22
14	18	18	17	17	-	17	18	19	20	22	23	23	23	24	24	24	24	24	23	23	23	21	20	19	24
15	19	19	19	-	19	18	18	18	18	17	17	17	17	17	17	18	18	19	20	20	20	20	20	19	20
16	7	-	7	7	6	4	6	15	19	21	22	22	22	23	23	23	23	23	23	21	20	19	16	14	23
17	13	9	8	5	4	7	13	-	17	20	23	26	27	27	27	27	26	25	23	18	17	19	-	27	
18	14	9	8	8	6	6	10	17	19	22	26	28	27	27	27	26	26	26	25	22	17	16	-	21	28
19	23	20	18	18	18	17	16	17	19	21	22	22	23	23	23	23	23	22	21	21	16	-	11	10	23
20	7	5	3	4	2	1	9	13	15	21	24	24	24	24	24	25	25	24	22	-	14	11	10	25	
21	7	8	-	15	13	-	15	17	20	24	25	25	25	25	25	25	25	24	-	15	13	11	10	25	
22	8	11	13	13	11	7	12	16	19	22	24	25	25	27	27	26	25	25	-	22	16	13	10	-	27
23	13	15	11	11	6	6	6	17	20	22	22	22	23	23	24	24	23	-	22	20	16	14	19	19	24
24	19	19	20	20	19	18	19	20	20	21	23	24	25	27	31	33	-	32	31	28	27	26	24	23	33
25	22	19	18	20	16	14	16	15	16	17	17	18	20	21	19	-	23	24	24	22	19	15	11	8	24
26	5	3	6	12	11	5	8	7	10	14	23	28	29	31	-	32	32	30	29	27	19	21	22	26	32
27	22	21	19	12	12	13	15	15	16	17	16	19	22	-	24	25	25	25	24	24	24	22	21	22	25
28	21	20	19	19	19	17	17	18	18	19	20	-	21	22	23	23	23	23	23	20	14	12	8	-	23
29	4	-	8	6	14	20	21	20	21	22	-	24	24	24	23	21	21	20	18	11	8	6	4	24	
30	24	24	23	23	24	22	22	23	25	28	31	32	32	32	33	33	32	31	28	28	26	26	26	26	26
PEAK	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3

STATUS FLAG CODES NA - NOT APPLICABLE

V - VARIOUS

AQI CLASS	OZONE (O <sub>3</sub> )				PARTICULATE MATTER 2.5 (PM <sub>2.5</sub> )				NITROGEN DIOXIDE (NO <sub>2</sub> )				SULPHUR DIOXIDE (SO <sub>2</sub> )				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)	90	12.5%	33	15.16	4	0	0.0%	-	-	-	0	0.0%	-	-	-	90	12.5%	
GOOD (1-25)	547	76.0%	-	-	-	30	4.2%	24	4	4	0	0.0%	-	-	-	577	80.1%	
OVERALL	637	88.5%	-	-	-	30	4.2%	-	-	-	0	0.0%	-	-	-	667	92.6%	
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53	7.4%	



# Sulphur Dioxide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2011

## SULPHUR DIOXIDE (SO<sub>2</sub>) 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	1	0	0	1	1	1	1	1	1	1	1	1	1	IZS	1	1	0	0	0	0	1	0.5	24	
2	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	IZS	1	1	1	1	0	0	0	1	0.4	24	
3	0	0	0	0	0	0	0	0	0	1	2	1	1	1	1	1	IZS	1	1	0	0	0	0	1	0	2	0.4	24	
4	0	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	IZS	1	1	0	0	0	0	1	0	2	0.9	24	
5	0	0	0	0	0	0	0	1	1	1	1	1	1	1	IZS	C	C	C	C	1	1	0	0	0	0	1	0.4	24	
6	0	0	0	0	0	0	0	0	1	1	1	0	IZS	1	0	0	1	1	1	0	0	0	0	0	1	0.3	24		
7	0	1	0	0	0	0	0	1	1	2	1	IZS	1	1	1	1	1	1	1	0	0	0	0	0	2	0.6	24		
8	0	0	0	0	0	0	0	1	1	1	1	IZS	1	1	4	1	1	0	1	1	3	1	1	1	1	4	0.9	24	
9	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	0.9	24	
10	1	1	1	0	1	1	1	1	1	IZS	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0.5	24	
11	0	0	0	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1	0.7	24	
12	0	0	0	0	0	1	IZS	2	1	1	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	2	0.5	24	
13	0	0	0	0	0	IZS	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
14	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	
15	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	
16	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	
17	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0.1	24	
18	IZS	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	IZS	1	0.5	24	
19	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	0	1	1	1	0.4	24	
20	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	IZS	0	0	1	0.6	24
21	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	IZS	1	0	0	1	0.7	24		
22	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	IZS	0	0	0	0	1	0.6	24		
23	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	1	0.4	24		
24	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	IZS	0	1	0	0	1	1	1	0.6	24		
25	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	0.7	24	
26	1	0	0	1	0	1	0	0	0	0	0	1	1	1	1	IZS	1	1	1	1	1	1	0	0	1	0.5	24		
27	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	1	0.3	24	
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	IZS	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	1	1	IZS	1	1	1	1	0	0	0	0	0	0	0	0	1	0.3	24		
HOURLY MAX	1	1	1	1	1	1	1	2	1	2	2	2	2	4	1	1	1	1	1	3	1	1	1	1	1				
HOURLY AVG	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.5	0.6	0.7	0.7	0.7	0.8	0.9	0.7	0.5	0.5	0.6	0.5	0.4	0.2	0.2	0.2	0.2					

### STATUS FLAG CODES

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

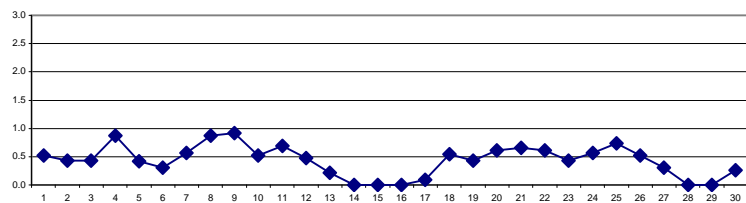
OBJECTIVE LIMIT:

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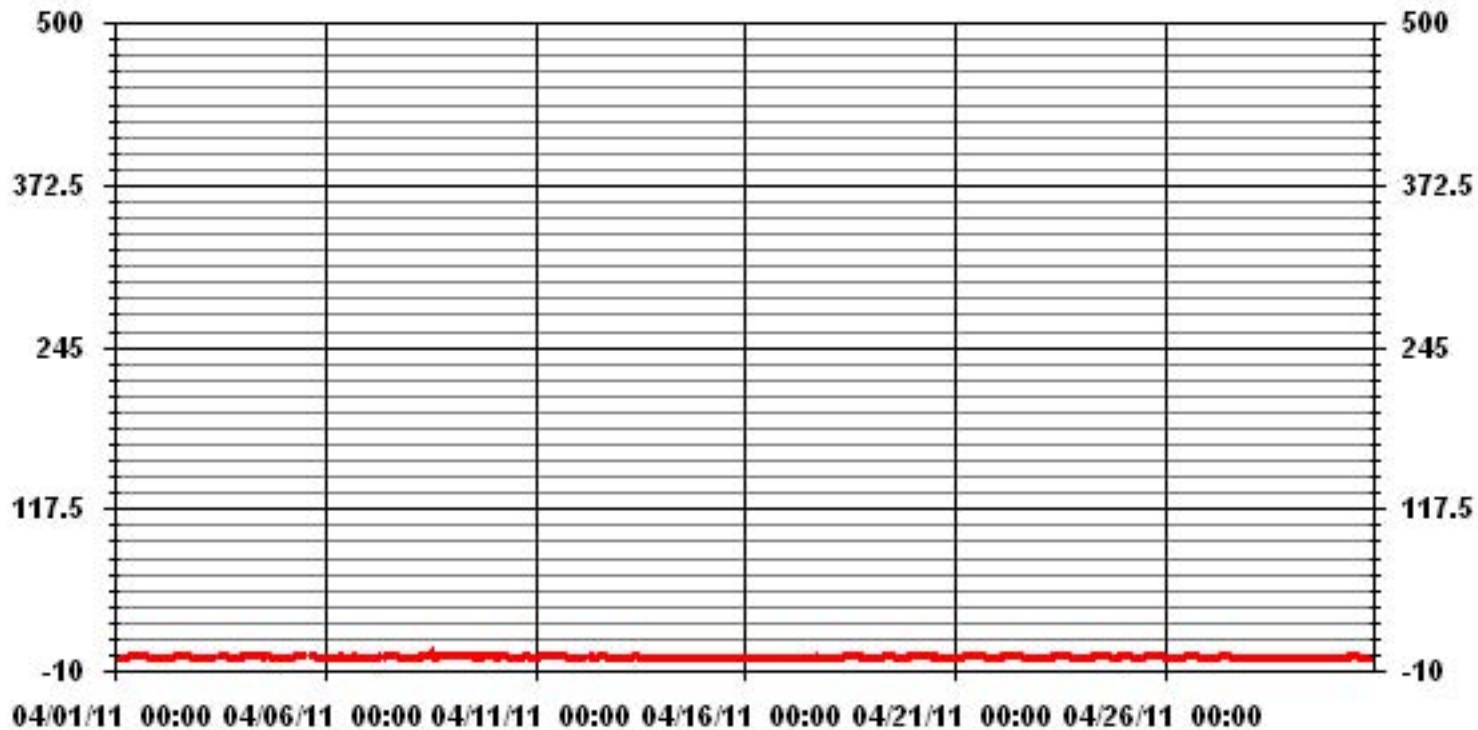
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	286					
MAXIMUM 1-HR AVERAGE:	4	PPB	@ HOUR(S)	13	ON DAY(S)	8
MAXIMUM 24-HR AVERAGE:	0.9	PPB			ON DAY(S)	8, 9
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.54		MONTHLY AVERAGE:	0.43	PPB	

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA SO2\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 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	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
2		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	1.0	24
3		1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2	1.1	24
4		1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1.2	24
5		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	24
6		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	24
7		1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	2	1	1	1	1	1	1	2	1.2	24
8		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	4	2	1	2	1	5	1.7	24
9		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	24
10		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	24
11		1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	2	1.1	24
12		1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
13		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	24
14		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	24
15		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	24
16		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	24
17		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	24
18		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	24
19		1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
20		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
21		1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
22		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	24
23		1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
24		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	24
25		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	24
26		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	24
27		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	24
28		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	24
29		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	23
30		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	24
HOURLY MAX		1	1	1	1	1	2	1	2	2	2	2	2	4	5	2	1	1	2	3	4	2	1	2	1				
HOURLY AVG		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.1	1.0	1.0	1.0	1.1	1.1	1.1	1.0	1.0	1.0				

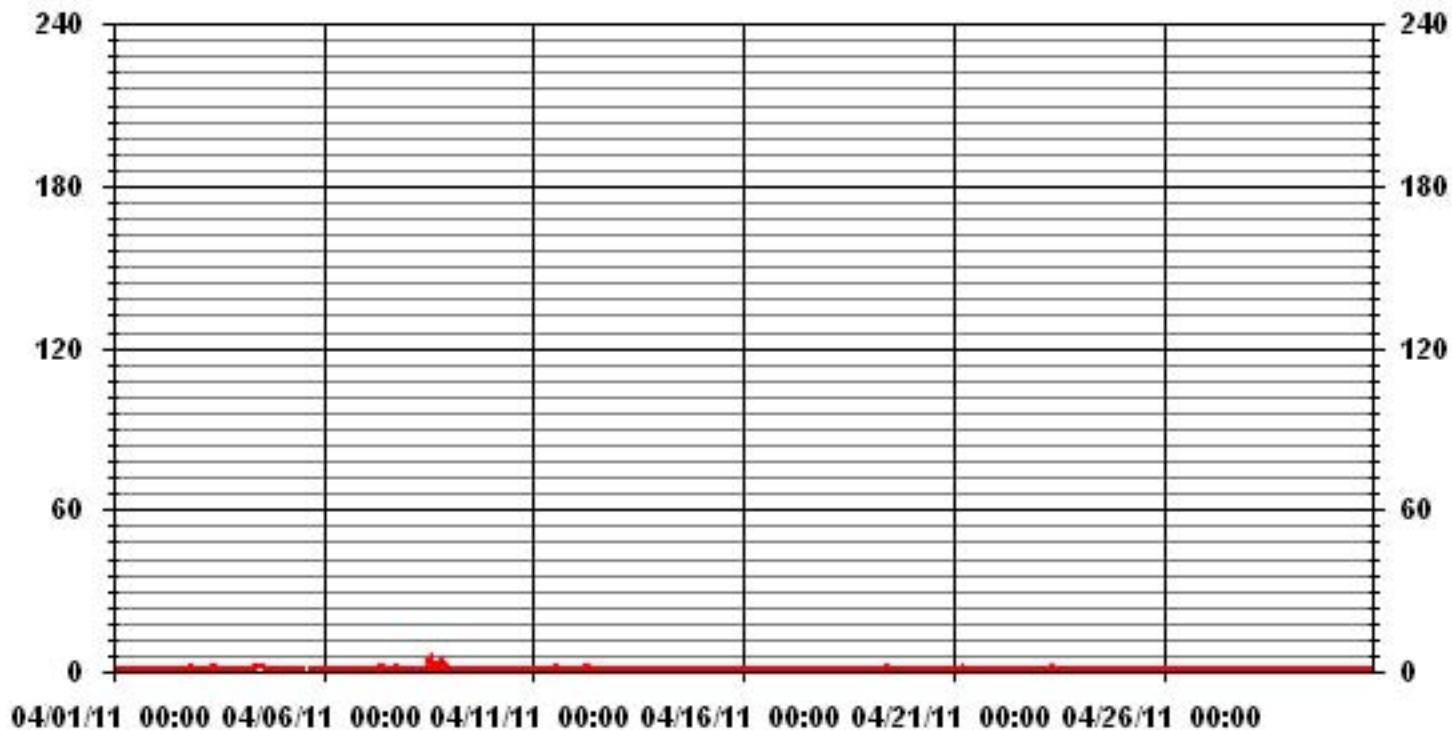
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	684					
MAXIMUM INSTANTANEOUS VALUE:	5	PPB	@ HOUR(S)	13	ON DAY(S)	8
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.30					

### 01 Hour Averages



— LICA SO2MAX PPB

LICA  
 SO2\_ / WDR Joint Frequency Distribution (Percent)

April 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	3.50	5.69	7.29	3.94	5.40	6.27	7.73	2.48	2.48	5.98	22.91	10.51	7.29	2.91	3.06	2.48	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.50	5.69	7.29	3.94	5.40	6.27	7.73	2.48	2.48	5.98	22.91	10.51	7.29	2.91	3.06	2.48	

Calm : .00 %

Total # Operational Hours : 685

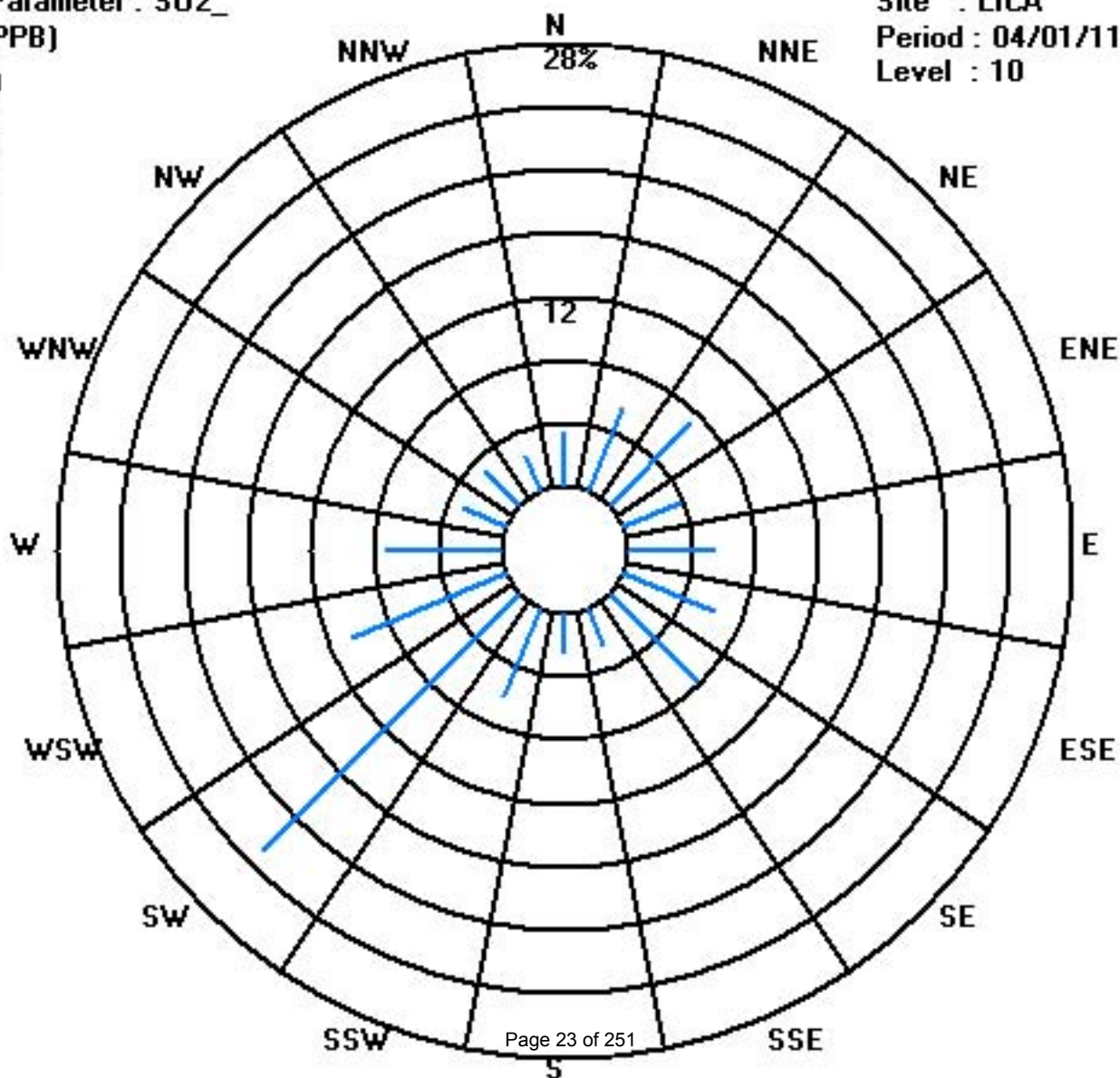
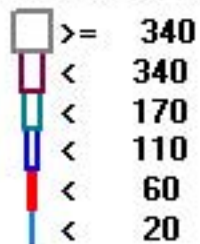
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	24	39	50	27	37	43	53	17	17	41	157	72	50	20	21	17	685
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	24	39	50	27	37	43	53	17	17	41	157	72	50	20	21	17	

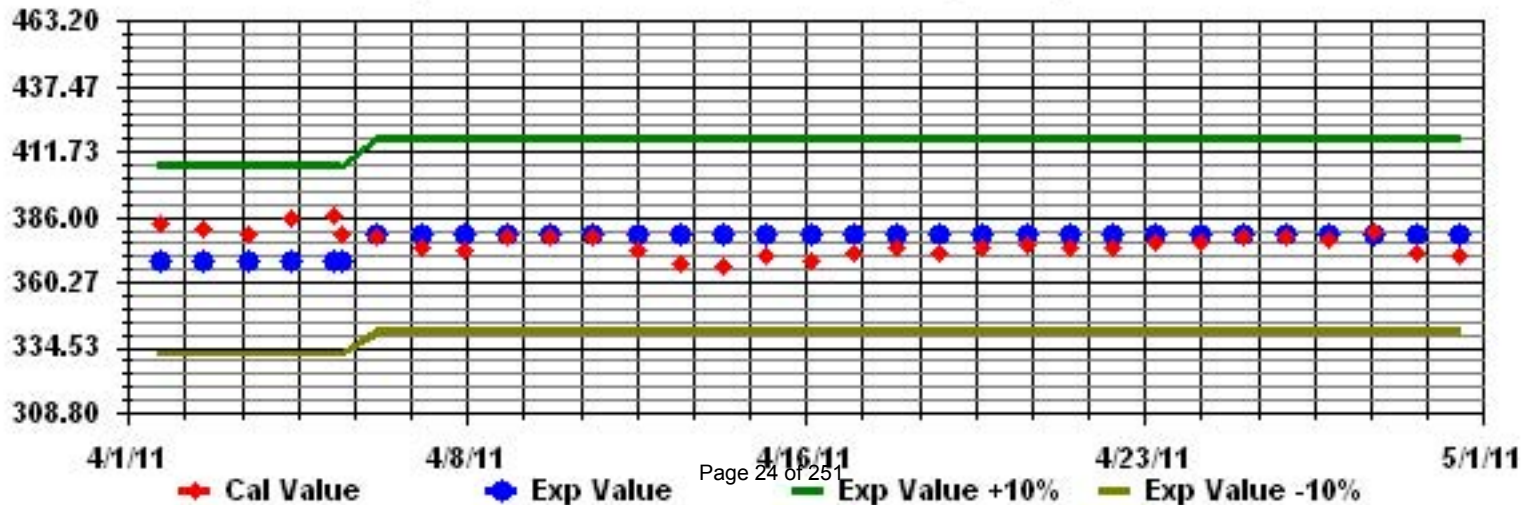
Calm : .00 %

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

APRIL 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	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1.0	24
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1.0	24
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1.0	24
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1.0	24
5	1	1	1	1	1	1	1	1	C	C	C	C	C	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1.0	24
6	0	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
7	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
8	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	1.0	24
9	1	1	1	1	0	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
10	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	1.0	24
11	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
12	0	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0.9	24
13	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
14	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
15	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	1.0	24
16	0	1	IZS	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
17	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1.0	24
18	IZS	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1.0	24
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1.0	24
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1.0	24
21	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1.0	24
22	0	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	0.9	24
23	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1.0	24
24	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	0.9	24
25	1	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	IZS	1	1	0	1	1	1	1	1	1	0.8	24
26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	0	1	0	0	1	1	0.9	24
27	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	IZS	0	1	1	1	1	1	0	1	1	1	0.7	24
28	0	1	1	1	0	1	1	1	1	1	1	0	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
29	1	1	1	0	1	1	1	0	1	0	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
30	1	1	1	1	1	1	0	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	0	0	1	1	0.9	24
HOURLY MAX	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
HOURLY AVG	0.8	0.9	0.9	0.9	0.9	1.0	0.9	1.0	1.0	1.0	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.8	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

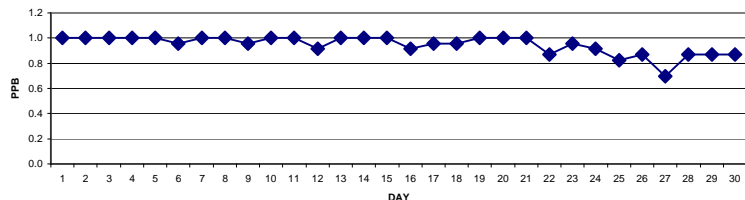
OBJECTIVE LIMIT:

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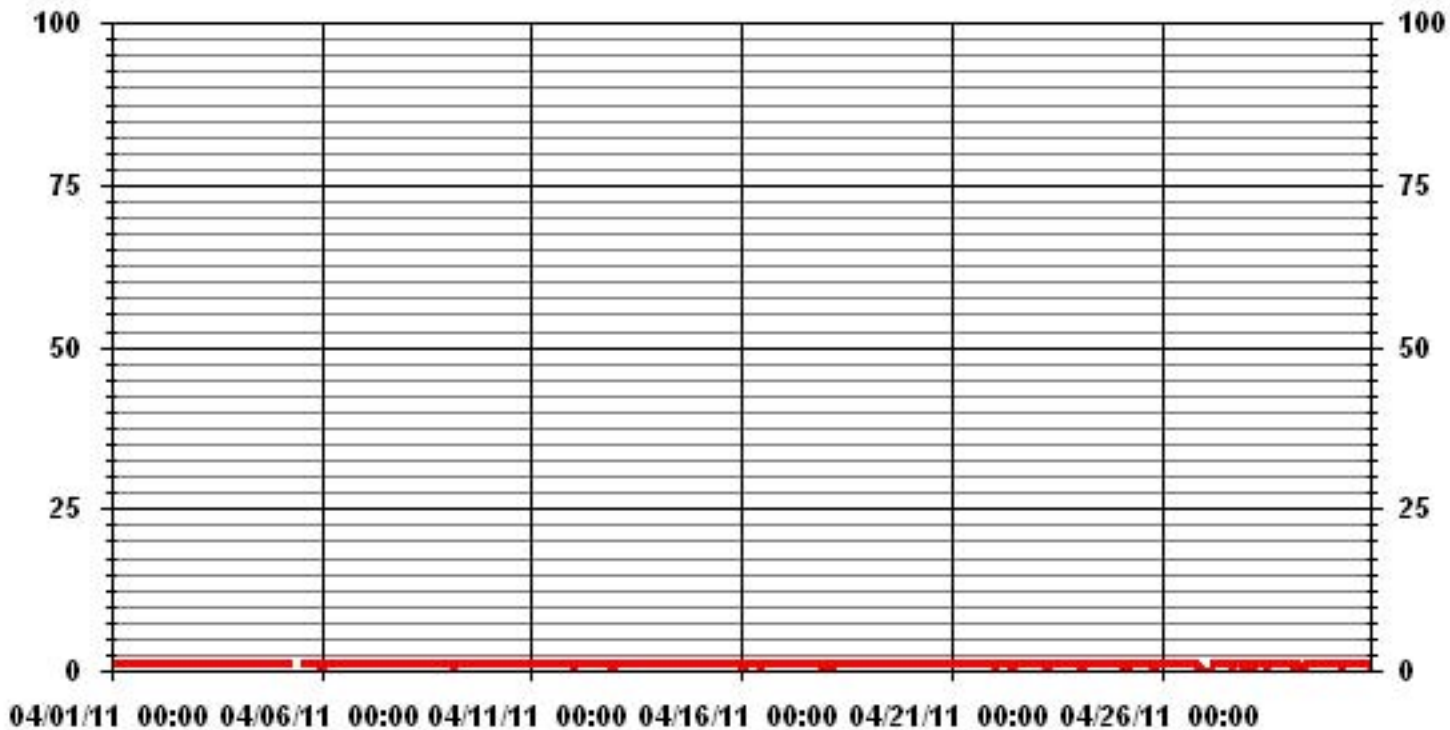
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	647					
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	1.0	PPB			ON DAY(S)	VAR
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	0.23		MONTHLY AVERAGE	0.95	PPB	

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA TRS\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 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	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1.0	24
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1.0	24
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1.0	24
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1.0	24
5	1	1	1	1	1	1	1	C	C	C	C	C	1	IZS	1	1	M	M	1	1	1	1	1	1	1	1	1.0	22
6	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
7	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
8	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
9	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	1.0	24
10	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
11	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
12	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
13	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
14	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
15	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	1.0	24
16	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
17	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	1.0	24
18	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1.0	24
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1.0	24
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1.0	24
21	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	2	1.0	24
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1.0	24
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1.0	24
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1.0	24
25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1.0	24
26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1.0	24
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1.0	24
28	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
29	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	P	1	1	1	1.0	23
30	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
HOURLY MAX	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
HOURLY AVG	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		

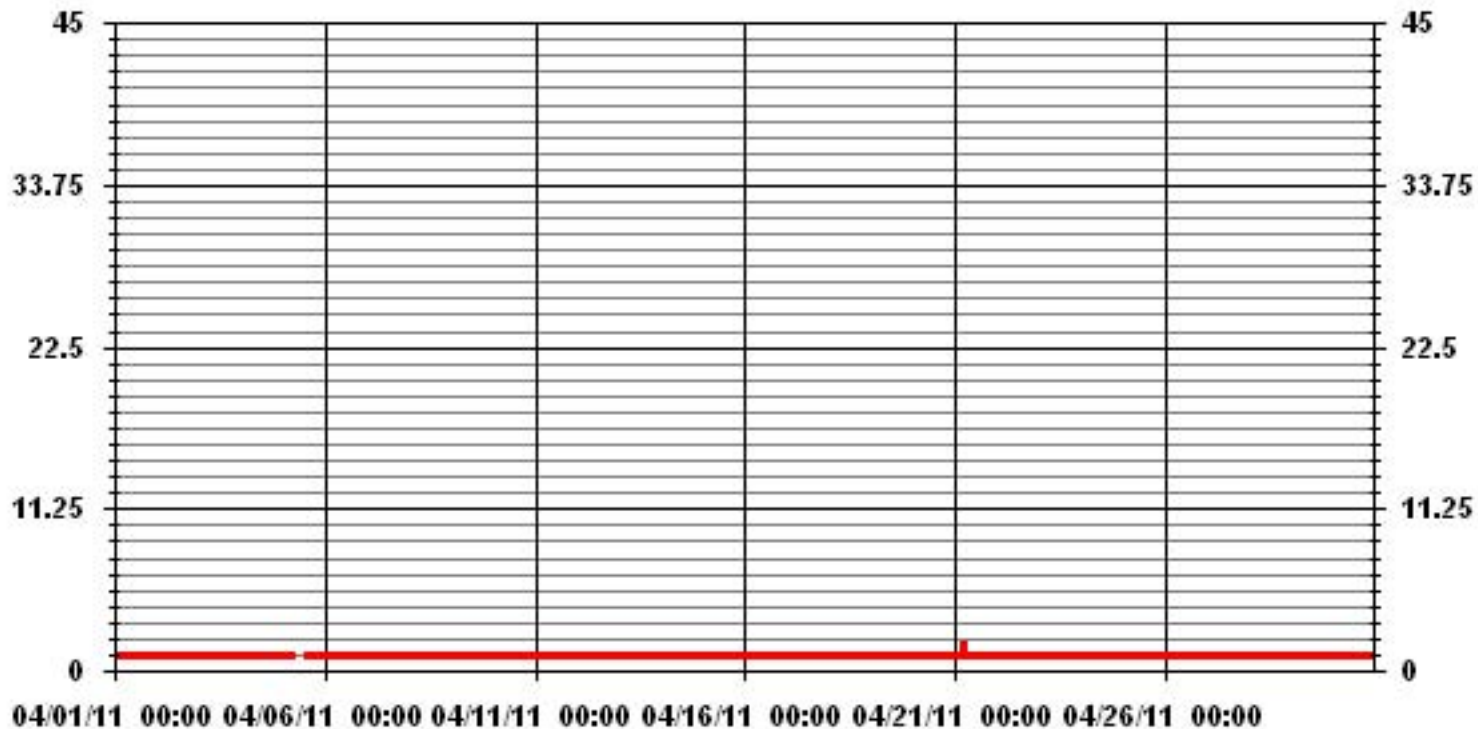
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	681					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	5	ON DAY(S)	21
				VAR - VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	717	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.04					

### 01 Hour Averages



— LICA TRSMAX PPB

LICA  
 TRS\_ / WD Joint Frequency Distribution (Percent)

April 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	3.50	5.70	7.30	3.94	5.40	6.28	7.74	2.48	2.48	5.99	23.09	10.23	7.30	2.92	3.07	2.48	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.50	5.70	7.30	3.94	5.40	6.28	7.74	2.48	2.48	5.99	23.09	10.23	7.30	2.92	3.07	2.48	

Calm : .00 %

Total # Operational Hours : 684

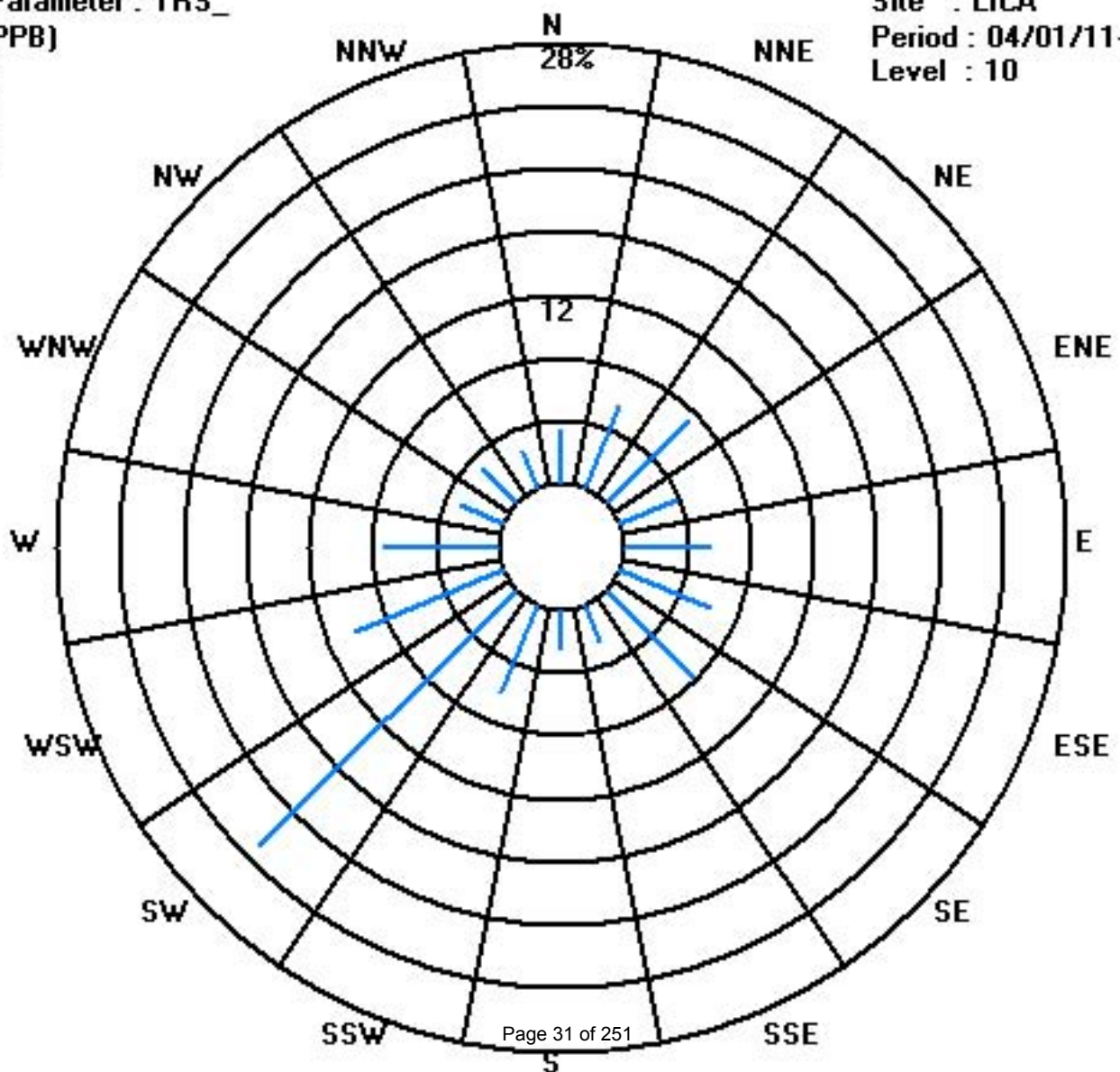
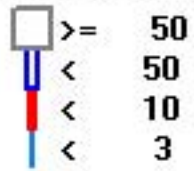
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	24	39	50	27	37	43	53	17	17	41	158	70	50	20	21	17	684
< 10																	
< 50																	
>= 50																	
Totals	24	39	50	27	37	43	53	17	17	41	158	70	50	20	21	17	

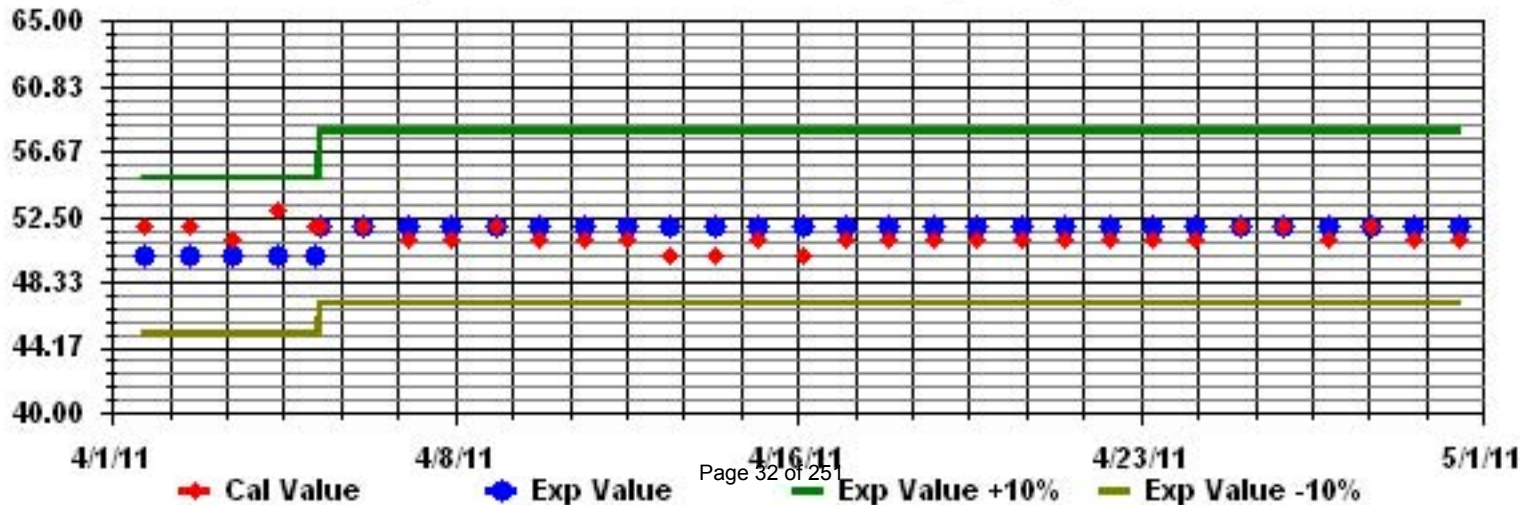
Calm : .00 %

Total # Operational Hours : 684

Class Limits (PPB)



Calibration Graph for Site: LICA Parameter: TRS\_ Sequence: TRS Phase: SPAN

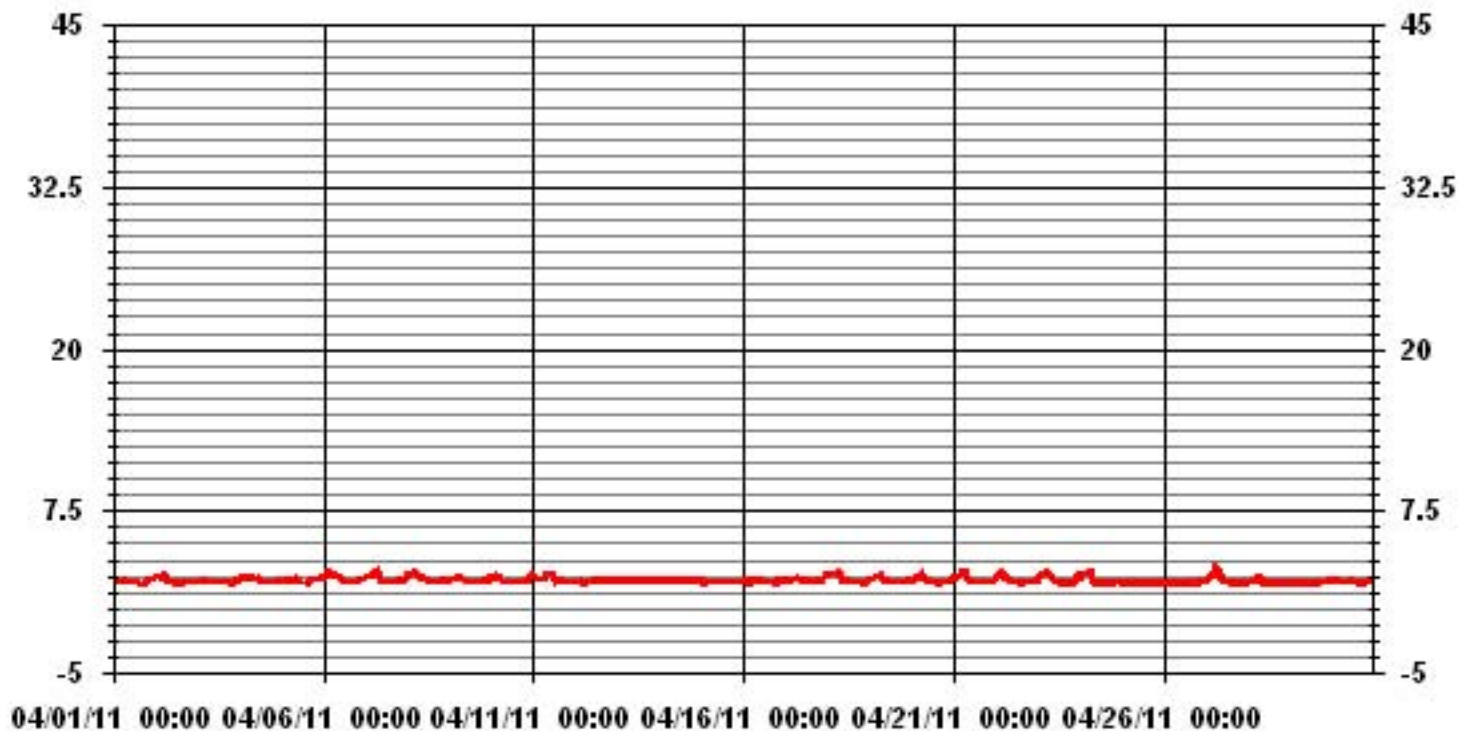




# Total Hydrocarbons



### 01 Hour Averages



— LICA — THC — PPM

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2011

## TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

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	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.
1	2.3	2.2	2.2	2.1	2.2	2.3	2.2	2.2	2.2	2.1	2.1	2	2	2.1	2	2	2	<b>IZS</b>	2.1	2.3	2.4	2.3	2.3	2.4	2.4	2.2	24	
2	2.5	2.6	2.5	2.5	2.5	3	2.6	2.4	2.2	2	2.7	2.5	2	2	2	2	<b>IZS</b>	2.1	2.1	2.2	2.2	2	2	2	3	2.3	24	
3	2	2	2	2.3	2.3	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	<b>IZS</b>	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	24	
4	2.3	2.3	2.4	2.3	2.3	2.4	2.3	2.4	2.6	2.5	2.4	2.5	2.3	2.1	<b>IZS</b>	2.1	2.1	2.1	2	2	2	2.2	2.3	2.1	2.6	2.3	24	
5	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.4	2.4	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	2.1	<b>M</b>	<b>M</b>	2.2	2.3	2.2	2.3	2.4	2.3	2.4	2.3	22	
6	2.4	2.6	3	3.1	2.7	2.7	2.7	2.8	2.6	2.4	2.5	2.4	<b>IZS</b>	2	2.1	2.1	2.1	2	2.1	2.3	2.3	2.3	2.3	2.4	3.1	2.4	24	
7	2.5	2.5	2.5	2.5	2.6	2.9	3	3	2.9	2.3	2.1	<b>IZS</b>	2	2.1	2.1	2.1	2.4	2.1	2.1	2.1	2.2	2.3	2.5	3	2.4	24		
8	2.5	2.7	2.6	2.7	3	3	2.8	2.5	2.4	2.3	<b>IZS</b>	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2	2.1	2.1	2.2	2.2	2.2	3	2.4	24	
9	2.2	2.3	2.3	2.7	2.9	2.6	2.7	2.4	2.4	<b>IZS</b>	2.2	2.1	2	2.1	2	2.1	2	2	2	2.2	2.3	2.4	2.6	2.4	2.9	2.3	24	
10	2.4	2.4	2.5	2.6	2.6	2.6	2.3	2.3	<b>IZS</b>	2.2	2.1	2	2	2	2	2	2	2.1	2.1	2.2	2.3	2.3	3.3	3	3.3	2.3	24	
11	2.8	2.7	2.6	2.3	2.3	2.4	2.5	<b>IZS</b>	2.7	2.6	2.9	2.7	2.5	2.3	2.2	2.2	2.3	2.2	2	2	2	2	2	2	2.9	2.4	24	
12	2	2	2.1	2.1	2.1	2.1	<b>IZS</b>	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.1	24	
13	2.1	2.1	2.2	2.2	2.2	<b>IZS</b>	2.2	2.4	2.2	2.2	2.2	2.2	2.2	2.6	2.6	2.2	2.1	3	2.2	2.1	2.2	2.2	2.2	2.2	3	2.3	24	
14	2.2	2.2	2.1	2.1	<b>IZS</b>	2.2	2.3	2.2	2.1	2.2	2.1	2.2	2.1	2.1	2.3	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	24	
15	2.1	2.1	2.1	<b>IZS</b>	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	24	
16	2.1	2.1	<b>IZS</b>	2.1	2.1	2.2	2.1	2.1	2.8	2.1	2.1	2.1	2.1	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.8	2.2	24	
17	2.2	<b>IZS</b>	2.2	2.2	2.6	2.5	2.5	2.6	2.2	2.1	2.2	2.2	2.1	2.4	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.4	2.6	2.7	2.7	2.3	24	
18	<b>IZS</b>	2.9	2.9	3.2	3	2.9	3	3.1	<b>M</b>	<b>C</b>	<b>C</b>	2.2	2.3	2	2.1	2	2.1	2	2	2	2.1	2.2	2.1	<b>IZS</b>	3.2	2.4	23	
19	2.3	2.3	2.4	2.5	2.5	2.7	2.7	2.5	2.4	2.3	2.2	2.1	2.2	2.1	2.1	2	2.1	2	2.1	2.1	2.1	2.2	<b>IZS</b>	2.2	2.7	2.3	24	
20	2.1	2.4	2.5	2.4	2.6	2.8	2.7	2.5	2.3	2.1	2	2	2	2.1	2	2	2	2.1	2	2	2.2	2.2	<b>IZS</b>	2.4	2.7	2.8	24	
21	2.6	2.8	2.5	2.9	2.8	3.2	3.1	2.8	2.5	2.1	2	2	2	2	2	2	2	2.8	2	2	2	<b>IZS</b>	2	2.1	2.3	3.2	24	
22	2.8	2.5	2.8	2.9	2.8	2.6	2.7	2.4	2.3	2	2	2	2	2	2	2	2.1	2	2	<b>IZS</b>	2.1	2.2	2.1	2.2	2.9	2.3	24	
23	2.6	2.7	2.7	2.9	2.8	2.9	2.7	2.7	2.5	2.6	2.1	2.7	2.8	2	2	2.1	2	1.9	<b>IZS</b>	2	2.2	2.3	2.6	2.4	2.9	2.4	24	
24	3.1	3.1	3	3	2.8	2.9	3.2	2.7	2	2	2	2.3	2.3	2.9	1.9	2	2	<b>IZS</b>	1.9	2	2	2.1	2	2	3.2	2.4	24	
25	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	<b>IZS</b>	1.9	1.9	2	2	2	2	1.9	2	2.0	24	
26	2	2	2	2	2	2.1	2	2	2	2	2	2	2	2	2	<b>IZS</b>	1.9	1.9	1.9	2	2.1	2.3	2.2	2.4	2.4	2.0	24	
27	2.2	2.4	2.7	2.6	2.8	<b>3.4</b>	3.3	3.2	2.9	2.5	2.2	2.1	2.2	2	<b>IZS</b>	2	2	1.9	1.9	2	2.1	2.2	2	2	<b>3.4</b>	2.4	24	
28	2.1	2	2.1	2.3	2.4	2.4	2.5	2.6	2.2	1.9	1.9	1.9	1.9	<b>IZS</b>	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.6	24	
29	1.9	1.9	1.9	1.9	2.1	2	1.9	2	2	2	2	2	<b>IZS</b>	2	2	2	2	2	2	<b>P</b>	2.1	2.1	2.2	2.2	2.2	2.0	23	
30	2.2	2.2	2.2	2.2	2.6	2.5	2.1	2.1	2.1	2.1	2.1	<b>IZS</b>	2.1	2	2	2	2	2	2	2	2.1	2.2	2.2	2.3	2.6	2.1	24	
HOURLY MAX	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	3			
HOURLY AVG	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.2	2.2	2.3				

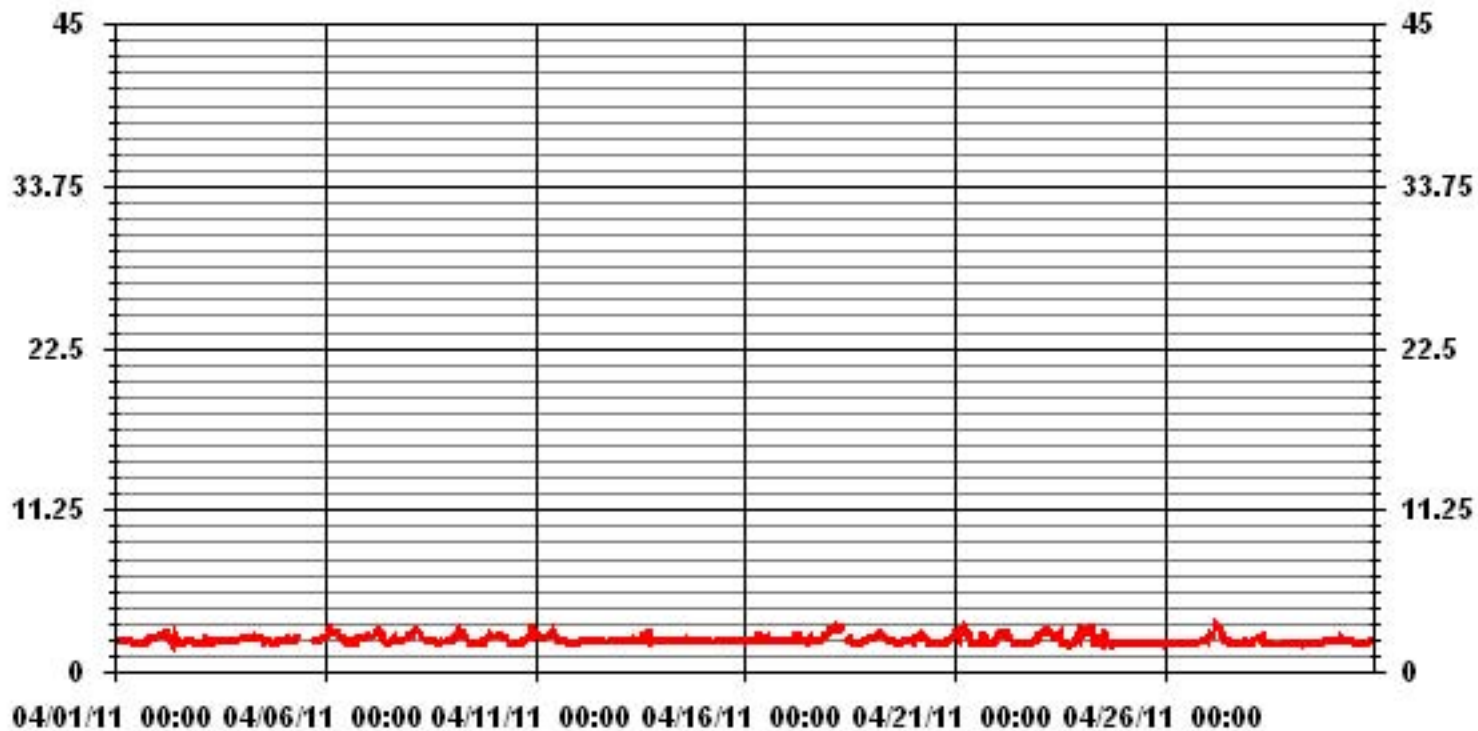
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	679					
MAXIMUM INSTANTANEOUS VALUE:	3.4	PPM	@ HOUR(S)	5	ON DAY(S)	27
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	716	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	0.29					

### 01 Hour Averages



— LICA THCMAX PPM

LICA  
 THC / WD Joint Frequency Distribution (Percent)

April 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	3.50	5.69	7.29	3.94	5.40	6.27	7.73	2.48	2.48	5.98	22.77	10.36	7.15	2.91	3.06	2.48	99.56
< 10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.29	.14	.00	.00	.00	.00	.43
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.50	5.69	7.29	3.94	5.40	6.27	7.73	2.48	2.48	5.98	23.06	10.51	7.15	2.91	3.06	2.48	

Calm : .00 %

Total # Operational Hours : 685

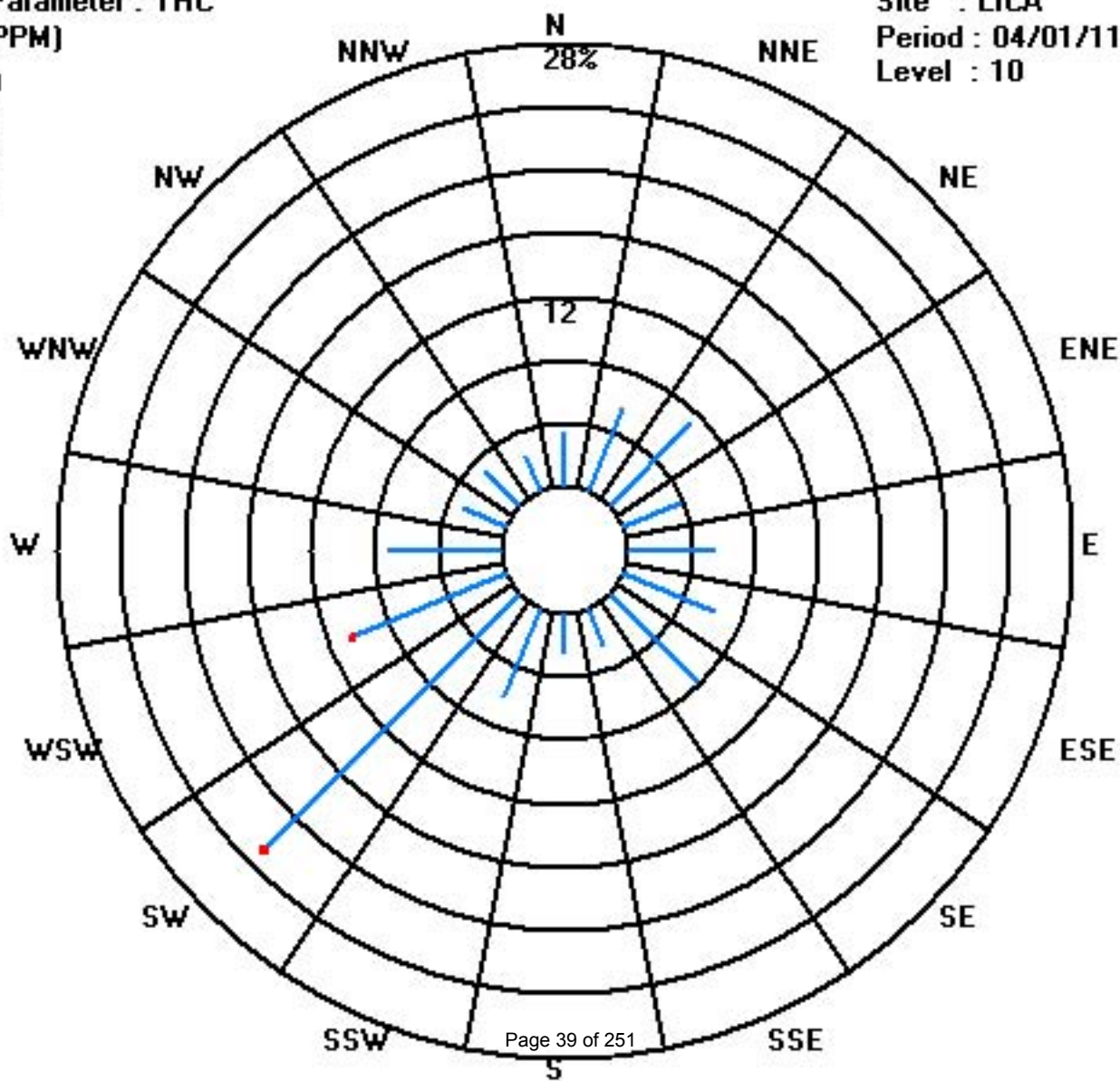
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	24	39	50	27	37	43	53	17	17	41	156	71	49	20	21	17	682
< 10.0											2	1					3
< 50.0																	
>= 50.0																	
Totals	24	39	50	27	37	43	53	17	17	41	158	72	49	20	21	17	

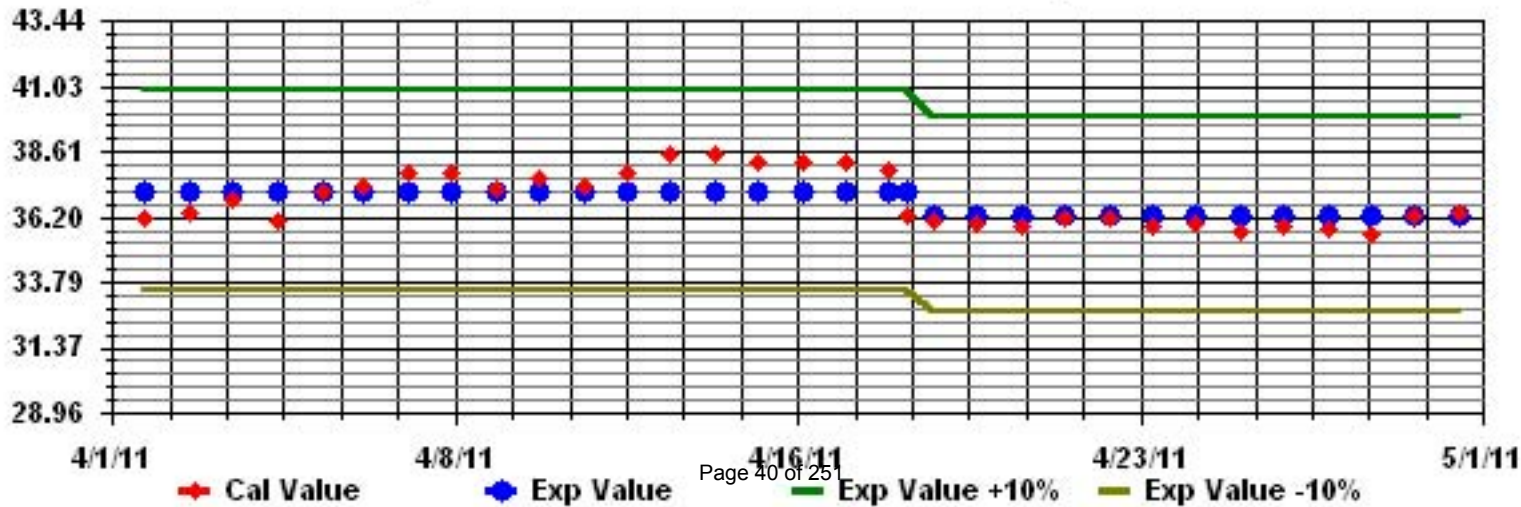
Calm : .00 %

Total # Operational Hours : 685

Class Limits (PPM)



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





# Particulate Matter 2.5

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2011

## PARTICULATE MATTER 2.5 (PM2.5) hourly averages in ug/m<sup>3</sup>

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.
DAY	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.	
1	1	1.4	5	6	2.9	2.5	2.5	0	4	1.4	2.9	1.4	1.9	3.4	5	6.4	1.4	1.4	8.4	1.9	3.4	4.4	5	1.9	0	8.4	3.1	24
2	2	9	3.4	1	4	14	N	5	6.9	4	0.4	6	2.9	0	4	2.9	5.9	1.9	9	1.9	2.5	1.4	0.4	3.4	0	14.0	3.9	23
3	3	5	2.5	1.9	1.9	3.4	1.9	4.4	2.9	4	4	2.9	1.9	0	1.9	2.9	1.9	1.4	0	1.9	6.4	1.9	N	2.9	2.9	6.4	2.6	23
4	4	2.5	11.5	6.9	5	29	5.5	10.5	17	14.4	20	15	17	17.5	15	18	12.4	5	6.9	2.5	1.4	4	1	1.9	1	29.0	10.0	24
5	5	6.4	9	2.5	4	1.9	1	6.9	2.5	6.4	2.9	2.5	6.9	4	3.4	3.4	1	1.4	2.5	5	10.5	3.4	8.4	7.5	2.9	10.5	4.4	24
6	6	1	5.5	0.4	6	14.4	15	12.9	17	13	8.4	9.9	2.9	6.4	3.4	0.4	0.4	1.4	3.4	6.4	4.4	4	6	8.4	6	17.0	6.5	24
7	7	5.5	13	20	12	16.5	17	15.5	15.5	2.9	4.4	3.4	6	2.9	2.5	6	4.4	2.9	2.5	3.4	4.4	0	0	16.5	N	20.0	7.7	23
8	8	13	12.4	5.5	N	7.5	N	0	2.9	5	1	7.5	3.4	6.4	6	1.4	2.9	1.4	6.9	0.4	8.4	3.4	7.9	7.5	9.9	13.0	5.5	22
9	9	9.9	6.4	8.4	11.5	7.5	10.9	12.5	12	13.9	15.5	6.4	9.4	10.5	9.9	4	5.9	5	5.5	4	7.5	6.4	9.9	3.4	4	15.5	8.3	24
10	10	9.9	7.9	12.5	10.5	13.9	7.5	9.4	6.9	7.5	1.9	5.5	1	2.9	2.9	5	2.5	0	0.4	5	3.4	7.5	1	4.4	7.9	13.9	5.7	24
11	11	10.5	6.4	8.4	9.9	2.9	3.4	6.4	4.4	10.9	10.5	10.5	13.5	9.9	5	7.9	10.5	2.9	5.5	1	2.9	1.4	4	0	0.4	13.5	6.2	24
12	12	2.5	1.4	1.4	2.9	2.5	0	1.4	2.1	0	5	2.5	0	0.4	0	6.4	2.5	0.4	4	3.4	4	1.4	12.9	10.5	5	12.9	3.0	24
13	13	5.5	9.9	1.4	7.5	0	4	0	1	1.4	6.4	4.4	8.4	1.9	4	2.5	4	3.4	2.5	2.9	3.4	4.4	7.9	6	0	9.9	3.9	24
14	14	6.4	3.4	5	4	2.9	6.4	2.5	3.4	7.5	6	1.9	5	5	4.4	5.5	7.5	5.5	5	1.4	4.4	6.4	2.9	1.9	5	7.5	4.6	24
15	15	2.5	3.4	7.5	1.4	2.9	2.9	2.5	0.4	0	4.4	1.4	2.5	0	2.5	1.9	1.4	3.4	2.9	4	1.9	2.5	6	1.9	5	7.5	2.7	24
16	16	N	1.9	0	1.9	0.4	0	5.5	4	0	1	0.4	5.5	1.4	4	2.5	0	4.4	2.9	2.9	3.4	5.5	6.4	4.4	2.5	6.4	2.6	23
17	17	5	4.4	2.5	7.9	3.4	4	0.4	1.9	2.5	0	1.4	1.4	4	2.9	6.9	2.5	2.5	6	1.9	1	0	1.9	2.5	6.4	7.9	3.1	24
18	18	N	9	9	4	6.4	5	5.5	9.9	C	6.4	1	4.4	4.4	5.5	2.9	1.4	6.4	6.4	0	2.5	1.9	3.4	5.5	0	9.9	4.6	23
19	19	3.4	6.9	9.9	9.4	1.4	6	10.5	12	10.5	8.4	6.9	7.5	7.5	1.9	0.4	3.4	0	5	4.4	4	4	0.4	3.4	5.5	12.0	5.5	24
20	20	5	6.9	9.4	7.9	13.9	11.5	8.4	10.5	7.5	7.9	5.5	1	0	2.9	1.9	6	1.4	1.4	1.9	3.4	6.4	0	2.5	6.4	13.9	5.4	24
21	21	0	0	0	1.9	0	10.9	6.4	7.5	4	2.5	1.9	1.4	1	3.4	5.5	1.4	5	3.4	4	1.9	5.5	2.9	1.4	10.9	3.0	24	
22	22	3.4	9.9	N	0	6	N	2.5	6	2.9	4.4	1.9	1	9	5.5	6.4	6.9	2.9	4	6.9	5	9.4	9	13.5	12.5	13.5	5.9	22
23	23	9	11.5	0.4	15.5	12.9	5.5	6.9	7.5	4.4	5	2.9	0	3.4	1	4.4	7.9	4	6.4	1.9	4	5	9	5	N	15.5	5.8	23
24	24	9.4	3.4	3.4	13.5	1.4	7.5	1.9	4.4	4.4	4	7.5	3.4	8.4	4.4	6.4	1.9	1	0	2.5	7.5	8.4	7.5	6.4	5	13.5	5.2	24
25	25	4.4	5.5	5.5	6.4	2.5	0	5	6.4	7.9	2.5	4	7.5	5.5	3.4	4	6.9	2.5	13.5	7.5	10.5	5	5.5	6.9	9	13.5	5.7	24
26	26	7.9	2.5	3.4	2.5	2.5	8.4	7.5	5.9	1.9	7.9	2.5	4	3.4	5	6.9	5.5	7.5	5.9	7.5	6.4	4.4	4	12.4	0	12.4	5.2	24
27	27	1	0.4	7.5	14.5	13	5.5	9	6.9	12	10.5	6.4	1.4	5.5	10.5	5	6.9	10.5	4.4	5	7.9	9.4	9.9	8.4	6.4	14.5	7.4	24
28	28	6.4	7.5	9.4	7.9	2.9	6.4	6.4	10.9	9.4	6.4	5	4.4	4	5.5	7.9	7.9	8.4	8.4	5	10.5	9	4	8.4	5	10.9	7.0	24
29	29	5	5	6	4	1.4	0.4	0	1.9	2.9	1.9	3.4	4	0.4	1.4	0.4	0	0	1.9	4	0	1	3.4	1	N	6.0	2.1	23
30	30	3.4	N	9	0	8.4	2.5	2.9	2.9	2.9	4.4	3.4	4.4	7.5	0	2.9	3.4	2.9	0	4.4	5	1.9	0	7.5	1	9.0	3.5	23
HOURLY MAX		13	13	20	16	29	17	16	17	14	20	15	17	18	15	18	12	11	14	8	11	9	13	17	13			
HOURLY AVG		5.5	6.1	5.7	6.2	6.7	5.2	5.8	6.5	5.8	5.6	4.5	4.5	4.6	4.2	4.6	4.4	3.1	4.6	3.4	4.7	4.3	4.8	5.7	4.1			

### STATUS FLAG CODES

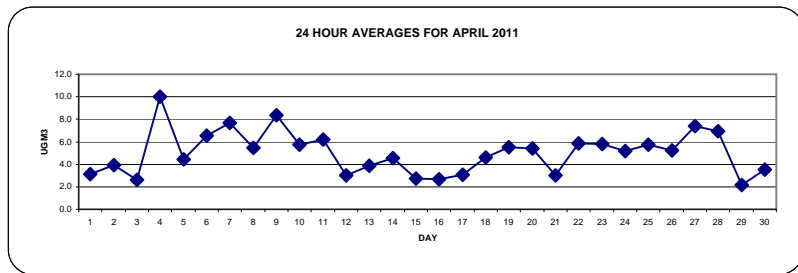
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

### OBJECTIVE LIMIT:

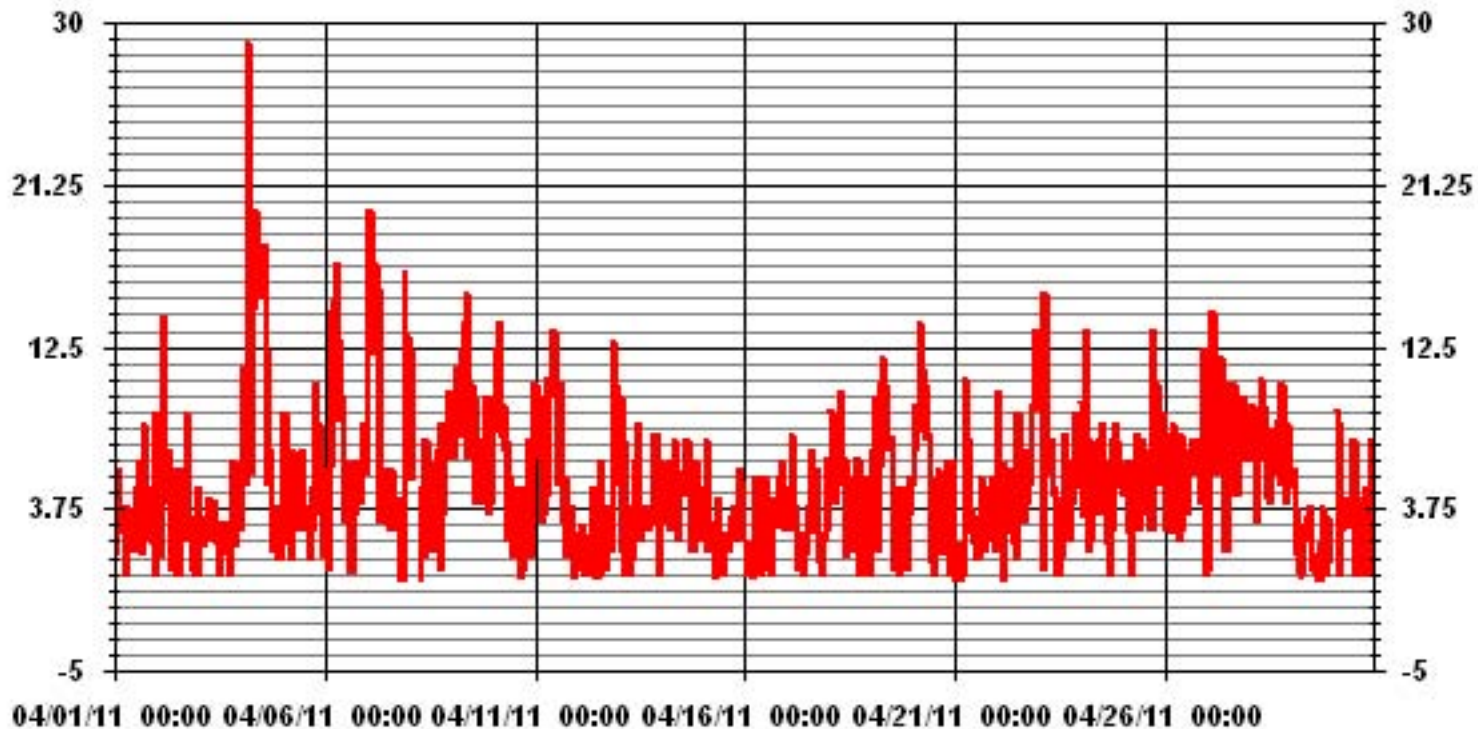
ALBERTA ENVIRONMENT:	1-HR	-	ug/m <sup>3</sup>	24-HR	30	ug/m <sup>3</sup>
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### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-					
NUMBER OF 24-HR EXCEEDENCES:	0	PROPOSED CANADA WIDE GUIDELINE				
NUMBER OF NON-ZERO READINGS:	658					
MAXIMUM 1-HR AVERAGE:	29.0 UG/M <sup>3</sup>	@ HOUR(S)	4	ON DAY(S)	4	
MAXIMUM 24-HR AVERAGE:	10.0 UG/M <sup>3</sup>			ON DAY(S)	4	
IZS CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	708	HRS		
MONTHLY CALIBRATION TIME:	1 HRS	AMD OPERATION UPTIME:	98.3	%		
STANDARD DEVIATION:	3.87	MONTHLY AVERAGE:	5.02	UG/M <sup>3</sup>		



### 01 Hour Averages



— LICA PM2 UG/M3

LICA  
 PM2 / WD Joint Frequency Distribution (Percent)

April 2011

Distribution By % Of Samples

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

Wind Parameter : WD  
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	3.67	5.37	7.49	4.10	5.37	6.36	7.63	2.40	2.40	5.94	22.91	10.46	7.21	3.25	2.97	2.40	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	3.67	5.37	7.49	4.10	5.37	6.36	7.63	2.40	2.40	5.94	22.91	10.46	7.21	3.25	2.97	2.40	

Calm : .00 %

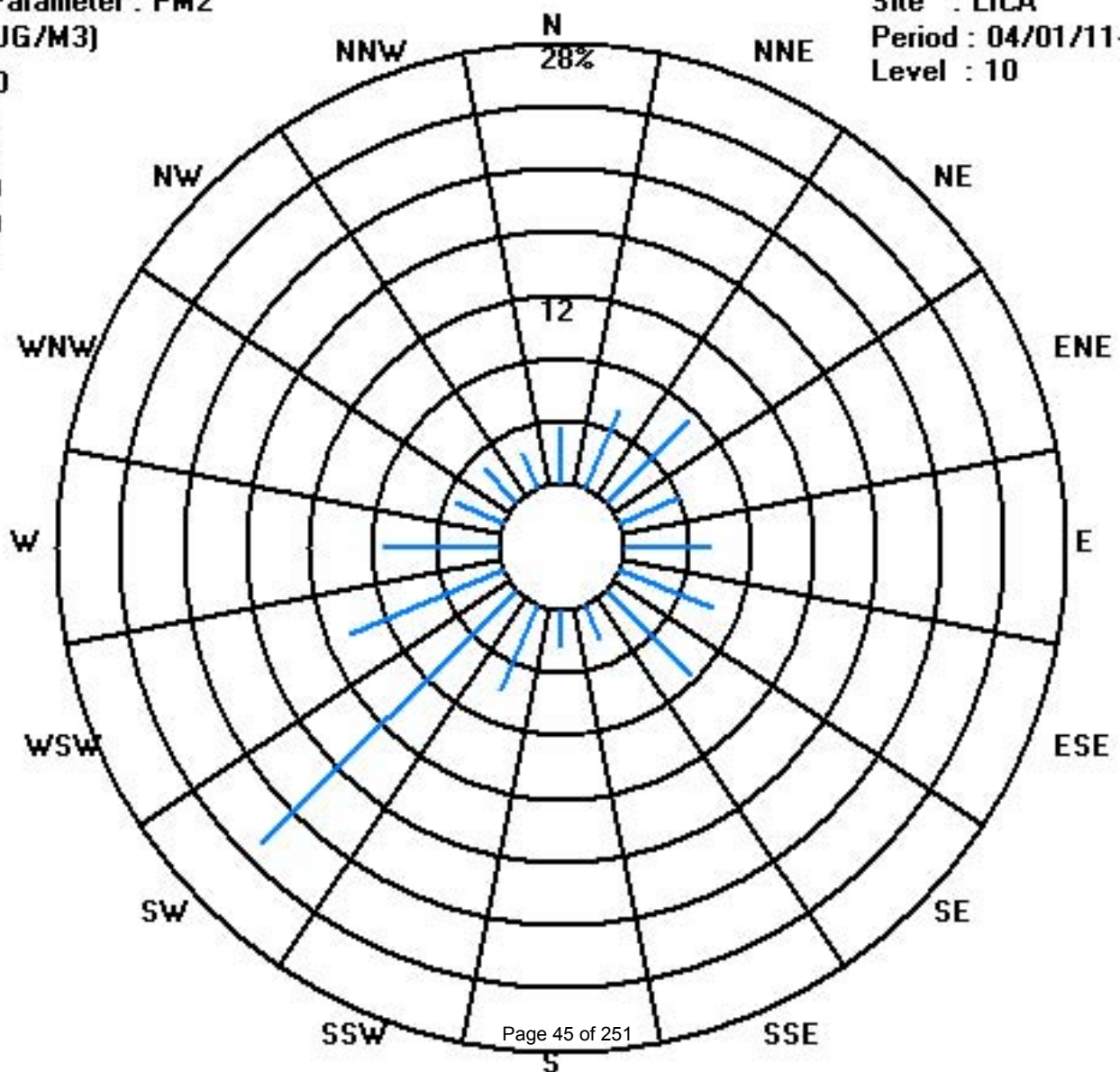
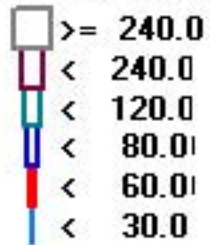
Total # Operational Hours : 707

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	26	38	53	29	38	45	54	17	17	42	162	74	51	23	21	17	707
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	26	38	53	29	38	45	54	17	17	42	162	74	51	23	21	17	

Calm : .00 %

Total # Operational Hours : 707



# Nitrogen Dioxide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2011

## NITROGEN DIOXIDE hourly averages in ppb

MST

DAY	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.
1	5	4	4	4	3	4	5	5	3	2	2	3	2	2	2	2	2	2	IZS	3	3	4	9	6	6	9	3.7	24
2	9	5	12	12	10	21	15	7	4	2	3	2	2	1	1	1	IZS	2	2	2	3	2	2	2	2	21	5.3	24
3	3	4	4	3	2	3	2	1	1	1	2	1	2	1	1	IZS	1	1	1	2	2	2	1	3	4	1.9	24	
4	6	6	4	3	3	9	5	4	5	5	5	5	5	5	5	IZS	4	3	3	4	4	5	5	5	9	4.7	24	
5	7	4	5	6	5	5	8	C	C	C	C	C	C	IZS	2	1	2	2	2	2	3	2	3	4	4	8	3.8	24
6	3	5	5	7	7	15	16	9	8	5	4	2	IZS	3	2	2	2	2	2	2	4	6	9	6	5	16	5.6	24
7	5	4	5	5	9	18	15	11	7	5	3	IZS	2	2	3	2	3	3	2	2	4	4	5	4	18	5.3	24	
8	7	5	4	4	4	8	7	4	3	3	IZS	2	2	2	1	1	1	1	2	2	2	2	2	2	2	8	3.1	24
9	2	2	3	3	6	3	3	3	3	3	IZS	2	2	2	2	2	1	1	2	2	2	3	3	4	5	6	2.7	24
10	6	4	4	5	4	5	5	4	IZS	3	1	1	1	1	1	1	1	1	1	2	2	2	2	5	7	7	3.0	24
11	9	8	9	5	2	4	6	IZS	3	3	4	3	3	2	3	3	3	3	1	2	1	1	1	1	9	3.5	24	
12	1	1	1	1	1	1	IZS	3	2	2	1	1	1	1	1	2	2	2	2	5	8	7	4	2	8	2.3	24	
13	1	1	1	1	2	IZS	2	1	2	1	1	1	1	1	1	1	1	1	1	2	8	3	2	4	8	1.7	24	
14	3	3	2	2	IZS	3	3	3	1	2	1	1	1	1	1	1	2	2	1	1	1	1	1	1	3	1.7	24	
15	1	1	1	IZS	2	2	2	3	2	2	2	1	2	2	2	1	2	2	2	2	2	2	1	1	1	3	1.7	24
16	2	4	IZS	3	4	6	3	1	1	1	1	1	1	1	1	1	1	1	2	2	3	9	3	10	10	2.7	24	
17	7	IZS	8	8	8	12	9	3	1	1	1	1	1	1	1	1	1	1	1	2	2	3	4	5	12	3.6	24	
18	IZS	4	4	4	6	14	9	6	4	4	3	2	1	1	1	1	2	1	1	2	6	3	4	IZS	14	3.8	24	
19	6	8	9	12	6	8	8	6	5	3	3	2	2	2	1	1	2	2	3	5	7	5	IZS	3	12	4.7	24	
20	2	3	3	4	3	4	4	4	4	3	2	1	1	1	1	2	1	2	3	1	4	IZS	4	4	4	2.7	24	
21	5	8	10	8	16	23	23	11	11	4	2	1	2	1	2	1	2	2	3	IZS	7	6	5	23	6.7	24		
22	4	5	4	5	8	5	5	5	4	1	1	1	1	1	1	1	1	1	1	IZS	6	6	6	5	8	3.4	24	
23	4	6	6	7	6	6	7	6	5	3	1	1	1	2	1	2	2	1	IZS	3	6	5	3	3	7	3.8	24	
24	4	7	5	9	10	18	11	4	1	1	1	1	1	1	1	1	1	1	IZS	2	4	6	6	1	2	18	4.3	24
25	1	1	1	2	2	3	2	1	1	1	1	1	1	1	1	1	1	IZS	1	1	3	2	1	1	1	3	1.3	24
26	1	2	2	2	5	12	3	4	2	2	2	1	2	1	3	IZS	3	2	2	2	4	6	4	4	12	3.1	24	
27	4	4	3	3	5	7	7	7	6	6	3	2	2	2	IZS	2	2	2	2	2	6	3	2	2	7	3.7	24	
28	2	2	3	3	3	4	6	4	4	3	2	2	1	IZS	2	2	1	1	1	1	1	2	1	1	6	2.3	24	
29	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	2	4	7	5	8	10	10	2.3	24
30	10	10	8	6	5	3	2	1	1	1	1	1	IZS	1	1	1	1	1	1	1	2	4	4	4	5	10	3.2	24
HOURLY MAX	10	10	12	12	16	23	23	11	11	6	5	5	5	5	3	4	3	3	4	5	8	9	8	10				
HOURLY AVG	4.2	4.2	4.5	4.8	5.1	7.8	6.7	4.4	3.4	2.5	2.0	1.6	1.6	1.5	1.5	1.5	1.7	1.6	1.8	2.6	4.0	4.1	3.4	3.9				

**STATUS FLAG CODES**

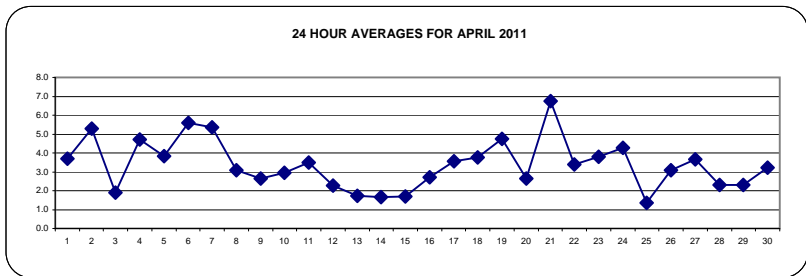
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

**OBJECTIVE LIMIT:**

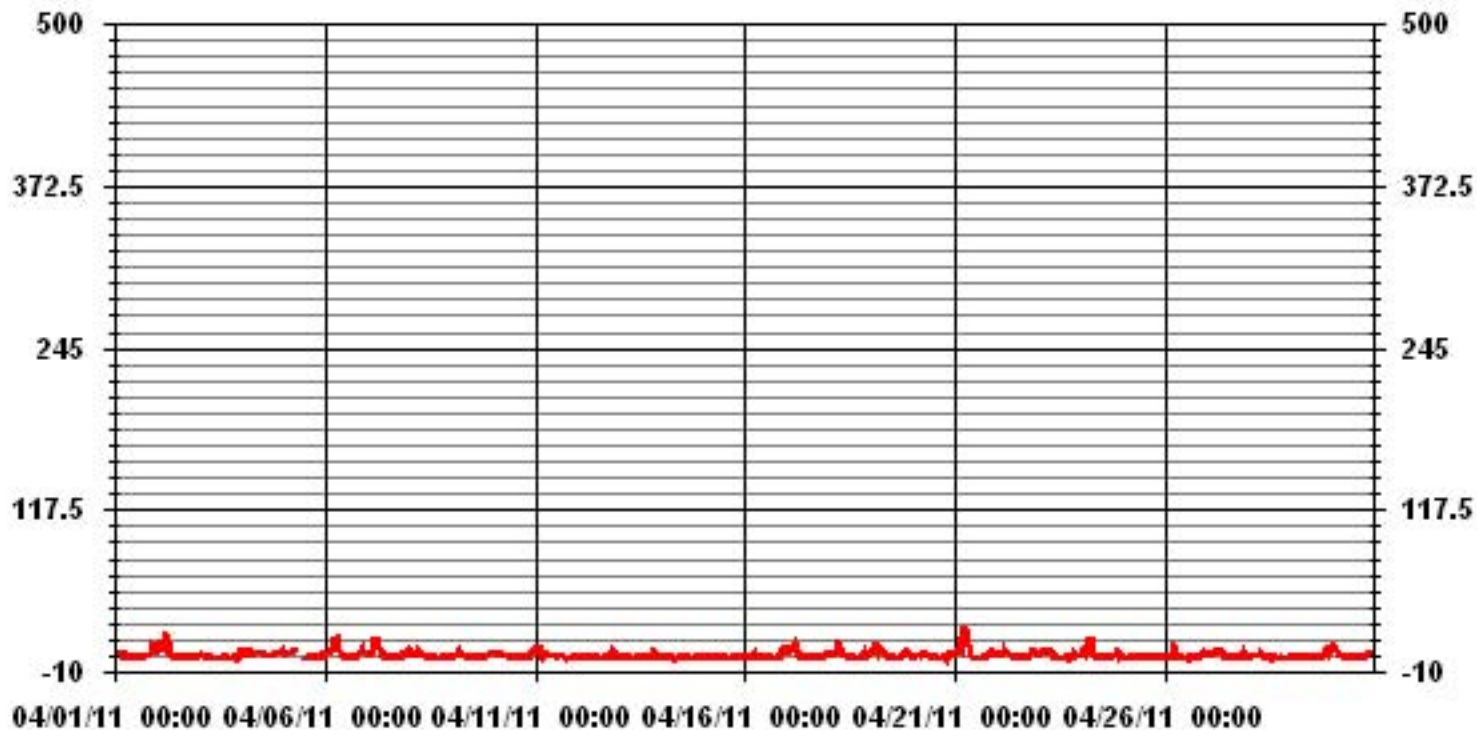
<b>ALBERTA ENVIRONMENT:</b>	1-HR	212	PPB	24-HR	106	PPB
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**MONTHLY SUMMARY**

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	683					
MAXIMUM 1-HR AVERAGE:	23	PPB	@ HOUR(S)	5, 6	ON DAY(S)	21
MAXIMUM 24-HR AVERAGE:	6.7	PPB			ON DAY(S)	21
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	3.00		MONTHLY AVERAGE	3.38	PPB	



### 01 Hour Averages



— LICA H02\_ PPB



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2011

## NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	6	5	6	6	4	6	6	6	5	3	4	9	7	5	6	3	3	IZS	3	4	6	38	8	11	38	7.0	24	
2	16	7	19	18	22	25	21	13	8	3	4	4	10	7	2	1	IZS	3	4	3	5	3	4	4	25	9.0	24	
3	7	10	7	5	2	7	3	2	2	3	3	2	2	2	3	IZS	5	2	2	3	3	3	2	6	10	3.7	24	
4	9	10	9	5	4	83	12	5	9	9	7	8	6	7	IZS	9	5	4	5	7	10	7	6	7	83	10.6	24	
5	13	8	6	7	7	7	12	C	C	C	C	C	C	IZS	3	2	M	M	3	3	4	6	9	15	15	7.0	22	
6	5	13	12	8	10	126	31	13	13	7	5	6	IZS	5	3	6	21	3	4	5	8	17	13	6	126	14.8	24	
7	7	6	8	10	13	44	28	15	11	7	5	IZS	3	3	6	4	5	4	4	7	7	11	8	6	44	9.7	24	
8	21	11	6	6	5	23	20	9	5	5	IZS	7	3	3	2	4	4	2	4	3	2	2	3	3	23	6.7	24	
9	3	5	4	4	21	5	4	4	4	IZS	3	3	3	3	4	2	3	4	2	3	5	5	6	8	21	4.7	24	
10	9	5	6	6	6	7	7	5	IZS	4	2	1	2	2	1	1	1	2	2	2	2	4	10	11	11	4.3	24	
11	12	11	19	16	4	13	13	IZS	5	6	7	6	4	3	4	7	4	4	1	3	2	2	1	19	6.5	24		
12	2	2	2	2	2	2	IZS	4	3	3	2	2	4	5	2	2	2	8	4	10	14	11	13	3	14	4.5	24	
13	2	2	2	2	6	IZS	4	3	3	3	3	3	6	2	3	2	5	3	4	6	64	7	5	7	64	6.4	24	
14	6	5	3	3	IZS	4	4	6	2	13	3	2	2	2	6	3	13	6	2	2	2	2	2	2	13	4.1	24	
15	2	2	2	IZS	3	11	4	5	3	4	12	3	11	8	3	2	3	4	4	3	3	3	2	4	12	4.4	24	
16	3	7	IZS	5	7	11	6	4	3	3	15	2	3	1	2	4	3	2	6	4	5	25	9	14	25	6.3	24	
17	13	IZS	13	12	15	18	14	7	2	2	2	2	1	2	2	2	2	2	3	3	3	6	5	5	18	5.9	24	
18	IZS	6	6	5	13	18	16	10	5	5	5	3	2	1	3	2	6	4	2	4	10	7	9	IZS	18	6.5	24	
19	13	11	18	19	9	39	11	8	9	6	4	3	3	7	2	3	3	7	7	14	24	8	IZS	5	39	10.1	24	
20	3	5	4	6	5	6	5	6	6	5	2	3	3	4	2	3	4	3	6	6	9	IZS	5	6	9	4.7	24	
21	10	17	16	17	20	74	34	14	16	12	3	3	4	3	4	2	3	3	4	6	IZS	12	9	9	74	12.8	24	
22	7	7	7	8	10	7	6	6	5	2	1	1	1	1	2	2	2	3	6	IZS	9	12	15	8	15	5.6	24	
23	8	10	10	12	13	9	11	7	7	6	2	2	3	18	2	8	3	2	IZS	5	14	8	6	5	18	7.4	24	
24	6	8	8	15	18	24	17	8	2	2	1	2	2	3	3	2	2	IZS	16	11	9	10	4	2	24	7.6	24	
25	2	2	3	3	6	5	3	3	1	1	1	2	4	2	1	4	IZS	1	3	7	4	2	2	1	7	2.7	24	
26	2	4	4	5	9	65	5	7	7	4	5	3	3	3	6	IZS	7	3	4	4	9	11	7	7	65	8.0	24	
27	9	7	6	5	7	10	9	8	9	17	4	7	9	2	IZS	9	3	2	3	6	11	6	2	2	17	6.7	24	
28	4	3	6	6	6	7	8	6	7	8	3	3	3	IZS	6	3	5	3	4	2	2	3	1	4	8	4.5	24	
29	1	2	1	1	2	17	3	2	1	3	4	1	IZS	2	2	4	2	2	5	P	30	7	13	14	30	5.4	23	
30	13	13	16	10	14	5	3	2	2	3	5	IZS	1	2	2	2	1	2	3	4	8	10	8	8	16	6.0	24	
HOURLY MAX	21	17	19	19	22	126	34	15	16	17	15	9	11	18	6	9	21	8	16	14	64	38	15	15				
HOURLY AVG	7.4	7.0	7.9	7.8	9.1	23.4	11.0	6.7	5.5	5.3	4.2	3.4	3.9	3.9	3.1	3.5	4.4	3.3	4.1	5.0	9.8	8.6	6.5	6.3				

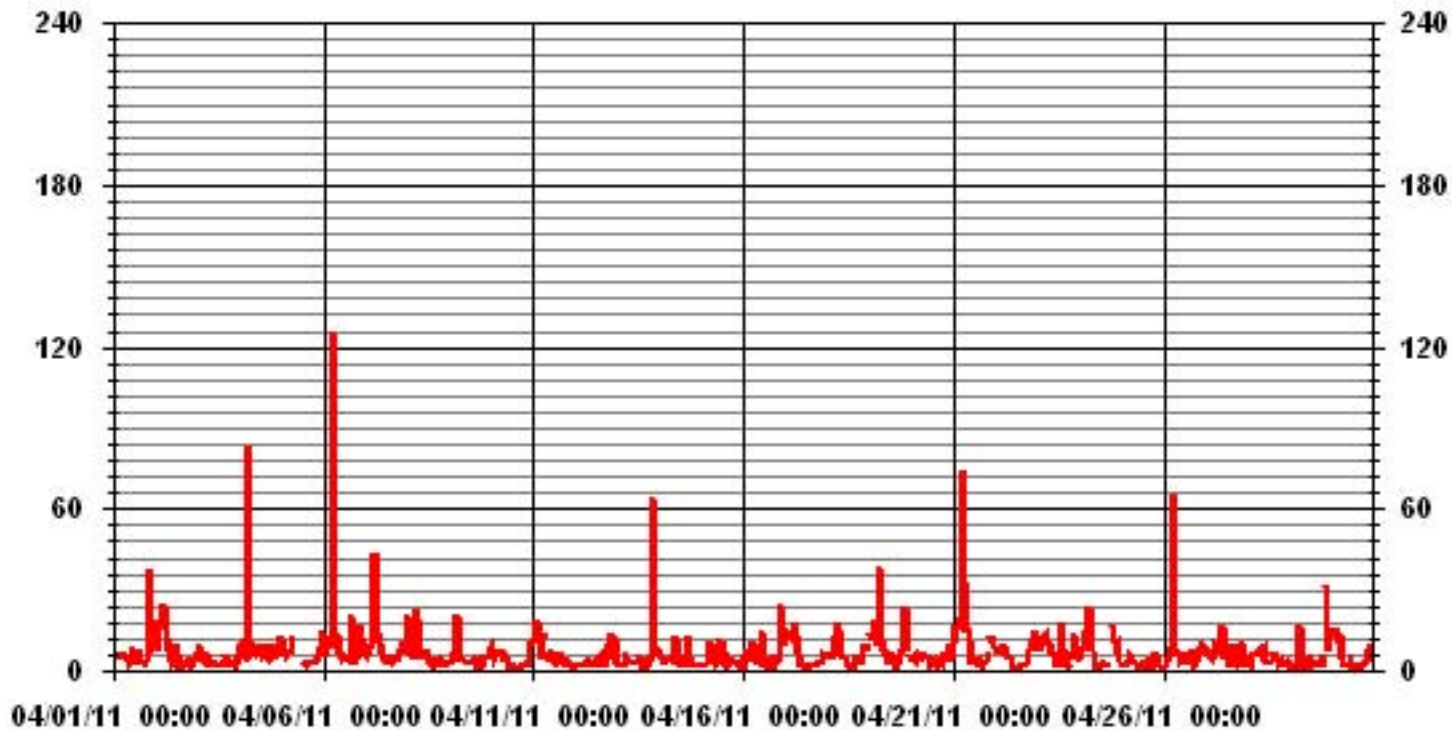
**STATUS FLAG CODES**

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:	680					
MAXIMUM INSTANTANEOUS VALUE:	126	PPB	@ HOUR(S)	5	ON DAY(S)	6
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	717	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	8.64					

### 01 Hour Averages



— LICA NO2MAX PPB

LICA  
 NO2\_ / WD Joint Frequency Distribution (Percent)

April 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	3.51	5.71	7.32	3.95	5.41	6.29	7.75	2.48	2.48	6.00	22.98	10.24	7.32	2.92	3.07	2.48	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.51	5.71	7.32	3.95	5.41	6.29	7.75	2.48	2.48	6.00	22.98	10.24	7.32	2.92	3.07	2.48	

Calm : .00 %

Total # Operational Hours : 683

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	24	39	50	27	37	43	53	17	17	41	157	70	50	20	21	17	683
< 110																	
< 210																	
>= 210																	
Totals	24	39	50	27	37	43	53	17	17	41	157	70	50	20	21	17	

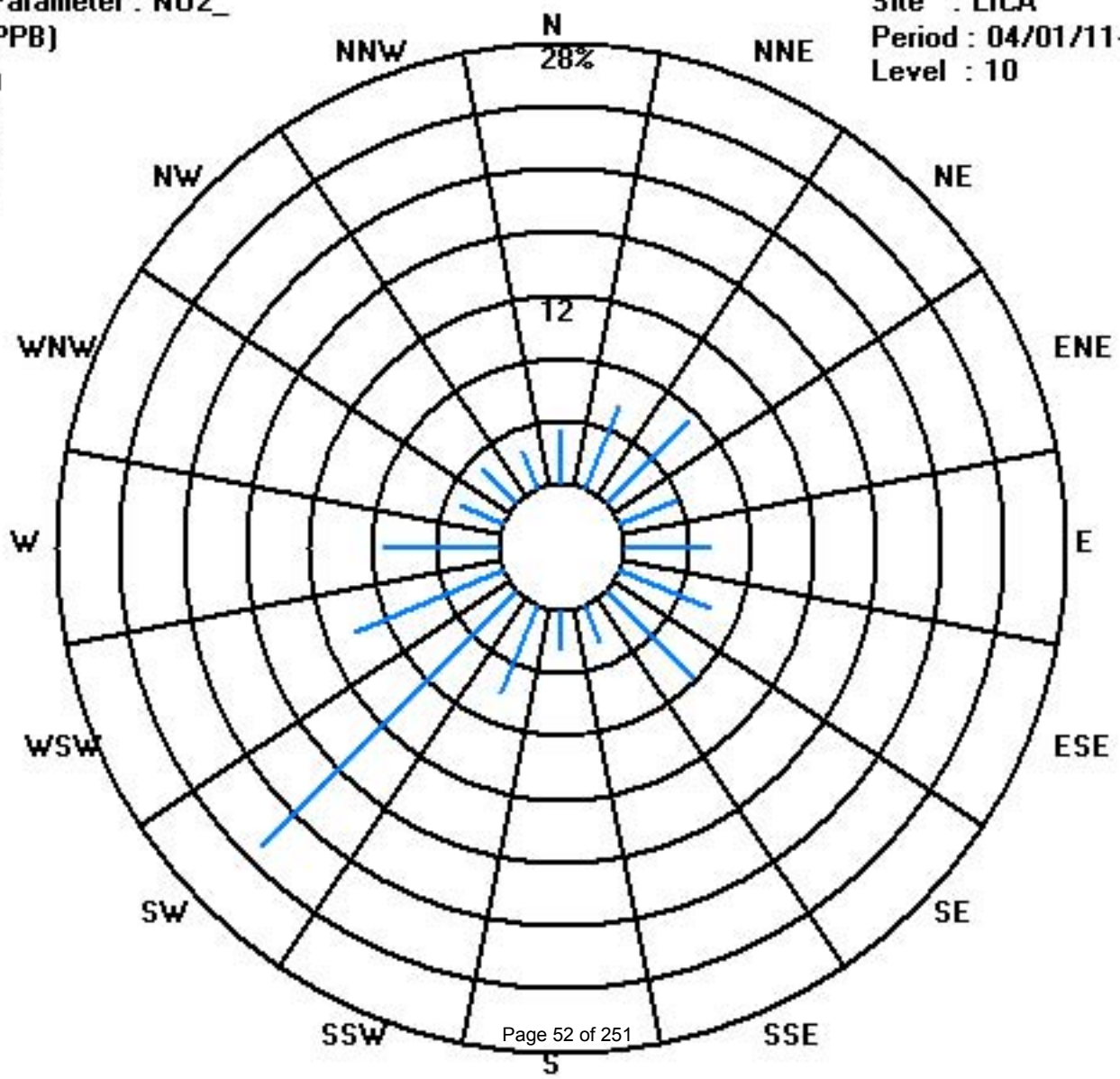
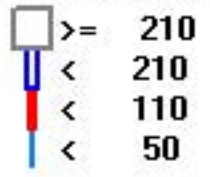
Calm : .00 %

Total # Operational Hours : 683

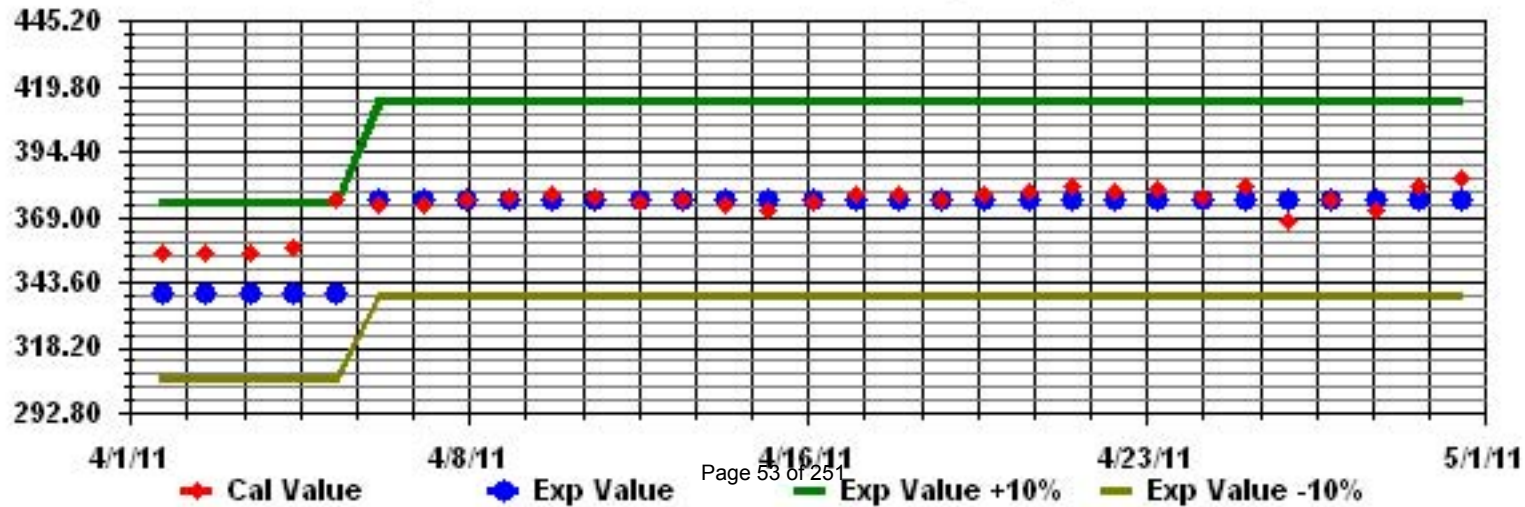
Class Limits (PPB)

Period : 04/01/11-04/30/11

Level : 10



Calibration Graph for Site: LICA Parameter: NO2\_ Sequence: NO2 Phase: SPAN



# Nitric Oxide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2011

## NITRIC OXIDE 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	DAILY MAX.	24-HOUR AVG.	RDGS.	
1	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	0	0	IZS	0	0	0	0	0	0	1	0.3	24	
2	0	0	0	0	0	3	4	2	1	1	1	1	0	0	0	0	IZS	0	0	0	0	0	0	0	4	0.6	24	
3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	IZS	0	0	0	0	0	0	0	0	1	0.0	24	
4	0	0	0	0	0	3	0	0	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	3	0.4	24	
5	0	0	0	0	0	0	1	C	C	C	C	C	IZS	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
6	0	0	0	0	0	7	3	2	2	2	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	7	0.7	24	
7	0	0	0	0	0	4	2	3	2	2	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	4	0.6	24	
8	2	0	0	0	0	0	1	1	1	1	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
9	0	0	0	0	0	0	0	0	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
10	0	0	0	0	0	0	0	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
11	0	0	0	0	0	0	0	IZS	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
12	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	
13	0	0	0	0	0	IZS	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.1	24	
14	0	0	0	0	IZS	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0.1	24	
15	0	0	0	IZS	0	3	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	3	0.4	24	
16	0	0	IZS	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0.2	24	
17	0	IZS	0	0	0	2	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.3	24	
18	IZS	0	0	0	1	5	4	3	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	5	0.8	24
19	0	0	2	1	0	3	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.5	24
20	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	
21	0	1	1	1	5	33	30	4	6	2	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	33	3.6	24	
22	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	0.1	24	
23	0	0	0	0	0	0	1	2	2	1	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	2	0.3	24	
24	0	0	0	0	0	7	6	1	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	7	0.6	24	
25	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	
26	0	0	0	0	0	8	0	1	1	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	8	0.4	24	
27	0	0	0	0	1	1	3	5	4	3	1	0	0	0	IZS	0	0	0	0	0	0	0	0	0	5	0.8	24	
28	0	0	0	0	0	0	0	0	0	1	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	1	0.0	24	
29	0	0	0	0	0	1	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	0	0	1	0.1	24	
30	1	1	1	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
HOURLY MAX	2	1	2	1	5	33	30	5	6	3	1	1	1	1	1	0	0	0	0	0	0	1	1	0	1			
HOURLY AVG	0.1	0.1	0.1	0.1	0.2	2.8	2.1	1.2	1.1	0.8	0.4	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0			

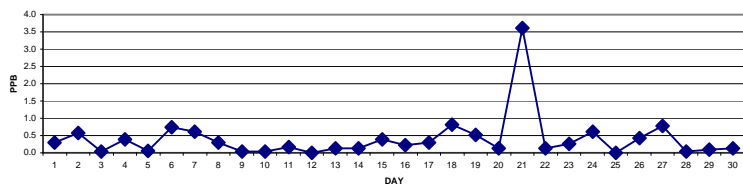
### STATUS FLAG CODES

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

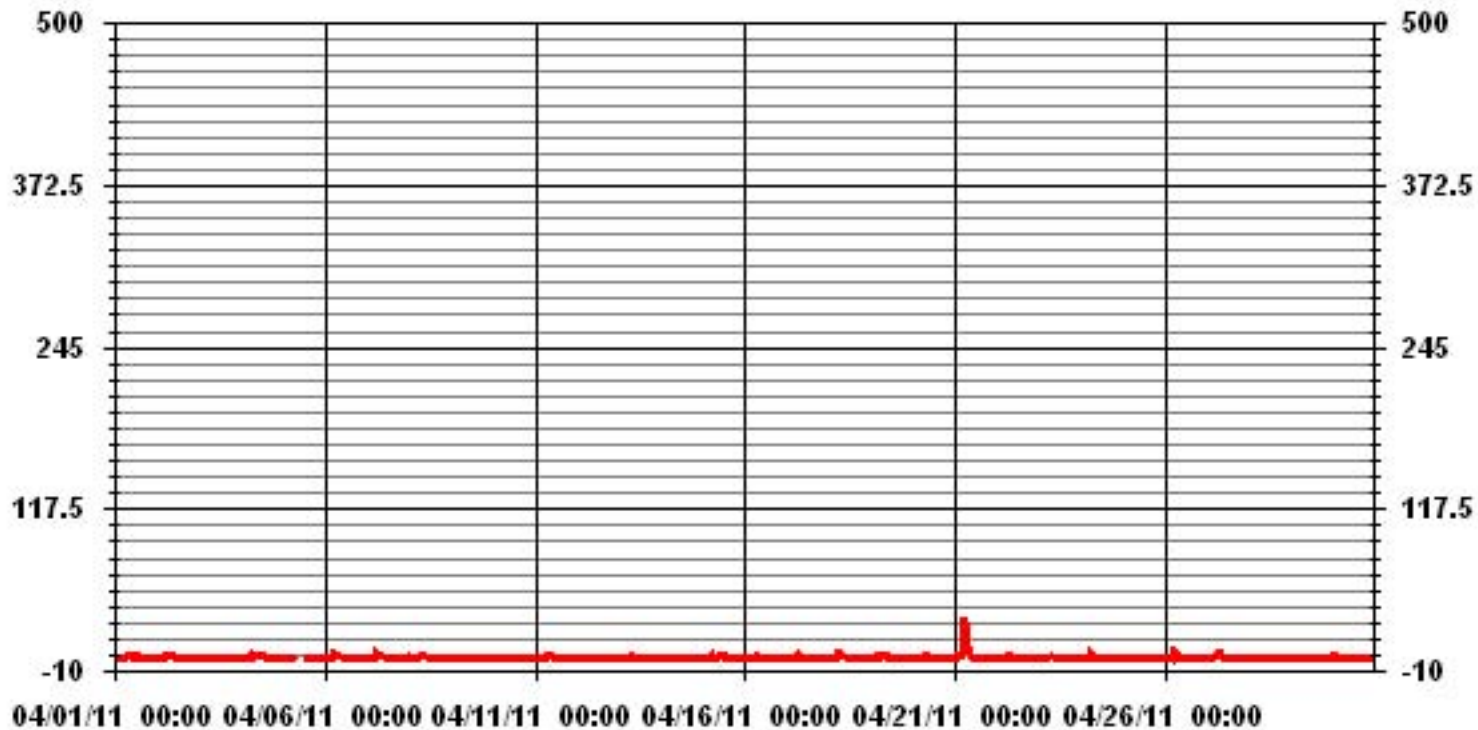
### MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	121
MAXIMUM 1-HR AVERAGE:	33 PPB @ HOUR(S) 5 ON DAY(S) 21
MAXIMUM 24-HR AVERAGE:	3.6 PPB ON DAY(S) 21
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	6 HRS
OPERATIONAL TIME:	720 HRS
AMT OPERATION UPTIME:	100.0 %
STANDARD DEVIATION	1.92
MONTHLY AVERAGE	0.40 PPB

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages





# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 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	0	0	1	0	1	2	2	1	2	3	2	3	3	0	0	IZS	0	0	3	5	0	0	5	1.3	24
2	2	0	2	1	3	7	8	4	3	1	1	1	6	0	0	0	IZS	0	0	0	0	0	0	1	8	1.7	24
3	1	1	0	0	0	1	0	0	2	0	1	0	1	1	4	IZS	1	0	0	0	0	0	0	0	4	0.6	24
4	1	0	1	0	0	69	1	1	2	2	3	8	1	1	IZS	2	0	0	1	0	0	0	1	0	69	4.1	24
5	0	0	0	0	0	1	1	C	C	C	C	C	C	IZS	1	1	M	M	0	0	1	0	0	1	1	0.4	22
6	1	3	2	1	2	165	12	4	4	2	1	2	IZS	0	0	1	7	0	1	0	1	2	1	1	165	9.3	24
7	2	0	0	1	1	22	8	4	3	3	1	IZS	0	0	1	0	1	1	1	0	0	1	0	0	22	2.2	24
8	22	1	0	1	0	4	10	4	2	2	IZS	5	0	1	0	3	1	0	4	0	0	0	0	0	22	2.6	24
9	0	0	0	0	1	1	0	0	1	IZS	0	1	0	0	2	0	0	0	0	0	0	1	1	1	2	0.4	24
10	0	0	0	1	1	3	1	1	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.3	24
11	0	0	2	2	1	1	1	IZS	9	1	3	4	1	0	0	1	2	0	0	0	0	0	0	0	9	1.2	24
12	0	0	0	0	1	0	IZS	4	1	1	0	0	2	4	2	0	1	3	1	1	2	7	7	0	7	1.6	24
13	0	1	0	0	1	IZS	1	3	3	1	2	0	3	1	5	2	5	1	1	1	32	1	1	1	32	2.9	24
14	1	1	1	1	IZS	0	2	4	1	5	1	2	1	1	21	15	1	4	0	0	0	0	0	0	21	2.7	24
15	0	1	0	IZS	0	17	1	4	1	1	9	8	11	9	2	1	3	2	2	2	1	2	1	3	17	3.5	24
16	1	2	IZS	1	1	3	2	3	2	1	4	1	4	1	0	13	5	1	2	0	0	13	7	3	13	3.0	24
17	0	IZS	1	1	1	4	6	3	0	1	0	1	0	0	1	0	1	0	0	1	1	2	0	1	6	1.1	24
18	IZS	1	0	0	3	10	12	7	2	2	2	1	1	0	2	0	2	0	1	0	3	0	6	IZS	12	2.5	24
19	2	0	62	5	0	53	5	2	3	13	1	1	1	2	3	0	1	1	8	10	11	0	IZS	0	62	8.0	24
20	0	0	0	1	2	2	1	2	2	3	8	8	0	2	1	2	0	0	1	0	0	IZS	0	0	8	1.5	24
21	1	7	3	4	12	198	83	7	8	17	1	1	1	1	1	0	0	0	0	0	IZS	0	0	7	198	15.3	24
22	2	0	1	2	2	1	1	3	2	0	0	0	0	0	0	1	0	0	2	IZS	1	2	6	1	6	1.2	24
23	1	1	2	0	1	1	3	2	4	8	1	3	0	5	1	1	2	0	IZS	0	0	0	0	0	8	1.6	24
24	0	2	1	5	3	12	13	3	0	0	1	1	1	0	4	1	1	IZS	6	1	1	0	1	0	13	2.5	24
25	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	0	IZS	0	0	5	0	0	0	0	5	0.5	24
26	0	0	0	1	1	62	1	4	21	3	2	1	0	1	3	IZS	1	1	0	0	0	0	2	0	62	4.5	24
27	1	3	1	5	3	4	4	5	6	10	1	2	1	0	IZS	3	0	0	0	0	0	1	0	0	10	2.2	24
28	0	0	1	0	1	1	1	3	1	5	0	1	4	IZS	5	2	1	1	1	1	0	0	0	7	7	1.6	24
29	0	0	0	0	0	5	3	1	0	4	5	0	IZS	6	0	2	0	1	1	P	19	0	3	1	19	2.3	23
30	8	1	6	0	5	0	1	0	1	1	1	IZS	0	0	0	0	0	1	0	0	0	1	0	1	8	1.2	24
HOURLY MAX	22	7	62	5	12	198	83	7	21	17	9	8	11	9	21	15	7	4	8	10	32	13	7	7			
HOURLY AVG	1.6	0.9	3.0	1.1	1.7	22.3	6.3	2.9	3.1	3.2	1.8	2.1	1.5	1.4	2.2	1.8	1.3	0.6	1.1	0.8	2.6	1.3	1.3	1.0			

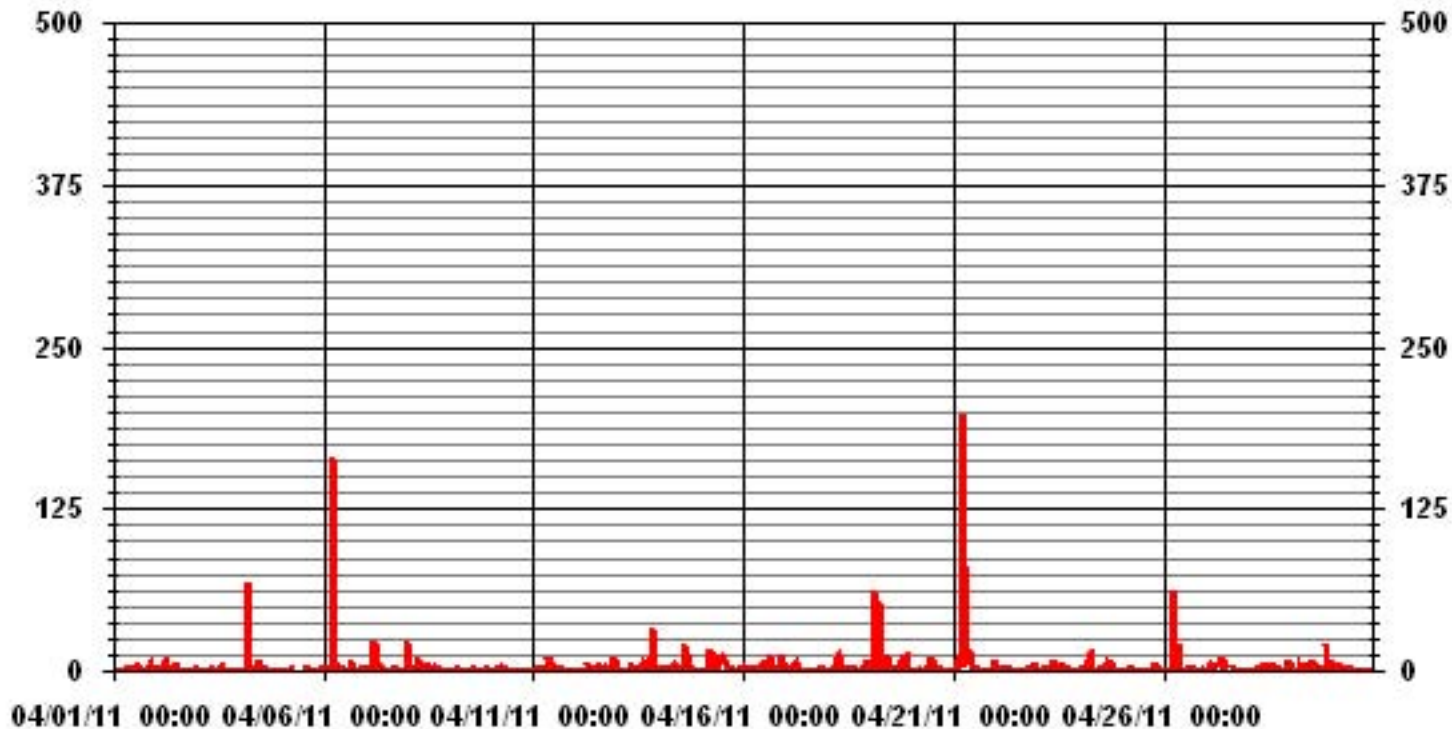
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	414					
MAXIMUM INSTANTANEOUS VALUE:	198	PPB	@ HOUR(S)	5	ON DAY(S)	21
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	717	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	11.66					

### 01 Hour Averages



— LICA NOMAX PPB

LICA  
NO\_ / WD Joint Frequency Distribution (Percent)

April 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	3.51	5.71	7.32	3.95	5.41	6.29	7.75	2.48	2.48	6.00	22.98	10.24	7.32	2.92	3.07	2.48	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.51	5.71	7.32	3.95	5.41	6.29	7.75	2.48	2.48	6.00	22.98	10.24	7.32	2.92	3.07	2.48	

Calm : .00 %

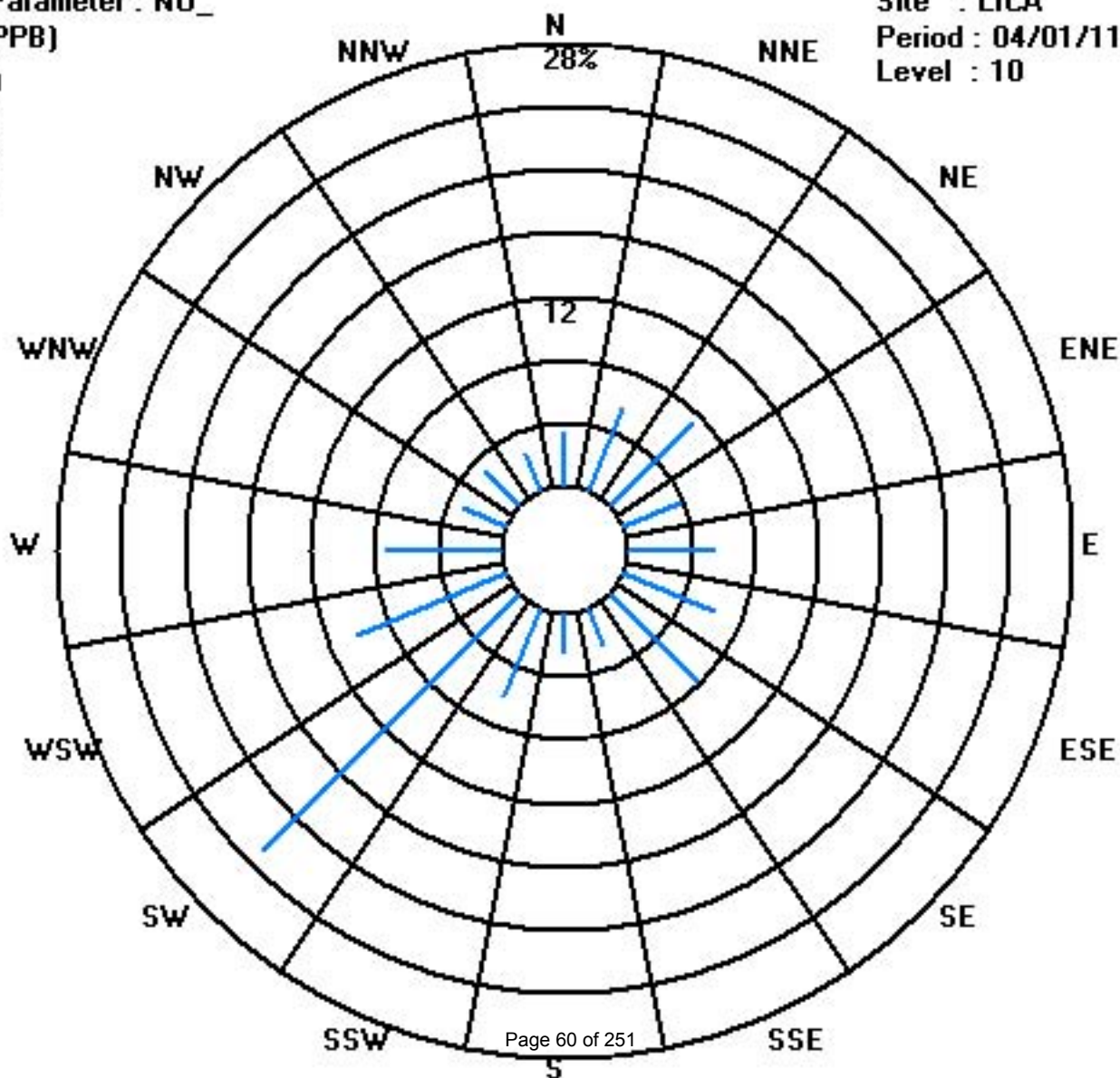
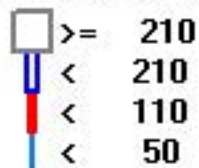
Total # Operational Hours : 683

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	24	39	50	27	37	43	53	17	17	41	157	70	50	20	21	17	683
< 110																	
< 210																	
>= 210																	
Totals	24	39	50	27	37	43	53	17	17	41	157	70	50	20	21	17	

Calm : .00 %

Total # Operational Hours : 683



# Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2011

OXIDES OF NITROGEN 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	5	4	4	4	3	4	5	5	4	3	3	3	2	2	3	2	2	IZS	3	3	4	9	6	6	9	3.9	24	
2	9	5	12	12	10	24	20	10	5	3	4	3	2	1	1	1	IZS	2	2	2	3	2	2	2	24	6.0	24	
3	3	4	4	3	2	3	2	1	1	1	2	2	2	1	1	IZS	1	1	1	2	2	2	1	3	4	2.0	24	
4	6	6	4	3	3	12	5	4	5	7	6	6	6	5	IZS	4	3	4	4	3	5	5	5	5	12	5.0	24	
5	7	4	4	6	5	5	9	C	C	C	C	C	C	IZS	2	2	2	2	2	2	2	3	4	4	9	3.8	24	
6	3	5	5	7	7	22	20	11	10	7	5	3	IZS	3	2	2	2	2	3	4	6	9	6	5	22	6.5	24	
7	6	4	5	5	9	22	17	14	9	7	4	IZS	2	2	3	2	3	3	2	2	3	4	5	4	22	6.0	24	
8	9	5	4	4	3	8	8	5	4	4	IZS	3	2	3	1	2	1	1	2	2	2	2	2	2	9	3.4	24	
9	2	2	3	3	6	3	3	3	4	IZS	3	2	2	2	2	1	1	1	1	2	3	3	4	5	6	2.7	24	
10	6	4	4	5	5	5	6	5	IZS	3	1	1	1	1	1	1	1	1	2	2	2	2	5	7	7	3.1	24	
11	9	8	9	5	2	4	6	IZS	4	4	4	4	3	2	3	3	3	3	1	1	1	1	1	1	9	3.6	24	
12	1	1	1	1	1	1	IZS	3	3	2	1	1	2	2	1	2	2	2	2	5	9	7	5	2	9	2.5	24	
13	1	1	1	1	3	IZS	3	2	2	2	2	1	1	1	1	1	1	1	1	2	9	3	2	4	9	2.0	24	
14	3	3	2	2	IZS	3	3	4	1	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	4	1.8	24	
15	1	1	1	IZS	2	5	2	3	2	3	3	2	3	2	2	2	2	2	2	2	2	1	1	2	5	2.1	24	
16	2	4	IZS	3	4	7	3	2	2	2	2	1	1	1	1	1	2	2	2	2	3	10	3	10	10	3.0	24	
17	7	IZS	8	8	8	13	13	4	1	1	1	1	1	1	1	1	1	1	1	2	2	3	4	4	13	3.8	24	
18	IZS	4	4	3	6	19	13	9	6	6	4	2	1	1	1	1	2	1	1	2	6	3	5	IZS	19	4.5	24	
19	6	8	11	13	6	10	10	7	6	4	3	2	2	2	2	1	2	2	3	5	8	5	IZS	3	13	5.3	24	
20	2	3	3	3	3	4	5	5	6	3	2	2	1	1	1	2	1	2	3	1	4	IZS	4	4	6	2.8	24	
21	5	9	11	9	21	56	52	15	17	6	2	2	2	1	2	1	2	2	2	3	IZS	7	6	5	56	10.3	24	
22	4	5	4	5	8	6	6	6	5	1	1	1	1	1	1	1	1	1	1	IZS	6	6	7	5	8	3.6	24	
23	4	6	6	7	6	6	8	7	6	4	2	2	1	2	1	2	2	2	1	IZS	2	5	4	3	3	8	3.9	24
24	4	7	5	9	10	25	17	5	2	1	1	1	1	1	1	1	1	IZS	2	4	6	6	1	2	25	4.9	24	
25	1	1	1	2	2	3	2	1	1	1	1	1	1	1	1	1	IZS	1	1	3	2	1	1	1	3	1.3	24	
26	1	2	2	2	5	21	3	4	3	2	2	2	2	1	3	IZS	3	2	2	2	4	6	4	4	21	3.6	24	
27	4	4	3	4	6	8	10	11	10	9	3	2	2	2	IZS	3	2	2	1	2	6	3	2	1	11	4.3	24	
28	2	2	3	3	3	4	6	4	4	4	3	2	1	IZS	2	2	2	2	1	1	1	2	1	1	6	2.4	24	
29	1	1	1	1	1	2	1	1	1	1	1	0	IZS	1	1	1	1	1	2	4	8	5	9	10	10	2.4	24	
30	10	10	9	6	5	3	2	1	1	2	1	IZS	1	1	1	1	1	1	1	2	4	4	4	5	10	3.3	24	
HOURLY MAX	10	10	12	13	21	56	52	15	17	9	6	6	6	5	3	4	3	4	4	5	9	10	9	10				
HOURLY AVG	4.3	4.2	4.6	4.8	5.3	10.6	9.0	5.4	4.5	3.4	2.4	2.0	1.7	1.6	1.6	1.6	1.8	1.7	1.8	2.4	4.1	4.1	3.6	3.8				

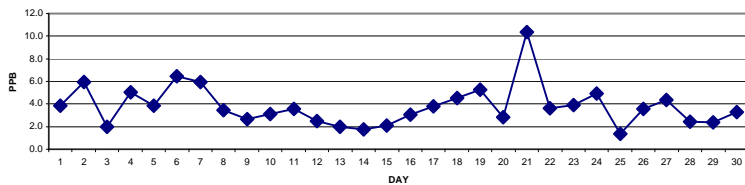
STATUS FLAG CODES

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

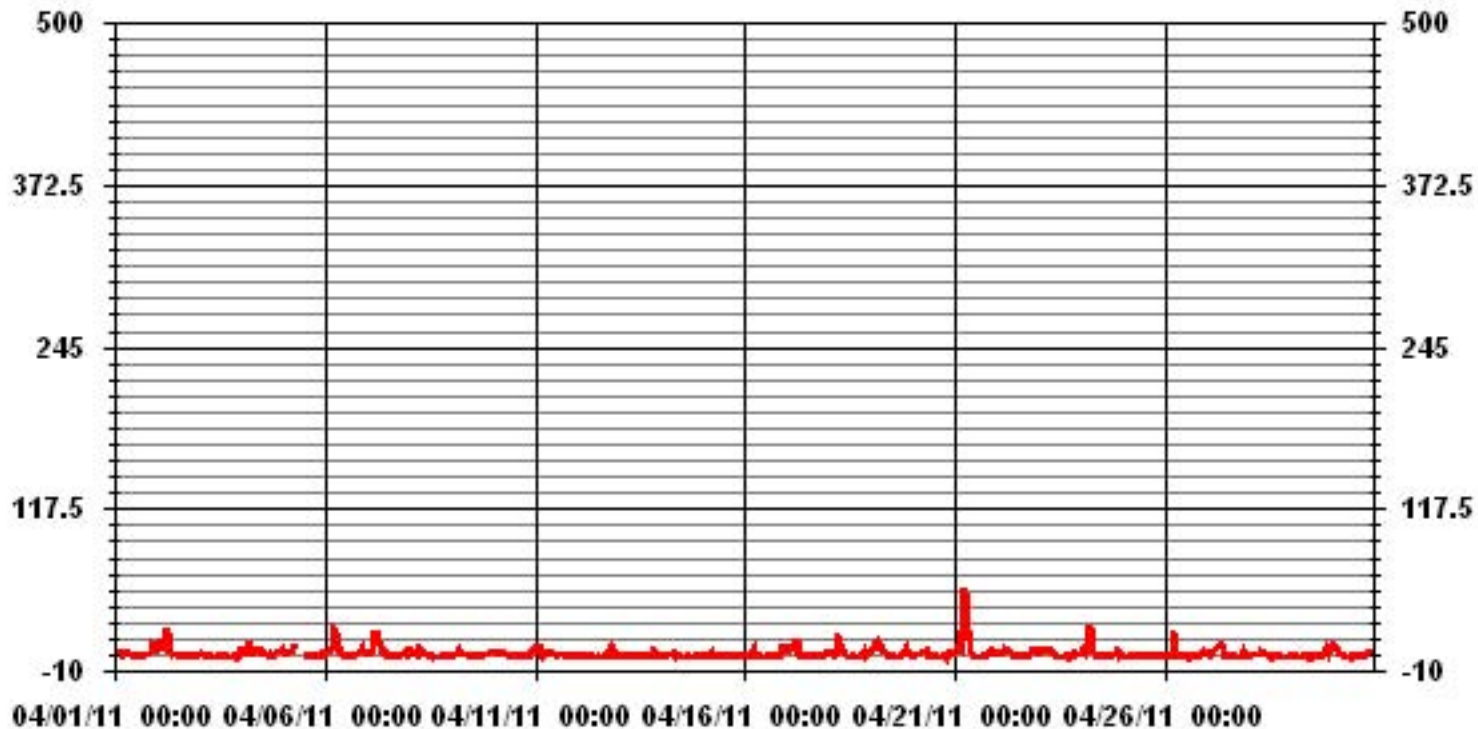
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	682					
MAXIMUM 1-HR AVERAGE:	56	PPB	@ HOUR(S)	5	ON DAY(S)	21
MAXIMUM 24-HR AVERAGE:	10.3	PPB			ON DAY(S)	21
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	4.37		MONTHLY AVERAGE	3.79	PPB	

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA NOX\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 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	6	6	7	7	5	6	7	7	7	4	5	13	8	7	8	3	3	IZS	4	4	6	43	8	11	43	8.0	24	
2	18	7	21	19	23	32	28	17	11	4	6	6	15	8	2	1	IZS	3	5	4	5	3	4	6	32	10.8	24	
3	8	11	7	5	2	8	3	2	4	4	3	3	4	3	7	IZS	6	2	2	3	3	3	2	6	11	4.4	24	
4	9	11	10	6	5	150	12	5	11	11	9	15	8	9	IZS	9	6	4	6	7	10	7	6	8	150	14.5	22	
5	13	9	6	7	7	7	13	C	C	C	C	C	C	IZS	3	2	M	M	3	3	4	6	9	16	16	7.2	24	
6	6	15	14	8	10	290	44	16	17	10	7	8	IZS	6	4	8	27	3	4	5	8	19	13	7	290	23.9	24	
7	8	6	8	10	13	66	37	17	15	10	7	IZS	3	3	7	4	5	5	4	6	7	12	8	7	66	11.7	24	
8	43	11	6	6	6	27	29	13	7	6	IZS	12	3	4	2	6	5	2	7	2	2	2	3	3	43	9.0	24	
9	3	6	4	3	21	5	4	5	5	IZS	4	4	3	4	5	2	3	4	2	3	6	6	7	8	21	5.1	24	
10	9	5	7	7	6	10	8	6	IZS	5	3	1	2	3	2	1	2	2	2	2	2	4	10	11	11	4.8	24	
11	13	11	20	18	5	13	13	IZS	7	7	10	10	5	4	4	8	6	4	1	3	2	2	2	1	20	7.3	24	
12	2	2	2	2	3	2	IZS	5	4	4	2	2	6	8	3	3	3	11	5	11	15	17	19	3	19	5.8	24	
13	2	2	3	3	6	IZS	5	4	5	4	3	3	8	3	4	2	6	5	5	7	96	7	6	8	96	8.6	24	
14	6	6	4	4	IZS	4	5	9	3	17	3	4	2	2	16	8	13	8	3	2	2	2	2	2	17	5.5	24	
15	3	3	2	IZS	3	16	6	9	4	5	20	5	16	9	5	3	5	6	5	3	4	5	3	6	20	6.3	24	
16	3	8	IZS	5	7	14	7	7	5	5	20	4	8	1	2	11	7	3	8	5	5	37	9	18	37	8.7	24	
17	13	IZS	14	12	15	22	21	10	3	2	2	3	2	2	2	3	2	2	3	4	4	7	5	6	22	6.9	24	
18	IZS	7	6	5	15	28	28	16	7	7	6	3	2	2	4	2	8	4	3	4	10	7	15	IZS	28	8.6	24	
19	15	11	56	24	9	92	16	11	12	10	5	4	3	9	2	3	4	7	12	24	34	8	IZS	6	92	16.4	24	
20	4	5	4	7	5	7	6	8	8	6	3	7	3	6	3	4	5	3	7	6	9	IZS	5	6	9	5.5	24	
21	10	22	18	20	29	262	99	21	24	20	4	4	5	4	4	2	4	4	4	6	IZS	12	9	16	262	26.2	24	
22	7	7	8	8	11	8	7	8	7	3	1	1	1	2	2	3	2	4	8	IZS	9	12	21	8	21	6.4	24	
23	9	11	10	12	13	10	14	9	11	10	3	3	3	24	2	9	3	2	IZS	5	14	8	6	5	24	8.5	24	
24	6	8	8	19	20	36	29	11	3	2	2	2	3	3	5	3	4	IZS	22	11	11	11	5	3	36	9.9	24	
25	3	2	3	3	6	6	4	4	2	1	2	3	4	2	2	4	IZS	1	3	9	4	2	2	1	9	3.2	24	
26	3	4	4	5	10	122	6	10	17	6	7	3	3	4	9	IZS	8	3	4	4	9	12	7	8	122	11.7	24	
27	10	11	7	10	10	13	12	13	15	27	5	9	10	3	IZS	12	3	2	3	6	12	7	2	2	27	8.9	24	
28	4	3	7	7	6	8	10	9	8	13	3	3	7	IZS	8	6	6	4	5	2	3	3	1	8	13	5.8	23	
29	2	2	1	1	2	23	5	4	2	6	7	1	IZS	3	3	5	2	3	5	P	49	7	15	15	49	7.4	24	
30	19	14	22	10	19	5	4	2	3	3	6	IZS	1	2	2	2	2	2	3	4	8	10	8	8	22	6.9	1	
HOURLY MAX	43	22	56	24	29	290	99	21	24	27	20	15	16	24	16	12	27	11	22	24	96	43	21	18				
HOURLY AVG	8.9	7.8	10.0	8.7	10.1	44.6	16.6	9.2	8.1	7.6	5.6	5.0	5.1	5.0	4.4	4.6	5.6	3.8	5.1	5.5	12.2	9.7	7.3	7.3				

**STATUS FLAG CODES**

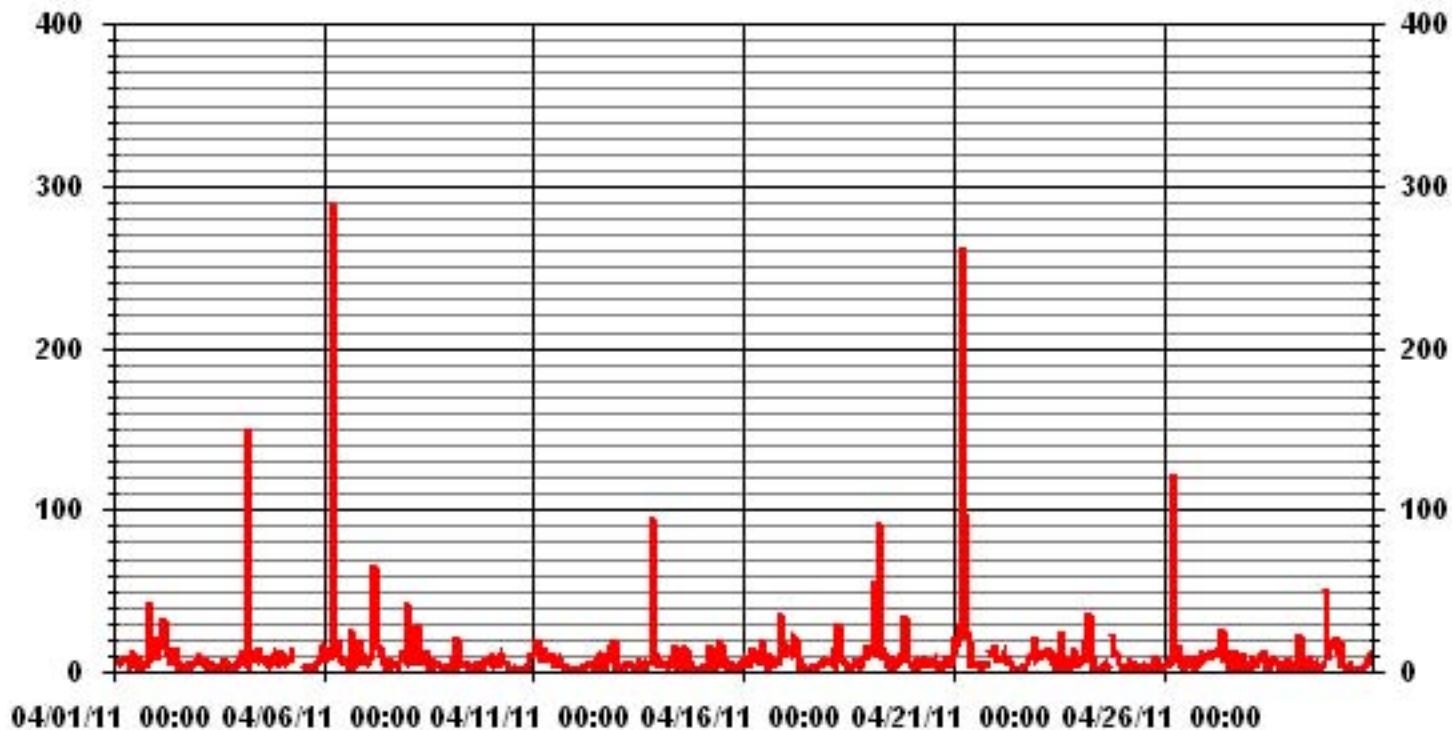
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	680				
MAXIMUM INSTANTANEOUS VALUE:	290	PPB	@ HOUR(S)	5	ON DAY(S) 6
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	694	HRS
MONTHLY CALIBRATION TIME:	6	HRS			
STANDARD DEVIATION:	18.54				



### 01 Hour Averages



— LICA NOXMAX PPB

LICA  
 NOX\_ / WD Joint Frequency Distribution (Percent)

April 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	3.51	5.71	7.32	3.95	5.27	6.29	7.75	2.48	2.48	5.85	22.98	10.24	7.32	2.92	3.07	2.48	99.70
< 110	.00	.00	.00	.00	.14	.00	.00	.00	.00	.14	.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	3.51	5.71	7.32	3.95	5.41	6.29	7.75	2.48	2.48	6.00	22.98	10.24	7.32	2.92	3.07	2.48	

Calm : .00 %

Total # Operational Hours : 683

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	24	39	50	27	36	43	53	17	17	40	157	70	50	20	21	17	681
< 110					1					1							2
< 210																	
>= 210																	
Totals	24	39	50	27	37	43	53	17	17	41	157	70	50	20	21	17	

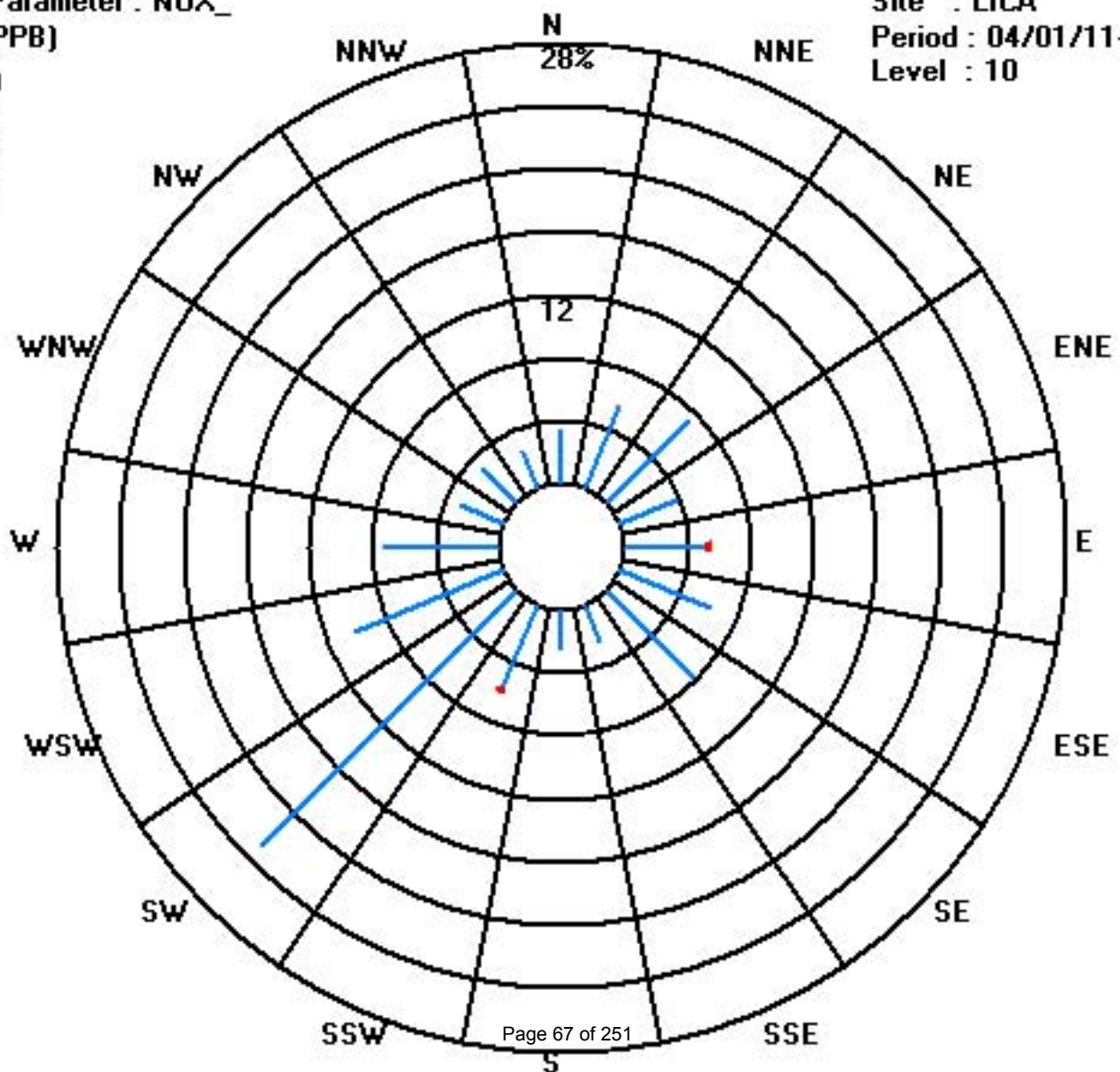
Calm : .00 %

Total # Operational Hours : 683

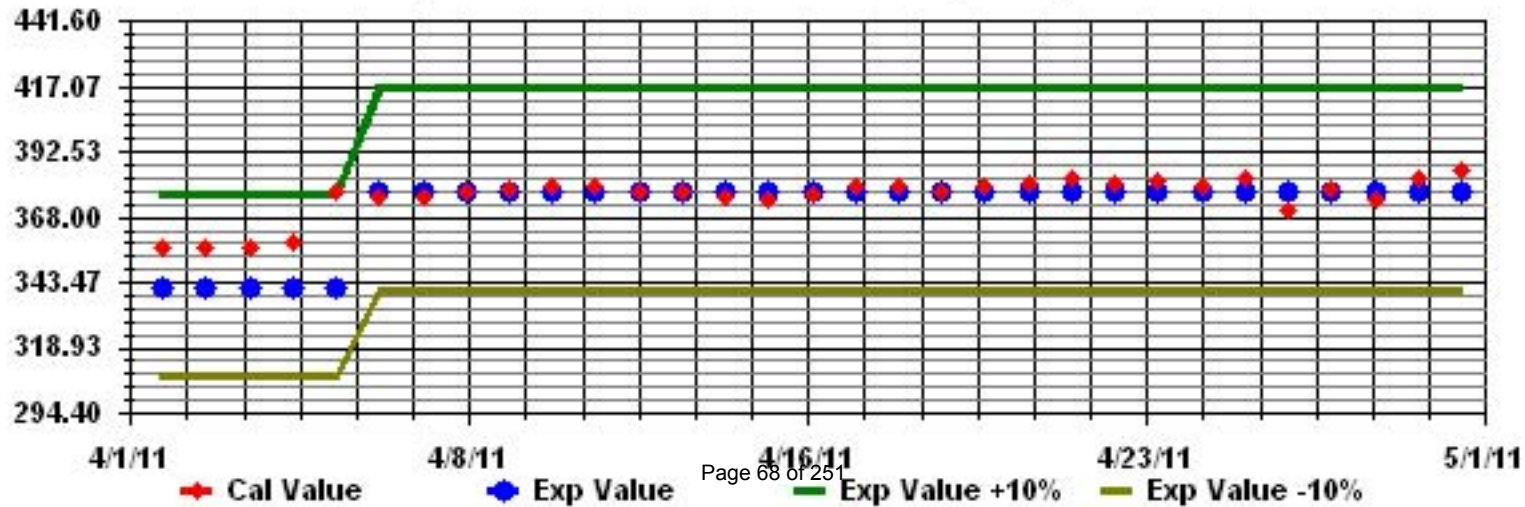
Class Limits (PPB)

Period : 04/01/11-04/30/11

Level : 10



Calibration Graph for Site: LICA Parameter: NOX\_ Sequence: NO2 Phase: SPAN



# Ozone

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2011

## OZONE (O<sub>3</sub>) hourly averages in ppb

MST

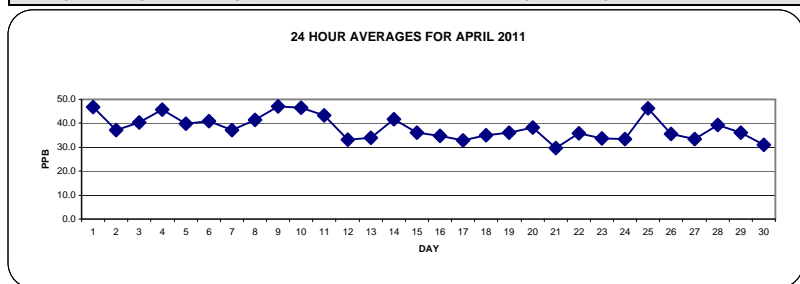
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	47	47	45	45	45	44	43	43	46	48	49	50	52	53	53	53	51	<b>IZS</b>	55	53	49	37	34	36	55	46.9	24
2	27	30	23	17	16	4	11	35	42	43	46	48	50	50	51	51	<b>IZS</b>	48	47	48	43	45	42	40	51	37.3	24
3	36	28	21	23	28	31	34	41	43	44	44	45	45	47	48	<b>IZS</b>	49	49	47	45	44	45	46	44	49	40.3	24
4	38	36	38	43	42	35	41	44	45	47	48	49	51	54	<b>IZS</b>	59	<b>60</b>	58	54	48	38	36	44	43	<b>60</b>	45.7	24
5	35	35	39	38	38	38	30	36	38	42	44	46	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	53	48	48	45	46	40	31	28	53	39.9	24
6	28	28	24	37	39	27	16	35	43	46	48	53	<b>IZS</b>	53	53	54	55	55	53	49	39	29	35	41	55	40.9	24
7	41	47	43	32	30	15	21	29	35	39	44	<b>IZS</b>	49	49	49	49	46	45	45	41	33	28	23	19	49	37.0	24
8	20	20	16	28	22	16	29	36	43	46	<b>IZS</b>	51	53	51	54	54	52	53	52	52	51	51	51	50	54	41.3	24
9	48	47	44	40	31	37	37	38	40	<b>IZS</b>	49	51	53	54	54	54	54	53	52	52	53	50	46	44	54	<b>47.0</b>	24
10	44	46	43	41	40	38	38	43	<b>IZS</b>	50	54	57	58	58	58	56	55	54	51	49	46	43	28	19	58	46.5	24
11	15	15	30	40	47	41	39	<b>IZS</b>	44	44	45	47	50	53	49	48	47	48	54	52	49	47	46	46	54	43.3	24
12	46	44	40	35	33	31	<b>IZS</b>	28	25	23	26	29	30	35	35	34	39	40	39	35	28	26	30	32	46	33.2	24
13	30	28	27	26	25	<b>IZS</b>	25	25	26	28	33	38	41	43	43	43	43	43	42	40	30	35	37	33	43	34.1	24
14	36	35	34	34	<b>IZS</b>	34	36	37	40	43	45	46	46	48	48	47	47	47	46	46	45	42	40	38	48	41.7	24
15	37	37	37	<b>IZS</b>	37	36	36	35	35	34	34	34	33	34	34	34	35	36	37	39	39	39	39	39	39	36.0	24
16	36	33	<b>IZS</b>	32	30	28	33	34	36	37	41	43	44	43	43	42	42	42	41	40	32	19	16	12	44	34.7	24
17	14	<b>IZS</b>	14	10	11	7	12	29	38	41	43	43	44	45	45	46	46	46	46	42	39	37	32	28	46	33.0	24
18	<b>IZS</b>	25	18	15	10	3	14	25	32	34	40	46	51	52	52	52	52	51	50	45	35	34	37	<b>IZS</b>	52	35.1	24
19	28	18	11	7	11	11	19	34	38	44	51	53	52	52	52	51	51	51	49	43	33	31	<b>IZS</b>	41	53	36.1	24
20	45	40	36	35	35	33	32	33	37	41	43	44	46	46	46	46	45	44	41	41	31	<b>IZS</b>	21	19	46	38.3	24
21	13	9	5	7	2	2	5	25	30	42	47	48	48	48	48	49	49	49	47	43	<b>IZS</b>	27	21	19	49	29.7	24
22	14	16	23	29	26	27	30	33	39	47	49	49	49	50	50	50	50	49	48	<b>IZS</b>	30	25	21	19	50	35.8	24
23	16	22	25	15	11	13	24	32	38	43	47	49	50	52	52	51	50	50	<b>IZS</b>	43	32	25	20	16	52	33.7	24
24	26	29	22	12	4	11	33	40	43	43	44	45	46	47	48	46	<b>IZS</b>	44	40	32	28	38	37	48	33.5	24	
25	38	38	39	39	38	36	37	39	40	42	45	47	49	52	57	59	<b>IZS</b>	58	57	54	52	51	48	46	59	46.1	24
26	43	38	36	40	32	28	31	29	31	33	33	36	39	41	38	<b>IZS</b>	45	48	48	44	37	29	21	16	48	35.5	24
27	9	5	4	2	2	10	12	14	19	27	46	53	55	57	<b>IZS</b>	58	58	56	55	52	37	41	44	51	58	33.3	24
28	43	42	37	24	23	26	30	30	32	34	32	38	44	<b>IZS</b>	47	50	49	50	48	47	47	43	42	44	50	39.2	24
29	41	39	38	37	38	34	33	34	35	36	37	40	<b>IZS</b>	41	44	46	46	46	45	40	28	24	16	11	46	36.0	24
30	8	6	13	12	27	40	40	41	40	41	44	<b>IZS</b>	47	47	47	45	42	41	39	36	21	16	11	8	47	31.0	24
HOURLY MAX	48	47	45	45	47	44	43	44	46	50	54	57	58	58	58	59	60	58	57	54	53	51	51	51			
HOURLY AVG	31.1	30.4	28.4	27.4	26.9	25.1	27.6	33.4	36.9	40.1	43.1	45.6	47.2	48.4	48.0	49.2	48.5	48.5	47.6	45.0	38.6	35.3	33.1	31.7			

### STATUS FLAG CODES

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

OBJECTIVE LIMIT:

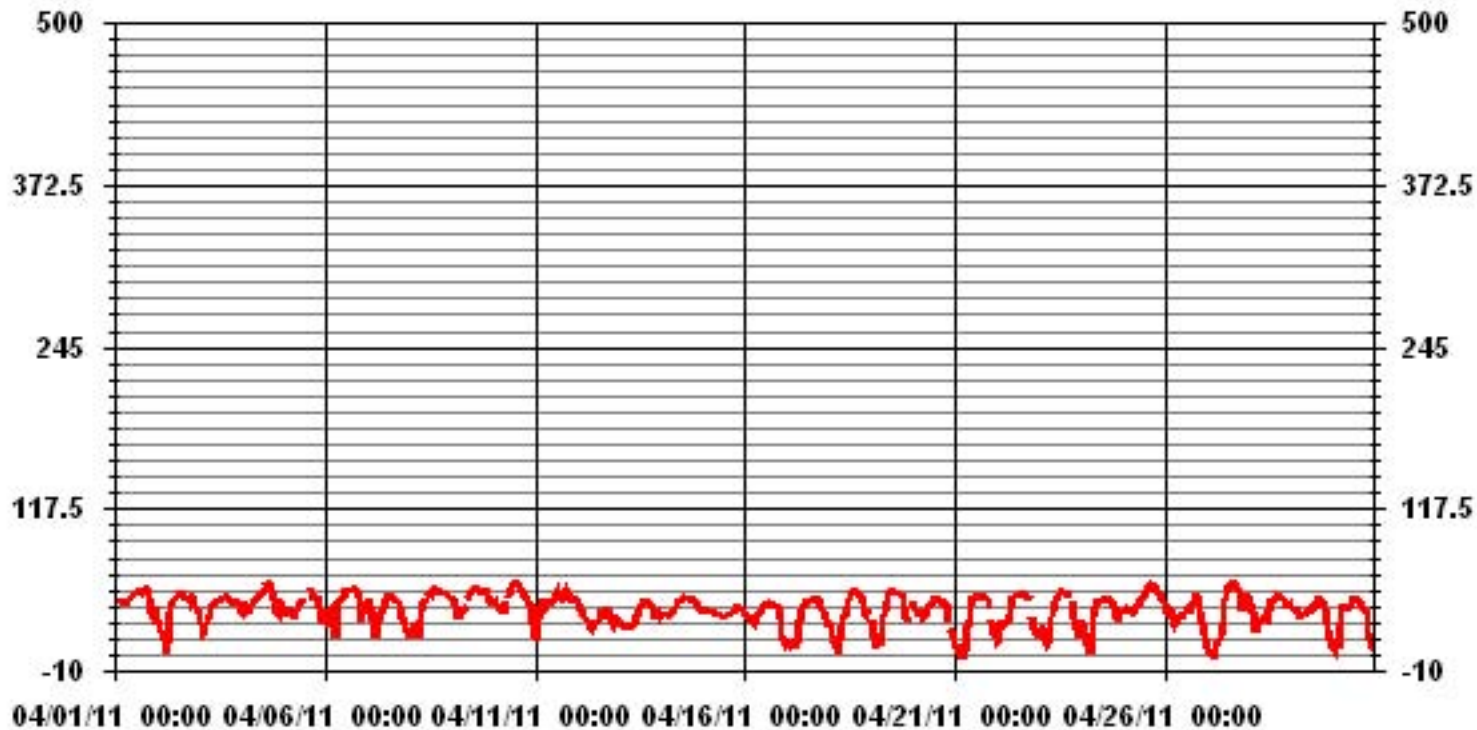
ALBERTA ENVIRONMENT: 1-HR 82 PPB



### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	686					
MAXIMUM 1-HR AVERAGE:	60	PPB	@ HOUR(S)	16	ON DAY(S)	4
MAXIMUM 24-HR AVERAGE:	47.0	PPB			ON DAY(S)	9
					VAR-VARIOUS	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	12.27		MONTHLY AVERAGE	38.07	PPB	

### 01 Hour Averages



— LICA 03\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 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	47	48	46	46	46	46	44	44	47	49	50	53	53	54	54	55	54	<b>IZS</b>	56	55	52	46	38	42	56	48.9	24
2	33	37	39	21	24	6	25	40	44	45	48	50	52	51	51	51	<b>IZS</b>	50	49	50	45	46	44	41	52	41.0	24
3	39	33	31	26	31	33	38	43	46	45	46	46	47	48	49	<b>IZS</b>	50	50	48	47	46	46	47	46	50	42.7	24
4	43	42	43	44	44	41	43	45	47	49	48	51	54	56	<b>IZS</b>	61	60	60	57	52	45	44	46	45	61	48.7	24
5	42	43	42	41	41	41	36	38	41	46	47	48	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>M</b>	<b>M</b>	50	47	47	44	36	36	50	42.6	22
6	34	35	39	39	41	38	22	41	47	50	50	55	<b>IZS</b>	54	54	55	56	56	55	52	46	35	43	46	56	45.3	24
7	46	49	48	39	38	30	31	31	38	42	49	<b>IZS</b>	50	50	50	50	48	47	46	45	36	31	29	23	50	41.1	24
8	28	25	26	33	32	24	35	41	45	49	<b>IZS</b>	52	54	53	55	55	54	54	53	52	52	51	51	55	55	44.7	24
9	50	48	46	44	38	39	38	39	41	<b>IZS</b>	53	53	54	55	55	55	55	54	53	53	54	53	49	46	55	48.9	24
10	47	48	45	43	41	40	41	46	<b>IZS</b>	53	57	59	59	59	59	58	56	55	53	51	49	49	37	23	59	49.0	24
11	16	19	38	49	48	46	43	<b>IZS</b>	46	45	46	49	51	56	51	49	48	53	55	54	50	48	47	47	56	45.8	24
12	46	45	43	38	34	32	<b>IZS</b>	31	27	27	28	31	35	38	37	37	40	41	40	38	32	32	33	33	46	35.6	24
13	32	29	28	27	27	<b>IZS</b>	26	25	27	32	36	41	43	45	44	44	44	44	43	42	38	38	38	37	45	36.1	24
14	38	36	35	35	<b>IZS</b>	35	37	40	42	45	46	47	48	49	49	49	48	48	47	47	46	44	41	39	49	43.1	24
15	38	38	38	<b>IZS</b>	38	37	37	36	36	35	35	34	35	34	35	35	36	37	39	40	40	40	40	39	40	37.0	24
16	37	37	<b>IZS</b>	34	31	30	34	36	37	39	42	44	45	44	43	43	43	43	43	43	36	28	20	17	45	36.9	24
17	18	<b>IZS</b>	20	16	16	10	19	36	41	43	45	46	46	46	47	47	48	48	47	45	42	39	33	32	48	36.1	24
18	<b>IZS</b>	29	26	21	14	7	23	31	34	37	44	51	52	53	53	53	53	53	51	50	42	41	43	<b>IZS</b>	53	39.1	24
19	36	22	15	12	15	14	30	36	43	47	53	55	53	53	53	53	52	52	51	48	38	40	<b>IZS</b>	46	55	39.9	24
20	48	43	38	37	37	35	34	35	39	42	44	46	46	47	47	47	46	45	44	44	38	<b>IZS</b>	25	25	48	40.5	24
21	21	15	8	14	4	4	21	28	45	49	48	50	50	49	49	50	50	50	49	47	<b>IZS</b>	36	24	24	50	34.1	24
22	17	21	30	31	29	30	31	36	44	49	50	50	50	51	51	51	50	50	50	<b>IZS</b>	39	32	28	24	51	38.9	24
23	20	28	30	22	14	24	31	35	41	48	48	51	52	54	53	52	51	51	<b>IZS</b>	48	40	28	26	20	54	37.7	24
24	31	31	26	20	20	8	21	40	42	44	45	44	46	47	48	49	48	<b>IZS</b>	45	44	35	39	39	38	49	37.0	24
25	39	39	39	39	39	38	39	39	41	44	47	48	51	56	61	<b>62</b>	<b>IZS</b>	60	58	57	54	52	50	48	<b>62</b>	47.8	24
26	45	40	39	59	37	33	34	31	33	35	35	38	40	44	44	<b>IZS</b>	47	51	50	48	43	40	30	24	59	40.0	24
27	14	9	6	4	3	13	14	16	22	<b>N</b>	56	56	57	59	<b>IZS</b>	59	60	57	57	55	46	49	51	54	60	37.1	23
28	48	44	41	34	30	29	32	33	36	37	35	45	47	<b>IZS</b>	51	52	51	51	50	48	49	46	43	45	52	42.5	24
29	44	40	39	38	39	37	34	35	37	37	39	42	<b>IZS</b>	43	46	47	47	47	46	<b>P</b>	38	28	23	18	47	38.4	23
30	10	10	25	24	43	43	42	42	43	45	<b>IZS</b>	48	48	48	47	45	44	44	40	33	28	17	12	48	35.8	24	
HOURLY MAX	50	49	48	59	48	46	44	46	47	53	57	59	59	59	61	62	60	60	58	57	54	53	51	54			
HOURLY AVG	34.7	33.9	33.4	32.1	30.8	29.1	32.2	36.2	39.7	43.1	45.3	47.7	48.8	49.8	49.5	50.6	49.7	50.0	49.3	48.0	43.1	40.5	36.9	35.2			

**STATUS FLAG CODES**

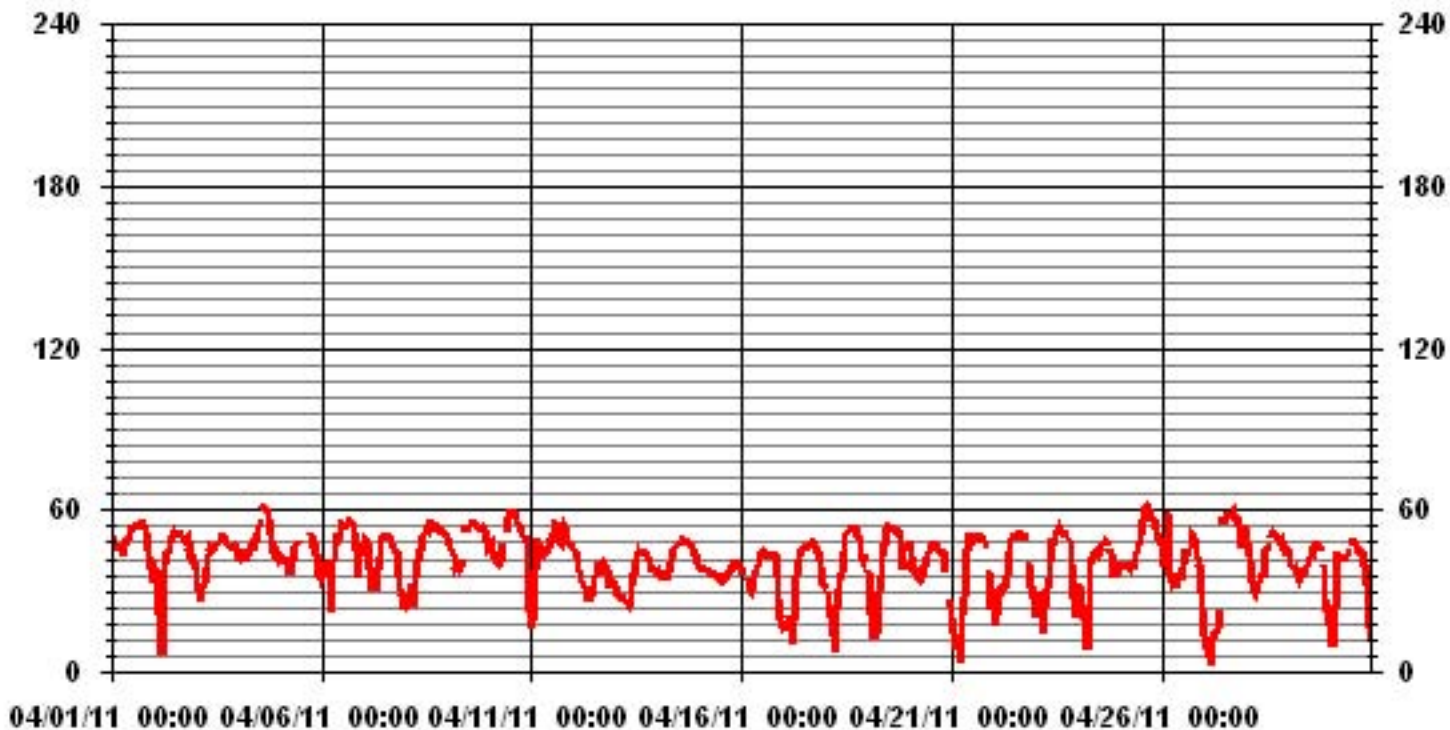
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	682					
MAXIMUM INSTANTANEOUS VALUE:	62	PPB	@ HOUR(S)	15	ON DAY(S)	25
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	716	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	11.09					



### 01 Hour Averages



— LICA O3MAX PPB

LICA  
O3\_ / WD Joint Frequency Distribution (Percent)

April 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	3.06	5.53	6.55	3.93	5.39	5.97	6.55	2.33	2.04	4.95	17.63	8.30	5.10	2.18	2.18	2.47	84.25
< 110	.43	.14	.72	.00	.00	.29	1.16	.14	.43	1.02	5.39	2.18	2.18	.72	.87	.00	15.74
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.49	5.68	7.28	3.93	5.39	6.26	7.72	2.47	2.47	5.97	23.03	10.49	7.28	2.91	3.06	2.47	

Calm : .00 %

Total # Operational Hours : 686

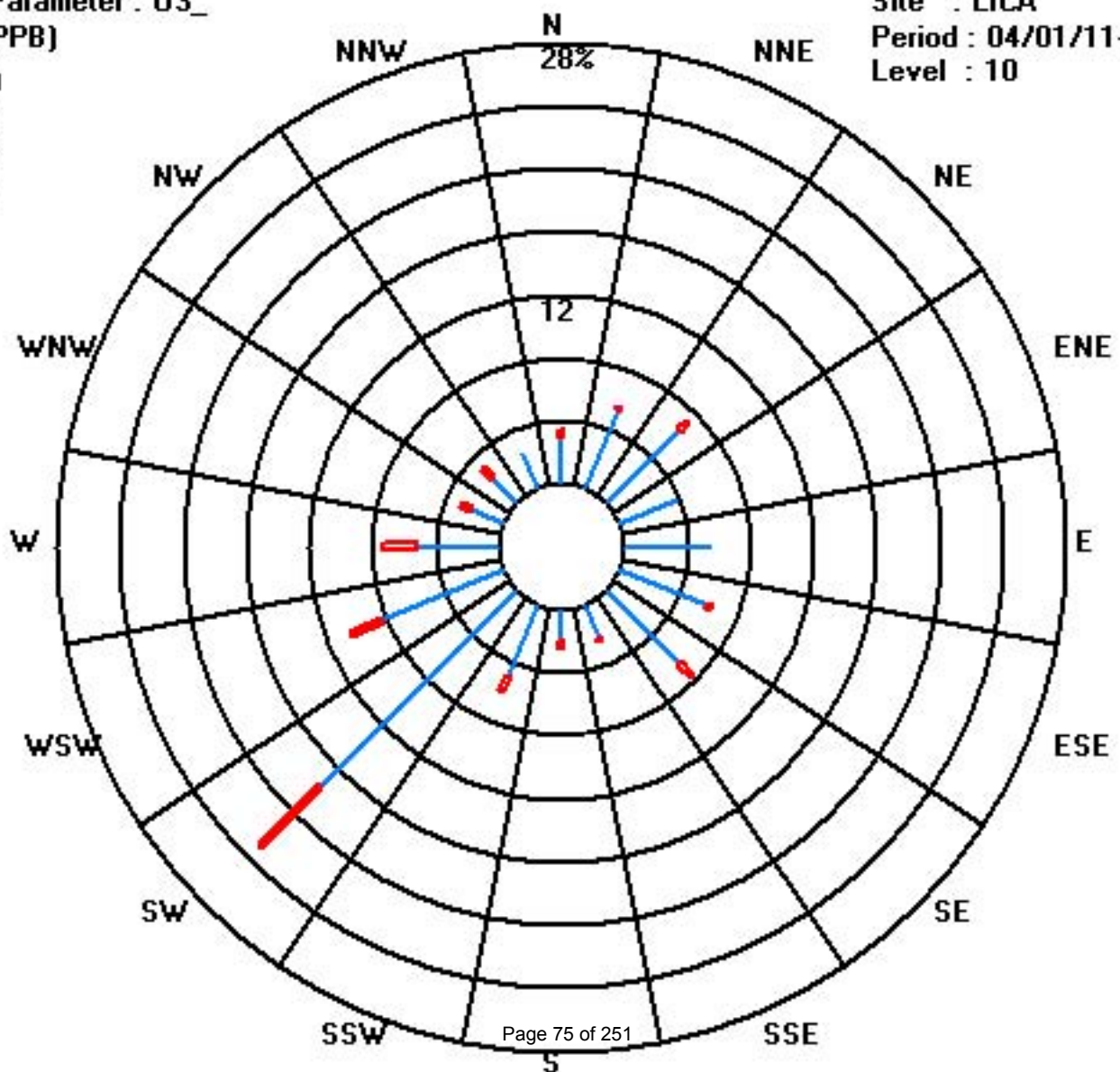
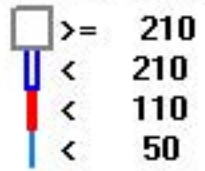
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	21	38	45	27	37	41	45	16	14	34	121	57	35	15	15	17	578
< 110	3	1	5			2	8	1	3	7	37	15	15	5	6		108
< 210																	
>= 210																	
Totals	24	39	50	27	37	43	53	17	17	41	158	72	50	20	21	17	

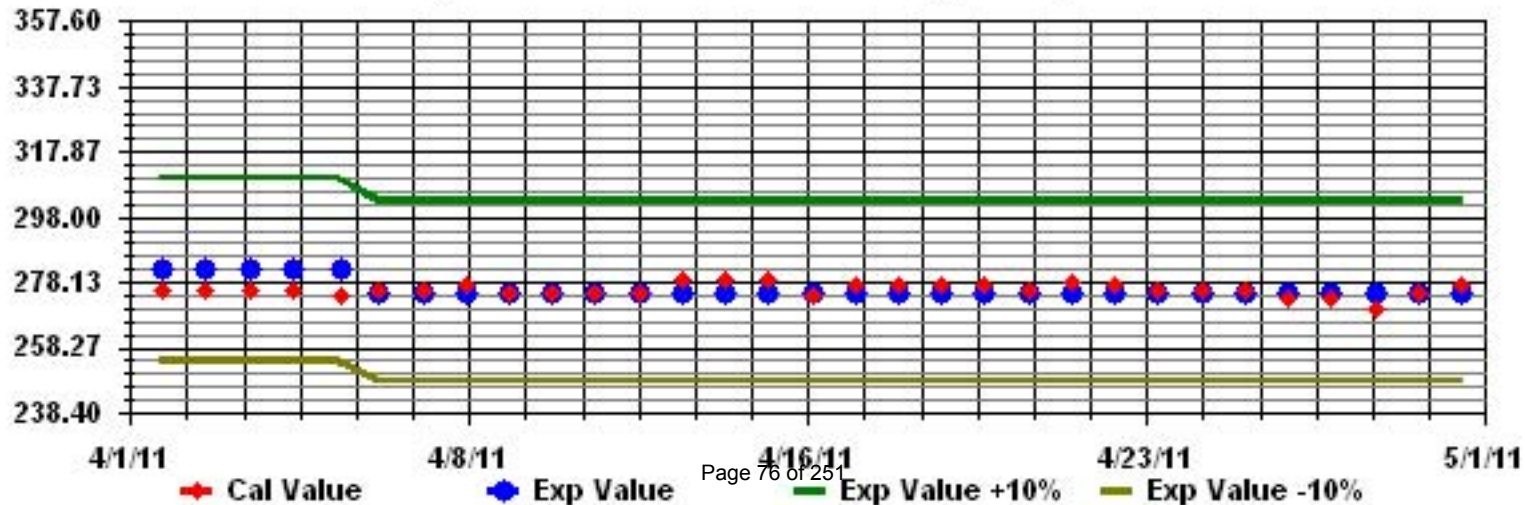
Calm : .00 %

Total # Operational Hours : 686

Class Limits (PPB)



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



# Ambient Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 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 MAX.	24-HOUR AVG.	RDGS.
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00					
1	0.8	-0.3	-0.6	-1	-0.8	-1.3	-1.4	-0.2	2.5	4.2	5.9	7.1	8	8.7	8.4	8.5	8.2	7.5	5.6	3.6	1.8	-0.4	-1.9	-1.7	8.7	3.0	24		
2	-3.1	-3.8	-4.3	-5.3	-6.3	-6.9	-6.2	-2.7	-0.7	2.8	4.9	6.2	7.4	8.3	7.1	6.6	5.1	5.3	4	2.7	1.5	1	0.3	-0.1	8.3	1.0	24		
3	-0.5	-0.7	-0.7	-0.7	-1	-1.1	-0.8	-0.4	0.6	1.6	2.3	3.4	3.7	4.4	4.5	4.8	4.2	3.4	2.4	1.1	0.3	-0.3	-0.7	-1.6	4.8	1.2	24		
4	-2.9	-3.7	-4.1	-3.7	-3.9	-4.6	-3.7	-1.8	-0.4	1.1	2.3	3.6	4.9	5.4	6.5	8	7.1	6	5	3.6	0.9	0.3	1.9	1.9	8.0	1.2	24		
5	0.9	-0.2	-0.7	-1	-1.7	-2.2	-2.4	-0.5	2.2	4.7	6.6	7.5	8.5	9.2	9.5	9.6	8.7	7.8	6.3	4.7	4	1.9	0.7	-1.2	9.6	3.5	24		
6	-2.1	-2.3	-3.1	-2.3	-2.3	-3.8	-3.8	-0.6	1.7	4	5.9	6.9	5.3	5.6	5.9	6.4	6.6	6.1	5.1	3.4	0.7	-1.1	-1.2	-1.4	6.9	1.7	24		
7	-1.8	-1.5	-2.7	-4.4	-4.8	-5.8	-4.3	-1.5	0.5	3.1	4.8	4.9	4.6	5.1	6	5.6	5.3	6.1	5.7	2.9	-0.4	-1.8	-2.7	-3.3	6.1	0.8	24		
8	-3.5	-4.5	-5.2	-4.1	-5.3	-6.1	-3.2	0.2	2.6	4.8	6.3	6.9	7.3	7.3	7	6.7	6	5	4.1	3.3	2.9	2.5	2.1	1.7	7.3	1.9	24		
9	1.4	1.2	1.1	0.9	0	0.6	1.2	2.2	3.6	5.4	6.8	7.7	8.5	8.8	9.3	9.4	9.3	9	7.8	6	4.7	3.2	2	1.7	9.4	4.7	24		
10	2	2.4	2	1.3	0.9	0.6	1.3	4.1	6.4	8.2	9.7	10.1	10.8	11.4	11.3	11.7	11.7	11.3	9.6	7.1	5.4	3.7	1.2	0.1	11.7	6.0	24		
11	-0.3	-0.4	0.6	2.4	3.1	2.2	2	3.4	5.4	7.4	8.9	11.2	13.9	15.3	15	14.5	13.5	12.1	10.6	9.5	8	6.6	5.8	4.9	15.3	7.3	24		
12	3.9	2.9	1.9	1.6	1.1	0.8	0.3	-0.4	-1.7	-1.8	-1	0.4	1.4	1.9	2.8	3.6	3.3	2.8	1.8	0.4	-1.1	-2.5	-2.1	-2.3	3.9	0.8	24		
13	-3.1	-3.9	-4.5	-4.9	-5	-4.9	-4.2	-2.9	-0.5	1.6	3.8	5	5.8	6.3	6.6	6.7	6.4	5.8	4.9	3.1	0.9	0.6	0.5	-0.7	6.7	1.0	24		
14	-1	-1.5	-2.1	-2.9	-3.5	-3.8	-3.4	-1.8	-0.7	0.7	2	2.9	3.7	4	4.6	4.5	4.4	3.7	2.9	2.3	1.5	0.7	0.9	-0.2	4.6	0.7	24		
15	-1.1	-1.5	-1.8	-1.9	-1.9	-1.8	-1.6	-1.4	-1.3	-1	-0.2	0.1	0	0.2	0.3	0.5	0.4	0.3	0	-0.3	-0.5	-1.1	-1.4	-2.1	0.5	-0.8	24		
16	-2.9	-4.3	-5.1	-5.7	-6.3	-6.6	-5	-3.8	-2.9	-1.5	-0.5	0.1	1.2	1.4	1.4	1.8	1.4	1	1	0.3	-0.7	-2.5	-3.7	-4.6	1.8	-1.9	24		
17	-5.5	-6.2	-6.5	-7.1	-7.4	-7.8	-5.4	-1.3	0.1	1.1	1.9	1.4	2.9	2.4	3.4	0.2	2.5	2.8	1.7	0.2	-0.8	-1.3	-1.9	-2.5	3.4	-1.4	24		
18	-3.9	-4	-5.1	-6.3	-6.9	-6.9	-4.5	-2.2	-0.5	1.6	3.7	5.4	6.6	6.3	7.1	6.6	6.2	4.7	2.9	1	-0.1	-1	-0.2	-1.1	7.1	0.4	24		
19	-2.5	-3.4	-4.3	-5	-5.5	-5.7	-2.7	-0.6	1.9	3.9	5.4	6.1	5.7	6.3	6.9	5.5	5.8	6.1	3.4	1.8	-0.4	-0.9	-0.3	1.4	6.9	1.2	24		
20	1.2	-0.1	-1.4	-1.9	-2.3	-2.5	-1.2	0.7	3.1	5.3	6.9	8	8.5	7.1	7.5	7.4	6.7	7.6	7	5.7	1.9	0.6	-1.2	-2.2	8.5	3.0	24		
21	-2.8	-3.6	-4.3	-5	-5.2	-5.1	-1.9	2.9	5.3	7.3	8.5	9.5	8.5	8.8	8.1	9.4	9	9.2	7.9	5.1	2.2	0	-1.3	-2.1	9.5	2.9	24		
22	-2.6	-3.2	-2.6	-1.4	-1.5	-1.9	0	2.4	4.8	7.1	8	8.6	8.7	9.7	9	8.4	8.4	8.6	7.6	5.8	2.1	-0.2	-1.5	-2.2	9.7	3.4	24		
23	-3.1	-2.6	-2.4	-3.9	-4.7	-4.3	-1.7	1.1	4.8	5.7	6.8	8.4	8.7	9.1	9	7.3	7.1	7.2	6.7	5.1	1.9	-0.1	-1.3	-1.6	9.1	2.6	24		
24	-0.9	0	-1.1	-2.2	-3.1	-3.3	-0.9	2.5	3.4	3.9	5	5.9	6.7	7.7	8.2	8.2	8.6	8.4	8.1	6.5	3.9	2.1	3.1	2.2	8.6	3.5	24		
25	1.6	1.4	1.4	0.8	0.3	-0.1	1.3	3.1	5.5	8	10.2	12.1	13.5	15	15.8	16.4	16.2	15.9	15.2	13.1	11.6	10.9	9.5	8.7	16.4	8.6	24		
26	7.7	6.8	6.4	6.8	5.4	5.4	5.1	5.4	7.2	8.8	9	11.2	12.2	13.1	12.7	9.9	11.7	12.6	10.9	8.8	7.1	5.2	3.2	1.5	13.1	8.1	24		
27	0.4	-0.4	-1	-1.5	-0.8	0.6	1.1	3.9	6.4	9	11.5	13.3	14.3	14.7	14.6	14.8	14.7	12.2	11.8	10.5	8.5	7.9	7.1	7.3	14.8	7.5	24		
28	6.5	6.1	5.9	5.3	4.8	5.3	5.7	6	5.9	5.6	5.4	5.5	6.1	5.9	5.9	6.5	6	6.5	6	5.6	5.2	4.7	5.4	4.7	6.5	5.7	24		
29	4.7	4.3	3.9	3.4	2.9	2.4	2.6	3.4	4.7	5.9	7.2	8.3	9.5	9.7	10.2	10.5	10.3	9.8	9.4	7.7	3.6	1	-0.4	-1.4	10.5	5.6	24		
30	-2	-2.5	-2.2	-1.8	0.2	2	2.3	3.3	4.7	7.1	8.8	10	10.4	11.6	10.6	9.8	6.8	7.3	7.9	6.9	3.6	1.8	0.3	-0.8	11.6	4.4	24		
HOURLY MAX	7.7	6.8	6.4	6.8	5.4	5.4	5.7	6.0	7.2	9.0	11.5	13.3	14.3	15.3	15.8	16.4	16.2	15.9	15.2	13.1	11.6	10.9	9.5	8.7					
HOURLY AVG	-0.5	-1.0	-1.4	-1.7	-2.1	-2.2	-1.2	0.8	2.5	4.2	5.6	6.6	7.2	7.7	7.8	7.7	7.4	7.1	6.1	4.6	2.7	1.4	0.7	0.1					

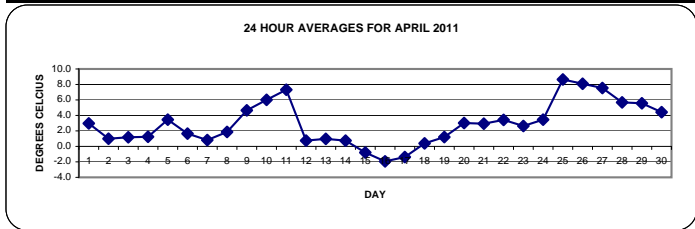
STATUS FLAG CODES

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

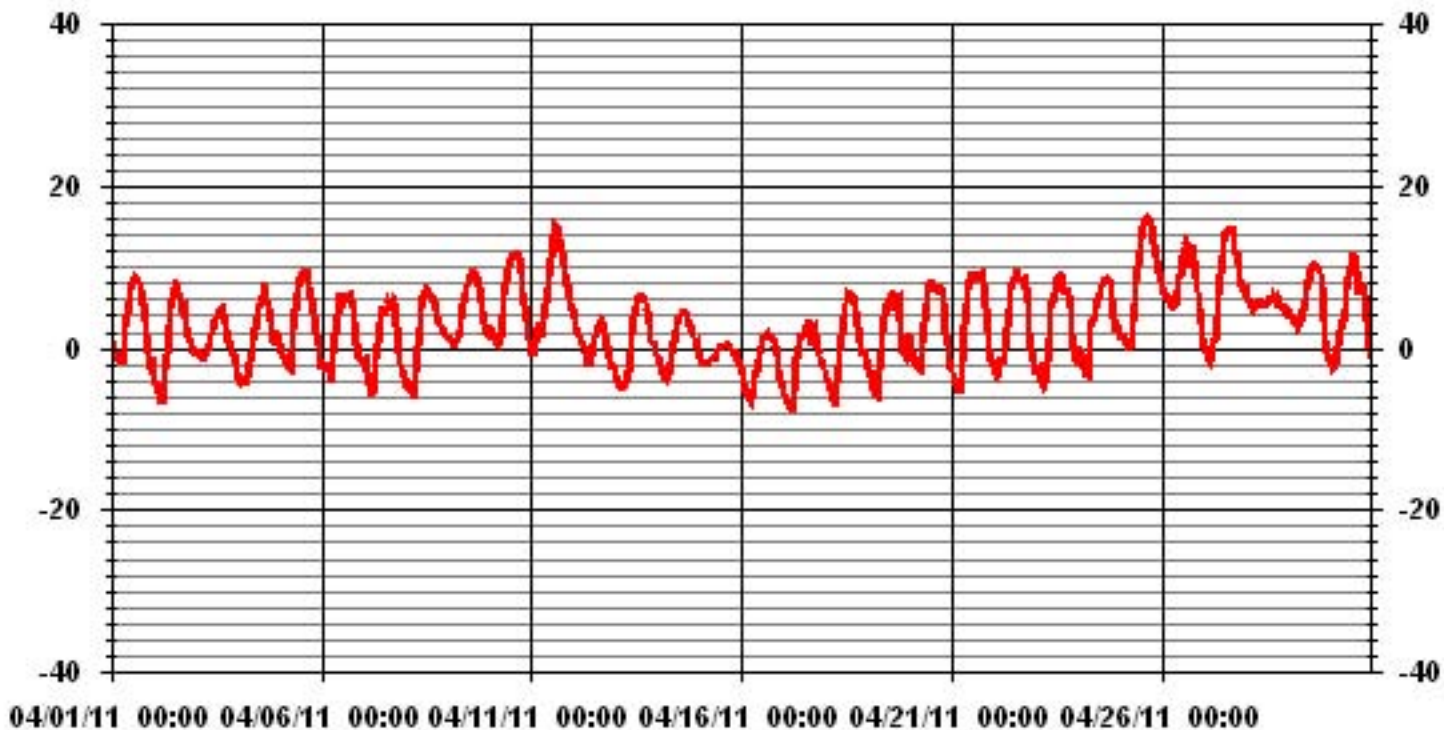
MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-7.8 °C	@ HOUR(S)	5	ON DAY(S)	17
MAXIMUM 1-HR AVERAGE:	16.4 °C	@ HOUR(S)	15	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	8.6 °C			ON DAY(S)	25
				VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
			AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	4.88		MONTHLY AVERAGE:	2.92	°C

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA TPX DGC

# Relative Humidity



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2011

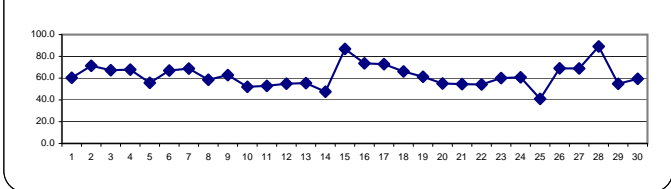
RELATIVE HUMIDITY hourly averages (%)

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	0:00	DAILY MAX.	24-HOUR AVG.	RDGS
DAY	1	66	73	72	74	74	76	77	71	62	55	48	43	39	37	39	38	39	45	54	61	68	77	82	78	82	82	60.3	24
2	84	85	85	88	89	89	86	78	71	58	55	51	45	40	42	45	58	61	65	70	85	92	95	95	95	95	95	71.3	24
3	95	95	95	94	91	87	83	73	62	55	49	45	48	43	44	43	49	59	61	64	66	69	69	76	95	95	67.3	24	
4	83	87	88	87	86	88	84	76	68	61	56	53	50	49	46	43	46	53	60	68	77	79	70	69	88	88	67.8	24	
5	74	79	77	75	76	76	77	67	57	48	43	41	37	35	33	32	36	39	43	47	49	57	65	74	79	55.7	24		
6	77	77	81	76	78	84	83	74	66	59	53	47	58	54	55	51	50	50	55	63	74	82	80	80	84	79	67.0	24	
7	81	81	85	89	89	90	87	79	71	63	57	56	60	57	55	56	54	41	41	52	68	76	80	83	90	80	68.8	24	
8	82	86	88	82	87	89	82	68	54	44	38	35	34	32	31	32	34	38	48	53	59	65	70	73	89	58.5	24		
9	75	77	79	80	83	82	81	76	70	64	56	49	45	45	44	42	44	44	49	55	59	65	70	73	83	62.8	24		
10	73	72	75	78	78	79	74	60	47	37	31	27	27	25	25	25	26	30	43	51	56	62	72	76	79	52.0	24		
11	78	79	71	64	63	69	70	65	60	54	50	43	35	26	29	32	37	40	37	41	50	59	62	56	79	52.9	24		
12	52	54	58	60	63	60	57	66	71	71	63	56	51	47	42	39	36	40	43	48	56	64	59	61	71	54.9	24		
13	67	70	73	75	76	76	74	71	64	57	48	41	37	35	34	34	35	38	41	46	56	59	60	63	76	55.4	24		
14	62	64	66	68	73	71	66	58	49	39	30	26	23	21	20	23	22	27	33	39	56	68	62	75	75	47.5	24		
15	83	85	86	87	86	87	87	86	88	88	83	84	89	89	91	90	89	87	86	86	86	86	87	87	87	91	86.8	24	
16	90	90	91	89	89	89	82	77	73	70	65	60	57	58	57	55	57	58	59	67	74	83	88	88	91	73.6	24		
17	89	88	88	89	89	88	84	71	66	57	49	58	48	51	48	85	63	58	66	73	80	85	87	88	89	72.8	24		
18	90	90	90	90	90	90	87	83	76	66	54	40	27	32	31	30	34	49	60	70	75	78	76	79	90	66.1	24		
19	84	87	88	89	90	89	79	66	57	48	38	34	38	36	36	38	38	39	57	63	72	76	71	57	90	61.3	24		
20	59	66	75	79	82	84	78	72	62	51	41	35	30	37	35	36	42	35	36	35	51	57	70	74	84	55.1	24		
21	76	80	83	86	85	86	76	57	47	33	29	26	29	31	36	28	30	29	34	46	59	69	74	79	86	54.5	24		
22	82	82	77	72	73	75	69	60	49	36	32	31	31	28	28	33	35	35	39	46	61	71	76	80	82	54.2	24		
23	83	79	75	82	86	83	70	59	46	45	42	34	34	31	31	44	49	48	49	56	70	79	83	83	86	60.0	24		
24	78	68	75	80	82	82	76	62	61	63	61	59	56	52	51	50	46	42	41	46	56	62	54	55	82	60.8	24		
25	57	58	57	57	58	60	56	52	47	43	39	35	31	27	22	20	19	20	22	26	34	42	48	53	60	41.0	24		
26	59	66	73	70	76	77	80	79	72	65	64	55	51	48	54	82	64	55	60	69	76	82	88	91	91	69.0	24		
27	92	93	93	93	93	95	95	88	80	69	55	46	40	38	39	37	38	50	50	56	65	74	90	84	95	68.9	24		
28	92	94	95	96	97	98	96	95	95	94	95	95	93	93	88	82	81	79	80	79	81	80	82	98	98	89.1	24		
29	84	84	81	77	81	80	70	65	57	52	46	38	35	33	29	26	24	26	29	35	53	65	70	75	84	54.8	24		
30	79	81	74	75	61	47	45	42	40	36	34	32	31	28	33	48	75	71	69	68	84	88	91	93	93	59.4	24		
HOURLY MAX	95	95	95	96	97	98	96	95	95	94	95	95	93	93	91	90	89	87	86	86	86	92	95	95					
HOURLY AVG	77.533	79	79.8	80.033	80.8	80.867	77.033	69.867	62.933	56.033	50.133	45.833	43.633	41.933	41.6	43.967	45	46.2	50.3	56	65.133	71.767	74.3	76					

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

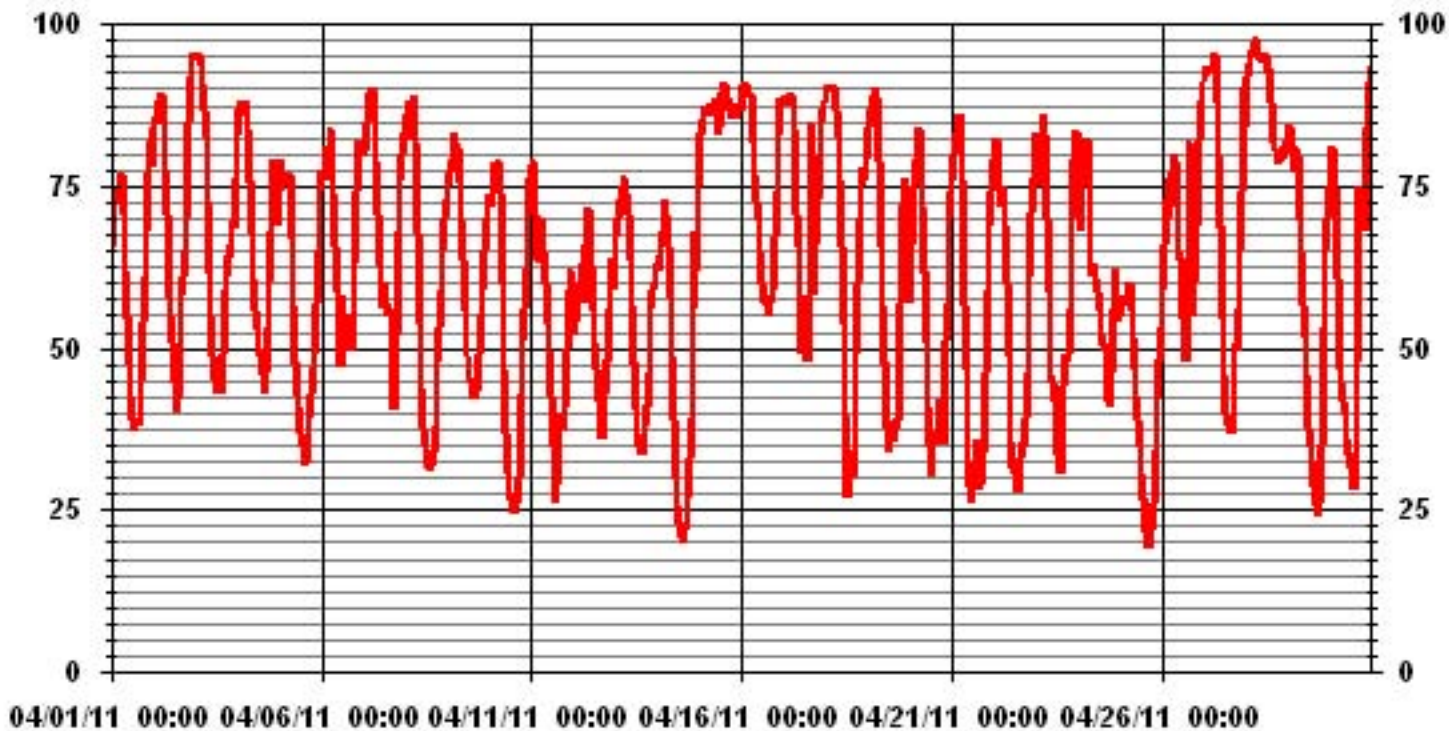
24 HOUR AVERAGES FOR APRIL 2011



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	98	%	@ HOUR(S)	5	ON DAY(S)	28
MAXIMUM 24-HR AVERAGE:	89.1	%			ON DAY(S)	28
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	19.90		MONTHLY AVERAGE:	62.32	%	

### 01 Hour Averages



— LICA RH %FS

# Vector Wind Speed

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 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	1	6.4	8	7.5	6.7	6.4	5.6	7	7.7	11.2	12	11.3	12.5	12.2	11.7	12.6	5.1	8	8.8	7.9	6.2	3.3	0.5	2.2	2.8	12.6	7.2	24	
2	2	1	2.3	1.1	1.2	0.3	0.9	0.8	2.6	4.5	3.6	3.2	4.1	3.3	4	9.3	11.2	7.6	4.8	7.1	5.8	7.8	6.1	5.1	3.9	11.2	2.7	24	
3	3	1.4	0.5	1.4	2.5	3.8	2.1	2.7	4.3	3.7	5.5	7.6	7.6	10.2	9.5	12.5	10.8	13.2	10.9	7.8	5.1	4.5	4	4.2	1.5	13.2	4.2	24	
4	4	1.5	2.3	2	1	1.7	1.4	1.6	3.2	5.2	7.3	9.5	8.6	9.2	9.9	9	11.3	12.3	10.2	4.9	1.1	1.6	3	5.5	4.1	12.3	4.8	24	
5	5	2.1	2	5.5	5.4	5.7	4.3	2.6	4.7	4.4	6.2	8	9.6	11.2	11.4	11.8	10.8	11.2	9.4	7.1	5.1	4.9	2.3	1.6	0.9	11.8	6.2	24	
6	6	1.6	2.6	1.6	5.5	5.6	1.4	0.8	3.7	3.3	5	6.5	8.5	8.8	8.9	9.6	9.3	9.8	9	6.8	3.1	1.3	1.9	3.4	5.2	9.8	5.1	24	
7	7	5.2	6.1	2.5	2.3	2.7	0.8	2.7	4	5.9	4.6	5.2	5.2	4.8	1.2	3.1	1.3	2.3	4.3	5.4	1.6	1.4	1.2	0.7	1.3	6.1	3.2	24	
8	8	2.6	1.1	2.8	3.9	2.2	1.7	1.5	2.2	6.3	9.5	11.2	12.8	12.9	14.2	13.9	12.5	11.3	11.4	6.4	6	6.3	6.9	5.8	4.4	14.2	7.1	24	
9	9	4	4.6	2.1	2	1.6	4	3.6	2.9	4	7.5	8.7	8.8	11.7	12.2	11.8	13.3	12.4	11.1	9.6	6.9	5.8	4.3	5.2	4.8	13.3	6.8	24	
10	10	5.5	5.7	5	5.2	5.3	5.8	7.6	11.8	13.4	14.9	18.4	16.4	15.4	15.5	12.7	13	8.8	8	5.2	4.4	3.8	0.4	1	18.4	8.7	24		
11	11	1.3	1.9	3.2	6.4	8.4	4.2	4.1	5.6	4.2	3.1	4.8	4.3	7.7	7.8	5.8	5.9	8.5	11.4	13.7	9.3	13.6	17.8	17.9	15	17.9	7.7	24	
12	12	14.4	13.4	12.5	13.9	11.3	16.1	14.7	14.5	16.6	14.5	12.1	11.3	10.3	8	9.5	9.6	9.7	8.1	5.9	4.1	2.6	1.7	4.5	6.5	16.6	10.2	24	
13	13	10.1	9.8	8	6.8	5.6	3.4	6.9	7.3	5.3	6.1	6.6	8.7	10.6	12	12	12.4	12.7	12.7	10.9	4.1	2.7	5.5	5.5	2.7	12.7	7.9	24	
14	14	4.9	6.6	7.8	10	10.5	10.9	12.5	11.7	13.6	15.2	16.6	16.2	16.6	15.8	15.3	15.3	15.6	14.1	13.2	12.9	16.5	13.1	11.5	11.1	16.6	12.8	24	
15	15	13.3	14.2	14.7	14.2	13.1	11.9	10.5	10.8	9.8	9.4	10.2	10.1	9.7	10.7	7.9	8.6	8.6	7.9	7	8.4	7.3	8	8	6	14.7	10.0	24	
16	16	4.5	2.4	3.1	3.2	2.8	2.1	3.7	4.9	8.3	7	6.6	5.9	8	7.7	7.2	6.6	7.5	5.7	2.8	2	0.4	0.3	0.2	1.2	8.3	4.3	24	
17	17	0.4	0.4	0.1	0.2	0.2	0.3	0.7	1.6	2.7	4.1	4.6	2.1	4	7.3	9.8	10.1	8.3	7.8	5.9	4.2	3.5	3.4	3.8	2.8	10.1	3.7	24	
18	18	2	3.4	1.2	0.5	0.5	0.2	1.4	2.7	1.7	1.9	3.8	4.5	0.8	11.5	9.9	8.8	11.5	4.4	5.4	1.5	1.1	1.7	1.2	1.3	11.5	3.5	24	
19	19	0.2	0.3	0.5	0.9	0.5	0.6	1.7	5.2	2.9	4.7	7.7	10.8	11.6	10.1	12.5	7.8	6.9	2.4	5.5	1.2	1.5	1.4	1.6	4.3	12.5	4.3	24	
20	20	6.1	4.8	5.1	5.5	4.3	4.9	5.5	7.1	5.9	6.2	8.5	12.8	15	14.2	11.4	8.2	6.8	2	1.6	3.2	2.6	4.6	2.6	3	15.0	6.3	24	
21	21	0.4	0.5	0.7	0.7	0.5	1	0.7	0.4	1.4	2.1	2	6.7	5.2	6.1	2.5	4.3	4.9	3.1	2.7	0.8	1	1.4	0.5	0.5	6.7	2.1	24	
22	22	1.3	1.4	4.6	5.4	5.1	4.9	5.3	6.3	8.1	12.5	16.9	13.4	13.1	12.7	8.5	8.1	5.5	6.4	1	1.1	0.7	0.1	1.1	0.7	16.9	6.0	24	
23	23	2.3	5.1	3.5	0.5	1.2	1.9	3.8	4.6	3.1	4.7	5.9	0.7	7.1	3.5	6.9	9.6	7.6	7	2.9	1.3	1.1	0.9	1.7	1.2	9.6	3.7	24	
24	24	5.1	4.8	2	0.1	0.9	0.6	0.9	4	6.5	8.4	9.2	8.6	7.7	8.1	9.9	10.3	9.1	8	6.7	4.1	1.4	2.8	8.2	7.8	10.3	5.6	24	
25	25	8.3	8.4	6.9	7.6	5.3	4.8	7.4	12.7	15.4	14.7	14.5	13.6	13.4	11.7	8.7	10	11.6	12.5	8	5.3	9.1	10.9	9.2	8.3	15.4	9.9	24	
26	26	5.5	2.4	4.9	5.8	3.7	3.7	5.8	6	7.2	6.4	6.5	3.1	1.5	6.3	6.5	6.8	9.4	8.4	4.4	3.9	2.3	0.2	0.5	1.4	9.4	4.7	24	
27	27	1	0.6	0.7	0.8	0.4	4.6	4.1	4.3	6.1	6.3	4.8	4.2	3.7	1.7	4.4	3.3	1.8	10.9	7.7	3.6	0.4	4.2	5.4	8.3	10.9	3.9	24	
28	28	5.5	3.7	1.7	0.5	3.6	2.3	3.7	3.5	4.9	5.9	5.9	7.4	10.2	10.4	9.5	11.8	8.5	11.7	13.6	10.9	9.6	6.8	9.7	9.5	13.6	7.1	24	
29	29	8.3	9.8	12.7	15.4	13.9	12.4	13	15.4	15.4	13.8	11	12.2	15	17	14.1	12.7	11.5	8.8	6.2	2.3	0.7	0.5	0.9	0.4	17.0	10.1	24	
30	30	0.9	0.5	2.6	1	4.4	5.8	7.9	9	6.6	4.7	2.9	3.2	5.3	5.3	9.5	9.5	3	4	2.5	4	1.2	1.2	0.7	0.6	9.5	4.0	24	
HOURLY MAX		14.4	14.2	14.7	15.4	13.9	16.1	14.7	15.4	16.6	15.2	16.9	18.4	16.6	17.0	15.5	15.3	15.6	14.1	13.7	12.9	16.5	17.8	17.9	15.0				
HOURLY AVG		4.2	4.3	4.3	4.5	4.4	4.1	4.8	6.0	6.9	7.5	8.2	8.5	9.2	9.5	9.7	9.3	9.0	8.2	6.6	4.5	4.0	4.0	4.3	4.1				

#### STATUS FLAG CODES

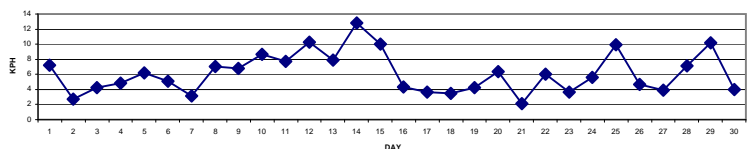
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: November 23, 2010

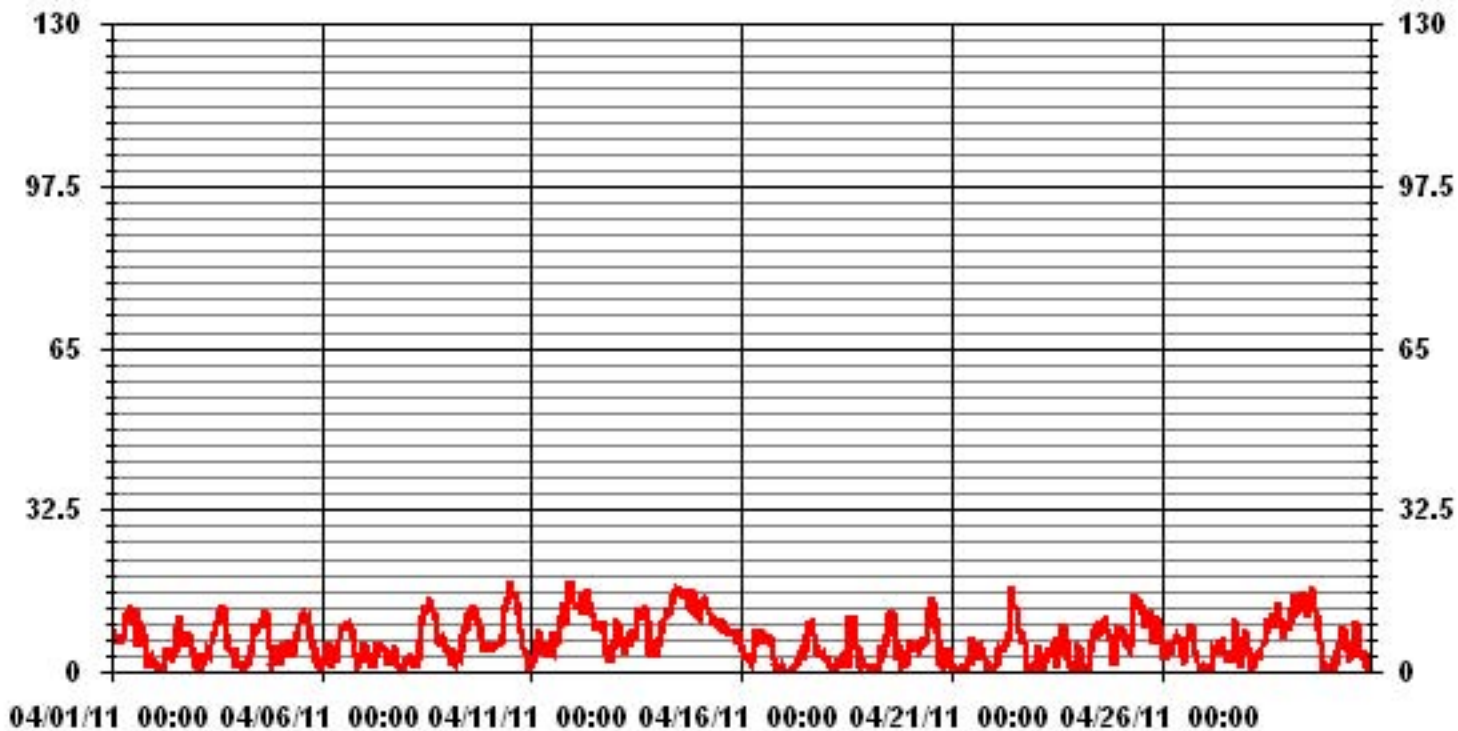
#### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	18.4 KPH	@ HOUR(S)	11	ON DAY(S)	10
MAXIMUM 24-HR AVERAGE:	12.8 KPH			ON DAY(S)	14
CALMS (≤ 0 KPH)	1.75 %	OPERATIONAL TIME:		720	HRS
MONTHLY CALIBRATION TIME:	0 HRS	AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	4.31	MONTHLY AVERAGE		6.26	KPH

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 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	8.8	10.6	9.9	9.1	8.7	8.8	10.9	11.3	19	19.6	15.8	18.1	18.4	16	18.8	17.7	19.7	13.8	12.4	11.1	11.3	3.1	5.9	6	19.7
2	4.1	4.7	6.4	3.7	3.1	2.8	3.8	4.6	7.5	6.5	5.7	7.5	7.4	20.9	19.8	19.3	15.9	9.3	16.7	11.7	13.7	10.9	9.9	7.5	20.9	
3	4	3.5	2.9	5.6	5.3	4.3	7	7.4	8.1	10.4	13.4	12.6	16.1	14.7	16.9	15.9	20.5	16.7	10.8	8.4	7.9	6	8.5	4.2	20.5	
4	3.3	3.8	3.7	4.6	6.8	3.9	5.7	6.2	9.1	13.6	13.6	13.8	15.3	16.3	15.3	17.6	19.4	15.8	10.8	4.7	2.7	6.7	8.1	6.7	19.4	
5	5.8	5.4	9.1	7.7	8.7	6.8	5.5	8.8	8	8.9	12.5	16.8	16.7	16.9	17.8	15.6	17.2	14.3	12.8	9	9.5	4.2	4	3	17.8	
6	6.3	5.8	7	8.1	8.3	4.5	3	6.6	6.5	9.1	9.6	12.8	15.5	14.1	15.9	14.1	16.3	13.7	10.1	6.8	4.7	4	7	7.5	16.3	
7	7.9	10.4	4.6	4.7	5.8	3.5	5.9	7.4	8.4	10.7	14	12.3	10.8	9.6	8.8	18.2	8.6	7.7	9.9	6.8	2.5	2.6	2.3	4.6	18.2	
8	4.7	3.2	6.9	5.2	4.2	3.2	3.6	6.5	13.1	15.6	18.9	18.5	21.6	20.5	23	25.3	22.2	17.9	11.5	11.8	11	12	10.2	7.7	25.3	
9	7.7	7.9	4.7	3.2	4	6	5.6	7.1	8	12.5	14.4	14.6	19.5	17.3	17.5	20.7	19.1	16.6	14.4	11.4	9.1	5.9	6.7	6.3	20.7	
10	8.7	9.7	7.5	8.1	8	7.5	7.8	12.3	17	22.7	22.7	26.9	24.2	25.1	26.4	21.8	20.9	14.9	12.4	8.4	7.3	6.4	1.6	2.2	26.9	
11	2.4	2.8	5.2	10.4	12.7	8.6	7.4	8.7	8.9	9.8	9.4	13.1	13.3	15.3	12.8	13.5	13.4	23.5	22.1	16.5	20.8	27.8	31.1	23.7	31.1	
12	22.5	19.8	20.3	21.5	22.1	28.7	25.3	21.7	25.8	21.6	19.8	17.7	17	18.8	18.8	17.4	19.9	13	10.3	7.5	5.6	3.4	7.3	11.4	28.7	
13	14.9	14.9	11.1	9.3	8.6	5.3	14.2	12.2	9.8	10.7	13.4	17.4	19.8	21.4	21.2	19.8	20.1	18.1	16.6	9.1	3.9	8.3	10.1	5.2	21.4	
14	7.6	9.9	11.3	15.4	15.4	14.4	19.5	19.3	21.4	24.9	25.6	24.7	24.5	25.1	25.7	24.5	25.5	21.4	20.6	19.2	29.1	22.2	19.3	18.9	29.1	
15	19.4	23.8	20.9	22.9	18.8	21.9	17.1	18	14.2	17.1	17	17.2	13.8	15.3	12.1	12.9	14.6	12.8	12.5	10.7	11.4	11.4	9.3	23.8	23.8	
16	7.4	6.6	6.6	7.6	4.1	3.7	7.5	8.4	12.4	11	10.9	12.8	14	15.4	13.3	11.7	12.6	9.9	6.7	6.5	1.5	1.6	1.4	3	15.4	
17	1.4	1.3	3.2	2.5	2.5	3.3	2.3	5.7	7.7	9.4	11.9	13.1	12.3	17.2	26.2	21.5	13.5	11.4	12.1	7.6	6.6	6	5.2	4.8	26.2	
18	4	4.8	3.3	1.7	6.8	5.2	3.3	5	5.5	7.7	10.9	11.4	10.6	21.7	18.4	16.5	18.6	16.6	14.1	4.8	5	5.8	9.1	4.3	21.7	
19	3.9	1.4	2.8	2.4	1.5	1.9	4.5	8.5	7	9.7	16.3	16.6	19.3	21.9	19.6	19	18.3	10.7	12.9	8	3.9	3.8	7.8	7.8	21.9	
20	8.8	6.8	7.7	9.1	5.9	7.2	10.5	11.1	11	11.6	19.8	22.1	26.5	27.9	19.2	17.7	26.2	7.7	5.1	19.7	4.3	6.6	4.4	4.1	27.9	
21	2.2	1.9	3.4	4.2	4.5	4.5	3.2	2.8	4.4	7.1	8.1	15.6	19.9	14.6	17.9	15.6	13.9	7.9	12.7	5.2	6.2	3.5	2.3	3.1	19.9	
22	3.5	3.2	6.2	7.1	7.7	8.5	7.4	10.3	13.2	20	24.9	23.6	23.2	22.4	19.1	25	21.3	17.6	7	4.4	2.9	5.6	4.2	3.9	25	
23	4.2	7	6.6	2.5	4.2	4.1	6.9	8.1	8.8	10.6	11	17	14.3	17.4	14.2	14	12.8	12.5	5.6	3.5	2.8	2.4	3.5	3.3	17.4	
24	7.3	6.4	3.7	4.7	4.3	3.8	1.9	7.6	10.9	13.4	13.8	14.1	13.1	12.3	15	16.8	17.5	13	9.9	7.5	6.1	7.7	11.8	13.3	17.5	
25	15.5	13.2	10.9	12.1	8.7	7	16	18.2	23	21.9	23.9	20.4	20.8	22.7	18.5	18.7	23.2	19.7	15.1	8.4	17.7	16.3	13.3	13.1	23.9	
26	10.1	8.4	15.2	12.6	6.9	7.9	12.6	10	11.2	12.3	10.8	8.5	7	11.5	19.3	13.8	13.9	12.7	7.4	6	5.7	4.3	2.9	3.8	19.3	
27	3.7	3	3.2	4.2	3.5	6.1	6.2	6.4	9.5	9.8	9.9	10.1	11.7	9.7	9.7	8.5	19.9	18.8	15.2	7.9	3.4	10.7	11.5	13.8	19.9	
28	8.9	8.7	5.1	3.4	6.8	4.7	8	6.7	9.1	8.5	9.2	13.7	17.1	15.3	17.6	17.7	14.7	17.1	19.8	15.7	15.5	12.1	13.8	14.6	19.8	
29	13.6	14.4	20.2	26.1	24.6	19.4	20.2	22.4	25.5	21.2	21.9	16.1	25.7	27.3	22.9	25.4	17.3	13.7	11.4	P	2.1	1.9	1.4	1.5	27.3	
30	2.1	2.2	6.1	3.1	9.1	10	12.2	14.8	10.6	9	10.5	14.3	12.9	11.3	27.7	19.9	20.7	10.9	7.4	5.1	3.6	4.4	3.2	2.8	27.7	
PEAK		22.5	23.8	20.9	26.1	24.6	28.7	25.3	22.4	25.8	24.9	25.6	26.9	26.5	27.9	27.7	25.4	26.2	23.5	22.1	19.7	29.1	27.8	31.1	23.7	

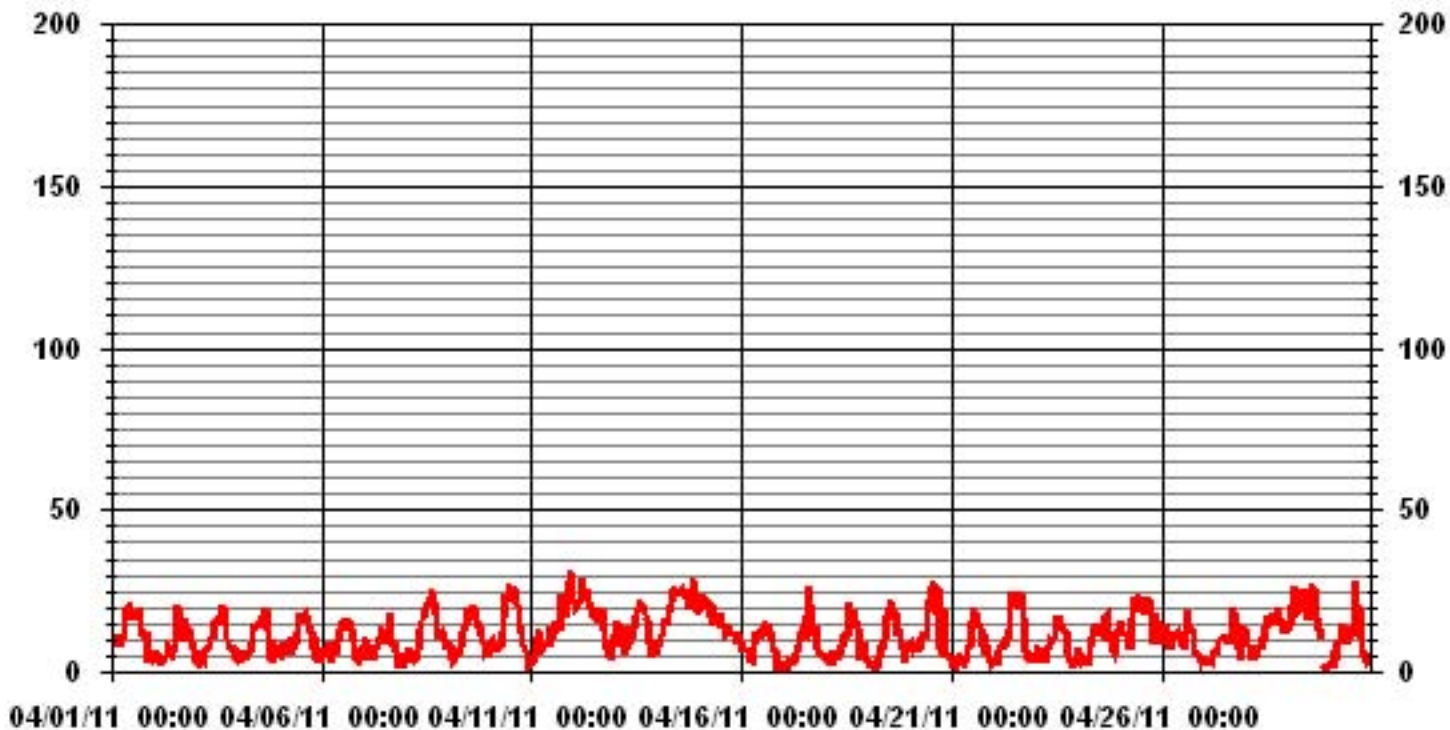
STATUS FLAG CODES

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	31.1	KPH	@ HOUR(S)	22
			ON DAY(S)	11

### 01 Hour Averages



— LICA WSMAX KPH

LICA  
WSP / WD Joint Frequency Distribution (Percent)

April 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	1.25	1.94	2.91	2.50	2.36	3.19	2.77	2.08	1.80	5.13	12.91	6.80	3.05	.97	1.66	1.11	52.50
< 12.0	1.25	2.77	4.30	1.38	1.66	1.94	2.77	.13	.27	.69	8.33	3.05	1.80	.83	.83	.69	32.77
< 20.0	.97	.69	.00	.00	1.52	.97	1.94	.00	.00	.00	1.94	.41	2.08	1.38	.41	.55	12.91
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.47	5.41	7.22	3.88	5.55	6.11	7.50	2.22	2.08	5.83	23.19	10.27	6.94	3.19	2.91	2.36	

Calm : 1.80 %

Total # Operational Hours : 720

Distribution By Samples

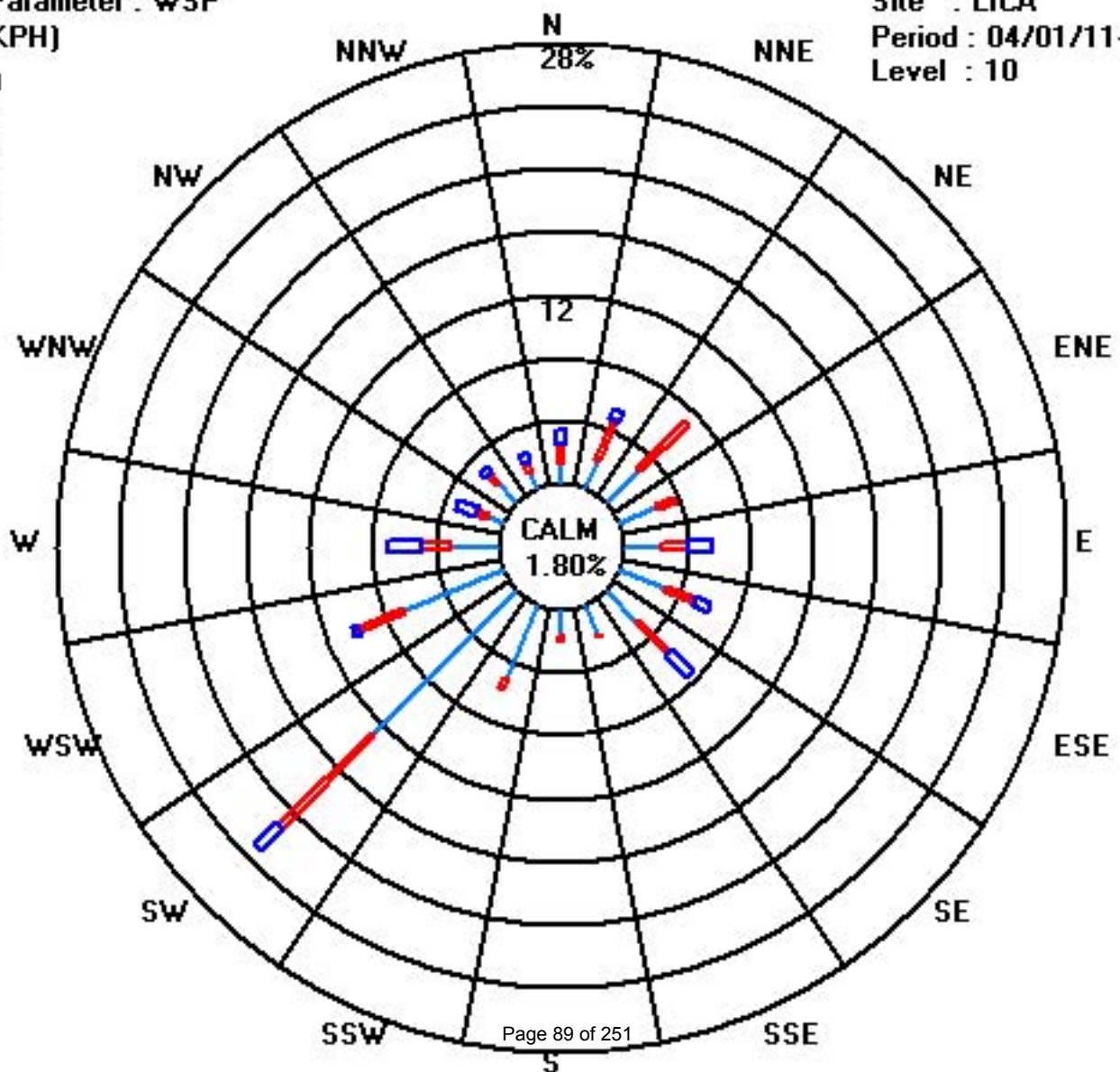
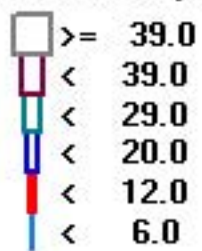
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	9	14	21	18	17	23	20	15	13	37	93	49	22	7	12	8	378
< 12.0	9	20	31	10	12	14	20	1	2	5	60	22	13	6	6	5	236
< 20.0	7	5			11	7	14				14	3	15	10	3	4	93
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	25	39	52	28	40	44	54	16	15	42	167	74	50	23	21	17	

Calm : 1.80 %

Total # Operational Hours : 720



Class Limits (KPH)



# Vector Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 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	232	241	239	230	233	228	230	234	261	263	256	248	244	240	230	262	321	228	225	233	266	196	232	242	244	WSW	24	
2	154	230	35	196	333	93	42	26	47	27	47	46	114	358	295	306	296	325	311	322	2	33	29	25	348	NNW	24	
3	56	325	251	334	323	355	343	4	338	313	284	258	233	245	229	226	227	229	228	224	217	211	211	187	247	WSW	24	
4	126	122	127	165	168	139	201	213	232	233	238	239	225	231	230	234	231	245	257	242	165	216	234	237	228	SW	24	
5	213	215	229	229	224	229	221	229	240	239	231	230	233	229	222	226	233	235	230	226	241	260	194	171	229	SW	24	
6	214	228	226	232	240	237	207	233	222	225	226	225	243	224	230	234	235	231	240	229	248	194	241	231	231	SW	24	
7	229	223	235	232	264	190	251	261	266	324	328	7	33	240	209	277	111	249	287	327	191	212	202	220	268	W	24	
8	243	257	226	230	237	142	153	198	221	220	219	223	222	219	215	215	211	213	191	188	198	204	197	202	213	SSW	24	
9	206	209	197	200	177	229	231	229	230	231	223	229	231	222	233	230	227	224	223	225	232	237	248	237	227	SW	24	
10	227	228	231	237	236	240	238	249	272	270	265	272	264	262	282	278	276	263	231	229	235	234	130	84	259	WSW	24	
11	74	101	107	123	126	136	140	133	154	192	227	133	132	195	175	200	217	268	292	277	287	299	299	285	245	WSW	24	
12	281	274	268	268	277	301	293	314	325	328	340	342	341	4	342	335	15	58	75	72	91	113	107	121	320	WNW	24	
13	127	127	130	128	125	103	123	129	111	111	121	119	131	129	135	136	134	134	125	131	123	134	125	101	127	SE	24	
14	95	91	94	89	87	86	85	96	100	93	97	103	102	106	106	105	100	108	107	100	124	125	113	105	102	E	24	
15	87	84	85	83	83	79	75	73	74	68	71	65	52	52	39	36	37	34	34	39	34	30	34	32	62	ENE	24	
16	30	70	39	39	32	67	36	34	43	27	35	79	108	105	68	81	60	51	78	41	186	109	263	55	59	ENE	24	
17	9	76	128	50	172	186	259	170	228	242	240	174	234	232	257	308	259	276	287	222	217	236	226	228	251	WSW	24	
18	217	236	258	236	216	75	288	332	334	264	253	248	224	222	238	244	238	313	0	239	187	262	134	210	248	WSW	24	
19	360	147	74	115	164	144	241	227	208	249	238	232	258	255	236	281	228	222	40	192	147	197	209	214	238	SW	24	
20	223	228	219	225	230	236	230	231	235	230	231	241	236	280	246	224	219	221	175	238	214	244	214	231	235	SW	24	
21	156	100	165	222	139	80	197	315	107	77	7	230	315	14	237	264	16	101	296	315	62	173	137	242	313	NW	24	
22	235	248	235	228	234	236	232	253	270	283	305	286	268	279	308	263	264	281	117	94	149	40	196	211	271	W	24	
23	236	237	249	167	236	248	236	264	356	40	39	124	11	326	44	41	51	36	116	196	212	205	229	234	15	NNE	24	
24	226	231	246	198	135	61	263	15	52	46	41	49	39	39	38	39	30	50	47	51	74	73	100	99	50	NE	24	
25	100	94	107	105	107	106	116	126	130	130	133	129	134	134	157	144	140	135	136	126	129	133	137	137	128	SE	24	
26	118	95	111	104	76	65	108	77	113	56	3	1	21	348	291	302	354	352	341	319	280	231	262	235	32	NNE	24	
27	216	233	247	213	228	246	233	231	226	231	239	228	249	301	46	112	173	274	288	256	162	271	298	317	259	WSW	24	
28	259	295	76	267	232	254	259	278	27	24	23	21	12	1	34	48	24	15	11	19	24	24	23	19	15	NNE	24	
29	20	19	11	10	15	14	15	9	10	20	26	24	348	345	7	10	32	47	48	48	158	207	80	97	14	NNE	24	
30	85	36	116	82	116	103	124	129	125	86	73	42	16	65	9	352	268	255	245	244	221	197	160	203	83	E	24	
HOURLY AVG	360	325	268	334	333	355	343	332	356	328	340	342	348	358	342	352	354	352	341	327	287	299	299	317				

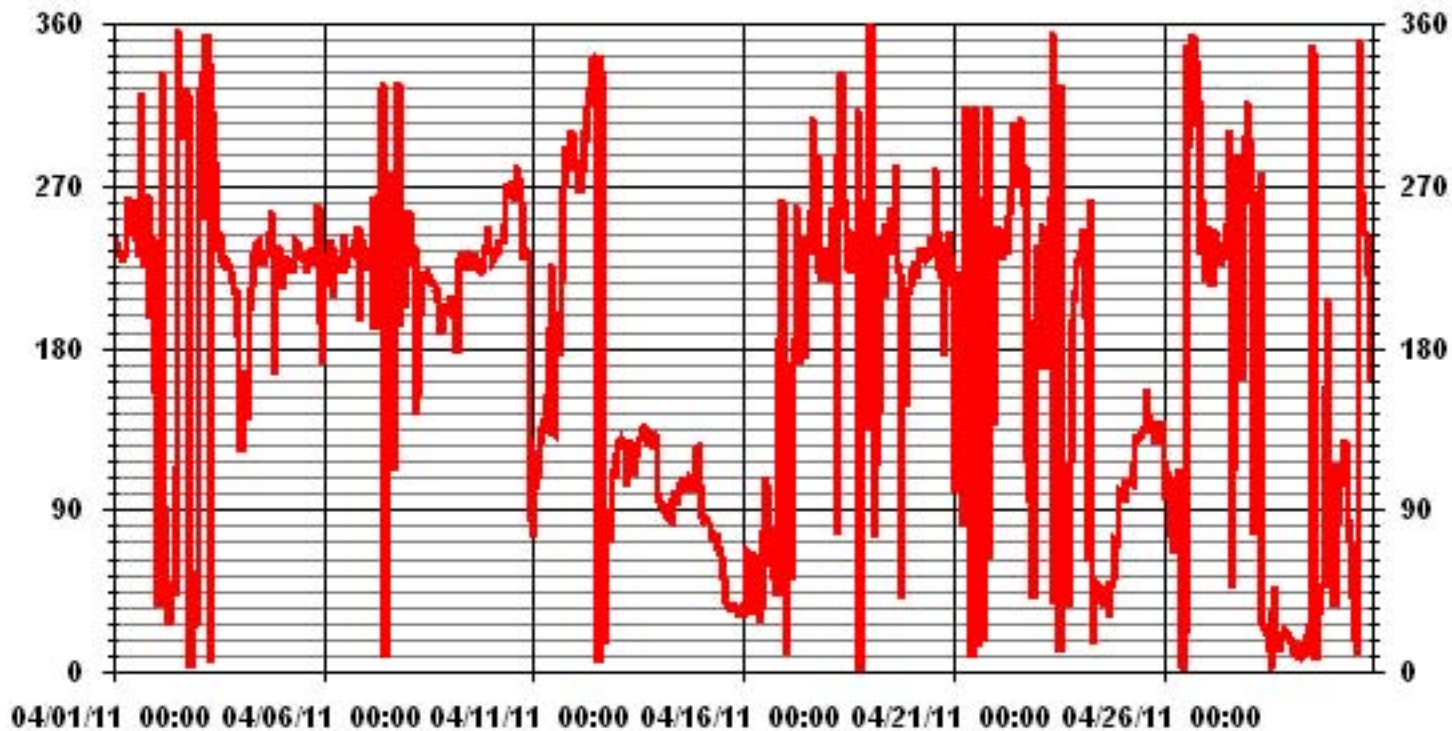
**STATUS FLAG CODES**

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	91.65	AMD OPERATION UPTIME	100.0 %
		MONTHLY AVERAGE	237 DEG

### 01 Hour Averages



— LICA WDR DEG

# Standard Deviation Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 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	13	15	15	14	16	16	18	18	18	18	17	18	21	22	43	26	19	17	21	36	51	44	47
2	55	38	62	49	40	45	31	29	22	24	37	30	41	48	23	17	17	20	17	17	18	18	23	22
3	33	47	29	23	13	23	25	26	32	25	24	24	21	24	19	19	18	21	17	18	22	28	28	44
4	35	13	43	65	49	53	46	31	28	20	20	21	21	19	21	19	18	17	20	31	20	22	16	16
5	44	27	13	13	12	14	19	18	25	20	21	20	20	21	19	20	19	18	17	16	18	28	30	48
6	36	19	50	13	11	25	32	21	33	28	25	22	21	20	20	20	22	19	14	19	41	41	20	11
7	13	14	23	26	29	51	30	20	16	29	31	45	35	62	39	56	39	21	27	30	35	29	34	30
8	17	27	18	12	31	35	48	41	23	23	24	21	23	22	25	25	28	25	37	37	36	31	33	34
9	31	25	38	22	26	15	17	32	27	22	24	22	21	22	22	21	21	20	18	17	16	18	11	11
10	16	18	13	12	13	12	12	19	18	19	22	20	20	21	20	23	20	21	18	16	14	14	52	23
11	14	22	14	14	11	18	24	12	35	45	34	57	24	32	36	36	23	19	16	18	18	16	16	18
12	19	18	18	19	19	15	18	15	15	17	19	22	25	34	25	28	23	21	21	16	16	27	19	18
13	15	14	13	13	16	25	20	21	28	29	36	31	30	24	25	21	18	14	16	15	12	14	18	21
14	18	18	19	17	16	17	18	22	22	21	22	23	22	22	22	22	22	22	22	21	19	18	22	22
15	17	20	19	18	20	20	20	20	20	19	22	20	18	16	19	18	19	19	20	18	19	19	18	20
16	20	20	23	18	16	25	23	23	18	22	25	25	28	34	24	29	21	20	32	35	43	69	81	29
17	49	53	57	65	53	35	43	57	42	49	50	45	64	37	27	18	23	22	17	17	21	16	13	15
18	16	13	53	34	43	51	21	26	42	67	51	54	72	30	27	28	21	48	38	56	48	59	56	32
19	44	56	41	35	48	32	32	20	51	44	33	27	22	35	22	37	30	38	28	60	35	49	54	30
20	16	17	12	13	14	12	16	19	28	33	27	25	23	25	26	32	37	58	43	58	13	9	15	13
21	43	44	50	34	65	72	59	71	56	55	60	49	27	45	63	56	28	46	38	71	36	36	66	63
22	34	28	11	11	13	14	17	22	20	23	19	22	26	27	25	34	38	26	48	60	47	67	54	63
23	19	10	16	66	44	32	18	22	51	39	30	64	34	43	28	20	22	23	24	27	41	25	35	46
24	10	12	22	61	46	42	37	25	22	21	22	25	31	30	24	24	24	20	18	19	43	35	22	22
25	22	20	24	24	22	22	22	16	16	17	18	19	22	28	38	34	25	18	16	14	19	13	15	16
26	21	54	48	30	40	24	34	23	21	21	24	58	42	23	21	17	17	18	15	14	31	58	35	49
27	52	37	50	60	49	11	19	20	21	25	40	52	64	78	38	47	47	19	19	18	68	25	16	12
28	17	31	31	52	16	30	18	21	18	18	20	22	17	15	20	18	19	18	16	20	18	19	20	22
29	18	19	18	16	17	18	19	18	18	21	22	25	24	21	21	23	20	19	19	31	35	62	24	37
30	34	48	23	36	21	22	17	17	20	35	66	65	55	42	26	36	30	22	26	12	51	50	50	48

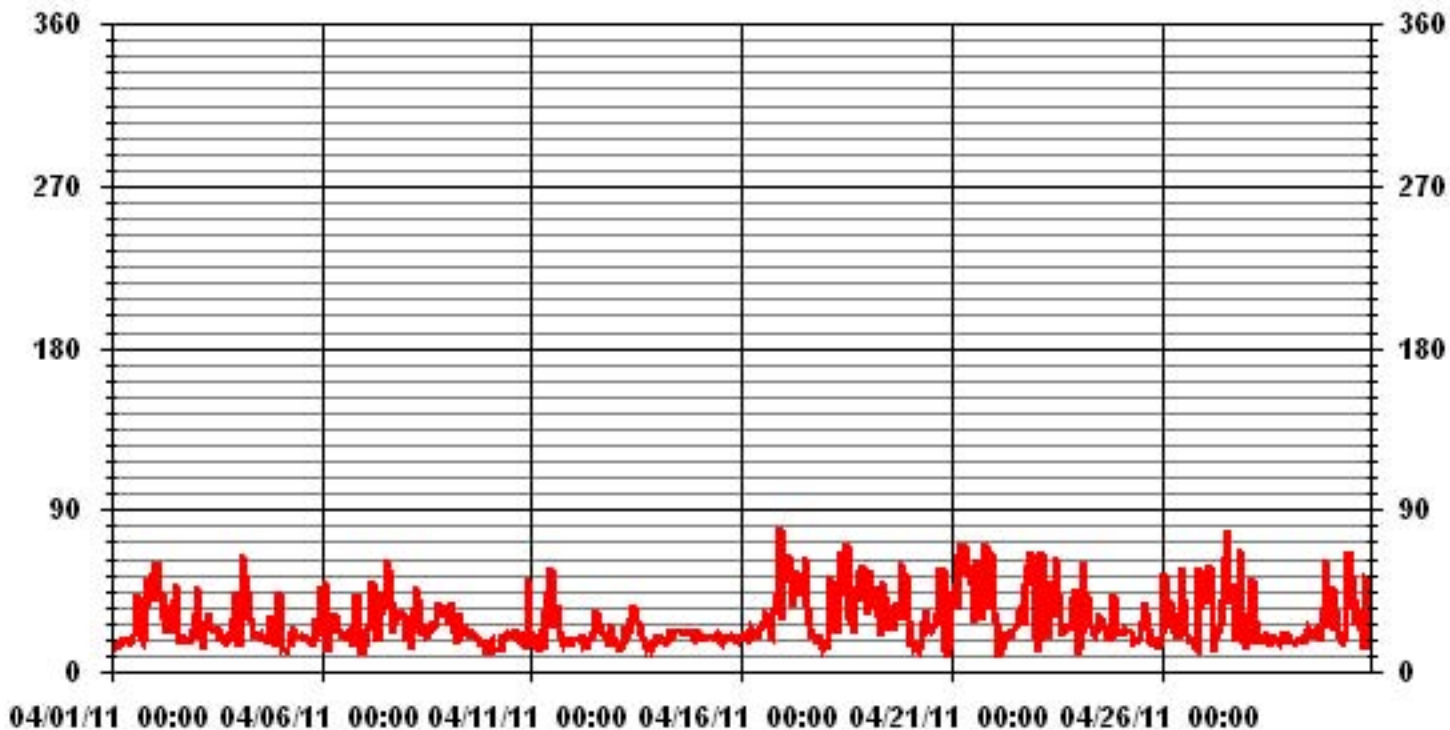
### STATUS FLAG CODES

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

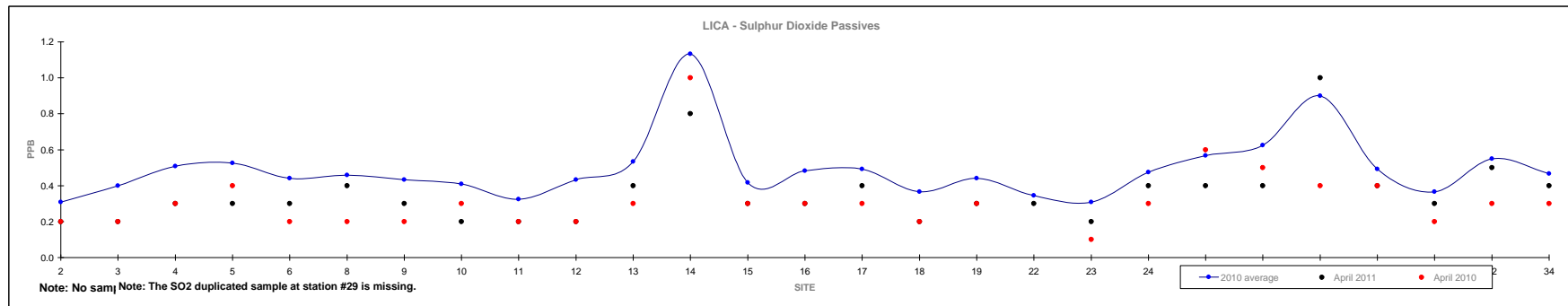
# Non-Continuous Monitoring



### Passive Summary Results for April 2011

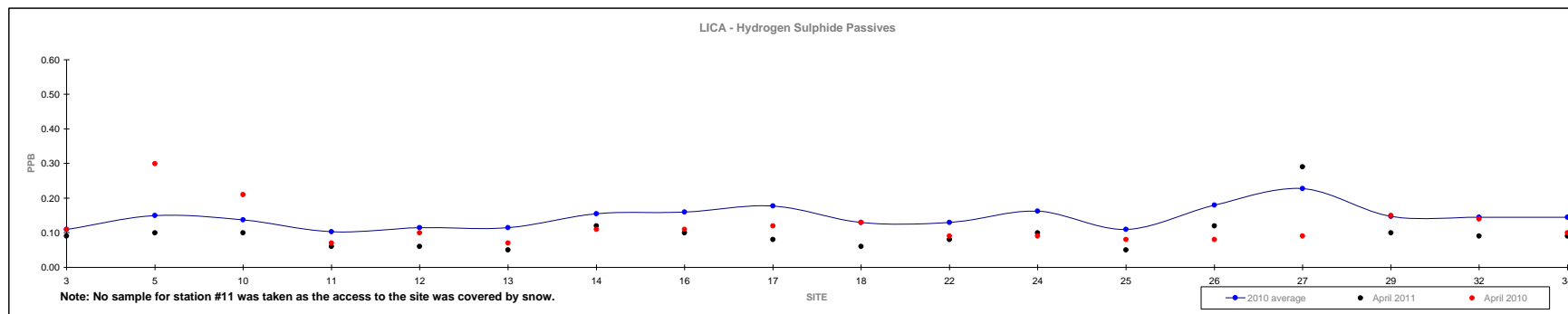
Lakeland Industry & Community Association

	Sulphur Dioxide ppb																												Reading	Site
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	25	26	27	28	29	32	34	0.4	-	
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	0.2	VAR		
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	1.0	#27	



### Passive Summary Results for April 2011 Lakeland Industry & Community Association

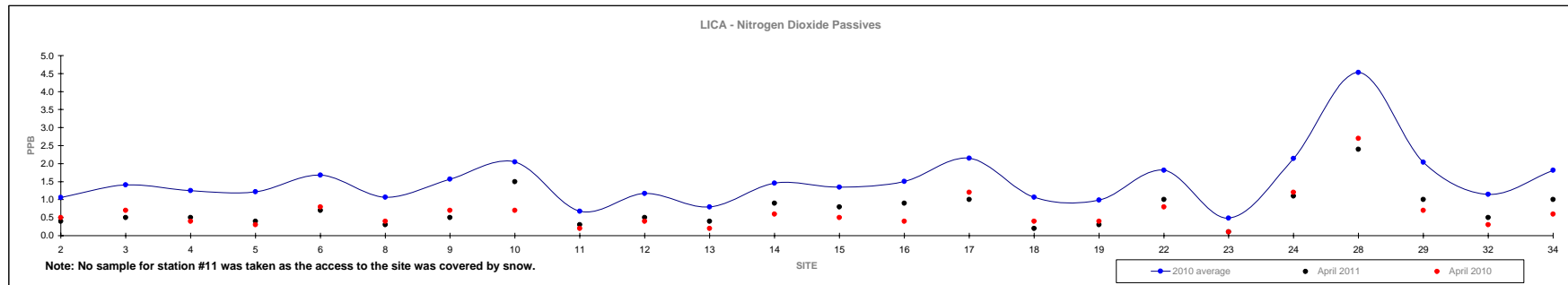
	Hydrogen Sulphide ppb																April 2011			
	3	5	10	11	12	13	14	16	17	18	22	24	25	26	27	29	32	34	Reading	Site
Mean	0.13	0.26	0.15	0.08	0.10	0.09	0.14	0.13	0.17	0.11	0.11	0.14	0.08	0.12	0.21	0.13	0.14	0.15	0.10	-
Minimum	0.05	0.10	0.08	0.03	0.05	0.03	0.08	0.04	0.09	0.04	0.02	0.07	0.05	0.07	0.07	0.06	0.08	0.10	0.05	#13, #25
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	0.29	#27



### Passive Summary Results for April 2011

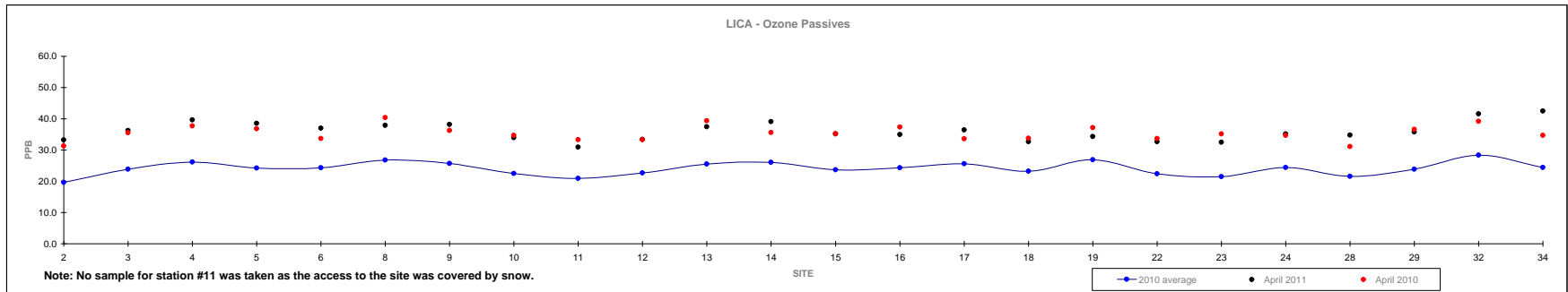
Lakeland Industry & Community Association

	Nitrogen Dioxide ppb																								April 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	0.7	-
Minimum	0.3	0.5	0.4	0.3	0.7	0.3	0.6	0.7	0.2	0.4	0.2	0.4	0.4	0.4	0.9	0.3	0.3	0.5	0.1	0.6	1.6	0.5	0.3	0.6	0.1	#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	2.4	#28



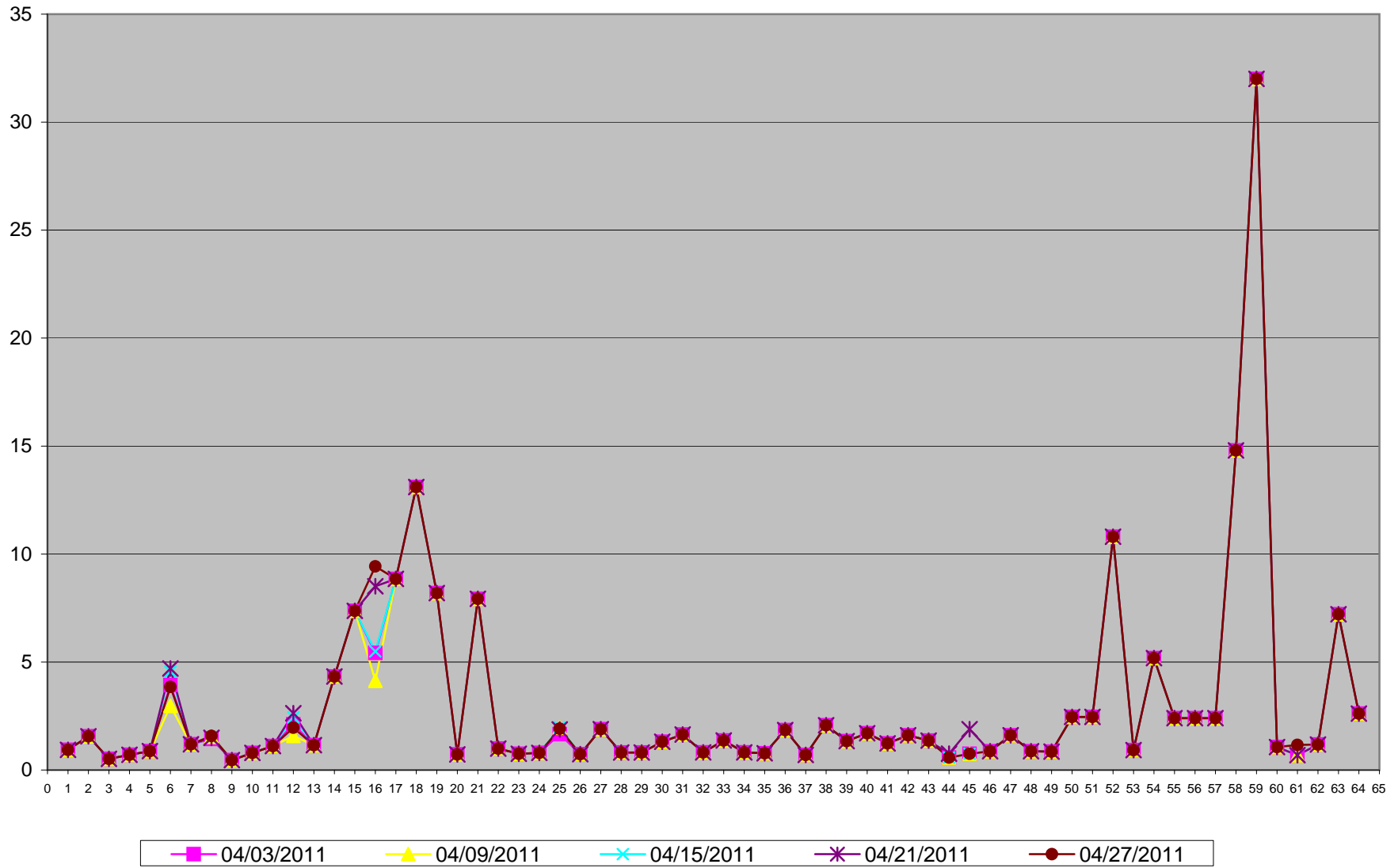
### Passive Summary Results for April 2011 Lakeland Industry & Community Association

	Ozone ppb																												Reading	April 2011	Site
	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	36.0	-					
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							
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	30.9	#11					
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	42.5	#34					



# 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

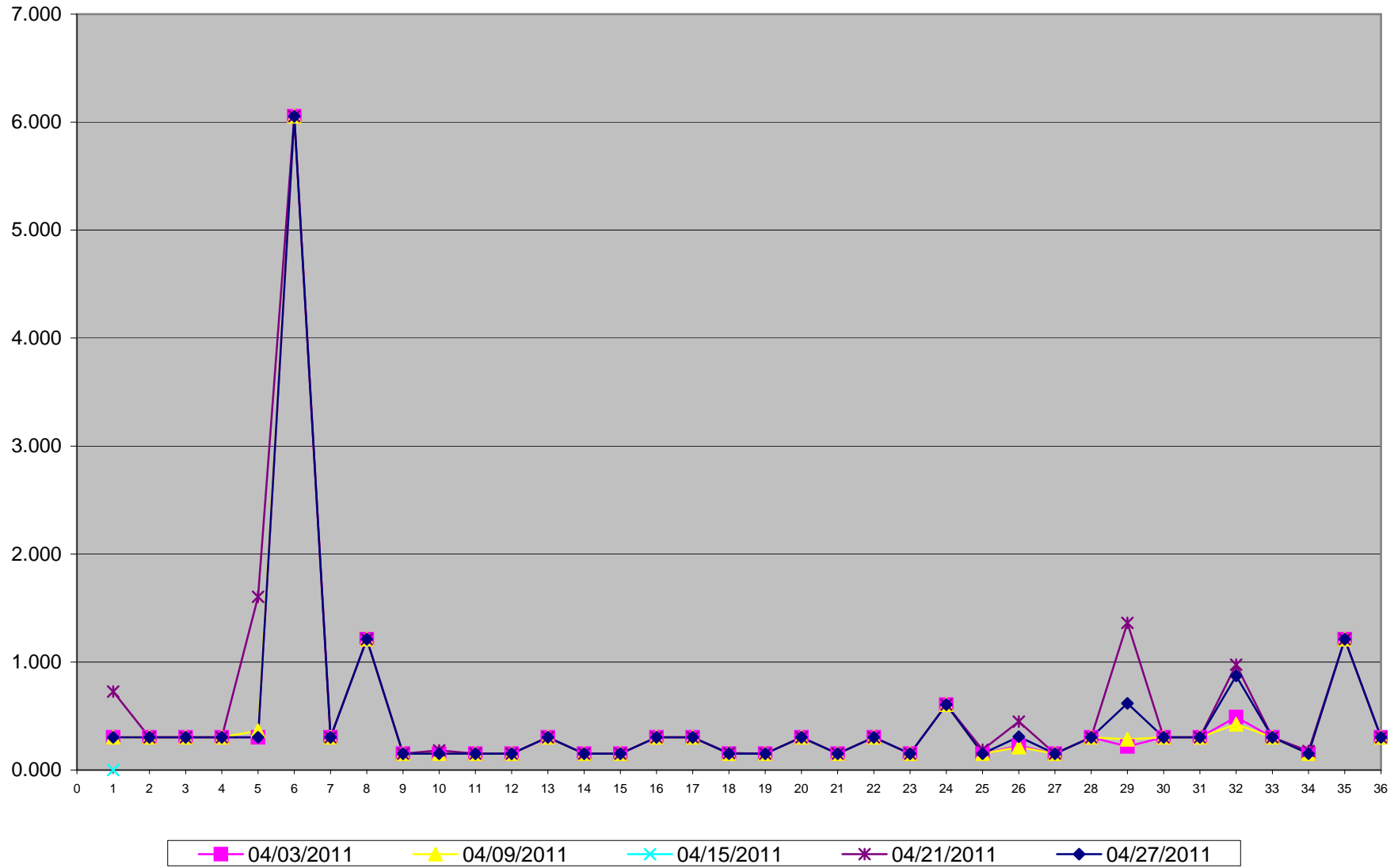


**Polycyclic Aromatic Hydrocarbons (PAHs) Results for April 2011**  
**LICA- Cold Lake South Site**  
**Unit: ng/m3**

PAHs	04/03/2011	04/09/2011	04/15/2011	04/21/2011	04/27/2011
Sample Volume (unit: m3)	330.36	330.34	330.37	330.35	330.37
1 1-Methylnaphthalene	0.303	0.303	0.303	0.727	0.303
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	0.303	0.363	0.333	1.604	0.303
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-Dimethylantracene	1.211	1.211	1.211	1.211	1.211
9 Acenaphthene	0.151	0.151	0.151	0.151	0.151
10 Acenaphthylene	0.151	0.151	0.163	0.182	0.151
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	0.151	0.151	0.151	0.151
16 Benzo(b)fluorene	0.303	0.303	0.303	0.303	0.303
17 Benzo(e)pyrene	0.303	0.303	0.303	0.303	0.303
18 Benzo(g,h,i)perylene	0.151	0.151	0.151	0.157	0.151
19 Benzo(k)fluoranthene	0.151	0.151	0.151	0.151	0.151
20 Biphenyl	0.303	0.303	0.303	0.303	0.303
21 Chrysene	0.151	0.151	0.151	0.151	0.151
22 Coronene	0.303	0.303	0.303	0.303	0.303
23 Dibenz(a,h)anthracene	0.151	0.151	0.151	0.151	0.151
24 Dibenzo(a,e)pyrene	0.605	0.605	0.605	0.605	0.605
25 Fluoranthene	0.151	0.151	0.151	0.188	0.151
26 Fluorene	0.224	0.212	0.242	0.448	0.309
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	0.151	0.151	0.151
28 m-Terphenyl	0.303	0.303	0.303	0.303	0.303
29 Naphthalene	0.218	0.285	0.254	1.362	0.617
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	0.490	0.424	0.630	0.975	0.872
33 p-Terphenyl	0.303	0.303	0.303	0.303	0.303
34 Pyrene	0.151	0.151	0.151	0.176	0.151
35 Quinoline	1.211	1.211	1.211	1.211	1.211
36 Tetralin	0.303	0.303	0.303	0.303	0.303

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

PAHs in ng/m3 Site: LICA - 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

### SO<sub>2</sub> Calibration Report

#### Station Information

Calibration Date	April 5, 2011	Previous Calibration	March 4, 2011
Company	Lakeland Community and Industry Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	14:08	End Time (MST)	17:30
Reason:	Monthly Calibration		
Barometric Pressure	0.926 atm	Station Temperature	24 Deg C
Cal Gas	49 ppm	Cal Gas Expiry date	4/2/2013
DAS Output Voltage	0 - 1 Volts		

#### Equipment Information

Analyzer Make / Model:	Thermon 43i	S/N :	806528242	Method:	UV absorbtion
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		
Flow Meter:	API 700	S/N :	831		

#### Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 500 ppb		
Sample Flow / Box Temp	443 ccm, 30 Deg C	446 ccm, 30.7 Deg C	
HVPS / Lamp Setting	-632, 752	-632, 752	
PMT / RxCell Temp	OK Deg C, 45.0 Deg C	OK Deg C, 45.1 Deg C	
Converter / IZS Temp	NA Deg C, 45.0 Deg C	NA Deg C, 45.0 Deg C	
Offset / Slope	5.5, 1.033	5.4, 1.011	

#### Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
4959	40.8	400	407	0.9824
4959	40.8	400	400	0.9996
4980	20.4	200	202	0.9896
4985	15.3	150	152	0.9864
4996	0	0	1	N/A
Sum of Least Squares				0.9965
New Correction Factor				0.9996

#### Before Calibration

#### After Calibration

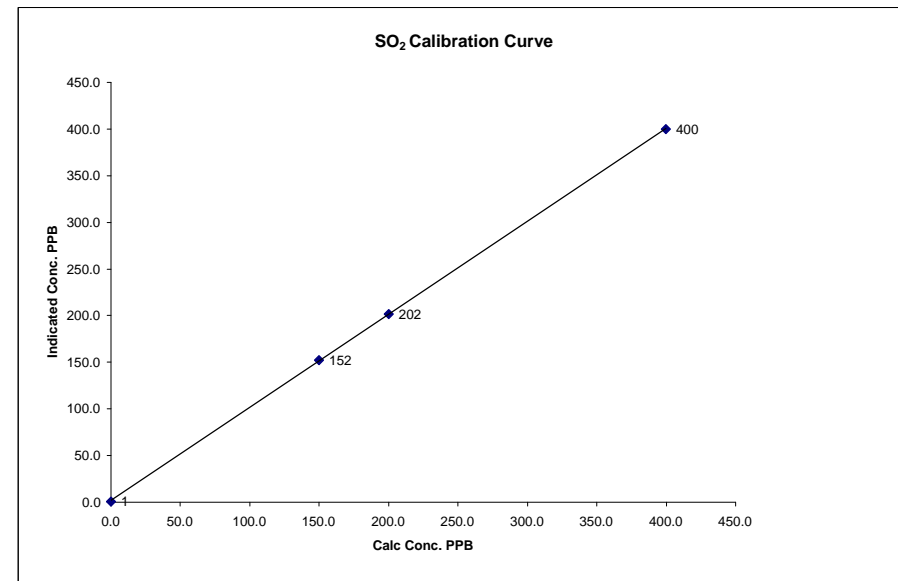
Auto Zero	0.3	0.4
Auto Span	387	379
Sample Lines Connected	YES	
Percent Change from Previous Calibration	1.3%	

Calibration Performed by: Ting Xyu

### SO<sub>2</sub> Calibration Curve

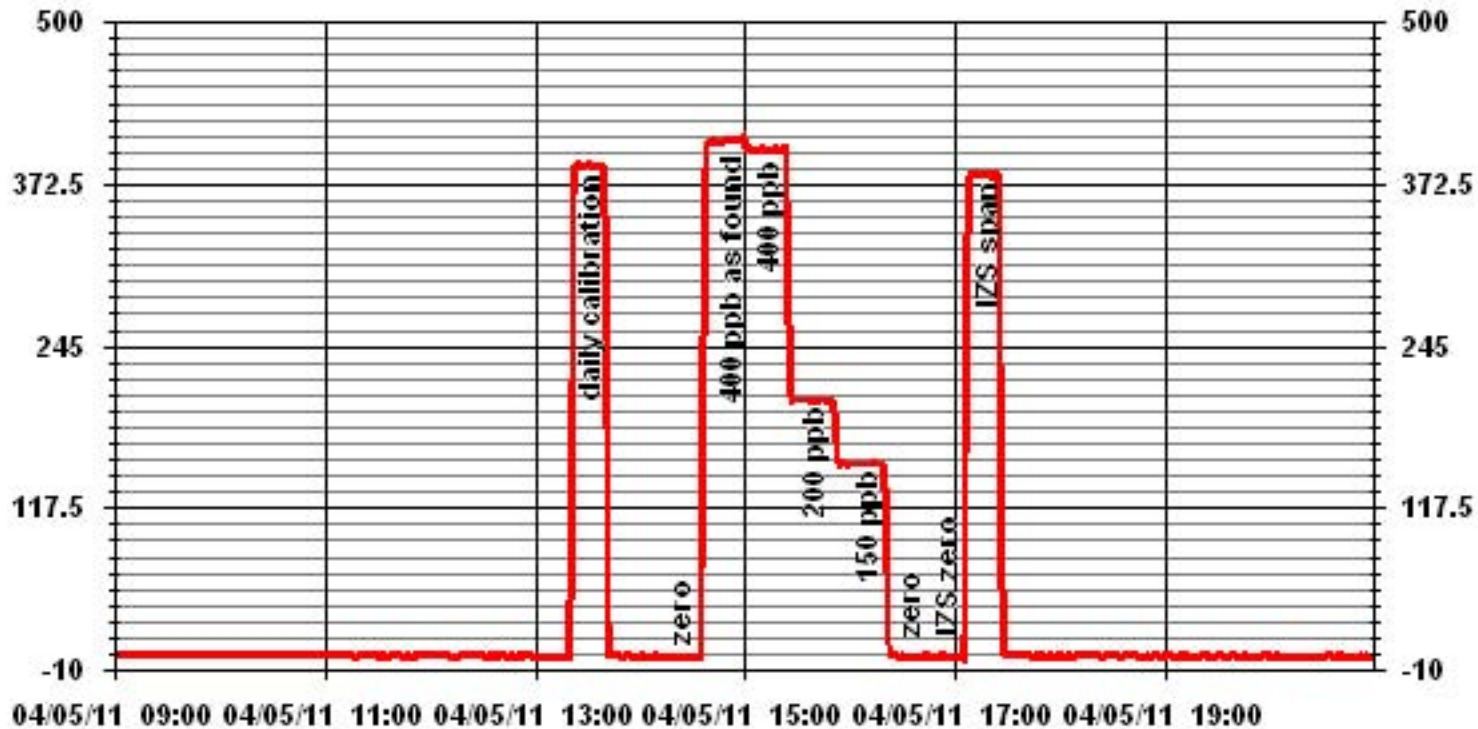
Calibration Date	April 5, 2011
Company	Lakeland Community and Industry Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	14:08
End Time (MST)	17:30

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope (≥ 0.995) (0.85 to 1.15)	Intercept (± 3% F.S.)
0	1	n/a	0.999974	0.997455
150	152	0.9864		1.804280
200	202	0.9896		
400	400	0.9996		



Notes:

### 01 Minute Averages



# Total Reduced Sulphur



**TRS Calibration Report  
Station Information**

Calibration Date	April 5, 2011	Previous Calibration	March 8, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	7:37	End Time (MST)	11:24
Reason:	Monthly Calibration		
Barometric Pressure	0.923 atm	Station Temperature	23 Deg C
Cal Gas	10.2 ppm	Cal Gas Expiry date	February 2, 2012
DAS Output Voltage	0 - 10 Volts		

**Equipment Information**

Analyzer Make / Model:	TEI 4501	S/N :	812728560	Method:	Fluorescent
Converter Make / Model:	CD Nova CDN 101	S/N :	250		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	3485		
Flow Meter:	API 700	S/N :	831		

**Analyzer Settings**

Before Calibration				After Calibration			
Concentration Range	0 - 100 ppb						
Sample Flow / Box Temp	352 ccm	31.3 Deg C		352 ccm	32.4 Deg C		
HVPS / Lamp Setting	-622.7	756		-622.7	755		
PMT / RxCell Temp	OK Deg C	45.2 Deg C		OK Deg C	45.2 Deg C		
Converter / IZS Temp	850 Deg C	45.0 Deg C		850 Deg C	45.0 Deg C		
Offset / Slope	12.2	1.264		11.9	1.236		

**Calibration Data**

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
4959	39.2	80	82	0.9756
4959	39.2	80	80	1.0000
4980	19.6	40	41	0.9753
4986	11.2	23	23	0.9939
4996	0	0	0	N/A
Sum of Least Squares				0.9949
New Correction Factor				1.0000

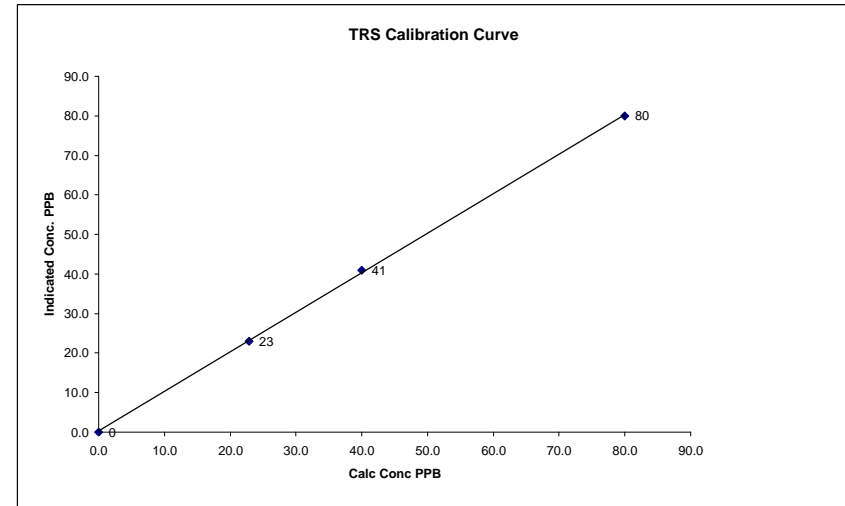
	Before Calibration	After Calibration
Auto Zero	0.3	0.3
Auto Span	53	52
Sample Lines Connected		YES
Percent Change from Previous Calibration		1.2%

Calibration Performed by: Ting Xu

**TRS Calibration Curve**

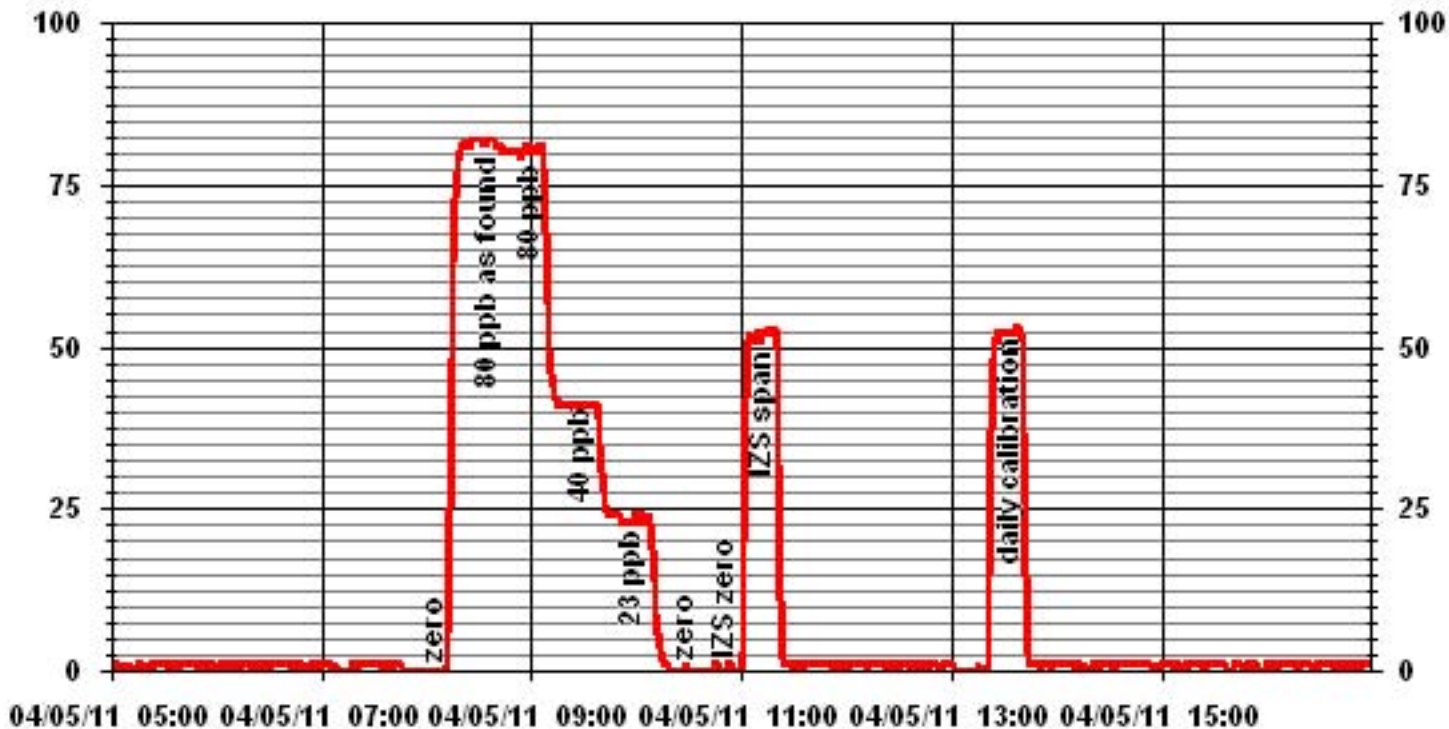
Calibration Date	April 5, 2011
Company	Lakeland Industry & Community Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	7:37
End Time (MST)	11:24

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	0.999793
0	0	n/a	Intercept		1.000785
23	23	0.9939			0.260776
40	41	0.9753			
80	80	1.0000			



Notes:

### 01 Minute Averages



# Total Hydrocarbons

### THC Calibration Report

#### Station Information

Calibration Date:	April 5, 2011	Previous Calibration:	March 4, 2011
Company:	Lakeland Industry and Community Association		
Plant / Location:	LICA1/Cold Lake		
Start Time (MST):	10:58	End Time (MST):	14:50
Reason:	Monthly Calibration		
Barometric Pressure:	0.925 atm	Station Temperature:	23 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	207Prop/602Meth	ppm	Cal Gas Expiry Date: 6/11/2012
DAS make & Model:	ESC 8832	S/N :	3485
Output Voltage Range:	0 - 10 VDC		

#### Analyzer Information

Make / Model	TECO 51C-LT	S/N :	51CLT-42740-8718	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
1999	0	0.0	-0.1	N/A
1999	0	0.0	0.0	N/A
1999	70	39.6	38.9	1.0187
1999	70	39.6	39.8	0.9956
1999	35	20.1	19.9	1.0099
1998	20	11.6	11.6	1.0007
2000	0	0.0	0.2	N/A
			Correction Factor:	0.9956

#### Percent Change

Previous Calibration Correction Factor:	0.9907
Current Correction Factor Before Span Adjust:	1.0187
Percent Change:	-2.8%

#### IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-0.1	0.3
Auto Span	36.1	37.2
Sample Lines Connected		YES

#### Cylinder Pressures

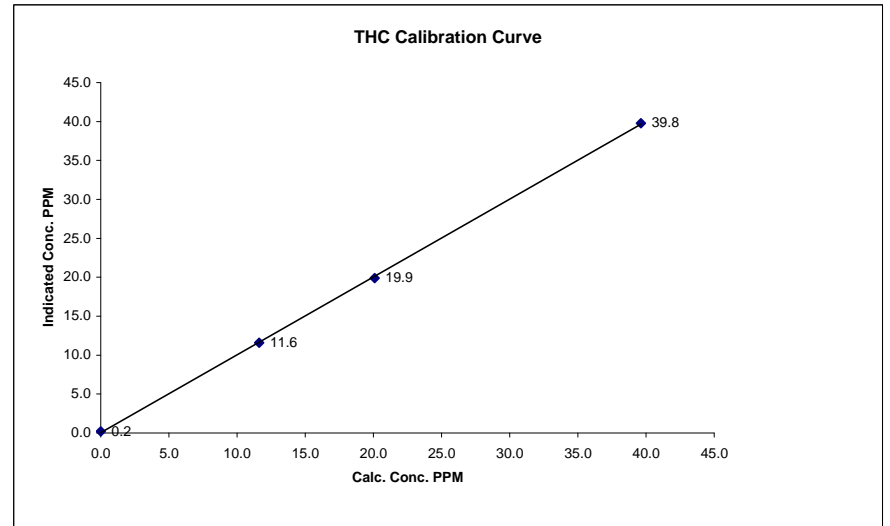
Span	300 psi
Hydrogen	450 psi
Zero Air	32 psi Maxxam-owned API 701 zero air supply with catalytic oxidizer

Calibration Performed by: Ting Xu

### THC Calibration Curve

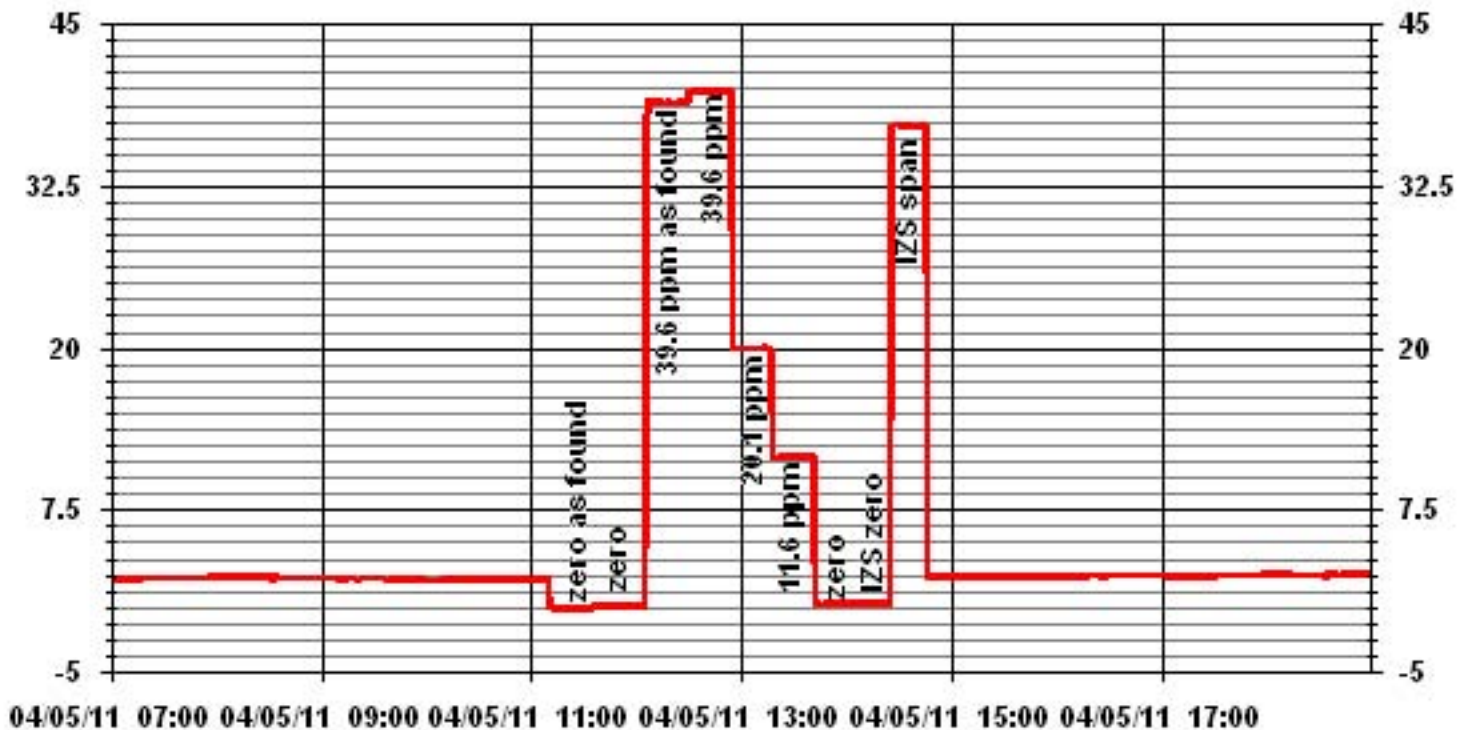
Calibration Date	April 5, 2011
Company	Lakeland Industry and Community Association
Plant / Location	LICA1/Cold Lake
Start Time (MST)	10:58
End Time (MST)	14:50

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999878
0.0	0.2		Intercept	(0.85 to 1.15)	0.999778
11.6	11.6	1.0007		(± 3% F.S.)	0.045883
20.1	19.9	1.0099			
39.6	39.8	0.9956			



Notes:

### 01 Minute Averages



# Particulate Matter 2.5

**TEOM 1405F Audit**

	<u><b>Station</b></u>		<u><b>Audit Transfer Standard</b></u>
Date:	April 18, 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:	VWR90758398

	<u><b>Sampler</b></u>		<u><b>Set-up and current Sampler readings</b></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 (%)	41.5%
Firmware Ver.	1.52	K <sub>o</sub> Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	-1.4
		Press (ATM)	0.937

**Conversion from mmHg or "Hg to ATM (Atmospheres)**

ATM = (mmHg) X (1.316 X 10<sup>-3</sup>) or ATM = ("Hg) X (3.34207 X 10<sup>-2</sup>)

**Note: Tolerances are noted as BOLD in Brackets**

**Audit**

<b>Status</b>			
Noise <0.10ug	0.005	Warnings	None
Pump Vacuum <0.40atm	0.36		
<b>Temperature/Pressure</b>			
Measured Temp (± 2 °C)	-1.2	D °C	-0.2
Measured Press (± 0.01atm)	0.922	DATM	0.015
<b>Flow Audit</b>			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	1.07%
Measured Main Flow (l/min)	3.05	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	2.68%
Measured Bypass Flow (l/min)	13.85	Flow Adjusted to Measured?	Yes
<b>Leak Check</b>		<b>Instrument Setup</b>	
Main (< 0.15 l/min)	NA	Flow Control = Active	
Aux (< 0.6 l/min)	NA	Report Conditions = Standard (25.0 C and 1atm)	
<b>K<sub>o</sub> Factor</b>			
Measured	NA		
K <sub>o</sub> Difference (± 2.5%)	NA		

**Start Time:** 8:06      **Finish Time:** 10:15

**Sample Inlet Cleaned:** Yes      **New Filters Installed:** YES  
**New Filter Loading %:** 24.9%

**Comments:**

**Auditor/s:** Ting Xu

# Nitrogen Dioxide



**NOx - NO- NO2 Calibration Report**

**Station Information**

Calibration Date	April 5, 2011	Previous Calibration	March 4, 2011
Company	LICA	Plant/Location	LICA 1 - Cold Lake South
Start Time (MST)	7:37	End Time (MST)	13:21
Reason:	Monthly Calibration	Other	
Barometric Pressure	0.923 atm	Station Temperature	23 Deg C
Cal Gas Concentration	NOx 51.7 ppm	NO 50.4 ppm	Cal Gas Expiry date 04-Feb-13
DAS Output Voltage	0 - 10	Chart Rec. Output	NA Volts

**Equipment Information**

Analyzer Make / Model:	TECO 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	712	ccm	317	Deg C	712	ccm	318.0	Deg C
Ozone Flow / Vacuum	OK	ccm	178.1	"Hg-A	OK	ccm	177.8	"Hg-A
HVPS / A ZERO	-821	Volts	NA	MV	-821	Volts	NA	MV
Rx/ Temp / PMT Temp	49.5	Deg C	-2.5	Deg C	49.6	Deg C	-2.4	Deg C
Box Temp / IZS Temp	26.8	Deg C	OK	Deg C	27.9	Deg C	OK	Deg C
Offset	3.7	NOx	3.5	NO	3.9	NOx	3.6	NO
Slope	1.008	NOx	0.889	NO	1.024	NOx	0.920	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	----	0	0	----	0	0	0	----	----
4954	39.6	----	410	400	----	390	388	3	1.0513	1.0301
4954	39.6	----	410	400	----	410	400	9	1.0000	0.9992
4973	19.8	----	205	200	----	207	202	5	0.9905	0.9895
4984	9.9	----	102	100	----	105	102	3	0.9761	0.9795
4995	0.0	----	0	0	0	0	0	0	----	----

**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	39.6	----	410	400	----	410	401	9	----	----
4954	39.6	350	410	----	337	410	73	337	1.0090	100.00%
4954	39.6	150	410	----	152	410	258	152	1.0201	100.00%
4954	39.6	75	410	----	80	409	330	80	1.0390	100.00%

Linearity	Sum of Least Squares	NOx= 0.997	NO= 0.996	NO2= 1.000	
OK?	Yes No	Correction Factors:	NOx= 1.0000	NO= 0.9992	NO2= 1.0090
Average Converter Efficiency= 100.00%					

Before Calibration				After Calibration				
Auto Zero	0.1	NOx	0.1	NO2	-0.1	NOx	0.1	NO2
Auto Span	359	NOx	357	NO2	378	NOx	376	NO2
Sample Lines Connected				YES				
Percent Change from Previous Calibration		NOx	-4.7%	NO	-2.8%	NO2	0.0%	

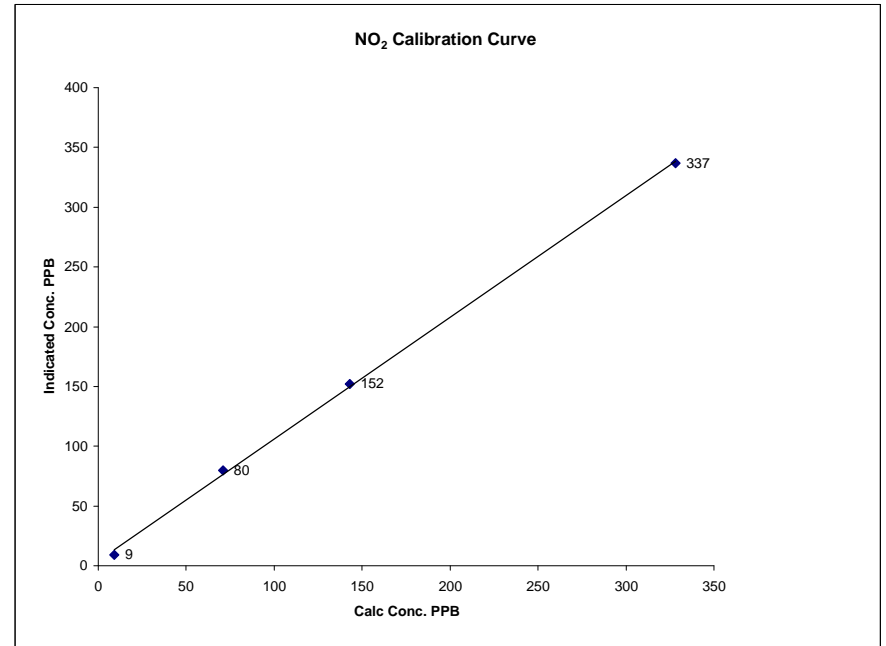
Notes

Calibration Performed by: Ting Xu

**NO2 Calibration Curve**

Calibration Date	April 5, 2011	LICA	
Company		LICA 1 - Cold Lake South	
Plant / Location		LICA 1 - Cold Lake South	
Start Time (MST)	7:37	End Time (MST)	13:21

Calculated Conc.	Indicated Response	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999375
ppb	ppb		Slope	(0.85 to 1.15)	1.020238
9	9	N/A	Intercept	(± 3% F.S.)	3.96215
71	80	0.8875			
143	152	0.9408			
328	337	0.9733			

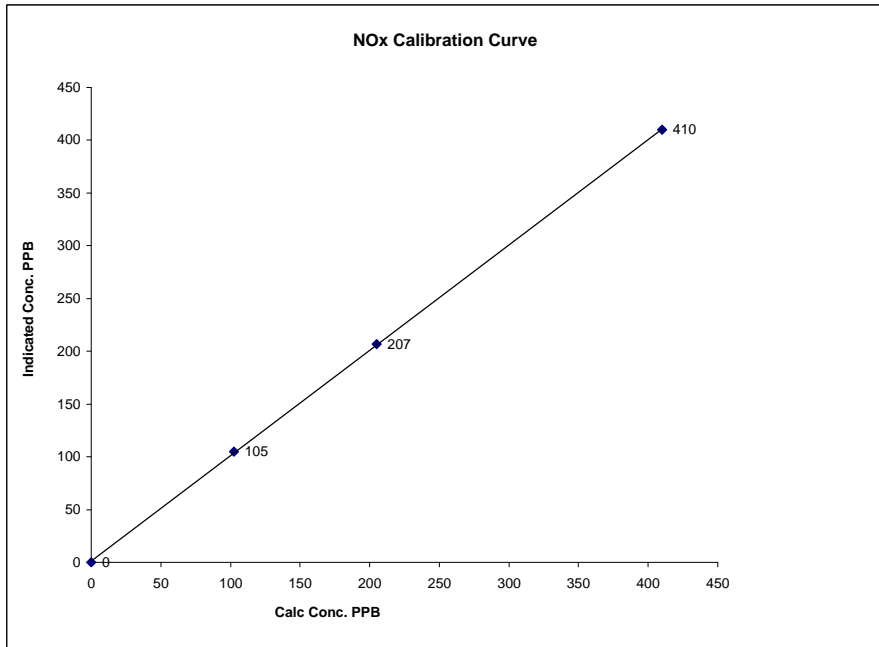


Notes:

### NOx Calibration Curve

Calibration Date April 5, 2011  
 Company LICA  
 Plant / Location LICA 1 - Cold Lake South  
 Start Time (MST) 7:37 End Time (MST) 13:21

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999946
0	0	N/A	Slope (0.85 to 1.15)	0.998480
102	105	0.9761	Intercept (± 3% F.S.)	1.39586
205	207	0.9905		
410	410	1.0000		

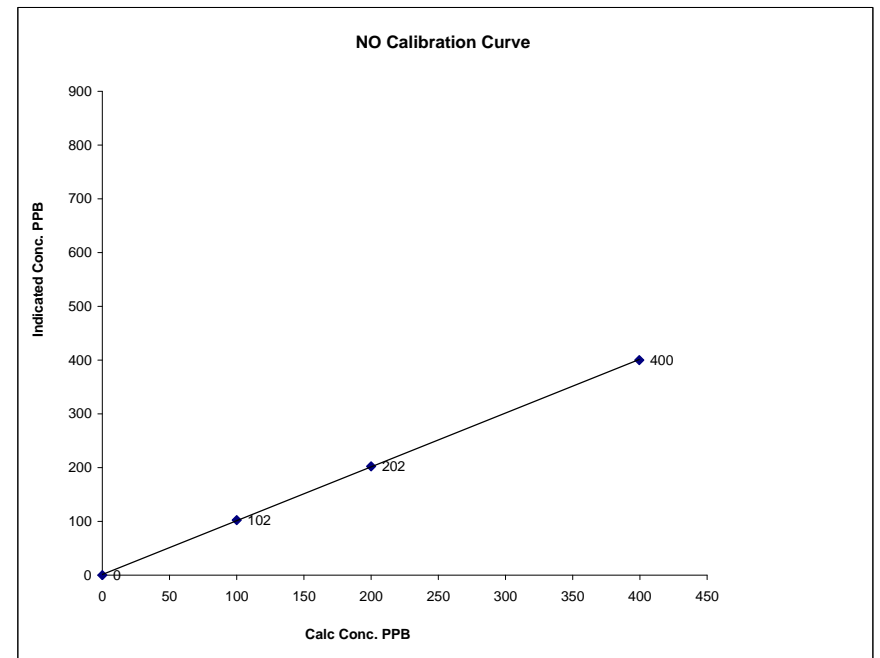


Notes:

### NO Calibration Curve

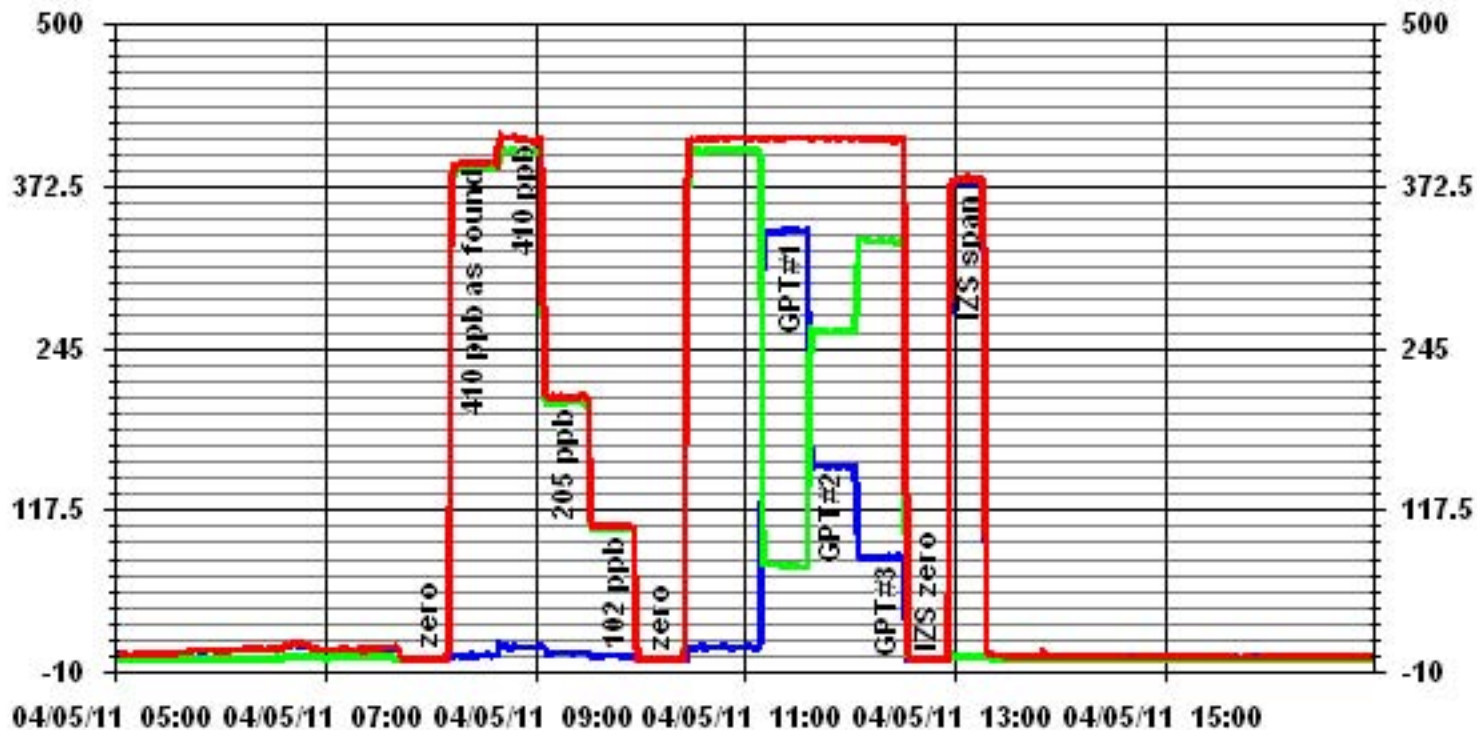
Calibration Date April 5, 2011  
 Company LICA  
 Plant / Location LICA 1 - Cold Lake South  
 Start Time (MST) 7:37 End Time (MST) 13:21

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999956
0	0	N/A	Slope (0.85 to 1.15)	0.993659
100	102	0.9795	Intercept (± 3% F.S.)	3.9365
200	202	0.9895		
400	400	0.9992		



Notes:

### 01 Minute Averages



# Ozone

### O<sub>3</sub> Calibration Report

#### Station Information

Calibration Date	April 5, 2011	Previous Calibration	March 4, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	12:41	End Time (MST)	15:55
Reason:	Monthly Calibration		
Barometric Pressure	0.926 atm	Station Temperature	23 Deg C
DAS Output Voltage	0 - 10 Volts		

#### Equipment Information

Analyzer Make / Model:	Thermon 49i	S/N :	700419951	Method:	Fluorescent
Calibrator Make / Model:	Enviroincs 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	3485		

#### Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 500			
Cell A Flow/ Cell B Flow	702 ccm	745 ccm	702 ccm	745 ccm
Pressure	693 mmHg		691 mmHg	
Bench Lamp Temp	53.5 Deg C		53.5 Deg C	
O <sub>3</sub> Lamp/Box Temp	67.6 Deg C	29 Deg C	67.6 Deg C	29.3 Deg C
Offset / Slope	0.1	1.006	0.1	1.006

#### Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
4996	350	328	327	1.0031
4996	150	143	141	1.0142
4996	75	71	70	1.0143
4996	0	0	0	N/A
Sum of Least Squares				N/A
New Correction Factor				1.0031

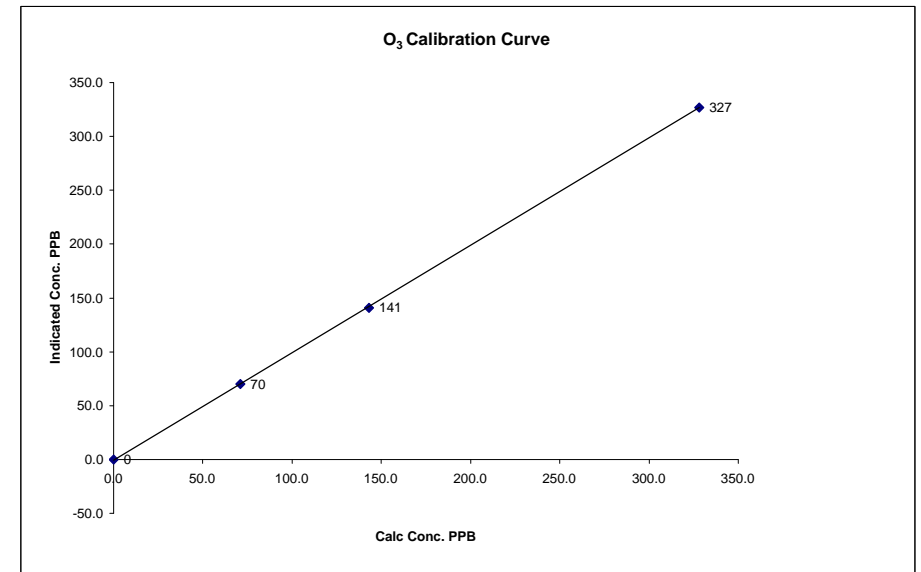
	Before Calibration	After Calibration
Auto Zero	-0.3	-0.2
Auto Span	276	275
Sample Lines Connected		YES
Percent Change from Previous Calibration		-0.6%

Calibration Performed by: Ting Xu

### O<sub>3</sub> Calibration Curve

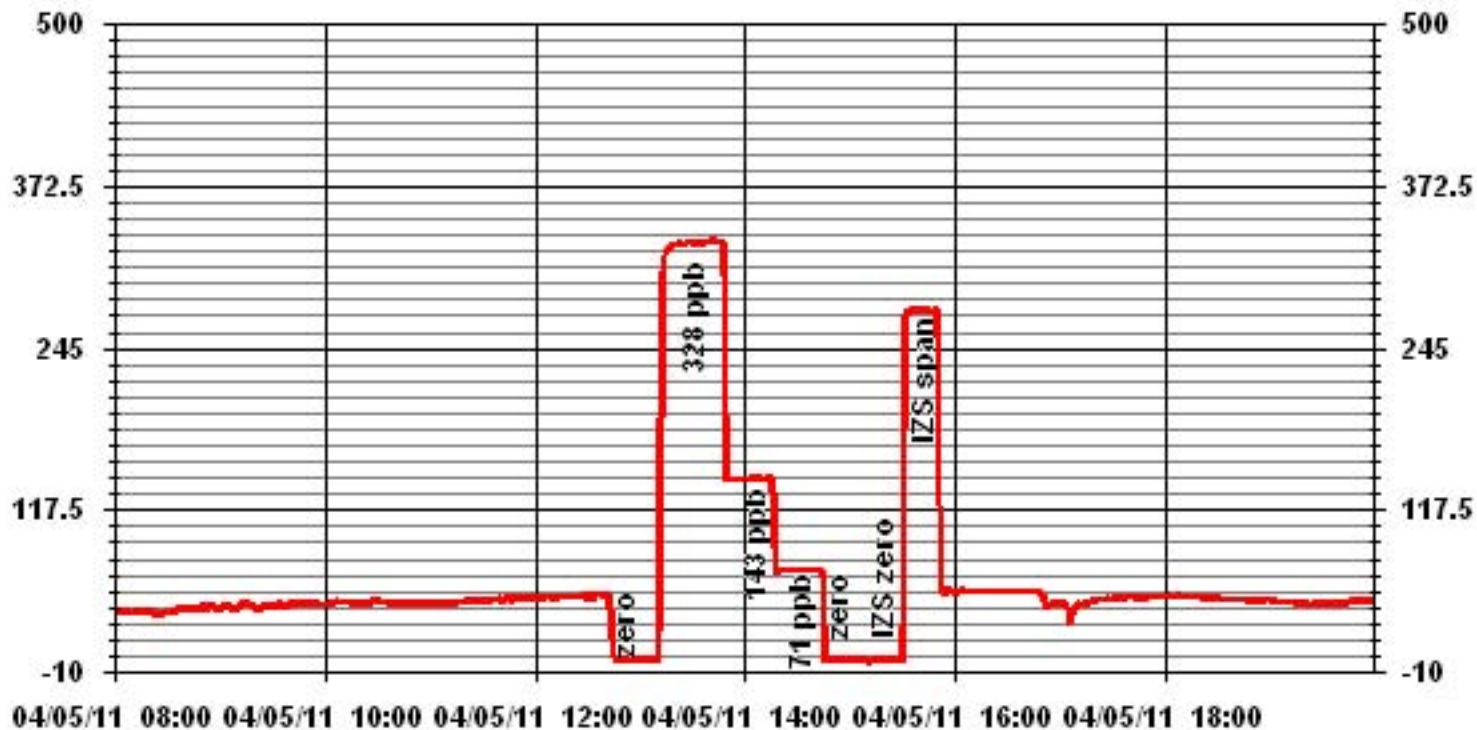
Calibration Date	April 5, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	12:41	End Time (MST)	15:55

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999972
0	0	n/a	Intercept	(± 3% F.S.)	-0.675071
71	70	1.0143			
143	141	1.0142			
328	327	1.0031			



Notes:

### 01 Minute Averages



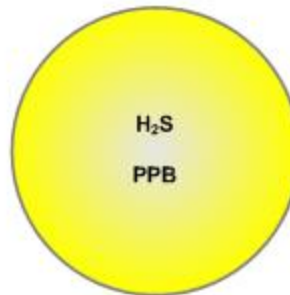
# Passive Bubble Maps

# Lakeland Industry & Community Association H<sub>2</sub>S Passive Bubble Map

APRIL 2011

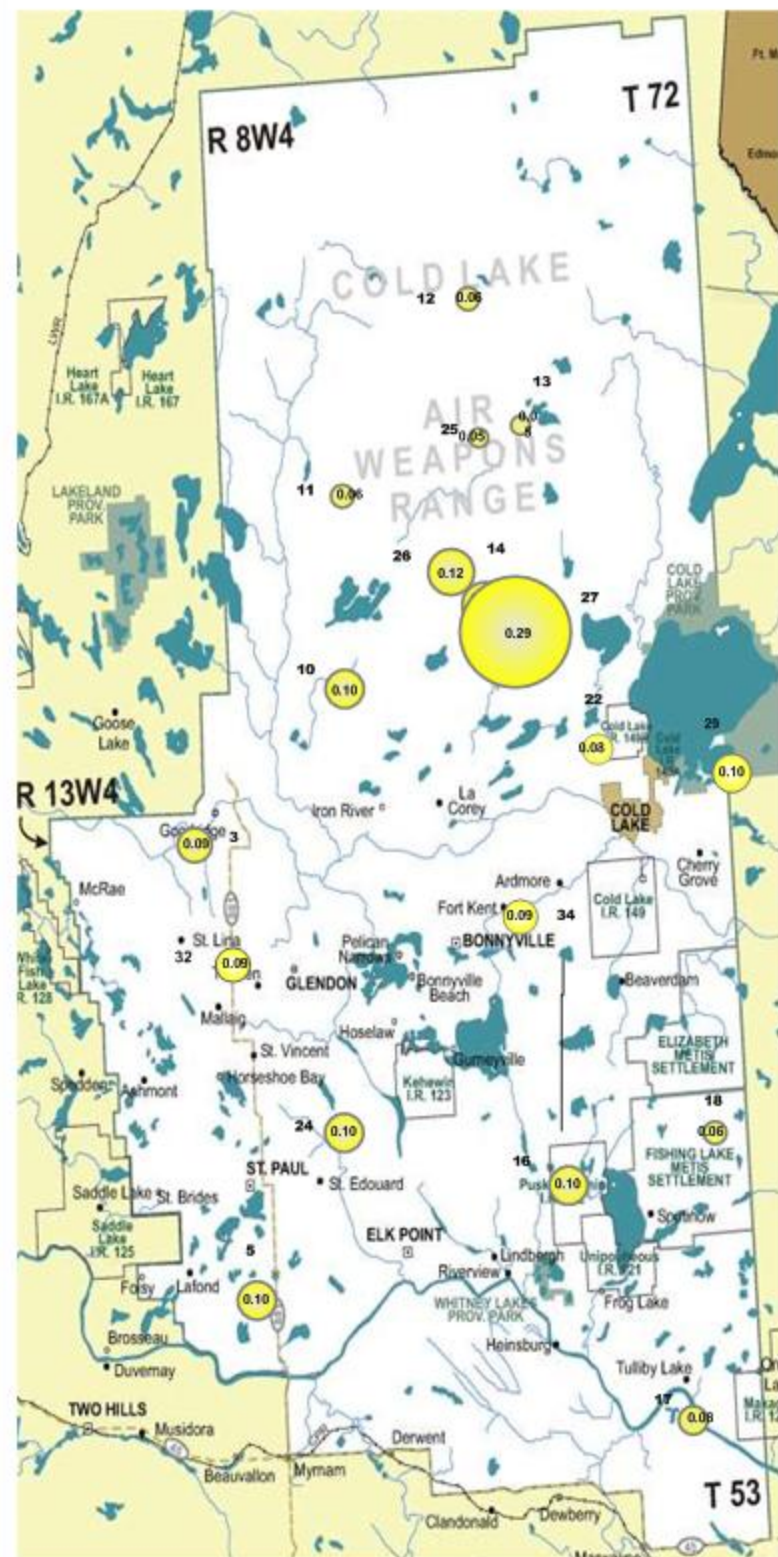
## PASSIVE STATIONS

Station	Reading	Duplicate
3 - Therien	0.09 PPB	NA
5 - Lake Eliza	0.10 PPB	NA
10 - La Corey	0.10 PPB	NA
11 - Wolf Lake	0.06 PPB	0.05 PPB
12 - Foster Creek	0.06 PPB	NA
13 - Primrose	0.05 PPB	0.05 PPB
14 - Maskwa	0.12 PPB	NA
16 - Frog Lake	0.09 PPB	0.10 PPB
17 - Clear Range	0.08 PPB	NA
18 - Fishing Lake	0.07 PPB	0.05 PPB
22 - Cold Lake South	0.08 PPB	NA
24 - Fort George	0.10 PPB	NA
25 - Burnt Lake	0.04 PPB	0.06 PPB
26 - Mahihkan	0.12 PPB	NA
27 - Mahkeses	0.29 PPB	0.28 PPB
29 - Cold Lake South 2	0.10 PPB	NA
32 - St. Lina	0.09 PPB	NA
34 - Portable	0.09 PPB	NA



## Summary

Minimum : 0.05 PPB – Primrose and Burnt Lake  
Maximum: 0.29 PPB – Mahkeses  
Average: 0.10 PPB \*Includes Duplicates



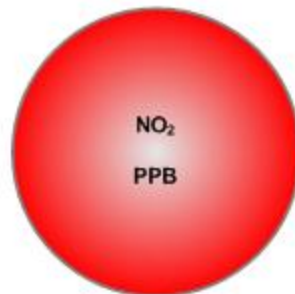


# Lakeland Industry & Community Association NO<sub>2</sub> Passive Bubble Map

APRIL 2011

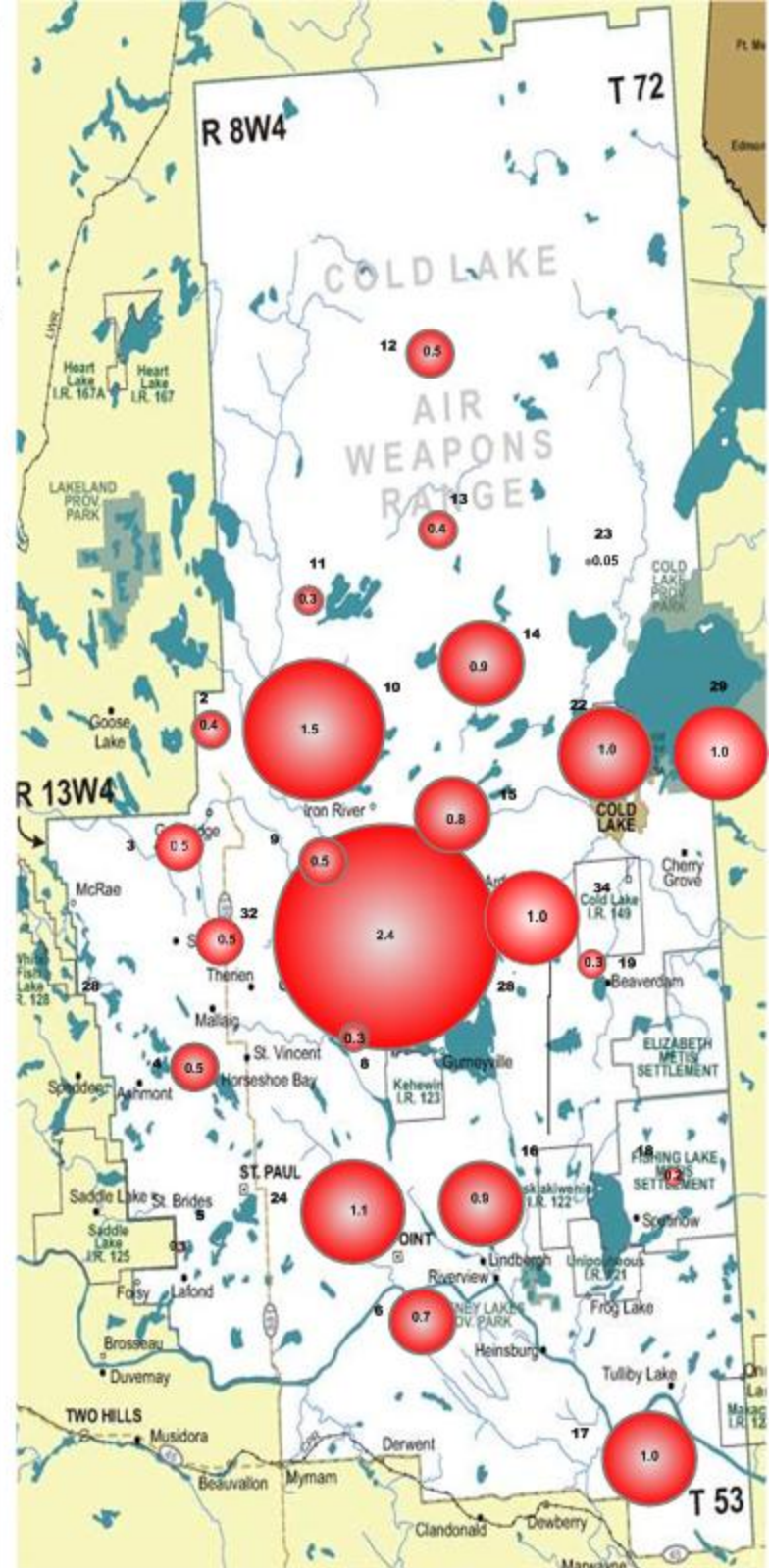
## PASSIVE STATIONS

		DUPLICATE
2 – Sand River	0.4 PPB	0.3 PPB
3 – Therien	0.5 PPB	NA
4 – Flat Lake	0.5 PPB	0.5 PPB
5 – Lake Eliza	0.4 PPB	NA
6 – Telegraph Creek	0.8 PPB	0.6 PPB
8 – Muriel-Kehewin	0.3 PPB	NA
9 – Dupre	0.4 PPB	0.5 PPB
10 – La Corey	1.5 PPB	NA
11 – Wolf Lake	0.2 PPB	0.3 PPB
12 – Foster Creek	0.5 PPB	NA
13 – Primrose	0.5 PPB	0.4 PPB
14 – Maskwa	0.9 PPB	NA
15 – Ardmore	0.9 PPB	0.6 PPB
16 – Frog Lake	0.9 PPB	NA
17 – Clear Range	1.0 PPB	0.9 PPB
18 – Fishing Lake	0.2 PPB	NA
19 – Beaverdam	0.3 PPB	0.3 PPB
22 – Cold Lake South	1.0 PPB	NA
23 – Medley-Martineau	0.1 PPB	NA
24 – Fort George	1.2 PPB	0.9 PPB
28 – Town of Bonnyville	2.4 PPB	NA
29 – Cold Lake South 2	0.9 PPB	1.0 PPB
32 – St. Lina	0.5 PPB	NA
34 – Portable	1.0 PPB	NA



## Summary

Minimum : 0.1 PPB – Medley-Martineau  
Maximum: 2.4 PPB – Town of Bonnyville  
Average: 0.7 PPB \*Includes Duplicates

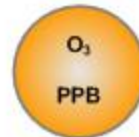


# Lakeland Industry & Community Association O<sub>3</sub> Passive Bubble Map

APRIL 2011

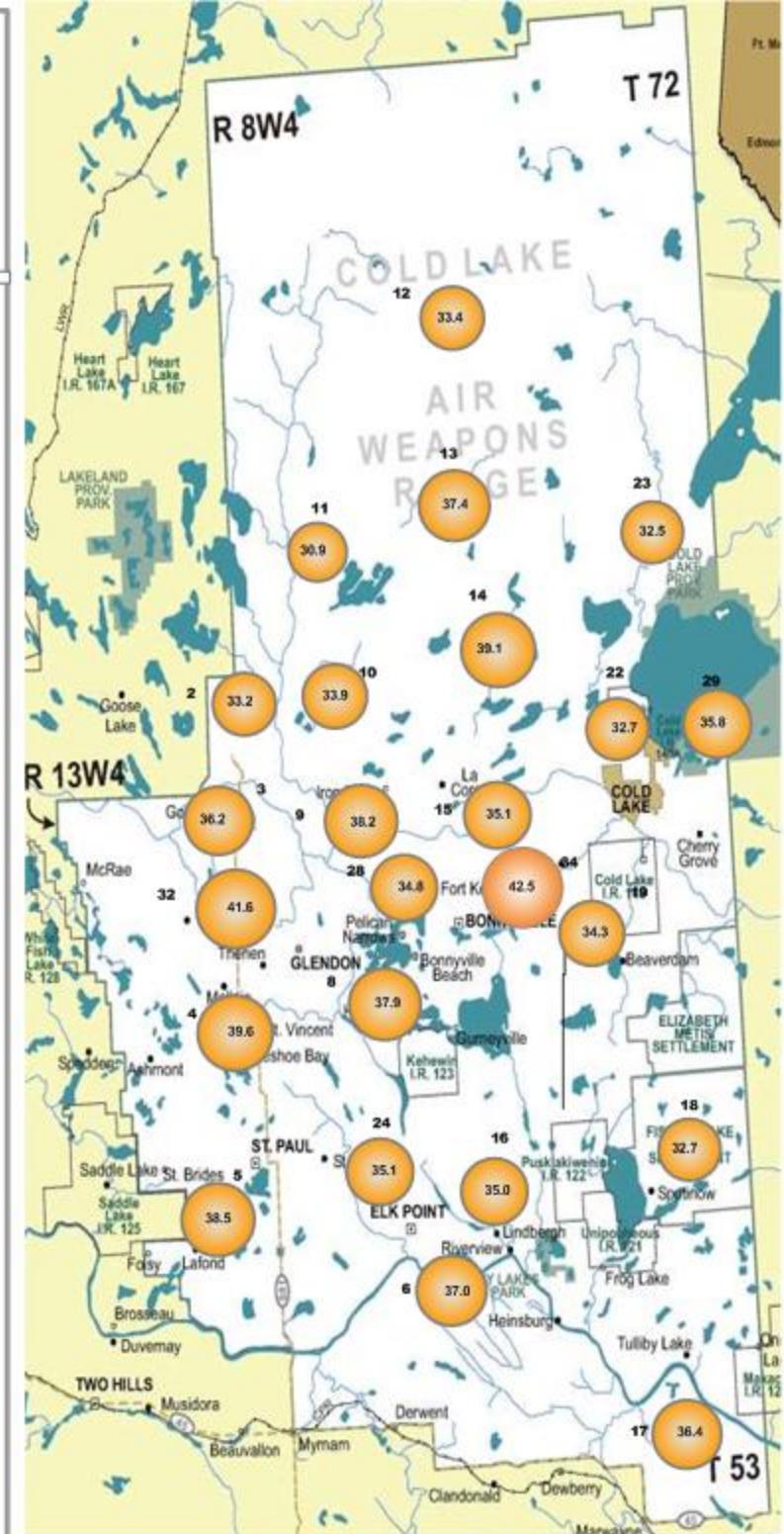
## PASSIVE STATIONS

		DUPLICATE
2 – Sand River	34.6 PPB	31.8 PPB
3 – Therien	36.2 PPB	NA
4 – Flat Lake	40.0 PPB	39.2 PPB
5 – Lake Eliza	38.5 PPB	NA
6 – Telegraph Creek	38.2 PPB	35.8 PPB
8 – Muriel-Kehewin	37.9 PPB	NA
9 – Dupre	39.5 PPB	36.8 PPB
10 – La Corey	33.9 PPB	NA
11 – Wolf Lake	31.1 PPB	30.6 PPB
12 – Foster Creek	33.4 PPB	NA
13 – Primrose	35.9 PPB	38.9 PPB
14 – Maskwa	39.1 PPB	NA
15 – Ardmore	35.6 PPB	34.6 PPB
16 – Frog Lake	35.0 PPB	NA
17 – Clear Range	37.0 PPB	35.7 PPB
18 – Fishing Lake	32.7 PPB	NA
19 – Beaverdam	34.8 PPB	33.7 PPB
22 – Cold Lake South	32.7 PPB	NA
23 – Medley-Martineau	32.5 PPB	NA
24 – Fort George	34.7 PPB	35.5 PPB
28 – Town of Bonnyville	34.8 PPB	NA
29 – Cold Lake South 2	36.7 PPB	34.9 PPB
32 – St. Lina	41.6 PPB	NA
34 – Portable	42.5 PPB	NA



## Summary

Minimum : 30.9 PPB –Wolf Lake  
 Maximum: 42.5 PPB –Portable  
 Average: 36.0 PPB \*Includes Duplicates



# Lakeland Industry & Community Association SO<sub>2</sub> Passive Bubble Map

APRIL 2011

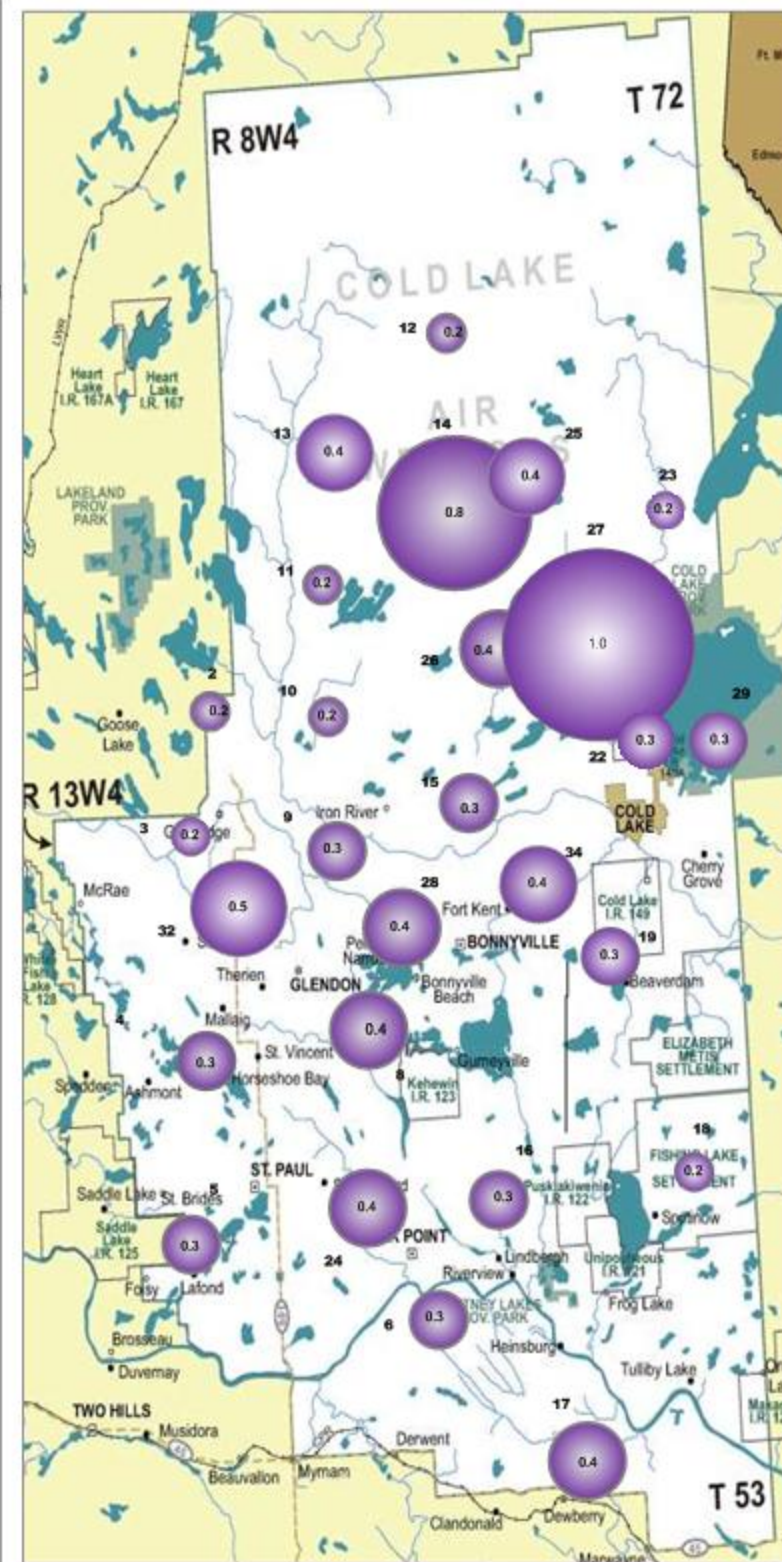
## PASSIVE STATIONS

		DUPLICATE
2 – Sand River	0.2 PPB	0.2 PPB
3 – Therien	0.2 PPB	NA
4 – Flat Lake	0.3 PPB	0.3 PPB
5 – Lake Eliza	0.3 PPB	NA
6 – Telegraph Creek	0.3 PPB	0.3 PPB
8 – Muriel-Kehewin	0.4 PPB	NA
9 – Dupre	0.3 PPB	0.2 PPB
10 – La Corey	0.2 PPB	NA
11 – Wolf Lake	0.2 PPB	0.2 PPB
12 – Foster Creek	0.2 PPB	NA
13 – Primrose	0.4 PPB	0.4 PPB
14 – Maskwa	0.8 PPB	NA
15 – Ardmore	0.3 PPB	0.3 PPB
16 – Frog Lake	0.3 PPB	NA
17 – Clear Range	0.4 PPB	0.3 PPB
18 – Fishing Lake	0.2 PPB	NA
19 – Beaverdam	0.3 PPB	0.2 PPB
22 – Cold Lake South	0.3 PPB	NA
23 – Medley-Martineau	0.2 PPB	NA
24 – Fort George	0.4 PPB	0.4 PPB
25 – Burnt Lake	0.4 PPB	NA
26 – Mahikan	0.4 PPB	0.4 PPB
27 – Mahkeses	1.0 PPB	NA
28 – Town of Bonnyville	0.4 PPB	0.4 PPB
29 – Cold Lake South 2	0.3 PPB	NA
32 – St. Lina	0.5 PPB	NA
34 – Portable	0.4 PPB	NA



## Summary

Minimum : 0.2 PPB – Vious Stations  
 Maximum: 1.0 PPB –Maskwa  
 Average: 0.36 PPB \*Includes Duplicates



# Passive Field Data

# Field Notes

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
2	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	10:54	04/27/11	10:32	
2A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	10:54	04/27/11	10:32	
3	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	10:10	04/27/11	09:45	
3A (Dup)	H <sub>2</sub> S	03/30/11	10:10	04/27/11	09:45	
4	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	14:58	04/29/11	14:20	
4A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	14:58	04/29/11	14:20	
5	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	13:58	04/29/11	13:40	
5A (Dup)	NA	NA	NA	NA	NA	
6	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	12:13	04/29/11	12:09	
6A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	12:13	04/29/11	12:09	
8	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	15:47	04/29/11	15:19	
8A (Dup)	NA	NA	NA	NA	NA	
9	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	08:19	04/28/11	14:40	
9A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	08:19	04/28/11	14:40	
10	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	11:47	04/27/11	11:22	
10A (Dup)	NA	NA	NA	NA	NA	
11	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	12:55	04/27/11	11:59	
11A (Dup)	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	12:55	04/27/11	11:59	
12	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	14:20	04/27/11	13:28	
12A (Dup)	NA	NA	NA	NA	NA	
13	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	15:59	04/27/11	15:03	
13A (Dup)	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	15:59	04/27/11	15:03	
14	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	16:53	04/27/11	15:48	
14A (Dup)	NA	NA	NA	NA	NA	
15	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	17:02	04/28/11	09:38	
15A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	17:02	04/28/11	09:38	
16	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	10:19	04/29/11	10:14	
16A (Dup)	H <sub>2</sub> S	03/31/11	10:19	04/29/11	10:14	

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
17	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	11:12	04/29/11	11:17	H2S was found on the ground.
17A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	11:12	04/29/11	11:17	
18	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	09:30	04/29/11	09:18	
18A (Dup)	H <sub>2</sub> S	03/31/11	09:30	04/29/11	09:18	
19	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	08:23	04/29/11	08:13	
19A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	08:23	04/29/11	08:13	
22	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	17:58	04/28/11	08:38	
22A (Dup)	NA	NA	NA	NA	NA	
23	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	18:17	04/27/11	17:16	
23A (Dup)	NA	NA	NA	NA	NA	
24	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	12:50	04/29/11	12:40	
24A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	12:50	04/29/11	12:40	
25	H <sub>2</sub> S/SO <sub>2</sub>	03/30/11	15:29	04/27/11	14:46	
25A (Dup)	H <sub>2</sub> S	03/30/11	15:29	04/27/11	14:46	
26	H <sub>2</sub> S/SO <sub>2</sub>	03/30/11	16:35	04/27/11	15:36	
26A (Dup)	SO <sub>2</sub>	03/30/11	16:35	04/27/11	15:36	
27	H <sub>2</sub> S/SO <sub>2</sub>	03/30/11	17:11	04/27/11	16:10	
27A (Dup)	H <sub>2</sub> S	03/30/11	17:11	04/27/11	16:10	
28	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	08:40	04/28/11	14:19	
28A (Dup)	SO <sub>2</sub>	03/30/11	08:40	04/28/11	14:19	
29	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	17:39	04/28/11	08:22	
29A (Dup)	NO <sub>2</sub> /O <sub>3</sub>	03/31/11	17:39	04/28/11	08:22	
32	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/30/11	09:38	04/27/11	09:02	
32A(Dup)	NA	NA	NA	NA	NA	
34	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	03/31/11	16:31	04/28/11	15:02	
34A(Dup)	NA	NA	NA	NA	NA	

# Passive Network Laboratory Analysis



Your Project #: 2011/03/30 - 2011/04/27  
Site:LICA

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

**Report Date: 2011/05/16**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B135064**  
**Received: 2011/05/03, 10:29**

Sample Matrix: Air  
# Samples Received: 45

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis (l)	25	2011/05/09	2011/05/16	EINDSOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (l)	35	2011/05/09	2011/05/16	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (l)	35	2011/05/13	2011/05/16	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (l)	39	2011/05/09	2011/05/16	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,  
Email: LManchak@maxxam.ca  
Phone# (780) 378-8500

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Total cover pages: 1





Maxxam Job #: B135064  
 Report Date: 2011/05/16

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
 Client Project #: 2011/03/30 - 2011/04/27  
 Site Reference: LICA  
 Sampler Initials: SB

**RESULTS OF CHEMICAL ANALYSES OF AIR**

Maxxam ID		AL0718	AL0719	AL0720	AL0721	AL0722		
Sampling Date		2011/03/30 10:54	2011/03/30 10:54	2011/03/30 10:10	2011/03/31 14:58	2011/03/31 14:58		
	<b>Units</b>	<b>2</b>	<b>2A (DUP)</b>	<b>3</b>	<b>4</b>	<b>4A (DUP)</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb			0.09			0.02	4839477
Calculated NO2	ppb	0.4	0.3	0.5	0.5	0.5	0.1	4839940
Calculated O3	ppb	34.6	31.8	36.2	40.0	39.2	0.1	4852406
Calculated SO2	ppb	0.2	0.2	0.2	0.3	0.3	0.1	4839937
RDL = Reportable Detection Limit								

Maxxam ID		AL0723	AL0724	AL0725	AL0726	AL0727		
Sampling Date		2011/03/31 13:58	2011/03/31 12:13	2011/03/31 12:13	2011/03/31 15:47	2011/03/30 08:19		
	<b>Units</b>	<b>5</b>	<b>6</b>	<b>6A (DUP)</b>	<b>8</b>	<b>9</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb	0.10					0.02	4839477
Calculated NO2	ppb	0.4	0.8	0.6	0.3	0.4	0.1	4839940
Calculated O3	ppb	38.5	38.2	35.8	37.9	39.5	0.1	4852406
Calculated SO2	ppb	0.3	0.3	0.3	0.4	0.3	0.1	4839937
RDL = Reportable Detection Limit								

Maxxam ID		AL0728	AL0729	AL0730	AL0731	AL0732		
Sampling Date		2011/03/30 08:19	2011/03/30 11:47	2011/03/30 12:55	2011/03/30 12:55	2011/03/30 14:20		
	<b>Units</b>	<b>9A (DUP)</b>	<b>10</b>	<b>11</b>	<b>11A (DUP)</b>	<b>12</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb		0.10	0.06	0.05	0.06	0.02	4839477
Calculated NO2	ppb	0.5	1.5	0.2	0.3	0.5	0.1	4839940
Calculated O3	ppb	36.8	33.9	31.1	30.6	33.4	0.1	4852406
Calculated SO2	ppb	0.2	0.2	0.2	0.2	0.2	0.1	4839937
RDL = Reportable Detection Limit								



Maxxam Job #: B135064  
 Report Date: 2011/05/16

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
 Client Project #: 2011/03/30 - 2011/04/27  
 Site Reference: LICA  
 Sampler Initials: SB

**RESULTS OF CHEMICAL ANALYSES OF AIR**

Maxxam ID		AL0734	AL0735		AL0736		AL0737		
Sampling Date		2011/03/30 15:59	2011/03/30 15:59		2011/03/30 16:53		2011/03/31 17:02		
	<b>Units</b>	<b>13</b>	<b>13A (DUP)</b>	<b>QC Batch</b>	<b>14</b>	<b>QC Batch</b>	<b>15</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>									
Calculated H2S	ppb	0.05	0.05	4839477	0.12	4839477		0.02	4839477
Calculated NO2	ppb	0.5	0.4	4839940	0.9	4839940	0.9	0.1	4839944
Calculated O3	ppb	35.9	38.9	4852406	39.1	4852412	35.6	0.1	4852412
Calculated SO2	ppb	0.4	0.4	4839937	0.8	4839937	0.3	0.1	4839937

RDL = Reportable Detection Limit

Maxxam ID		AL0738	AL0739	AL0740	AL0741	AL0742		
Sampling Date		2011/03/31 17:02	2011/03/31 10:19	2011/03/31 10:19	2011/03/31 11:12	2011/03/31 11:12		
	<b>Units</b>	<b>15A (DUP)</b>	<b>16</b>	<b>16A (DUP)</b>	<b>17</b>	<b>17A (DUP)</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>									
Calculated H2S	ppb		0.09	0.10	0.08			0.02	4839477
Calculated NO2	ppb	0.6	0.9		1.0	0.9		0.1	4839944
Calculated O3	ppb	34.6	35.0		37.0	35.7		0.1	4852412
Calculated SO2	ppb	0.3	0.3		0.4	0.3		0.1	4839939

RDL = Reportable Detection Limit

Maxxam ID		AL0743	AL0744	AL0745	AL0746	AL0747		
Sampling Date		2011/03/31 09:30	2011/03/31 09:30	2011/03/31 08:23	2011/03/31 08:23	2011/03/31 17:58		
	<b>Units</b>	<b>18</b>	<b>18A (DUP)</b>	<b>19</b>	<b>19A (DUP)</b>	<b>22</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>									
Calculated H2S	ppb	0.07	0.05			0.08		0.02	4839477
Calculated NO2	ppb	0.2		0.3	0.3	1.0		0.1	4839944
Calculated O3	ppb	32.7		34.8	33.7	32.7		0.1	4852412
Calculated SO2	ppb	0.2		0.3	0.2	0.3		0.1	4839939

RDL = Reportable Detection Limit



Maxxam Job #: B135064  
Report Date: 2011/05/16

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
Client Project #: 2011/03/30 - 2011/04/27  
Site Reference: LICA  
Sampler Initials: SB

**RESULTS OF CHEMICAL ANALYSES OF AIR**

Maxxam ID		AL0748	AL0749	AL0750	AL0751	AL0752		
Sampling Date		2011/03/30 18:17	2011/03/31 12:50	2011/03/31 12:50	2011/03/30 15:29	2011/03/30 15:29		
	<b>Units</b>	<b>23</b>	<b>24</b>	<b>24A (DUP)</b>	<b>25</b>	<b>25A (DUP)</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb		0.10		0.04	0.06	0.02	4839477
Calculated NO2	ppb	0.1	1.2	0.9			0.1	4839944
Calculated O3	ppb	32.5	34.7	35.5			0.1	4852412
Calculated SO2	ppb	0.2	0.4	0.4	0.4		0.1	4839939
RDL = Reportable Detection Limit								

Maxxam ID		AL0753	AL0754	AL0755	AL0756	AL0758		
Sampling Date		2011/03/30 16:35	2011/03/30 16:35	2011/03/30 17:11	2011/03/30 17:11	2011/03/30 08:40		
	<b>Units</b>	<b>26</b>	<b>26A (DUP)</b>	<b>27</b>	<b>27A (DUP)</b>	<b>28</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb	0.12		0.29	0.28		0.02	4839477
Calculated NO2	ppb					2.4	0.1	4839944
Calculated O3	ppb					34.8	0.1	4852412
Calculated SO2	ppb	0.4	0.4	1.0		0.4	0.1	4839939
RDL = Reportable Detection Limit								

Maxxam ID		AL0759	AL0760	AL0761	AL0762	AL0875		
Sampling Date		2011/03/30 08:40	2011/03/31 17:39	2011/03/31 17:39	2011/03/30 09:38	2011/03/31 16:31		
	<b>Units</b>	<b>28A (DUP)</b>	<b>29</b>	<b>29A (DUP)</b>	<b>32</b>	<b>34</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb		0.10		0.09	0.09	0.02	4839477
Calculated NO2	ppb		0.9	1.0	0.5	1.0	0.1	4839944
Calculated O3	ppb		36.7	34.9	41.6	42.5	0.1	4852412
Calculated SO2	ppb	0.4	0.3		0.5	0.4	0.1	4839939
RDL = Reportable Detection Limit								



Maxxam Job #: B135064  
Report Date: 2011/05/16

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
Client Project #: 2011/03/30 - 2011/04/27  
Site Reference: LICA  
Sampler Initials: SB

**RESULTS OF CHEMICAL ANALYSES OF AIR**

Maxxam ID		AL0906		
Sampling Date		2011/03/30 10:10		
	<b>Units</b>	<b>3A (DUP)</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Passive Monitoring</b>				
Calculated H2S	ppb	0.08	0.02	4839477
RDL = Reportable Detection Limit				



Maxxam Job #: B135064  
Report Date: 2011/05/16

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
Client Project #: 2011/03/30 - 2011/04/27  
Site Reference: LICA  
Sampler Initials: SB

**General Comments**

**Results relate only to the items tested.**



LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
 Attention: MICHAEL BISAGA  
 Client Project #: 2011/03/30 - 2011/04/27  
 P.O. #:  
 Site Reference: LICA

Quality Assurance Report  
 Maxxam Job Number: PB135064

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4839477 TM5	Calibration Check	Calculated H2S	2011/05/09		98	%	80 - 120
	Spiked Blank	Calculated H2S	2011/05/09		99	%	N/A
4839937 DF4	Calibration Check	Calculated SO2	2011/05/09		99	%	95 - 105
	Spiked Blank	Calculated SO2	2011/05/09		101	%	N/A
	Method Blank	Calculated SO2	2011/05/09	<0.1		ppb	
4839939 DF4	Calibration Check	Calculated SO2	2011/05/09		99	%	95 - 105
	Spiked Blank	Calculated SO2	2011/05/09		99	%	N/A
	Method Blank	Calculated SO2	2011/05/09	<0.1		ppb	
4839940 DF4	Calibration Check	Calculated NO2	2011/05/09		99	%	76 - 118
	Spiked Blank	Calculated NO2	2011/05/09		101	%	N/A
	Method Blank	Calculated NO2	2011/05/09	<0.1		ppb	
4839944 DF4	Calibration Check	Calculated NO2	2011/05/09		97	%	76 - 118
	Spiked Blank	Calculated NO2	2011/05/09		103	%	N/A
	Method Blank	Calculated NO2	2011/05/09	<0.1		ppb	
4852406 OZ	Calibration Check	Calculated O3	2011/05/13		99	%	91 - 107
	Spiked Blank	Calculated O3	2011/05/13		100	%	N/A
	Method Blank	Calculated O3	2011/05/13	<0.1		ppb	
4852412 OZ	Calibration Check	Calculated O3	2011/05/13		100	%	91 - 107
	Spiked Blank	Calculated O3	2011/05/13		99	%	N/A
	Method Blank	Calculated O3	2011/05/13	<0.1		ppb	

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



**Validation Signature Page**

**Maxxam Job #: B135064**

---

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

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

LINDA LIN, Supervisor, Centre for Passive Sampling Technology

=====

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# **Volatile Organics Laboratory Analysis**



# MAXXAM

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167  
Location: Cold Lake South Canister ID: 7832  
Station ID: Lica 1 Canister Installation Date/Time: Apr 01 , 2011 @11:39 mst  
Field Sample ID: LICA VOC/ CLS /Apr 03, 11 Canister Removal Date/Time: Apr 04 , 2011 @ 9:33 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
03-Apr-11	04/03/2011 0:00	04/04/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	618	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	22

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

Comments: System leak check prior to sampling. COC # 07086  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Technician Signiture: Ting Xu\_\_\_\_\_



Your C.O.C. #: 07086

**Attention: Michael Bisaga**

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

**Report Date: 2011/04/11**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B146042**

**Received: 2011/04/06, 09:04**

Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/04/07	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/04/07	BRL SOP-00304	EPA TO-15

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

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

**Encryption Key**

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

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

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Total cover pages: 1

Maxxam Job #: B146042  
 Report Date: 2011/04/11

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		JC5623	JC5624	
Sampling Date		2011/04/03	2011/04/03	
		00:00	00:00	
COC Number		07086	07086	
	<b>Units</b>	<b>LICA</b>	<b>LICA</b>	<b>QC Batch</b>
		VOC/CLS/APR03,11/7832	VOC/PORT/APR03,11/7910	

<b>Volatile Organics</b>				
Pressure on Receipt	psig	22	22	2453352

QC Batch = Quality Control Batch

Maxxam Job #: B146042  
 Report Date: 2011/04/11

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JC5623				
Sampling Date		2011/04/03 00:00				
COC Number		07086				
	<b>Units</b>	<b>LICA</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		<b>VOC/CLS/APR03,11/7832</b>				

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2453354
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2453354
Propene	ppbv	<0.30	0.30	<0.516	0.516	2453354
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2453354
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2453354
Dichlorodifluoromethane (FREON 12)	ppbv	0.79	0.20	3.93	0.989	2453354
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2453354
Chloromethane	ppbv	0.70	0.30	1.44	0.620	2453354
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2453354
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2453354
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2453354
Trichlorofluoromethane (FREON 11)	ppbv	0.38	0.20	2.11	1.12	2453354
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2453354
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2453354
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2453354
2-Propanone	ppbv	2.28	0.80	5.42	1.90	2453354
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2453354
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2453354
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2453354
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2453354
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2453354
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2453354
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2453354
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2453354
Methylene Chloride(Dichloromethane)	ppbv	0.48	0.30	1.66	1.04	2453354
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2453354
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2453354
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2453354
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2453354
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2453354
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2453354

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B146042  
 Report Date: 2011/04/11

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JC5623				
Sampling Date		2011/04/03 00:00				
COC Number		07086				
	<b>Units</b>	<b>LICA</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		<b>VOC/CLS/APR03,11/7832</b>				
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2453354
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2453354
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2453354
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2453354
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2453354
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2453354
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2453354
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2453354
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2453354
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2453354
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2453354
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2453354
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2453354
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2453354
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2453354
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2453354
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2453354
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2453354
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2453354
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2453354
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2453354
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2453354
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2453354
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2453354
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2453354
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2453354
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2453354
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2453354
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2453354
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2453354
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2453354
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2453354
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2453354
QC Batch = Quality Control Batch						

Maxxam Job #: B146042  
 Report Date: 2011/04/11

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JC5623				
Sampling Date		2011/04/03 00:00				
COC Number		07086				
	<b>Units</b>	<b>LICA</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		VOC/CLS/APR03,11/7832				

<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	82		N/A	N/A	2453354
D5-Chlorobenzene	%	82		N/A	N/A	2453354
Difluorobenzene	%	84		N/A	N/A	2453354

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

Maxxam Job #: B146042  
 Report Date: 2011/04/11

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JC5624				
Sampling Date		2011/04/03 00:00				
COC Number		07086				
	<b>Units</b>	<b>LICA</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		<b>VOC/PORT/APR03,11/7910</b>				

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2453354
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2453354
Propene	ppbv	<0.30	0.30	<0.516	0.516	2453354
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2453354
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2453354
Dichlorodifluoromethane (FREON 12)	ppbv	0.83	0.20	4.11	0.989	2453354
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2453354
Chloromethane	ppbv	0.77	0.30	1.59	0.620	2453354
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2453354
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2453354
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2453354
Trichlorofluoromethane (FREON 11)	ppbv	0.39	0.20	2.20	1.12	2453354
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2453354
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2453354
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2453354
2-Propanone	ppbv	3.46	0.80	8.23	1.90	2453354
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2453354
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2453354
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2453354
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2453354
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2453354
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2453354
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2453354
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2453354
Methylene Chloride(Dichloromethane)	ppbv	0.53	0.30	1.83	1.04	2453354
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2453354
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2453354
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2453354
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2453354
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2453354
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2453354

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B146042  
 Report Date: 2011/04/11

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JC5624				
Sampling Date		2011/04/03 00:00				
COC Number		07086				
	<b>Units</b>	<b>LICA</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		<b>VOC/PORT/APR03,11/7910</b>				
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2453354
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2453354
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2453354
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2453354
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2453354
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2453354
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2453354
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2453354
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2453354
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2453354
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2453354
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2453354
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2453354
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2453354
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2453354
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2453354
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2453354
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2453354
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2453354
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2453354
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2453354
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2453354
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2453354
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2453354
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2453354
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2453354
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2453354
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2453354
Hexane	ppbv	0.38	0.30	1.33	1.06	2453354
Cyclohexane	ppbv	0.66	0.20	2.26	0.688	2453354
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2453354
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2453354
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2453354
QC Batch = Quality Control Batch						



Maxxam Job #: B146042  
 Report Date: 2011/04/11

### VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		JC5624				
Sampling Date		2011/04/03 00:00				
COC Number		07086				
	<b>Units</b>	<b>LICA</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		VOC/PORT/APR03,11/7910				

<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	80		N/A	N/A	2453354
D5-Chlorobenzene	%	82		N/A	N/A	2453354
Difluorobenzene	%	84		N/A	N/A	2453354

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

Maxxam Job #: B146042  
Report Date: 2011/04/11

### Test Summary

**Maxxam ID** JC5623 **Collected** 2011/04/03  
**Sample ID** LICA VOC/CLS/APR03,11/7832 **Shipped**  
**Matrix** AIR **Received** 2011/04/06

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2453352	N/A	2011/04/07	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2453354	N/A	2011/04/07	YAO LIANG SUN

**Maxxam ID** JC5624 **Collected** 2011/04/03  
**Sample ID** LICA VOC/PORT/APR03,11/7910 **Shipped**  
**Matrix** AIR **Received** 2011/04/06

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2453352	N/A	2011/04/07	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2453354	N/A	2011/04/07	YAO LIANG SUN

Maxxam Job #: B146042  
Report Date: 2011/04/11

**GENERAL COMMENTS**

**Results relate only to the items tested.**

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

### Quality Assurance Report

Maxxam Job Number: GB146042

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2453354 LSY	Spiked Blank	Bromochloromethane	2011/04/07		104	%	60 - 140
		D5-Chlorobenzene	2011/04/07		105	%	60 - 140
		Difluorobenzene	2011/04/07		107	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/07		100	%	70 - 130
		Carbon Disulfide	2011/04/07		89	%	70 - 130
		Propene	2011/04/07		98	%	70 - 130
		Vinyl Acetate	2011/04/07		113	%	70 - 130
		Vinyl Bromide	2011/04/07		97	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/04/07		104	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/04/07		114	%	70 - 130
		Chloromethane	2011/04/07		104	%	70 - 130
		Vinyl Chloride	2011/04/07		103	%	70 - 130
		Chloroethane	2011/04/07		100	%	70 - 130
		1,3-Butadiene	2011/04/07		92	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/04/07		102	%	70 - 130
		Trichlorotrifluoroethane	2011/04/07		95	%	70 - 130
		Ethanol	2011/04/07		111	%	70 - 130
		2-propanol	2011/04/07		105	%	70 - 130
		2-Propanone	2011/04/07		106	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/04/07		98	%	70 - 130
		Methyl Isobutyl Ketone	2011/04/07		104	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/04/07		112	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/04/07		107	%	70 - 130
		Ethyl Acetate	2011/04/07		107	%	70 - 130
		1,1-Dichloroethylene	2011/04/07		104	%	70 - 130
		cis-1,2-Dichloroethylene	2011/04/07		103	%	70 - 130
		trans-1,2-Dichloroethylene	2011/04/07		104	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/04/07		93	%	70 - 130
		Chloroform	2011/04/07		101	%	70 - 130
		Carbon Tetrachloride	2011/04/07		101	%	70 - 130
		1,1-Dichloroethane	2011/04/07		101	%	70 - 130
		1,2-Dichloroethane	2011/04/07		109	%	70 - 130
		Ethylene Dibromide	2011/04/07		94	%	70 - 130
		1,1,1-Trichloroethane	2011/04/07		100	%	70 - 130
		1,1,2-Trichloroethane	2011/04/07		93	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/04/07		87	%	70 - 130
		cis-1,3-Dichloropropene	2011/04/07		102	%	70 - 130
		trans-1,3-Dichloropropene	2011/04/07		105	%	70 - 130
		1,2-Dichloropropane	2011/04/07		95	%	70 - 130
		Bromomethane	2011/04/07		99	%	70 - 130
		Bromoform	2011/04/07		99	%	70 - 130
		Bromodichloromethane	2011/04/07		100	%	70 - 130
		Dibromochloromethane	2011/04/07		100	%	70 - 130
		Heptane	2011/04/07		104	%	70 - 130
		Trichloroethylene	2011/04/07		92	%	70 - 130
		Tetrachloroethylene	2011/04/07		91	%	70 - 130
		Benzene	2011/04/07		96	%	70 - 130
		Toluene	2011/04/07		98	%	70 - 130
		Ethylbenzene	2011/04/07		101	%	70 - 130
		p+m-Xylene	2011/04/07		101	%	70 - 130
		o-Xylene	2011/04/07		101	%	70 - 130
		Styrene	2011/04/07		102	%	70 - 130
		1,3,5-Trimethylbenzene	2011/04/07		93	%	70 - 130
		1,2,4-Trimethylbenzene	2011/04/07		89	%	70 - 130
		4-ethyltoluene	2011/04/07		95	%	70 - 130

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB146042

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2453354 LSY	Spiked Blank	Chlorobenzene	2011/04/07		93	%	70 - 130
		Benzyl chloride	2011/04/07		87	%	70 - 130
		1,3-Dichlorobenzene	2011/04/07		84	%	70 - 130
		1,4-Dichlorobenzene	2011/04/07		86	%	70 - 130
		1,2-Dichlorobenzene	2011/04/07		80	%	70 - 130
		1,2,4-Trichlorobenzene	2011/04/07		101	%	70 - 130
		Hexachlorobutadiene	2011/04/07		106	%	70 - 130
		Hexane	2011/04/07		106	%	70 - 130
		Cyclohexane	2011/04/07		103	%	70 - 130
		Tetrahydrofuran	2011/04/07		106	%	70 - 130
		1,4-Dioxane	2011/04/07		93	%	70 - 130
	Method Blank	Bromochloromethane	2011/04/07		88	%	60 - 140
		D5-Chlorobenzene	2011/04/07		89	%	60 - 140
		Difluorobenzene	2011/04/07		91	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/07	<0.20		ppbv	
		Carbon Disulfide	2011/04/07	<0.50		ppbv	
		Propene	2011/04/07	<0.30		ppbv	
		Vinyl Acetate	2011/04/07	<0.20		ppbv	
		Vinyl Bromide	2011/04/07	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/04/07	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/04/07	<0.17		ppbv	
		Chloromethane	2011/04/07	<0.30		ppbv	
		Vinyl Chloride	2011/04/07	<0.18		ppbv	
		Chloroethane	2011/04/07	<0.30		ppbv	
		1,3-Butadiene	2011/04/07	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/04/07	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/04/07	<0.15		ppbv	
		Ethanol	2011/04/07	<2.3		ppbv	
		2-propanol	2011/04/07	<3.0		ppbv	
		2-Propanone	2011/04/07	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/04/07	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/04/07	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/04/07	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/04/07	<0.20		ppbv	
		Ethyl Acetate	2011/04/07	<2.2		ppbv	
		1,1-Dichloroethylene	2011/04/07	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/04/07	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/04/07	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/04/07	0.45, RDL=0.30		ppbv	
		Chloroform	2011/04/07	<0.15		ppbv	
		Carbon Tetrachloride	2011/04/07	<0.30		ppbv	
		1,1-Dichloroethane	2011/04/07	<0.20		ppbv	
		1,2-Dichloroethane	2011/04/07	<0.20		ppbv	
		Ethylene Dibromide	2011/04/07	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/04/07	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/04/07	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/04/07	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/04/07	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/04/07	<0.17		ppbv	
		1,2-Dichloropropane	2011/04/07	<0.40		ppbv	
		Bromomethane	2011/04/07	<0.18		ppbv	
		Bromoform	2011/04/07	<0.20		ppbv	
		Bromodichloromethane	2011/04/07	<0.20		ppbv	
		Dibromochloromethane	2011/04/07	<0.20		ppbv	
		Heptane	2011/04/07	<0.30		ppbv	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB146042

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2453354 LSY	Method Blank	Trichloroethylene	2011/04/07	<0.30		ppbv	
		Tetrachloroethylene	2011/04/07	<0.20		ppbv	
		Benzene	2011/04/07	<0.18		ppbv	
		Toluene	2011/04/07	<0.20		ppbv	
		Ethylbenzene	2011/04/07	<0.20		ppbv	
		p+m-Xylene	2011/04/07	<0.37		ppbv	
		o-Xylene	2011/04/07	<0.20		ppbv	
		Styrene	2011/04/07	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/04/07	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/04/07	<0.50		ppbv	
		4-ethyltoluene	2011/04/07	<2.2		ppbv	
		Chlorobenzene	2011/04/07	<0.20		ppbv	
		Benzyl chloride	2011/04/07	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/04/07	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/04/07	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/04/07	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/04/07	<2.0		ppbv	
		Hexachlorobutadiene	2011/04/07	<3.0		ppbv	
		Hexane	2011/04/07	<0.30		ppbv	
		Cyclohexane	2011/04/07	<0.20		ppbv	
		Tetrahydrofuran	2011/04/07	<0.40		ppbv	
		1,4-Dioxane	2011/04/07	<2.0		ppbv	
		Xylene (Total)	2011/04/07	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/04/07	NC		%	25
		Carbon Disulfide	2011/04/07	NC		%	25
		Propene	2011/04/07	7.2		%	25
		Vinyl Acetate	2011/04/07	NC		%	25
		Vinyl Bromide	2011/04/07	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/04/07	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/04/07	NC		%	25
		Chloromethane	2011/04/07	NC		%	25
		Vinyl Chloride	2011/04/07	NC		%	25
		Chloroethane	2011/04/07	NC		%	25
		1,3-Butadiene	2011/04/07	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/04/07	NC		%	25
		Trichlorotrifluoroethane	2011/04/07	NC		%	25
		Ethanol	2011/04/07	NC		%	25
		2-propanol	2011/04/07	NC		%	25
		2-Propanone	2011/04/07	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/04/07	NC		%	25
		Methyl Isobutyl Ketone	2011/04/07	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/04/07	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/04/07	NC		%	25
		Ethyl Acetate	2011/04/07	NC		%	25
		1,1-Dichloroethylene	2011/04/07	NC		%	25
		cis-1,2-Dichloroethylene	2011/04/07	NC		%	25
		trans-1,2-Dichloroethylene	2011/04/07	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/04/07	NC		%	25
		Chloroform	2011/04/07	NC		%	25
		Carbon Tetrachloride	2011/04/07	NC		%	25
		1,1-Dichloroethane	2011/04/07	NC		%	25
		1,2-Dichloroethane	2011/04/07	NC		%	25
		Ethylene Dibromide	2011/04/07	NC		%	25

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB146042

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2453354 LSY	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/04/07	NC		%	25
		1,1,2-Trichloroethane	2011/04/07	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/04/07	NC		%	25
		cis-1,3-Dichloropropene	2011/04/07	NC		%	25
		trans-1,3-Dichloropropene	2011/04/07	NC		%	25
		1,2-Dichloropropane	2011/04/07	NC		%	25
		Bromomethane	2011/04/07	NC		%	25
		Bromoform	2011/04/07	NC		%	25
		Bromodichloromethane	2011/04/07	NC		%	25
		Dibromochloromethane	2011/04/07	NC		%	25
		Heptane	2011/04/07	NC		%	25
		Trichloroethylene	2011/04/07	1.4		%	25
		Tetrachloroethylene	2011/04/07	NC		%	25
		Benzene	2011/04/07	NC		%	25
		Toluene	2011/04/07	2.1		%	25
		Ethylbenzene	2011/04/07	1.8		%	25
		p+m-Xylene	2011/04/07	0.4		%	25
		o-Xylene	2011/04/07	3.6		%	25
		Styrene	2011/04/07	NC		%	25
		1,3,5-Trimethylbenzene	2011/04/07	NC		%	25
		1,2,4-Trimethylbenzene	2011/04/07	6.6		%	25
		4-ethyltoluene	2011/04/07	NC		%	25
		Chlorobenzene	2011/04/07	NC		%	25
		Benzyl chloride	2011/04/07	NC		%	25
		1,3-Dichlorobenzene	2011/04/07	NC		%	25
		1,4-Dichlorobenzene	2011/04/07	NC		%	25
		1,2-Dichlorobenzene	2011/04/07	NC		%	25
		1,2,4-Trichlorobenzene	2011/04/07	NC		%	25
		Hexachlorobutadiene	2011/04/07	NC		%	25
		Hexane	2011/04/07	NC		%	25
		Cyclohexane	2011/04/07	NC		%	25
		Tetrahydrofuran	2011/04/07	NC		%	25
		1,4-Dioxane	2011/04/07	NC		%	25
		Xylene (Total)	2011/04/07	1.2		%	25

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

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

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

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

# MAXXAM

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167  
Location: Cold Lake South Canister ID: 7826  
Station ID: Lica 1 Canister Installation Date/Time: Apr 07 , 2011 @7:51 mst  
Field Sample ID: LICA VOC/ CLS /Apr 09, 11 Canister Removal Date/Time: Apr 11 , 2011 @7:00 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
09-Apr-11	04/09/2011 0:00	04/10/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	618	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	22

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

Comments: System leak check prior to sampling. COC # 06959

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Technician Signiture: Ting Xu





Your C.O.C. #: 06959

**Attention: Michael Bisaga**

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

**Report Date: 2011/04/19**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B150205**

**Received: 2011/04/13, 09:42**

Sample Matrix: AIR  
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/04/14	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/04/14	BRL SOP-00304	EPA TO-15

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

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

**Encryption Key**

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

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

=====

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

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Total cover pages: 1

Maxxam Job #: B150205  
 Report Date: 2011/04/19

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		JE6118	JE6119	
Sampling Date		2011/04/09 00:00	2011/04/09 00:00	
COC Number		06959	06959	
	<b>Units</b>	<b>LICA VOC/CLS/APR 09,11</b>	<b>LICA VOC/PORT/APR 09,11</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	22	22	2459720
QC Batch = Quality Control Batch				

Maxxam Job #: B150205  
 Report Date: 2011/04/19

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JE6118				
Sampling Date		2011/04/09 00:00				
COC Number		06959				
	<b>Units</b>	<b>LICA VOC/CLS/APR 09,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2459600
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2459600
Propene	ppbv	<0.30	0.30	<0.516	0.516	2459600
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2459600
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2459600
Dichlorodifluoromethane (FREON 12)	ppbv	0.60	0.20	2.97	0.989	2459600
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2459600
Chloromethane	ppbv	0.75	0.30	1.54	0.620	2459600
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2459600
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2459600
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2459600
Trichlorofluoromethane (FREON 11)	ppbv	0.28	0.20	1.58	1.12	2459600
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2459600
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2459600
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2459600
2-Propanone	ppbv	1.74	0.80	4.13	1.90	2459600
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2459600
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2459600
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2459600
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2459600
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2459600
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2459600
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2459600
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2459600
Methylene Chloride(Dichloromethane)	ppbv	0.57	0.30	1.96	1.04	2459600
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2459600
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2459600
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2459600
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2459600
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2459600
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B150205  
 Report Date: 2011/04/19

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JE6118				
Sampling Date		2011/04/09 00:00				
COC Number		06959				
	<b>Units</b>	<b>LICA VOC/CLS/APR 09,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2459600
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2459600
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2459600
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2459600
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2459600
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2459600
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2459600
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2459600
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2459600
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2459600
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2459600
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2459600
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2459600
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2459600
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2459600
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2459600
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2459600
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2459600
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2459600
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2459600
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2459600
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2459600
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2459600
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2459600
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2459600
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2459600
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2459600
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2459600
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2459600
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2459600
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2459600
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2459600

QC Batch = Quality Control Batch

Maxxam Job #: B150205  
 Report Date: 2011/04/19

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JE6118				
Sampling Date		2011/04/09 00:00				
COC Number		06959				
	<b>Units</b>	<b>LICA VOC/CLS/APR 09,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2459600
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2459600
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	86		N/A	N/A	2459600
D5-Chlorobenzene	%	90		N/A	N/A	2459600
Difluorobenzene	%	88		N/A	N/A	2459600
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B150205  
 Report Date: 2011/04/19

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JE6119				
Sampling Date		2011/04/09 00:00				
COC Number		06959				
	<b>Units</b>	<b>LICA VOC/PORT/APR 09,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2459600
Carbon Disulfide	ppbv	0.63	0.50	1.96	1.56	2459600
Propene	ppbv	<0.30	0.30	<0.516	0.516	2459600
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2459600
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2459600
Dichlorodifluoromethane (FREON 12)	ppbv	0.60	0.20	2.94	0.989	2459600
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2459600
Chloromethane	ppbv	0.73	0.30	1.51	0.620	2459600
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2459600
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2459600
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2459600
Trichlorofluoromethane (FREON 11)	ppbv	0.30	0.20	1.69	1.12	2459600
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2459600
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2459600
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2459600
2-Propanone	ppbv	1.90	0.80	4.51	1.90	2459600
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2459600
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2459600
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2459600
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2459600
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2459600
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2459600
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2459600
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2459600
Methylene Chloride(Dichloromethane)	ppbv	0.56	0.30	1.95	1.04	2459600
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2459600
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2459600
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2459600
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2459600
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2459600
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B150205  
 Report Date: 2011/04/19

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JE6119				
Sampling Date		2011/04/09 00:00				
COC Number		06959				
	<b>Units</b>	<b>LICA VOC/PORT/APR 09,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2459600
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2459600
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2459600
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2459600
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2459600
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2459600
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2459600
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2459600
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2459600
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2459600
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2459600
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2459600
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2459600
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2459600
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2459600
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2459600
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2459600
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2459600
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2459600
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2459600
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2459600
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2459600
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2459600
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2459600
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2459600
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2459600
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2459600
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2459600
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2459600
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2459600
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2459600
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2459600
QC Batch = Quality Control Batch						

Maxxam Job #: B150205  
 Report Date: 2011/04/19

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JE6119				
Sampling Date		2011/04/09 00:00				
COC Number		06959				
	<b>Units</b>	<b>LICA VOC/PORT/APR 09,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2459600
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2459600
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	85		N/A	N/A	2459600
D5-Chlorobenzene	%	89		N/A	N/A	2459600
Difluorobenzene	%	87		N/A	N/A	2459600
N/A = Not Applicable QC Batch = Quality Control Batch						



Maxxam Job #: B150205  
 Report Date: 2011/04/19

### Test Summary

**Maxxam ID** JE6118 **Collected** 2011/04/09  
**Sample ID** LICA VOC/CLS/APR 09,11 **Shipped**  
**Matrix** AIR **Received** 2011/04/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2459720	N/A	2011/04/14	DIANE VOYER
Volatile Organics in Air (TO-15)	GC/MS	2459600	N/A	2011/04/14	DIANE VOYER

**Maxxam ID** JE6118 Dup **Collected** 2011/04/09  
**Sample ID** LICA VOC/CLS/APR 09,11 **Shipped**  
**Matrix** AIR **Received** 2011/04/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Volatile Organics in Air (TO-15)	GC/MS	2459600	N/A	2011/04/14	DIANE VOYER

**Maxxam ID** JE6119 **Collected** 2011/04/09  
**Sample ID** LICA VOC/PORT/APR 09,11 **Shipped**  
**Matrix** AIR **Received** 2011/04/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2459720	N/A	2011/04/14	DIANE VOYER
Volatile Organics in Air (TO-15)	GC/MS	2459600	N/A	2011/04/14	DIANE VOYER

Maxxam Job #: B150205  
Report Date: 2011/04/19

**GENERAL COMMENTS**

**Results relate only to the items tested.**

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

Quality Assurance Report  
 Maxxam Job Number: GB150205

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2459600 DVO	Spiked Blank	Bromochloromethane	2011/04/14		90	%	60 - 140
		D5-Chlorobenzene	2011/04/14		95	%	60 - 140
		Difluorobenzene	2011/04/14		93	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/14		107	%	70 - 130
		Carbon Disulfide	2011/04/14		106	%	70 - 130
		Propene	2011/04/14		107	%	70 - 130
		Vinyl Acetate	2011/04/14		109	%	70 - 130
		Vinyl Bromide	2011/04/14		106	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/04/14		98	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/04/14		128	%	70 - 130
		Chloromethane	2011/04/14		120	%	70 - 130
		Vinyl Chloride	2011/04/14		114	%	70 - 130
		Chloroethane	2011/04/14		109	%	70 - 130
		1,3-Butadiene	2011/04/14		119	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/04/14		102	%	70 - 130
		Trichlorotrifluoroethane	2011/04/14		111	%	70 - 130
		Ethanol	2011/04/14		112	%	70 - 130
		2-propanol	2011/04/14		108	%	70 - 130
		2-Propanone	2011/04/14		105	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/04/14		125	%	70 - 130
		Methyl Isobutyl Ketone	2011/04/14		106	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/04/14		105	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/04/14		112	%	70 - 130
		Ethyl Acetate	2011/04/14		110	%	70 - 130
		1,1-Dichloroethylene	2011/04/14		106	%	70 - 130
		cis-1,2-Dichloroethylene	2011/04/14		99	%	70 - 130
		trans-1,2-Dichloroethylene	2011/04/14		118	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/04/14		111	%	70 - 130
		Chloroform	2011/04/14		100	%	70 - 130
		Carbon Tetrachloride	2011/04/14		95	%	70 - 130
		1,1-Dichloroethane	2011/04/14		104	%	70 - 130
		1,2-Dichloroethane	2011/04/14		94	%	70 - 130
		Ethylene Dibromide	2011/04/14		104	%	70 - 130
		1,1,1-Trichloroethane	2011/04/14		95	%	70 - 130
		1,1,2-Trichloroethane	2011/04/14		104	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/04/14		100	%	70 - 130
		cis-1,3-Dichloropropene	2011/04/14		105	%	70 - 130
		trans-1,3-Dichloropropene	2011/04/14		101	%	70 - 130
		1,2-Dichloropropane	2011/04/14		110	%	70 - 130
		Bromomethane	2011/04/14		110	%	70 - 130
		Bromoform	2011/04/14		111	%	70 - 130
		Bromodichloromethane	2011/04/14		108	%	70 - 130
		Dibromochloromethane	2011/04/14		112	%	70 - 130
		Heptane	2011/04/14		115	%	70 - 130
		Trichloroethylene	2011/04/14		100	%	70 - 130
		Tetrachloroethylene	2011/04/14		100	%	70 - 130
		Benzene	2011/04/14		102	%	70 - 130
		Toluene	2011/04/14		102	%	70 - 130
		Ethylbenzene	2011/04/14		97	%	70 - 130
		p+m-Xylene	2011/04/14		94	%	70 - 130
		o-Xylene	2011/04/14		97	%	70 - 130
		Styrene	2011/04/14		100	%	70 - 130
		1,3,5-Trimethylbenzene	2011/04/14		94	%	70 - 130
		1,2,4-Trimethylbenzene	2011/04/14		92	%	70 - 130
		4-ethyltoluene	2011/04/14		100	%	70 - 130

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB150205

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2459600 DVO	Spiked Blank	Chlorobenzene	2011/04/14		97	%	70 - 130
		Benzyl chloride	2011/04/14		103	%	70 - 130
		1,3-Dichlorobenzene	2011/04/14		95	%	70 - 130
		1,4-Dichlorobenzene	2011/04/14		101	%	70 - 130
		1,2-Dichlorobenzene	2011/04/14		97	%	70 - 130
		1,2,4-Trichlorobenzene	2011/04/14		106	%	70 - 130
		Hexachlorobutadiene	2011/04/14		96	%	70 - 130
		Hexane	2011/04/14		107	%	70 - 130
		Cyclohexane	2011/04/14		108	%	70 - 130
		Tetrahydrofuran	2011/04/14		111	%	70 - 130
		1,4-Dioxane	2011/04/14		97	%	70 - 130
	Method Blank	Bromochloromethane	2011/04/14		86	%	60 - 140
		D5-Chlorobenzene	2011/04/14		86	%	60 - 140
		Difluorobenzene	2011/04/14		92	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/14	<0.20		ppbv	
		Carbon Disulfide	2011/04/14	<0.50		ppbv	
		Propene	2011/04/14	<0.30		ppbv	
		Vinyl Acetate	2011/04/14	<0.20		ppbv	
		Vinyl Bromide	2011/04/14	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/04/14	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/04/14	<0.17		ppbv	
		Chloromethane	2011/04/14	<0.30		ppbv	
		Vinyl Chloride	2011/04/14	<0.18		ppbv	
		Chloroethane	2011/04/14	<0.30		ppbv	
		1,3-Butadiene	2011/04/14	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/04/14	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/04/14	<0.15		ppbv	
		Ethanol	2011/04/14	<2.3		ppbv	
		2-propanol	2011/04/14	<3.0		ppbv	
		2-Propanone	2011/04/14	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/04/14	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/04/14	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/04/14	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/04/14	<0.20		ppbv	
		Ethyl Acetate	2011/04/14	<2.2		ppbv	
		1,1-Dichloroethylene	2011/04/14	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/04/14	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/04/14	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/04/14	0.37, RDL=0.30		ppbv	
		Chloroform	2011/04/14	<0.15		ppbv	
		Carbon Tetrachloride	2011/04/14	<0.30		ppbv	
		1,1-Dichloroethane	2011/04/14	<0.20		ppbv	
		1,2-Dichloroethane	2011/04/14	<0.20		ppbv	
		Ethylene Dibromide	2011/04/14	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/04/14	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/04/14	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/04/14	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/04/14	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/04/14	<0.17		ppbv	
		1,2-Dichloropropane	2011/04/14	<0.40		ppbv	
		Bromomethane	2011/04/14	<0.18		ppbv	
		Bromoform	2011/04/14	<0.20		ppbv	
		Bromodichloromethane	2011/04/14	<0.20		ppbv	
		Dibromochloromethane	2011/04/14	<0.20		ppbv	
		Heptane	2011/04/14	<0.30		ppbv	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB150205

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2459600	DVO	Method Blank					
		Trichloroethylene	2011/04/14	<0.30		ppbv	
		Tetrachloroethylene	2011/04/14	<0.20		ppbv	
		Benzene	2011/04/14	<0.18		ppbv	
		Toluene	2011/04/14	<0.20		ppbv	
		Ethylbenzene	2011/04/14	<0.20		ppbv	
		p+m-Xylene	2011/04/14	<0.37		ppbv	
		o-Xylene	2011/04/14	<0.20		ppbv	
		Styrene	2011/04/14	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/04/14	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/04/14	<0.50		ppbv	
		4-ethyltoluene	2011/04/14	<2.2		ppbv	
		Chlorobenzene	2011/04/14	<0.20		ppbv	
		Benzyl chloride	2011/04/14	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/04/14	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/04/14	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/04/14	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/04/14	<2.0		ppbv	
		Hexachlorobutadiene	2011/04/14	<3.0		ppbv	
		Hexane	2011/04/14	<0.30		ppbv	
		Cyclohexane	2011/04/14	<0.20		ppbv	
		Tetrahydrofuran	2011/04/14	<0.40		ppbv	
		1,4-Dioxane	2011/04/14	<2.0		ppbv	
		Xylene (Total)	2011/04/14	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/04/14	NC		%	25
		Carbon Disulfide	2011/04/14	NC		%	25
		Propene	2011/04/14	NC		%	25
		Vinyl Acetate	2011/04/14	NC		%	25
		Vinyl Bromide	2011/04/14	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/04/14	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/04/14	NC		%	25
		Chloromethane	2011/04/14	NC		%	25
		Vinyl Chloride	2011/04/14	NC		%	25
		Chloroethane	2011/04/14	NC		%	25
		1,3-Butadiene	2011/04/14	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/04/14	NC		%	25
		Trichlorotrifluoroethane	2011/04/14	NC		%	25
		Ethanol	2011/04/14	NC		%	25
		2-propanol	2011/04/14	NC		%	25
		2-Propanone	2011/04/14	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/04/14	NC		%	25
		Methyl Isobutyl Ketone	2011/04/14	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/04/14	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/04/14	NC		%	25
		Ethyl Acetate	2011/04/14	NC		%	25
		1,1-Dichloroethylene	2011/04/14	NC		%	25
		cis-1,2-Dichloroethylene	2011/04/14	NC		%	25
		trans-1,2-Dichloroethylene	2011/04/14	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/04/14	NC		%	25
		Chloroform	2011/04/14	NC		%	25
		Carbon Tetrachloride	2011/04/14	NC		%	25
		1,1-Dichloroethane	2011/04/14	NC		%	25
		1,2-Dichloroethane	2011/04/14	NC		%	25
		Ethylene Dibromide	2011/04/14	NC		%	25

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB150205

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2459600 DVO	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/04/14	NC		%	25
		1,1,2-Trichloroethane	2011/04/14	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/04/14	NC		%	25
		cis-1,3-Dichloropropene	2011/04/14	NC		%	25
		trans-1,3-Dichloropropene	2011/04/14	NC		%	25
		1,2-Dichloropropane	2011/04/14	NC		%	25
		Bromomethane	2011/04/14	NC		%	25
		Bromoform	2011/04/14	NC		%	25
		Bromodichloromethane	2011/04/14	NC		%	25
		Dibromochloromethane	2011/04/14	NC		%	25
		Heptane	2011/04/14	NC		%	25
		Trichloroethylene	2011/04/14	NC		%	25
		Tetrachloroethylene	2011/04/14	NC		%	25
		Benzene	2011/04/14	NC		%	25
		Toluene	2011/04/14	NC		%	25
		Ethylbenzene	2011/04/14	NC		%	25
		p+m-Xylene	2011/04/14	NC		%	25
		o-Xylene	2011/04/14	NC		%	25
		Styrene	2011/04/14	NC		%	25
		1,3,5-Trimethylbenzene	2011/04/14	NC		%	25
		1,2,4-Trimethylbenzene	2011/04/14	NC		%	25
		4-ethyltoluene	2011/04/14	NC		%	25
		Chlorobenzene	2011/04/14	NC		%	25
		Benzyl chloride	2011/04/14	NC		%	25
		1,3-Dichlorobenzene	2011/04/14	NC		%	25
		1,4-Dichlorobenzene	2011/04/14	NC		%	25
		1,2-Dichlorobenzene	2011/04/14	NC		%	25
		1,2,4-Trichlorobenzene	2011/04/14	NC		%	25
		Hexachlorobutadiene	2011/04/14	NC		%	25
		Hexane	2011/04/14	NC		%	25
		Cyclohexane	2011/04/14	NC		%	25
		Tetrahydrofuran	2011/04/14	NC		%	25
		1,4-Dioxane	2011/04/14	NC		%	25
		Xylene (Total)	2011/04/14	NC		%	25

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

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

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

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

# MAXXAM

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167  
Location: Cold Lake South Canister ID: 7813  
Station ID: Lica 1 Canister Installation Date/Time: Apr 13, 2011 @ 7:32 mst  
Field Sample ID: LICA VOC/ CLS /Apr 15, 11 Canister Removal Date/Time: Apr 18, 2011 @ 7:40 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
15-Apr-11	04/15/2011 0:00	04/16/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	618	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 #07512

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Technician Signiture: Ting Xu



Your C.O.C. #: 07512

**Attention: Michael Bisaga**

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

**Report Date: 2011/04/29**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B153923**

**Received: 2011/04/20, 10:21**

Sample Matrix: AIR  
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/04/26	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/04/26	BRL SOP-00304	EPA TO-15

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

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

**Encryption Key**

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

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

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

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Total cover pages: 1



Maxxam Job #: B153923  
 Report Date: 2011/04/29

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		JG3773	JG3774	
Sampling Date		2011/04/15	2011/04/15	
COC Number		07512	07512	
	<b>Units</b>	<b>LICA VOC/CLS/APR 15,11 - 7813</b>	<b>LICA VOC/PORT/APR 15,11 - 7837</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	22	22	2469588

QC Batch = Quality Control Batch

Maxxam Job #: B153923  
 Report Date: 2011/04/29

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JG3773			JG3774				
Sampling Date		2011/04/15			2011/04/15				
COC Number		07512			07512				
	<b>Units</b>	<b>LICA VOC/CLS/APR 15,11 - 7813</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>LICA VOC/PORT/APR 15,11 - 7837</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Volatiles Organics</b>									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2469993
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2469993
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2469993
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2469993
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2469993
Dichlorodifluoromethane (FREON 12)	ppbv	0.92	4.56	0.989	0.89	0.20	4.40	0.989	2469993
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2469993
Chloromethane	ppbv	0.72	1.48	0.620	0.71	0.30	1.47	0.620	2469993
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2469993
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2469993
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2469993
Trichlorofluoromethane (FREON 11)	ppbv	0.43	2.44	1.12	0.43	0.20	2.41	1.12	2469993
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2469993
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2469993
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2469993
2-Propanone	ppbv	2.31	5.49	1.90	2.62	0.80	6.23	1.90	2469993
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2469993
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2469993
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2469993
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2469993
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2469993
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2469993
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2469993
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2469993
Methylene Chloride(Dichloromethane)	ppbv	0.57	1.98	1.04	0.50	0.30	1.74	1.04	2469993
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2469993
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2469993
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2469993
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2469993
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2469993
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2469993

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B153923  
 Report Date: 2011/04/29

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JG3773			JG3774				
Sampling Date		2011/04/15			2011/04/15				
COC Number		07512			07512				
	Units	LICA VOC/CLS/APR 15,11 - 7813	ug/m3	DL (ug/m3)	LICA VOC/PORT/APR 15,11 - 7837	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	2469993
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2469993
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2469993
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2469993
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2469993
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2469993
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2469993
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2469993
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2469993
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2469993
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2469993
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2469993
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2469993
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2469993
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2469993
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2469993
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2469993
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2469993
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2469993
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2469993
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2469993
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2469993
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2469993
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2469993
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2469993
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2469993
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2469993
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2469993
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2469993
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2469993
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2469993
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2469993
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2469993
QC Batch = Quality Control Batch									

Maxxam Job #: B153923  
 Report Date: 2011/04/29

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JG3773			JG3774				
Sampling Date		2011/04/15			2011/04/15				
COC Number		07512			07512				
	<b>Units</b>	<b>LICA VOC/CLS/APR 15,11 - 7813</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>LICA VOC/PORT/APR 15,11 - 7837</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Surrogate Recovery (%)</b>									
Bromochloromethane	%	81	N/A	N/A	81		N/A	N/A	2469993
D5-Chlorobenzene	%	79	N/A	N/A	79		N/A	N/A	2469993
Difluorobenzene	%	82	N/A	N/A	81		N/A	N/A	2469993

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

Maxxam Job #: B153923  
Report Date: 2011/04/29

### Test Summary

<b>Maxxam ID</b>	JG3773	<b>Collected</b>	2011/04/15
<b>Sample ID</b>	LICA VOC/CLS/APR 15,11 - 7813	<b>Shipped</b>	
<b>Matrix</b>	AIR	<b>Received</b>	2011/04/20

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2469588	N/A	2011/04/26	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2469993	N/A	2011/04/26	YAO LIANG SUN

<b>Maxxam ID</b>	JG3774	<b>Collected</b>	2011/04/15
<b>Sample ID</b>	LICA VOC/PORT/APR 15,11 - 7837	<b>Shipped</b>	
<b>Matrix</b>	AIR	<b>Received</b>	2011/04/20

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2469588	N/A	2011/04/26	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2469993	N/A	2011/04/26	YAO LIANG SUN

Maxxam Job #: B153923  
Report Date: 2011/04/29

**GENERAL COMMENTS**

**Results relate only to the items tested.**

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

Quality Assurance Report  
 Maxxam Job Number: GB153923

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2469993 LSY	Spiked Blank	Bromochloromethane	2011/04/26		103	%	60 - 140
		D5-Chlorobenzene	2011/04/26		108	%	60 - 140
		Difluorobenzene	2011/04/26		106	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/26		95	%	70 - 130
		Carbon Disulfide	2011/04/26		87	%	70 - 130
		Propene	2011/04/26		96	%	70 - 130
		Vinyl Acetate	2011/04/26		114	%	70 - 130
		Vinyl Bromide	2011/04/26		98	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/04/26		115	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/04/26		116	%	70 - 130
		Chloromethane	2011/04/26		107	%	70 - 130
		Vinyl Chloride	2011/04/26		101	%	70 - 130
		Chloroethane	2011/04/26		96	%	70 - 130
		1,3-Butadiene	2011/04/26		94	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/04/26		116	%	70 - 130
		Trichlorotrifluoroethane	2011/04/26		96	%	70 - 130
		Ethanol	2011/04/26		125	%	70 - 130
		2-propanol	2011/04/26		112	%	70 - 130
		2-Propanone	2011/04/26		119	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/04/26		99	%	70 - 130
		Methyl Isobutyl Ketone	2011/04/26		104	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/04/26		108	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/04/26		113	%	70 - 130
		Ethyl Acetate	2011/04/26		108	%	70 - 130
		1,1-Dichloroethylene	2011/04/26		110	%	70 - 130
		cis-1,2-Dichloroethylene	2011/04/26		107	%	70 - 130
		trans-1,2-Dichloroethylene	2011/04/26		106	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/04/26		92	%	70 - 130
		Chloroform	2011/04/26		107	%	70 - 130
		Carbon Tetrachloride	2011/04/26		114	%	70 - 130
		1,1-Dichloroethane	2011/04/26		102	%	70 - 130
		1,2-Dichloroethane	2011/04/26		124	%	70 - 130
		Ethylene Dibromide	2011/04/26		92	%	70 - 130
		1,1,1-Trichloroethane	2011/04/26		112	%	70 - 130
		1,1,2-Trichloroethane	2011/04/26		90	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/04/26		80	%	70 - 130
		cis-1,3-Dichloropropene	2011/04/26		100	%	70 - 130
		trans-1,3-Dichloropropene	2011/04/26		107	%	70 - 130
		1,2-Dichloropropane	2011/04/26		90	%	70 - 130
		Bromomethane	2011/04/26		97	%	70 - 130
		Bromoform	2011/04/26		100	%	70 - 130
		Bromodichloromethane	2011/04/26		106	%	70 - 130
		Dibromochloromethane	2011/04/26		105	%	70 - 130
		Heptane	2011/04/26		102	%	70 - 130
		Trichloroethylene	2011/04/26		91	%	70 - 130
		Tetrachloroethylene	2011/04/26		91	%	70 - 130
		Benzene	2011/04/26		92	%	70 - 130
		Toluene	2011/04/26		97	%	70 - 130
		Ethylbenzene	2011/04/26		98	%	70 - 130
		p+m-Xylene	2011/04/26		99	%	70 - 130
		o-Xylene	2011/04/26		100	%	70 - 130
		Styrene	2011/04/26		89	%	70 - 130
		1,3,5-Trimethylbenzene	2011/04/26		93	%	70 - 130
		1,2,4-Trimethylbenzene	2011/04/26		89	%	70 - 130
		4-ethyltoluene	2011/04/26		93	%	70 - 130

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB153923

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2469993 LSY	Spiked Blank	Chlorobenzene	2011/04/26		87	%	70 - 130
		Benzyl chloride	2011/04/26		79	%	70 - 130
		1,3-Dichlorobenzene	2011/04/26		78	%	70 - 130
		1,4-Dichlorobenzene	2011/04/26		78	%	70 - 130
		1,2-Dichlorobenzene	2011/04/26		76	%	70 - 130
		1,2,4-Trichlorobenzene	2011/04/26		81	%	70 - 130
		Hexachlorobutadiene	2011/04/26		101	%	70 - 130
		Hexane	2011/04/26		103	%	70 - 130
		Cyclohexane	2011/04/26		98	%	70 - 130
		Tetrahydrofuran	2011/04/26		105	%	70 - 130
		1,4-Dioxane	2011/04/26		95	%	70 - 130
	Method Blank	Bromochloromethane	2011/04/26		78	%	60 - 140
		D5-Chlorobenzene	2011/04/26		78	%	60 - 140
		Difluorobenzene	2011/04/26		80	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/26	<0.20		ppbv	
		Carbon Disulfide	2011/04/26	<0.50		ppbv	
		Propene	2011/04/26	<0.30		ppbv	
		Vinyl Acetate	2011/04/26	<0.20		ppbv	
		Vinyl Bromide	2011/04/26	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/04/26	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/04/26	<0.17		ppbv	
		Chloromethane	2011/04/26	<0.30		ppbv	
		Vinyl Chloride	2011/04/26	<0.18		ppbv	
		Chloroethane	2011/04/26	<0.30		ppbv	
		1,3-Butadiene	2011/04/26	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/04/26	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/04/26	<0.15		ppbv	
		Ethanol	2011/04/26	<2.3		ppbv	
		2-propanol	2011/04/26	<3.0		ppbv	
		2-Propanone	2011/04/26	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/04/26	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/04/26	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/04/26	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/04/26	<0.20		ppbv	
		Ethyl Acetate	2011/04/26	<2.2		ppbv	
		1,1-Dichloroethylene	2011/04/26	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/04/26	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/04/26	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/04/26	0.50, RDL=0.30		ppbv	
		Chloroform	2011/04/26	<0.15		ppbv	
		Carbon Tetrachloride	2011/04/26	<0.30		ppbv	
		1,1-Dichloroethane	2011/04/26	<0.20		ppbv	
		1,2-Dichloroethane	2011/04/26	<0.20		ppbv	
		Ethylene Dibromide	2011/04/26	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/04/26	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/04/26	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/04/26	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/04/26	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/04/26	<0.17		ppbv	
		1,2-Dichloropropane	2011/04/26	<0.40		ppbv	
		Bromomethane	2011/04/26	<0.18		ppbv	
		Bromoform	2011/04/26	<0.20		ppbv	
		Bromodichloromethane	2011/04/26	<0.20		ppbv	
		Dibromochloromethane	2011/04/26	<0.20		ppbv	
		Heptane	2011/04/26	<0.30		ppbv	



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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB153923

QA/QC Batch			Date Analyzed					
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2469993	LSY	Method Blank	2011/04/26	<0.30		ppbv		
		Trichloroethylene	2011/04/26	<0.20		ppbv		
		Tetrachloroethylene	2011/04/26	<0.18		ppbv		
		Benzene	2011/04/26	<0.20		ppbv		
		Toluene	2011/04/26	<0.20		ppbv		
		Ethylbenzene	2011/04/26	<0.20		ppbv		
		p+m-Xylene	2011/04/26	<0.37		ppbv		
		o-Xylene	2011/04/26	<0.20		ppbv		
		Styrene	2011/04/26	<0.20		ppbv		
		1,3,5-Trimethylbenzene	2011/04/26	<0.50		ppbv		
		1,2,4-Trimethylbenzene	2011/04/26	<0.50		ppbv		
		4-ethyltoluene	2011/04/26	<2.2		ppbv		
		Chlorobenzene	2011/04/26	<0.20		ppbv		
		Benzyl chloride	2011/04/26	<1.0		ppbv		
		1,3-Dichlorobenzene	2011/04/26	<0.40		ppbv		
		1,4-Dichlorobenzene	2011/04/26	<0.40		ppbv		
		1,2-Dichlorobenzene	2011/04/26	<0.40		ppbv		
		1,2,4-Trichlorobenzene	2011/04/26	<2.0		ppbv		
		Hexachlorobutadiene	2011/04/26	<3.0		ppbv		
		Hexane	2011/04/26	<0.30		ppbv		
		Cyclohexane	2011/04/26	<0.20		ppbv		
		Tetrahydrofuran	2011/04/26	<0.40		ppbv		
		1,4-Dioxane	2011/04/26	<2.0		ppbv		
		Xylene (Total)	2011/04/26	<0.60		ppbv		

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

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

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

# MAXXAM

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167  
Location: Cold Lake South Canister ID: 7809  
Station ID: Lica 1 Canister Installation Date/Time: Apr 19, 2011 @ 7:50 mst  
Field Sample ID: LICA VOC/ CLS /Apr 21, 11 Canister Removal Date/Time: Apr 25, 2011 @ 7:26 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
21-Apr-11	04/21/2011 0:00	04/22/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	618	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 # 07550  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Technician Signiture: Ting Xu



Your C.O.C. #: 07550

**Attention: Michael Bisaga**

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

**Report Date: 2011/05/04**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B157075**

**Received: 2011/04/27, 11:30**

Sample Matrix: AIR  
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/04/28	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/04/28	BRL SOP-00304	EPA TO-15

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

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

**Encryption Key**

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

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

=====

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

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Total cover pages: 1

Maxxam Job #: B157075  
 Report Date: 2011/05/04

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		JH8375	JH8376	
Sampling Date		2011/04/21 00:00	2011/04/21 00:00	
COC Number		07550	07550	
	<b>Units</b>	<b>LICA VOC/CLS/APR 21,11 - 7809</b>	<b>LICA VOC/PORT/APR 21,11 - 7909</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	22	21	2472918
QC Batch = Quality Control Batch				

Maxxam Job #: B157075  
 Report Date: 2011/05/04

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JH8375				
Sampling Date		2011/04/21 00:00				
COC Number		07550				
	<b>Units</b>	<b>LICA VOC/CLS/APR 21,11 - 7809</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2474437
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2474437
Propene	ppbv	<0.30	0.30	<0.516	0.516	2474437
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2474437
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2474437
Dichlorodifluoromethane (FREON 12)	ppbv	0.95	0.20	4.70	0.989	2474437
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2474437
Chloromethane	ppbv	0.72	0.30	1.49	0.620	2474437
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2474437
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2474437
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2474437
Trichlorofluoromethane (FREON 11)	ppbv	0.47	0.20	2.63	1.12	2474437
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2474437
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2474437
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2474437
2-Propanone	ppbv	3.58	0.80	8.51	1.90	2474437
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2474437
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2474437
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2474437
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2474437
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2474437
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2474437
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2474437
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2474437
Methylene Chloride(Dichloromethane)	ppbv	0.54	0.30	1.88	1.04	2474437
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2474437
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2474437
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2474437
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2474437
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2474437
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B157075  
 Report Date: 2011/05/04

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JH8375				
Sampling Date		2011/04/21 00:00				
COC Number		07550				
	<b>Units</b>	<b>LICA VOC/CLS/APR 21,11 - 7809</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2474437
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2474437
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2474437
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2474437
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2474437
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2474437
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2474437
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2474437
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2474437
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2474437
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2474437
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2474437
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2474437
Benzene	ppbv	0.24	0.18	0.754	0.575	2474437
Toluene	ppbv	0.50	0.20	1.89	0.753	2474437
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2474437
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2474437
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2474437
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2474437
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2474437
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2474437
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2474437
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2474437
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2474437
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2474437
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2474437
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2474437
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2474437
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2474437
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2474437
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2474437
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2474437
QC Batch = Quality Control Batch						

Maxxam Job #: B157075  
 Report Date: 2011/05/04

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JH8375				
Sampling Date		2011/04/21 00:00				
COC Number		07550				
	<b>Units</b>	<b>LICA VOC/CLS/APR 21,11 - 7809</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2474437
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2474437
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	75		N/A	N/A	2474437
D5-Chlorobenzene	%	73		N/A	N/A	2474437
Difluorobenzene	%	76		N/A	N/A	2474437
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B157075  
 Report Date: 2011/05/04

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JH8376				
Sampling Date		2011/04/21 00:00				
COC Number		07550				
	<b>Units</b>	<b>LICA VOC/PORT/APR 21,11 - 7909</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2474437
Carbon Disulfide	ppbv	0.66	0.50	2.07	1.56	2474437
Propene	ppbv	<0.30	0.30	<0.516	0.516	2474437
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2474437
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2474437
Dichlorodifluoromethane (FREON 12)	ppbv	0.99	0.20	4.88	0.989	2474437
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2474437
Chloromethane	ppbv	0.74	0.30	1.52	0.620	2474437
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2474437
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2474437
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2474437
Trichlorofluoromethane (FREON 11)	ppbv	0.47	0.20	2.64	1.12	2474437
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2474437
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2474437
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2474437
2-Propanone	ppbv	3.78	0.80	8.97	1.90	2474437
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2474437
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2474437
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2474437
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2474437
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2474437
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2474437
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2474437
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2474437
Methylene Chloride(Dichloromethane)	ppbv	0.59	0.30	2.04	1.04	2474437
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2474437
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2474437
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2474437
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2474437
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2474437
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						



Maxxam Job #: B157075  
 Report Date: 2011/05/04

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JH8376				
Sampling Date		2011/04/21 00:00				
COC Number		07550				
	<b>Units</b>	<b>LICA VOC/PORT/APR 21,11 - 7909</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2474437
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2474437
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2474437
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2474437
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2474437
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2474437
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2474437
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2474437
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2474437
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2474437
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2474437
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2474437
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2474437
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2474437
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2474437
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2474437
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2474437
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2474437
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2474437
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2474437
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2474437
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2474437
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2474437
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2474437
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2474437
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2474437
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2474437
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2474437
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2474437
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2474437
Cyclohexane	ppbv	0.40	0.20	1.37	0.688	2474437
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2474437

QC Batch = Quality Control Batch

Maxxam Job #: B157075  
 Report Date: 2011/05/04

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JH8376				
Sampling Date		2011/04/21 00:00				
COC Number		07550				
	<b>Units</b>	<b>LICA VOC/PORT/APR 21,11 - 7909</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2474437
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2474437
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	74		N/A	N/A	2474437
D5-Chlorobenzene	%	72		N/A	N/A	2474437
Difluorobenzene	%	74		N/A	N/A	2474437
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B157075  
 Report Date: 2011/05/04

### Test Summary

**Maxxam ID** JH8375 **Collected** 2011/04/21  
**Sample ID** LICA VOC/CLS/APR 21,11 - 7809 **Shipped**  
**Matrix** AIR **Received** 2011/04/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2472918	N/A	2011/04/28	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2474437	N/A	2011/04/28	YAO LIANG SUN

**Maxxam ID** JH8376 **Collected** 2011/04/21  
**Sample ID** LICA VOC/PORT/APR 21,11 - 7909 **Shipped**  
**Matrix** AIR **Received** 2011/04/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2472918	N/A	2011/04/28	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2474437	N/A	2011/04/28	YAO LIANG SUN

Maxxam Job #: B157075  
Report Date: 2011/05/04

**GENERAL COMMENTS**

**Results relate only to the items tested.**

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

### Quality Assurance Report

Maxxam Job Number: GB157075

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2474437 LSY	Spiked Blank	Bromochloromethane	2011/04/28		89	%	60 - 140
		D5-Chlorobenzene	2011/04/28		89	%	60 - 140
		Difluorobenzene	2011/04/28		90	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/28		94	%	70 - 130
		Carbon Disulfide	2011/04/28		89	%	70 - 130
		Propene	2011/04/28		97	%	70 - 130
		Vinyl Acetate	2011/04/28		110	%	70 - 130
		Vinyl Bromide	2011/04/28		99	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/04/28		124	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/04/28		122	%	70 - 130
		Chloromethane	2011/04/28		111	%	70 - 130
		Vinyl Chloride	2011/04/28		104	%	70 - 130
		Chloroethane	2011/04/28		96	%	70 - 130
		1,3-Butadiene	2011/04/28		94	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/04/28		124	%	70 - 130
		Trichlorotrifluoroethane	2011/04/28		99	%	70 - 130
		Ethanol	2011/04/28		117	%	70 - 130
		2-propanol	2011/04/28		107	%	70 - 130
		2-Propanone	2011/04/28		119	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/04/28		95	%	70 - 130
		Methyl Isobutyl Ketone	2011/04/28		101	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/04/28		103	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/04/28		116	%	70 - 130
		Ethyl Acetate	2011/04/28		104	%	70 - 130
		1,1-Dichloroethylene	2011/04/28		113	%	70 - 130
		cis-1,2-Dichloroethylene	2011/04/28		109	%	70 - 130
		trans-1,2-Dichloroethylene	2011/04/28		107	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/04/28		92	%	70 - 130
		Chloroform	2011/04/28		112	%	70 - 130
		Carbon Tetrachloride	2011/04/28		125	%	70 - 130
		1,1-Dichloroethane	2011/04/28		102	%	70 - 130
		1,2-Dichloroethane	2011/04/28		131 (1)	%	70 - 130
		Ethylene Dibromide	2011/04/28		96	%	70 - 130
		1,1,1-Trichloroethane	2011/04/28		121	%	70 - 130
		1,1,2-Trichloroethane	2011/04/28		93	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/04/28		83	%	70 - 130
		cis-1,3-Dichloropropene	2011/04/28		101	%	70 - 130
		trans-1,3-Dichloropropene	2011/04/28		111	%	70 - 130
		1,2-Dichloropropane	2011/04/28		90	%	70 - 130
		Bromomethane	2011/04/28		101	%	70 - 130
		Bromoform	2011/04/28		107	%	70 - 130
		Bromodichloromethane	2011/04/28		111	%	70 - 130
		Dibromochloromethane	2011/04/28		112	%	70 - 130
		Heptane	2011/04/28		98	%	70 - 130
		Trichloroethylene	2011/04/28		94	%	70 - 130
		Tetrachloroethylene	2011/04/28		98	%	70 - 130
		Benzene	2011/04/28		96	%	70 - 130
		Toluene	2011/04/28		98	%	70 - 130
		Ethylbenzene	2011/04/28		102	%	70 - 130
		p+m-Xylene	2011/04/28		103	%	70 - 130
		o-Xylene	2011/04/28		104	%	70 - 130
		Styrene	2011/04/28		92	%	70 - 130
		1,3,5-Trimethylbenzene	2011/04/28		98	%	70 - 130
		1,2,4-Trimethylbenzene	2011/04/28		93	%	70 - 130
		4-ethyltoluene	2011/04/28		98	%	70 - 130

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB157075

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2474437 LSY	Spiked Blank	Chlorobenzene	2011/04/28		93	%	70 - 130
		Benzyl chloride	2011/04/28		81	%	70 - 130
		1,3-Dichlorobenzene	2011/04/28		84	%	70 - 130
		1,4-Dichlorobenzene	2011/04/28		83	%	70 - 130
		1,2-Dichlorobenzene	2011/04/28		82	%	70 - 130
		1,2,4-Trichlorobenzene	2011/04/28		84	%	70 - 130
		Hexachlorobutadiene	2011/04/28		111	%	70 - 130
		Hexane	2011/04/28		99	%	70 - 130
		Cyclohexane	2011/04/28		97	%	70 - 130
		Tetrahydrofuran	2011/04/28		100	%	70 - 130
		1,4-Dioxane	2011/04/28		92	%	70 - 130
	Method Blank	Bromochloromethane	2011/04/28		78	%	60 - 140
		D5-Chlorobenzene	2011/04/28		76	%	60 - 140
		Difluorobenzene	2011/04/28		80	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/28	<0.20		ppbv	
		Carbon Disulfide	2011/04/28	<0.50		ppbv	
		Propene	2011/04/28	<0.30		ppbv	
		Vinyl Acetate	2011/04/28	<0.20		ppbv	
		Vinyl Bromide	2011/04/28	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/04/28	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/04/28	<0.17		ppbv	
		Chloromethane	2011/04/28	<0.30		ppbv	
		Vinyl Chloride	2011/04/28	<0.18		ppbv	
		Chloroethane	2011/04/28	<0.30		ppbv	
		1,3-Butadiene	2011/04/28	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/04/28	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/04/28	<0.15		ppbv	
		Ethanol	2011/04/28	<2.3		ppbv	
		2-propanol	2011/04/28	<3.0		ppbv	
		2-Propanone	2011/04/28	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/04/28	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/04/28	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/04/28	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/04/28	<0.20		ppbv	
		Ethyl Acetate	2011/04/28	<2.2		ppbv	
		1,1-Dichloroethylene	2011/04/28	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/04/28	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/04/28	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/04/28	0.47, RDL=0.30		ppbv	
		Chloroform	2011/04/28	<0.15		ppbv	
		Carbon Tetrachloride	2011/04/28	<0.30		ppbv	
		1,1-Dichloroethane	2011/04/28	<0.20		ppbv	
		1,2-Dichloroethane	2011/04/28	<0.20		ppbv	
		Ethylene Dibromide	2011/04/28	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/04/28	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/04/28	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/04/28	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/04/28	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/04/28	<0.17		ppbv	
		1,2-Dichloropropane	2011/04/28	<0.40		ppbv	
		Bromomethane	2011/04/28	<0.18		ppbv	
		Bromoform	2011/04/28	<0.20		ppbv	
		Bromodichloromethane	2011/04/28	<0.20		ppbv	
		Dibromochloromethane	2011/04/28	<0.20		ppbv	
		Heptane	2011/04/28	<0.30		ppbv	

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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB157075

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2474437 LSY	Method Blank	Trichloroethylene	2011/04/28	<0.30		ppbv	
		Tetrachloroethylene	2011/04/28	<0.20		ppbv	
		Benzene	2011/04/28	<0.18		ppbv	
		Toluene	2011/04/28	<0.20		ppbv	
		Ethylbenzene	2011/04/28	<0.20		ppbv	
		p+m-Xylene	2011/04/28	<0.37		ppbv	
		o-Xylene	2011/04/28	<0.20		ppbv	
		Styrene	2011/04/28	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/04/28	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/04/28	<0.50		ppbv	
		4-ethyltoluene	2011/04/28	<2.2		ppbv	
		Chlorobenzene	2011/04/28	<0.20		ppbv	
		Benzyl chloride	2011/04/28	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/04/28	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/04/28	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/04/28	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/04/28	<2.0		ppbv	
		Hexachlorobutadiene	2011/04/28	<3.0		ppbv	
		Hexane	2011/04/28	<0.30		ppbv	
		Cyclohexane	2011/04/28	<0.20		ppbv	
		Tetrahydrofuran	2011/04/28	<0.40		ppbv	
		1,4-Dioxane	2011/04/28	<2.0		ppbv	
		Xylene (Total)	2011/04/28	<0.60		ppbv	

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

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

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

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

# MAXXAM

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167  
Location: Cold Lake South Canister ID: 7851  
Station ID: Lica 1 Canister Installation Date/Time: Apr 25, 2011 @ 7:43 mst  
Field Sample ID: LICA VOC/ CLS /Apr 27, 11 Canister Removal Date/Time: Apr 28, 2011 @ 7:01 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
27-Apr-11	04/27/2011 0:00	04/28/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	618	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	22

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

Comments: System leak check prior to sampling. COC #06946

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Technician Signiture: Ting Xu



Your C.O.C. #: 06946

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

Report Date: 2011/05/05

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B159322****Received: 2011/04/30, 16:25**Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/05/03	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/05/03	BRL SOP-00304	EPA TO-15

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

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

## Encryption Key

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

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

=====

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

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Total cover pages: 1

Maxxam Job #: B159322  
 Report Date: 2011/05/05

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		J18562	J18563	
Sampling Date		2011/04/27	2011/04/27	
COC Number		06946	06946	
	<b>Units</b>	<b>LICA VOC/CLS/APR 27,2011</b>	<b>LICA VOC/PORT/APR 27,2011</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	21	22	2476889

QC Batch = Quality Control Batch

Maxxam Job #: B159322  
 Report Date: 2011/05/05

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		J18562			J18563				
Sampling Date		2011/04/27			2011/04/27				
COC Number		06946			06946				
	<b>Units</b>	<b>LICA VOC/CLS/APR 27,2011</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>LICA VOC/PORT/APR 27,2011</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Volatile Organics</b>									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2477688
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2477688
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2477688
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2477688
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2477688
Dichlorodifluoromethane (FREON 12)	ppbv	0.78	3.85	0.989	0.75	0.20	3.73	0.989	2477688
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2477688
Chloromethane	ppbv	0.77	1.58	0.620	0.74	0.30	1.53	0.620	2477688
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2477688
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2477688
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2477688
Trichlorofluoromethane (FREON 11)	ppbv	0.35	1.96	1.12	0.35	0.20	1.97	1.12	2477688
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2477688
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2477688
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2477688
2-Propanone	ppbv	3.97	9.43	1.90	3.58	0.80	8.51	1.90	2477688
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2477688
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2477688
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2477688
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2477688
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2477688
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2477688
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2477688
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2477688
Methylene Chloride(Dichloromethane)	ppbv	0.55	1.91	1.04	0.58	0.30	2.01	1.04	2477688
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2477688
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2477688
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2477688
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2477688
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2477688
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2477688

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B159322  
 Report Date: 2011/05/05

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		J18562			J18563				
Sampling Date		2011/04/27			2011/04/27				
COC Number		06946			06946				
	Units	LICA VOC/CLS/APR 27,2011	ug/m3	DL (ug/m3)	LICA VOC/PORT/APR 27,2011	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	2477688
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2477688
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2477688
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2477688
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2477688
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2477688
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2477688
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2477688
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2477688
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2477688
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2477688
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2477688
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2477688
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2477688
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2477688
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2477688
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2477688
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2477688
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2477688
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2477688
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2477688
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2477688
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2477688
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2477688
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2477688
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2477688
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2477688
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2477688
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2477688
Cyclohexane	ppbv	0.34	1.16	0.688	0.48	0.20	1.64	0.688	2477688
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2477688
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2477688
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2477688
QC Batch = Quality Control Batch									

Maxxam Job #: B159322  
 Report Date: 2011/05/05

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		J18562			J18563				
Sampling Date		2011/04/27			2011/04/27				
COC Number		06946			06946				
	<b>Units</b>	<b>LICA VOC/CLS/APR 27,2011</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>LICA VOC/PORT/APR 27,2011</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Surrogate Recovery (%)</b>									
Bromochloromethane	%	84	N/A	N/A	84		N/A	N/A	2477688
D5-Chlorobenzene	%	86	N/A	N/A	88		N/A	N/A	2477688
Difluorobenzene	%	86	N/A	N/A	86		N/A	N/A	2477688

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

Maxxam Job #: B159322  
 Report Date: 2011/05/05

### Test Summary

<b>Maxxam ID</b>	J18562	<b>Collected</b>	2011/04/27
<b>Sample ID</b>	LICA VOC/CLS/APR 27,2011	<b>Shipped</b>	
<b>Matrix</b>	AIR	<b>Received</b>	2011/04/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2476889	N/A	2011/05/03	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2477688	N/A	2011/05/03	YAO LIANG SUN

<b>Maxxam ID</b>	J18563	<b>Collected</b>	2011/04/27
<b>Sample ID</b>	LICA VOC/PORT/APR 27,2011	<b>Shipped</b>	
<b>Matrix</b>	AIR	<b>Received</b>	2011/04/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2476889	N/A	2011/05/03	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2477688	N/A	2011/05/03	YAO LIANG SUN

Maxxam Job #: B159322  
Report Date: 2011/05/05

**GENERAL COMMENTS**

**Results relate only to the items tested.**

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

Quality Assurance Report  
 Maxxam Job Number: GB159322

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2477688 LSY	Spiked Blank	Bromochloromethane	2011/05/03		91	%	60 - 140
		D5-Chlorobenzene	2011/05/03		90	%	60 - 140
		Difluorobenzene	2011/05/03		92	%	60 - 140
		2,2,4-Trimethylpentane	2011/05/03		97	%	70 - 130
		Carbon Disulfide	2011/05/03		90	%	70 - 130
		Propene	2011/05/03		94	%	70 - 130
		Vinyl Acetate	2011/05/03		110	%	70 - 130
		Vinyl Bromide	2011/05/03		97	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/05/03		96	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/05/03		111	%	70 - 130
		Chloromethane	2011/05/03		100	%	70 - 130
		Vinyl Chloride	2011/05/03		98	%	70 - 130
		Chloroethane	2011/05/03		97	%	70 - 130
		1,3-Butadiene	2011/05/03		87	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/05/03		97	%	70 - 130
		Trichlorotrifluoroethane	2011/05/03		97	%	70 - 130
		Ethanol	2011/05/03		89	%	70 - 130
		2-propanol	2011/05/03		99	%	70 - 130
		2-Propanone	2011/05/03		92	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/05/03		97	%	70 - 130
		Methyl Isobutyl Ketone	2011/05/03		96	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/05/03		97	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/05/03		98	%	70 - 130
		Ethyl Acetate	2011/05/03		103	%	70 - 130
		1,1-Dichloroethylene	2011/05/03		99	%	70 - 130
		cis-1,2-Dichloroethylene	2011/05/03		97	%	70 - 130
		trans-1,2-Dichloroethylene	2011/05/03		100	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/05/03		91	%	70 - 130
		Chloroform	2011/05/03		98	%	70 - 130
		Carbon Tetrachloride	2011/05/03		109	%	70 - 130
		1,1-Dichloroethane	2011/05/03		98	%	70 - 130
		1,2-Dichloroethane	2011/05/03		100	%	70 - 130
		Ethylene Dibromide	2011/05/03		94	%	70 - 130
		1,1,1-Trichloroethane	2011/05/03		100	%	70 - 130
		1,1,2-Trichloroethane	2011/05/03		94	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/05/03		85	%	70 - 130
		cis-1,3-Dichloropropene	2011/05/03		101	%	70 - 130
		trans-1,3-Dichloropropene	2011/05/03		100	%	70 - 130
		1,2-Dichloropropane	2011/05/03		97	%	70 - 130
		Bromomethane	2011/05/03		97	%	70 - 130
		Bromoform	2011/05/03		115	%	70 - 130
		Bromodichloromethane	2011/05/03		106	%	70 - 130
		Dibromochloromethane	2011/05/03		112	%	70 - 130
		Heptane	2011/05/03		98	%	70 - 130
		Trichloroethylene	2011/05/03		93	%	70 - 130
		Tetrachloroethylene	2011/05/03		92	%	70 - 130
		Benzene	2011/05/03		94	%	70 - 130
		Toluene	2011/05/03		94	%	70 - 130
		Ethylbenzene	2011/05/03		95	%	70 - 130
		p+m-Xylene	2011/05/03		94	%	70 - 130
		o-Xylene	2011/05/03		93	%	70 - 130
		Styrene	2011/05/03		94	%	70 - 130
		1,3,5-Trimethylbenzene	2011/05/03		80	%	70 - 130
		1,2,4-Trimethylbenzene	2011/05/03		78	%	70 - 130
		4-ethyltoluene	2011/05/03		85	%	70 - 130



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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB159322

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2477688 LSY	Spiked Blank	Chlorobenzene	2011/05/03		95	%	70 - 130
		Benzyl chloride	2011/05/03		92	%	70 - 130
		1,3-Dichlorobenzene	2011/05/03		79	%	70 - 130
		1,4-Dichlorobenzene	2011/05/03		80	%	70 - 130
		1,2-Dichlorobenzene	2011/05/03		73	%	70 - 130
		1,2,4-Trichlorobenzene	2011/05/03		96	%	70 - 130
		Hexachlorobutadiene	2011/05/03		95	%	70 - 130
		Hexane	2011/05/03		98	%	70 - 130
		Cyclohexane	2011/05/03		97	%	70 - 130
		Tetrahydrofuran	2011/05/03		100	%	70 - 130
		1,4-Dioxane	2011/05/03		84	%	70 - 130
	Method Blank	Bromochloromethane	2011/05/03		82	%	60 - 140
		D5-Chlorobenzene	2011/05/03		80	%	60 - 140
		Difluorobenzene	2011/05/03		83	%	60 - 140
		2,2,4-Trimethylpentane	2011/05/03	<0.20		ppbv	
		Carbon Disulfide	2011/05/03	<0.50		ppbv	
		Propene	2011/05/03	<0.30		ppbv	
		Vinyl Acetate	2011/05/03	<0.20		ppbv	
		Vinyl Bromide	2011/05/03	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/05/03	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/05/03	<0.17		ppbv	
		Chloromethane	2011/05/03	<0.30		ppbv	
		Vinyl Chloride	2011/05/03	<0.18		ppbv	
		Chloroethane	2011/05/03	<0.30		ppbv	
		1,3-Butadiene	2011/05/03	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/05/03	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/05/03	<0.15		ppbv	
		Ethanol	2011/05/03	<2.3		ppbv	
		2-propanol	2011/05/03	<3.0		ppbv	
		2-Propanone	2011/05/03	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/05/03	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/05/03	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/05/03	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/05/03	<0.20		ppbv	
		Ethyl Acetate	2011/05/03	<2.2		ppbv	
		1,1-Dichloroethylene	2011/05/03	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/05/03	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/05/03	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/05/03	0.45, RDL=0.30		ppbv	
		Chloroform	2011/05/03	<0.15		ppbv	
		Carbon Tetrachloride	2011/05/03	<0.30		ppbv	
		1,1-Dichloroethane	2011/05/03	<0.20		ppbv	
		1,2-Dichloroethane	2011/05/03	<0.20		ppbv	
		Ethylene Dibromide	2011/05/03	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/05/03	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/05/03	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/05/03	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/05/03	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/05/03	<0.17		ppbv	
		1,2-Dichloropropane	2011/05/03	<0.40		ppbv	
		Bromomethane	2011/05/03	<0.18		ppbv	
		Bromoform	2011/05/03	<0.20		ppbv	
		Bromodichloromethane	2011/05/03	<0.20		ppbv	
		Dibromochloromethane	2011/05/03	<0.20		ppbv	
		Heptane	2011/05/03	<0.30		ppbv	

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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB159322

QA/QC Batch			Date Analyzed					
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2477688	LSY	Method Blank	2011/05/03	<0.30		ppbv		
		Trichloroethylene	2011/05/03	<0.20		ppbv		
		Tetrachloroethylene	2011/05/03	<0.18		ppbv		
		Benzene	2011/05/03	<0.20		ppbv		
		Toluene	2011/05/03	<0.20		ppbv		
		Ethylbenzene	2011/05/03	<0.37		ppbv		
		p+m-Xylene	2011/05/03	<0.20		ppbv		
		o-Xylene	2011/05/03	<0.20		ppbv		
		Styrene	2011/05/03	<0.50		ppbv		
		1,3,5-Trimethylbenzene	2011/05/03	<0.50		ppbv		
		1,2,4-Trimethylbenzene	2011/05/03	<2.2		ppbv		
		4-ethyltoluene	2011/05/03	<1.0		ppbv		
		Chlorobenzene	2011/05/03	<0.40		ppbv		
		Benzyl chloride	2011/05/03	<0.40		ppbv		
		1,3-Dichlorobenzene	2011/05/03	<0.40		ppbv		
		1,4-Dichlorobenzene	2011/05/03	<2.0		ppbv		
		1,2-Dichlorobenzene	2011/05/03	<3.0		ppbv		
		1,2,4-Trichlorobenzene	2011/05/03	<0.30		ppbv		
		Hexachlorobutadiene	2011/05/03	<0.20		ppbv		
		Hexane	2011/05/03	<0.40		ppbv		
		Cyclohexane	2011/05/03	<2.0		ppbv		
		Tetrahydrofuran	2011/05/03	<2.0		ppbv		
		1,4-Dioxane	2011/05/03	<0.60		ppbv		
		Xylene (Total)	2011/05/03			ppbv		

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.  
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.  
 Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

# **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/Apr 03,11

Puf+ s/n: 100-1020  
 Motor s/n: 1138  
 Installation Date/Time: Apr 01, 2011 @ 11:55 mst  
 Removal Date/Time: Apr 04, 2011 @ 9:38 mst

Date and Time Information			
Sample Date	Start Time (MST)		Elapsed Time (Hours)
03-Apr-11	04/03/2011 0:00	04/04/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
31-Mar-11	04-Apr-11	13-Apr-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature ( C)	Volume (Vstd m <sup>3</sup> )
713	229	2.1	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# 07087

GB124673 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Apr 03, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 07087

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

Report Date: 2011/04/12

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B146163****Received: 2011/04/06, 08:35**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/04/07	2011/04/11	BRL SOP-00201	CARB429(ARBM1,M2)mod

## Encryption Key

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

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

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Total cover pages: 1

Maxxam Job #: B146163  
 Report Date: 2011/04/12

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

Maxxam ID		JC6305	JC6306		
Sampling Date		2011/04/03	2011/04/03		
COC Number		07087	07087		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/APR 03, 11</b>	<b>LICA PUFF+QFF/PORT/APR 03, 11</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2451936
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2451936
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2451936
2-Methylantracene	ug	<0.10	<0.10	0.10	2451936
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2451936
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2451936
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2451936
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2451936
Acenaphthene	ug	<0.050	<0.050	0.050	2451936
Acenaphthylene	ug	<0.050	<0.050	0.050	2451936
Anthracene	ug	<0.050	<0.050	0.050	2451936
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2451936
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2451936
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2451936
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2451936
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2451936
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2451936
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2451936
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2451936
Biphenyl	ug	<0.10	<0.10	0.10	2451936
Chrysene	ug	<0.050	<0.050	0.050	2451936
Coronene	ug	<0.10	<0.10	0.10	2451936
Dibenzo(a,h)anthracene	ug	<0.050	<0.050	0.050	2451936
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2451936
Fluoranthene	ug	<0.050	<0.050	0.050	2451936
Fluorene	ug	0.074	0.058	0.050	2451936
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2451936
m-Terphenyl	ug	<0.10	<0.10	0.10	2451936
Naphthalene	ug	0.072	0.078	0.072	2451936
o-Terphenyl	ug	<0.10	<0.10	0.10	2451936
Perylene	ug	<0.10	<0.10	0.10	2451936

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B146163  
 Report Date: 2011/04/12

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

Maxxam ID		JC6305	JC6306		
Sampling Date		2011/04/03	2011/04/03		
COC Number		07087	07087		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/APR 03, 11</b>	<b>LICA PUFF+QFF/PORT/APR 03, 11</b>	<b>RDL</b>	<b>QC Batch</b>

Phenanthrene	ug	0.162	0.110	0.050	2451936
p-Terphenyl	ug	<0.10	<0.10	0.10	2451936
Pyrene	ug	<0.050	<0.050	0.050	2451936
Quinoline	ug	<0.40	<0.40	0.40	2451936
Tetralin	ug	<0.10	<0.10	0.10	2451936
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	66	76		2451936
D10-Fluoranthene	%	90	88		2451936
D10-Fluorene (FS)	%	19 (1)	31 (1)		2451936
D10-Phenanthrene	%	82	82		2451936
D12-Benzo(a)anthracene	%	108	102		2451936
D12-Benzo(a)pyrene	%	90	90		2451936
D12-Benzo(b)fluoranthene	%	96	90		2451936
D12-Benzo(ghi)perylene	%	96	96		2451936
D12-Benzo(k)fluoranthene	%	84	86		2451936
D12-Chrysene	%	84	82		2451936
D12-Indeno(1,2,3-cd)pyrene	%	98	96		2451936
D12-Perylene	%	90	88		2451936
D14-Dibenzo(a,h)anthracene	%	100	100		2451936
D14-Terphenyl (FS)	%	88	86		2451936
D8-Acenaphthylene	%	70	80		2451936
D8-Naphthalene	%	64	74		2451936

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 #: B146163  
 Report Date: 2011/04/12

### Test Summary

<b>Maxxam ID</b>	JC6305	<b>Collected</b>	2011/04/03
<b>Sample ID</b>	LICA PUFF+QFF/CLS/APR 03, 11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/06

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2451936	2011/04/07	2011/04/11	WENDY ZHAO

<b>Maxxam ID</b>	JC6306	<b>Collected</b>	2011/04/03
<b>Sample ID</b>	LICA PUFF+QFF/PORT/APR 03, 11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/06

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2451936	2011/04/07	2011/04/11	WENDY ZHAO



Maxxam Job #: B146163  
Report Date: 2011/04/12

#### GENERAL COMMENTS

PAHMS-F

7,12-Dimethylbenzo(a)anthracene is above 25% RSD in initial calibration. No positive found for this compound.

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.

Sample JC6305-01: PAHMS-F

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

Sample JC6306-01: PAHMS-F

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. #:  
 Project name:

### Quality Assurance Report

Maxxam Job Number: GB146163

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2451936 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/04/11		78	%	50 - 150	
		D10-Fluoranthene	2011/04/11		84	%	50 - 150	
		D10-Phenanthrene	2011/04/11		82	%	50 - 150	
		D12-Benzo(a)anthracene	2011/04/11		98	%	50 - 150	
		D12-Benzo(a)pyrene	2011/04/11		90	%	50 - 150	
		D12-Benzo(b)fluoranthene	2011/04/11		92	%	50 - 150	
		D12-Benzo(ghi)perylene	2011/04/11		96	%	50 - 150	
		D12-Benzo(k)fluoranthene	2011/04/11		84	%	50 - 150	
		D12-Chrysene	2011/04/11		82	%	50 - 150	
		D12-Indeno(1,2,3-cd)pyrene	2011/04/11		98	%	50 - 150	
		D12-Perylene	2011/04/11		90	%	50 - 150	
		D14-Dibenzo(a,h)anthracene	2011/04/11		100	%	50 - 150	
		D8-Acenaphthylene	2011/04/11		80	%	50 - 150	
		D8-Naphthalene	2011/04/11		80	%	50 - 150	
		RPD	Acenaphthene	2011/04/11		1.7	%	60 - 130
	Spiked Blank	Acenaphthylene	2011/04/11			76	%	50
	RPD	Acenaphthylene	2011/04/11		1.7	%	60 - 130	
	Spiked Blank	Anthracene	2011/04/11			71	%	50
	RPD	Anthracene	2011/04/11		0.4	%	60 - 130	
	Spiked Blank	Benzo(a)anthracene	2011/04/11			80	%	50
	RPD	Benzo(a)anthracene	2011/04/11		1.9	%	60 - 130	
	Spiked Blank	Benzo(a)pyrene	2011/04/11			68	%	50
	RPD	Benzo(a)pyrene	2011/04/11		1.5	%	60 - 130	
	Spiked Blank	Benzo(b)fluoranthene	2011/04/11			74	%	50
	RPD	Benzo(b)fluoranthene	2011/04/11		0.3	%	60 - 130	
	Spiked Blank	Benzo(g,h,i)perylene	2011/04/11			82	%	50
	RPD	Benzo(g,h,i)perylene	2011/04/11		0.6	%	60 - 130	
	Spiked Blank	Benzo(k)fluoranthene	2011/04/11			79	%	50
	RPD	Benzo(k)fluoranthene	2011/04/11		1.3	%	60 - 130	
	Spiked Blank	Chrysene	2011/04/11			77	%	50
	RPD	Chrysene	2011/04/11		0.3	%	60 - 130	
	Spiked Blank	Dibenz(a,h)anthracene	2011/04/11			84	%	50
	RPD	Dibenz(a,h)anthracene	2011/04/11		0.9	%	60 - 130	
	Spiked Blank	Fluoranthene	2011/04/11			80	%	50
	RPD	Fluoranthene	2011/04/11		1.6	%	60 - 130	
	Spiked Blank	Fluorene	2011/04/11			75	%	50
	RPD	Fluorene	2011/04/11		0	%	60 - 130	
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/04/11			84	%	50
	RPD	Indeno(1,2,3-cd)pyrene	2011/04/11		0.3	%	60 - 130	
	Spiked Blank	Naphthalene	2011/04/11			84	%	50
RPD	Naphthalene	2011/04/11		2.7	%	60 - 130		
Spiked Blank	Phenanthrene	2011/04/11			74	%	50	
RPD	Phenanthrene	2011/04/11		2.0	%	60 - 130		
Spiked Blank	Pyrene	2011/04/11			74	%	50	
RPD	Pyrene	2011/04/11		1.0	%	50 - 150		
Method Blank	D10-2-Methylnaphthalene	2011/04/11			76	%	50 - 150	
	D10-Fluoranthene	2011/04/11			88	%	50 - 150	
	D10-Phenanthrene	2011/04/11			82	%	50 - 150	
	D12-Benzo(a)anthracene	2011/04/11			104	%	50 - 150	
	D12-Benzo(a)pyrene	2011/04/11			92	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/04/11			88	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/04/11			98	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/04/11			84	%	50 - 150	
	D12-Chrysene	2011/04/11			80	%	50 - 150	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB146163

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2451936 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/04/11		100	%	50 - 150
		D12-Perylene	2011/04/11		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/04/11		100	%	50 - 150
		D8-Acenaphthylene	2011/04/11		80	%	50 - 150
		D8-Naphthalene	2011/04/11		76	%	50 - 150
		1-Methylnaphthalene	2011/04/11	<0.10		ug	
		1-Methylphenanthrene	2011/04/11	<0.10		ug	
		2-Chloronaphthalene	2011/04/11	<0.10		ug	
		2-Methylantracene	2011/04/11	<0.10		ug	
		2-Methylnaphthalene	2011/04/11	<0.10		ug	
		3-Methylcholanthrene	2011/04/11	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/04/11	<0.10		ug	
		9,10-Dimethylantracene	2011/04/11	<0.40		ug	
		Acenaphthene	2011/04/11	<0.050		ug	
		Acenaphthylene	2011/04/11	<0.050		ug	
		Anthracene	2011/04/11	<0.050		ug	
		Benzo(a)anthracene	2011/04/11	<0.050		ug	
		Benzo(a)fluorene	2011/04/11	<0.10		ug	
		Benzo(a)pyrene	2011/04/11	<0.050		ug	
		Benzo(b)fluoranthene	2011/04/11	<0.050		ug	
		Benzo(b)fluorene	2011/04/11	<0.10		ug	
		Benzo(e)pyrene	2011/04/11	<0.10		ug	
		Benzo(g,h,i)perylene	2011/04/11	<0.050		ug	
		Benzo(k)fluoranthene	2011/04/11	<0.050		ug	
		Biphenyl	2011/04/11	<0.10		ug	
		Chrysene	2011/04/11	<0.050		ug	
		Coronene	2011/04/11	<0.10		ug	
		Dibenz(a,h)anthracene	2011/04/11	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/04/11	<0.20		ug	
		Fluoranthene	2011/04/11	<0.050		ug	
		Fluorene	2011/04/11	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/04/11	<0.050		ug	
		m-Terphenyl	2011/04/11	<0.10		ug	
		Naphthalene	2011/04/11	<0.072		ug	
		o-Terphenyl	2011/04/11	<0.10		ug	
		Perylene	2011/04/11	<0.10		ug	
		Phenanthrene	2011/04/11	<0.050		ug	
		p-Terphenyl	2011/04/11	<0.10		ug	
		Pyrene	2011/04/11	<0.050		ug	
		Quinoline	2011/04/11	<0.40		ug	
		Tetralin	2011/04/11	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.  
 Spiked Blank: A blank matrix 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/Apr 09,11

Puf+ s/n: 100-1020  
 Motor s/n: 1138  
 Installation Date/Time: Apr 07, 2011 @ 8:07 mst  
 Removal Date/Time: Apr 11, 2011 @ 7:07 mst

Date and Time Information			
Sample Date	Start Time (MST)		Elapsed Time (Hours)
09-Apr-11	04/09/2011 0:00	04/10/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
06-Apr-11	11-Apr-11	18-Apr-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature ( C)	Volume (Vstd m <sup>3</sup> )
703	229	5.6	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# 06960

GB144674 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Apr 09, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 06960

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

Report Date: 2011/04/25

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B149982****Received: 2011/04/13, 08:50**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/04/16	2011/04/18	BRL SOP-00201	CARB429(ARBM1,M2)mod

## Encryption Key

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

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

=====

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

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Total cover pages: 1

Page 1 of 7

Page 221 of 251

Maxxam Job #: B149982  
 Report Date: 2011/04/25

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

Maxxam ID		JE4933	JE4934		
Sampling Date		2011/04/09	2011/04/09		
COC Number		06960	06960		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/APR 09,11</b>	<b>LICA PUFF+QFF/PORT/APR 09,11</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2460811
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2460811
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2460811
2-Methylantracene	ug	<0.10	<0.10	0.10	2460811
2-Methylnaphthalene	ug	0.12	0.15	0.10	2460811
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2460811
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2460811
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2460811
Acenaphthene	ug	<0.050	<0.050	0.050	2460811
Acenaphthylene	ug	<0.050	<0.050	0.050	2460811
Anthracene	ug	<0.050	<0.050	0.050	2460811
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2460811
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2460811
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2460811
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2460811
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2460811
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2460811
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2460811
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2460811
Biphenyl	ug	<0.10	<0.10	0.10	2460811
Chrysene	ug	<0.050	<0.050	0.050	2460811
Coronene	ug	<0.10	<0.10	0.10	2460811
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2460811
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2460811
Fluoranthene	ug	<0.050	<0.050	0.050	2460811
Fluorene	ug	0.070	0.060	0.050	2460811
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2460811
m-Terphenyl	ug	<0.10	<0.10	0.10	2460811
Naphthalene	ug	0.094	0.120	0.072	2460811
o-Terphenyl	ug	<0.10	<0.10	0.10	2460811
Perylene	ug	<0.10	<0.10	0.10	2460811

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B149982  
 Report Date: 2011/04/25

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

Maxxam ID		JE4933	JE4934		
Sampling Date		2011/04/09	2011/04/09		
COC Number		06960	06960		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/APR 09,11</b>	<b>LICA PUFF+QFF/PORT/APR 09,11</b>	<b>RDL</b>	<b>QC Batch</b>

Phenanthrene	ug	0.140	0.108	0.050	2460811
p-Terphenyl	ug	<0.10	<0.10	0.10	2460811
Pyrene	ug	<0.050	<0.050	0.050	2460811
Quinoline	ug	<0.40	<0.40	0.40	2460811
Tetralin	ug	<0.10	<0.10	0.10	2460811
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	64	80		2460811
D10-Fluoranthene	%	90	92		2460811
D10-Fluorene (FS)	%	24 (1)	21 (1)		2460811
D10-Phenanthrene	%	78	86		2460811
D12-Benzo(a)anthracene	%	100	100		2460811
D12-Benzo(a)pyrene	%	92	94		2460811
D12-Benzo(b)fluoranthene	%	94	88		2460811
D12-Benzo(ghi)perylene	%	104	104		2460811
D12-Benzo(k)fluoranthene	%	82	88		2460811
D12-Chrysene	%	86	82		2460811
D12-Indeno(1,2,3-cd)pyrene	%	104	104		2460811
D12-Perylene	%	92	92		2460811
D14-Dibenzo(a,h)anthracene	%	106	104		2460811
D14-Terphenyl (FS)	%	86	84		2460811
D8-Acenaphthylene	%	72	90		2460811
D8-Naphthalene	%	62	78		2460811

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 #: B149982  
Report Date: 2011/04/25

### Test Summary

**Maxxam ID** JE4933 **Collected** 2011/04/09  
**Sample ID** LICA PUFF+QFF/CLS/APR 09,11 **Shipped**  
**Matrix** PUF AND FILTER **Received** 2011/04/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2460811	2011/04/16	2011/04/18	WENDY ZHAO

**Maxxam ID** JE4934 **Collected** 2011/04/09  
**Sample ID** LICA PUFF+QFF/PORT/APR 09,11 **Shipped**  
**Matrix** PUF AND FILTER **Received** 2011/04/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2460811	2011/04/16	2011/04/18	WENDY ZHAO



Maxxam Job #: B149982  
Report Date: 2011/04/25

#### GENERAL COMMENTS

PAHMS-F

7,12-Dimethylbenzo(a)anthracene and 3-Methylcholanthrene are above 25% RSD in initial calibration and continuing. No positives found for these 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.

Sample JE4933-01: PAHMS-F

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

Sample JE4934-01: PAHMS-F

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. #:  
 Project name:

### Quality Assurance Report

Maxxam Job Number: GB149982

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2460811 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/04/18		76	%	50 - 150
		D10-Fluoranthene	2011/04/18		88	%	50 - 150
		D10-Phenanthrene	2011/04/18		80	%	50 - 150
		D12-Benzo(a)anthracene	2011/04/18		98	%	50 - 150
		D12-Benzo(a)pyrene	2011/04/18		96	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/04/18		96	%	50 - 150
		D12-Benzo(ghi)perylene	2011/04/18		102	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/04/18		86	%	50 - 150
		D12-Chrysene	2011/04/18		88	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/04/18		104	%	50 - 150
		D12-Perylene	2011/04/18		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/04/18		104	%	50 - 150
		D8-Acenaphthylene	2011/04/18		82	%	50 - 150
		D8-Naphthalene	2011/04/18		78	%	50 - 150
		Acenaphthene	2011/04/18		76	%	60 - 130
	RPD	Acenaphthene	2011/04/18	4.7		%	50
	Spiked Blank	Acenaphthylene	2011/04/18		78	%	60 - 130
	RPD	Acenaphthylene	2011/04/18	4.9		%	50
	Spiked Blank	Anthracene	2011/04/18		75	%	60 - 130
	RPD	Anthracene	2011/04/18	1.3		%	50
	Spiked Blank	Benzo(a)anthracene	2011/04/18		82	%	60 - 130
	RPD	Benzo(a)anthracene	2011/04/18	1.5		%	50
	Spiked Blank	Benzo(a)pyrene	2011/04/18		73	%	60 - 130
	RPD	Benzo(a)pyrene	2011/04/18	1.7		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/04/18		76	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/04/18	1.3		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/04/18		88	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/04/18	0.3		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/04/18		84	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/04/18	0.6		%	50
	Spiked Blank	Chrysene	2011/04/18		81	%	60 - 130
	RPD	Chrysene	2011/04/18	0.3		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/04/18		88	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/04/18	0.6		%	50
	Spiked Blank	Fluoranthene	2011/04/18		84	%	60 - 130
	RPD	Fluoranthene	2011/04/18	5.5		%	50
	Spiked Blank	Fluorene	2011/04/18		76	%	60 - 130
	RPD	Fluorene	2011/04/18	1.3		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/04/18		89	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/04/18	0.3		%	50
	Spiked Blank	Naphthalene	2011/04/18		81	%	60 - 130
	RPD	Naphthalene	2011/04/18	11.8		%	50
	Spiked Blank	Phenanthrene	2011/04/18		73	%	60 - 130
	RPD	Phenanthrene	2011/04/18	1.4		%	50
	Spiked Blank	Pyrene	2011/04/18		77	%	60 - 130
	RPD	Pyrene	2011/04/18	6.0		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/04/18		78	%	50 - 150
		D10-Fluoranthene	2011/04/18		88	%	50 - 150
		D10-Phenanthrene	2011/04/18		76	%	50 - 150
		D12-Benzo(a)anthracene	2011/04/18		98	%	50 - 150
		D12-Benzo(a)pyrene	2011/04/18		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/04/18		88	%	50 - 150
		D12-Benzo(ghi)perylene	2011/04/18		96	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/04/18		86	%	50 - 150
		D12-Chrysene	2011/04/18		86	%	50 - 150

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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB149982

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2460811 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/04/18		98	%	50 - 150
		D12-Perylene	2011/04/18		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/04/18		98	%	50 - 150
		D8-Acenaphthylene	2011/04/18		82	%	50 - 150
		D8-Naphthalene	2011/04/18		80	%	50 - 150
		1-Methylnaphthalene	2011/04/18	<0.10		ug	
		1-Methylphenanthrene	2011/04/18	<0.10		ug	
		2-Chloronaphthalene	2011/04/18	<0.10		ug	
		2-Methylantracene	2011/04/18	<0.10		ug	
		2-Methylnaphthalene	2011/04/18	<0.10		ug	
		3-Methylcholanthrene	2011/04/18	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/04/18	<0.10		ug	
		9,10-Dimethylantracene	2011/04/18	<0.40		ug	
		Acenaphthene	2011/04/18	<0.050		ug	
		Acenaphthylene	2011/04/18	<0.050		ug	
		Anthracene	2011/04/18	<0.050		ug	
		Benzo(a)anthracene	2011/04/18	<0.050		ug	
		Benzo(a)fluorene	2011/04/18	<0.10		ug	
		Benzo(a)pyrene	2011/04/18	<0.050		ug	
		Benzo(b)fluoranthene	2011/04/18	<0.050		ug	
		Benzo(b)fluorene	2011/04/18	<0.10		ug	
		Benzo(e)pyrene	2011/04/18	<0.10		ug	
		Benzo(g,h,i)perylene	2011/04/18	<0.050		ug	
		Benzo(k)fluoranthene	2011/04/18	<0.050		ug	
		Biphenyl	2011/04/18	<0.10		ug	
		Chrysene	2011/04/18	<0.050		ug	
		Coronene	2011/04/18	<0.10		ug	
		Dibenz(a,h)anthracene	2011/04/18	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/04/18	<0.20		ug	
		Fluoranthene	2011/04/18	<0.050		ug	
		Fluorene	2011/04/18	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/04/18	<0.050		ug	
		m-Terphenyl	2011/04/18	<0.10		ug	
		Naphthalene	2011/04/18	<0.072		ug	
		o-Terphenyl	2011/04/18	<0.10		ug	
		Perylene	2011/04/18	<0.10		ug	
		Phenanthrene	2011/04/18	<0.050		ug	
		p-Terphenyl	2011/04/18	<0.10		ug	
		Pyrene	2011/04/18	<0.050		ug	
		Quinoline	2011/04/18	<0.40		ug	
		Tetralin	2011/04/18	<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/Apr 15,11

Puf+ s/n: 100-1020  
 Motor s/n: 1138  
 Installation Date/Time: Apr 13, 2011 @ 7:46 mst  
 Removal Date/Time: Apr 18, 2011 @ 7:45 mst

Date and Time Information			
Sample Date	Start Time (MST)		Elapsed Time (Hours)
15-Apr-11	04/15/2011 0:00	04/16/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
12-Apr-11	18-Apr-11	22-Apr-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature ( C)	Volume (Vstd m <sup>3</sup> )
714	229	-0.9	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# 07513  
GB144755 PUFF # 1  
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Apr 15, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 07513

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

Report Date: 2011/04/29

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B154336****Received: 2011/04/20, 09:15**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/04/21	2011/04/27	BRL SOP-00201	CARB429(ARBM1,M2)mod

## Encryption Key

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

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

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Total cover pages: 1

Page 1 of 7

Page 229 of 251

Maxxam Job #: B154336  
 Report Date: 2011/04/29

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

Maxxam ID		JG5494	JG5495		
Sampling Date		2011/04/15	2011/04/15		
COC Number		07513	07513		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/APR 15, 11</b>	<b>LICA PUFF+QFF/PORT/APR 15, 11</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2465639
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2465639
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2465639
2-Methylantracene	ug	<0.10	<0.10	0.10	2465639
2-Methylnaphthalene	ug	0.11	<0.10	0.10	2465639
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2465639
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2465639
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2465639
Acenaphthene	ug	<0.050	<0.050	0.050	2465639
Acenaphthylene	ug	0.054	<0.050	0.050	2465639
Anthracene	ug	<0.050	<0.050	0.050	2465639
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2465639
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2465639
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2465639
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2465639
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2465639
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2465639
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2465639
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2465639
Biphenyl	ug	<0.10	<0.10	0.10	2465639
Chrysene	ug	<0.050	<0.050	0.050	2465639
Coronene	ug	<0.10	<0.10	0.10	2465639
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2465639
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2465639
Fluoranthene	ug	0.050	<0.050	0.050	2465639
Fluorene	ug	0.080	<0.050	0.050	2465639
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2465639
m-Terphenyl	ug	<0.10	<0.10	0.10	2465639
Naphthalene	ug	0.084	<0.072	0.072	2465639
o-Terphenyl	ug	<0.10	<0.10	0.10	2465639
Perylene	ug	<0.10	<0.10	0.10	2465639

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B154336  
 Report Date: 2011/04/29

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

Maxxam ID		JG5494	JG5495		
Sampling Date		2011/04/15	2011/04/15		
COC Number		07513	07513		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/APR 15, 11</b>	<b>LICA PUFF+QFF/PORT/APR 15, 11</b>	<b>RDL</b>	<b>QC Batch</b>

Phenanthrene	ug	0.208	0.066	0.050	2465639
p-Terphenyl	ug	<0.10	<0.10	0.10	2465639
Pyrene	ug	<0.050	<0.050	0.050	2465639
Quinoline	ug	<0.40	<0.40	0.40	2465639
Tetralin	ug	<0.10	<0.10	0.10	2465639
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	62	72		2465639
D10-Fluoranthene	%	92	86		2465639
D10-Fluorene (FS)	%	27 (1)	28 (1)		2465639
D10-Phenanthrene	%	80	72		2465639
D12-Benzo(a)anthracene	%	96	84		2465639
D12-Benzo(a)pyrene	%	98	92		2465639
D12-Benzo(b)fluoranthene	%	92	86		2465639
D12-Benzo(ghi)perylene	%	108	102		2465639
D12-Benzo(k)fluoranthene	%	92	88		2465639
D12-Chrysene	%	90	84		2465639
D12-Indeno(1,2,3-cd)pyrene	%	108	102		2465639
D12-Perylene	%	100	96		2465639
D14-Dibenzo(a,h)anthracene	%	106	100		2465639
D14-Terphenyl (FS)	%	84	77		2465639
D8-Acenaphthylene	%	76	82		2465639
D8-Naphthalene	%	62	74		2465639

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 #: B154336  
 Report Date: 2011/04/29

### Test Summary

<b>Maxxam ID</b>	JG5494	<b>Collected</b>	2011/04/15
<b>Sample ID</b>	LICA PUFF+QFF/CLS/APR 15, 11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/20

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2465639	2011/04/21	2011/04/27	WENDY ZHAO

<b>Maxxam ID</b>	JG5495	<b>Collected</b>	2011/04/15
<b>Sample ID</b>	LICA PUFF+QFF/PORT/APR 15, 11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/20

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2465639	2011/04/21	2011/04/27	WENDY ZHAO



Maxxam Job #: B154336  
Report Date: 2011/04/29

#### GENERAL COMMENTS

##### PAHMS-F

7,12-Dimethylbenzo(a)anthracene is above 25% RSD in initial calibration, Coronene and Dibenzo(a,e)pyrene are above 25% RSD in continuing. No positive found for these 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.

Sample JG5494-01: PAHMS-F

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

Sample JG5495-01: PAHMS-F

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. #:  
 Project name:

### Quality Assurance Report

Maxxam Job Number: GB154336

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2465639 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/04/27		80	%	50 - 150
		D10-Fluoranthene	2011/04/27		96	%	50 - 150
		D10-Phenanthrene	2011/04/27		82	%	50 - 150
		D12-Benzo(a)anthracene	2011/04/27		98	%	50 - 150
		D12-Benzo(a)pyrene	2011/04/27		100	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/04/27		94	%	50 - 150
		D12-Benzo(ghi)perylene	2011/04/27		108	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/04/27		90	%	50 - 150
		D12-Chrysene	2011/04/27		86	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/04/27		110	%	50 - 150
		D12-Perylene	2011/04/27		100	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/04/27		108	%	50 - 150
		RPD	D8-Acenaphthylene	2011/04/27		86	%
	D8-Naphthalene		2011/04/27		86	%	50 - 150
	RPD	Acenaphthene	2011/04/27		83	%	60 - 130
		Acenaphthene	2011/04/27	5.3		%	50
	Spiked Blank	Acenaphthylene	2011/04/27		84	%	60 - 130
		Acenaphthylene	2011/04/27	1.2		%	50
	Spiked Blank	Anthracene	2011/04/27		79	%	60 - 130
		Anthracene	2011/04/27	1.3		%	50
	Spiked Blank	Benzo(a)anthracene	2011/04/27		83	%	60 - 130
		Benzo(a)anthracene	2011/04/27	0.3		%	50
	Spiked Blank	Benzo(a)pyrene	2011/04/27		79	%	60 - 130
		Benzo(a)pyrene	2011/04/27	0.3		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/04/27		84	%	60 - 130
		Benzo(b)fluoranthene	2011/04/27	0.9		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/04/27		98	%	60 - 130
		Benzo(g,h,i)perylene	2011/04/27	2.3		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/04/27		88	%	60 - 130
		Benzo(k)fluoranthene	2011/04/27	3.8		%	50
	Spiked Blank	Chrysene	2011/04/27		84	%	60 - 130
		Chrysene	2011/04/27	0.6		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/04/27		95	%	60 - 130
		Dibenz(a,h)anthracene	2011/04/27	0		%	50
	Spiked Blank	Fluoranthene	2011/04/27		95	%	60 - 130
		Fluoranthene	2011/04/27	3.2		%	50
	Spiked Blank	Fluorene	2011/04/27		82	%	60 - 130
		Fluorene	2011/04/27	3.4		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/04/27		97	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/04/27	0		%	50
Spiked Blank	Naphthalene	2011/04/27		88	%	60 - 130	
	Naphthalene	2011/04/27	7.7		%	50	
Spiked Blank	Phenanthrene	2011/04/27		77	%	60 - 130	
	Phenanthrene	2011/04/27	4.0		%	50	
Spiked Blank	Pyrene	2011/04/27		87	%	60 - 130	
	Pyrene	2011/04/27	2.6		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/04/27		76	%	50 - 150	
	D10-Fluoranthene	2011/04/27		94	%	50 - 150	
	D10-Phenanthrene	2011/04/27		76	%	50 - 150	
	D12-Benzo(a)anthracene	2011/04/27		92	%	50 - 150	
	D12-Benzo(a)pyrene	2011/04/27		100	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/04/27		94	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/04/27		108	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/04/27		92	%	50 - 150	
	D12-Chrysene	2011/04/27		88	%	50 - 150	

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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB154336

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2465639 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/04/27		108	%	50 - 150
		D12-Perylene	2011/04/27		102	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/04/27		106	%	50 - 150
		D8-Acenaphthylene	2011/04/27		86	%	50 - 150
		D8-Naphthalene	2011/04/27		80	%	50 - 150
		1-Methylnaphthalene	2011/04/27	<0.10		ug	
		1-Methylphenanthrene	2011/04/27	<0.10		ug	
		2-Chloronaphthalene	2011/04/27	<0.10		ug	
		2-Methylanthracene	2011/04/27	<0.10		ug	
		2-Methylnaphthalene	2011/04/27	<0.10		ug	
		3-Methylcholanthrene	2011/04/27	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/04/27	<0.10		ug	
		9,10-Dimethylanthracene	2011/04/27	<0.40		ug	
		Acenaphthene	2011/04/27	<0.050		ug	
		Acenaphthylene	2011/04/27	<0.050		ug	
		Anthracene	2011/04/27	<0.050		ug	
		Benzo(a)anthracene	2011/04/27	<0.050		ug	
		Benzo(a)fluorene	2011/04/27	<0.10		ug	
		Benzo(a)pyrene	2011/04/27	<0.050		ug	
		Benzo(b)fluoranthene	2011/04/27	<0.050		ug	
		Benzo(b)fluorene	2011/04/27	<0.10		ug	
		Benzo(e)pyrene	2011/04/27	<0.10		ug	
		Benzo(g,h,i)perylene	2011/04/27	<0.050		ug	
		Benzo(k)fluoranthene	2011/04/27	<0.050		ug	
		Biphenyl	2011/04/27	<0.10		ug	
		Chrysene	2011/04/27	<0.050		ug	
		Coronene	2011/04/27	<0.10		ug	
		Dibenz(a,h)anthracene	2011/04/27	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/04/27	<0.20		ug	
		Fluoranthene	2011/04/27	<0.050		ug	
		Fluorene	2011/04/27	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/04/27	<0.050		ug	
		m-Terphenyl	2011/04/27	<0.10		ug	
		Naphthalene	2011/04/27	<0.072		ug	
		o-Terphenyl	2011/04/27	<0.10		ug	
		Perylene	2011/04/27	<0.10		ug	
		Phenanthrene	2011/04/27	<0.050		ug	
		p-Terphenyl	2011/04/27	<0.10		ug	
		Pyrene	2011/04/27	<0.050		ug	
		Quinoline	2011/04/27	<0.40		ug	
		Tetralin	2011/04/27	<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/Apr 21,11

Puf+ s/n: 100-1020  
 Motor s/n: 1138  
 Installation Date/Time: Apr 19, 2011 @ 8:07 mst  
 Removal Date/Time: Apr 25, 2011 @ 7:35 mst

Date and Time Information			
Sample Date	Start Time (MST)		Elapsed Time (Hours)
21-Apr-11	04/21/2011 0:00	04/22/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
15-Apr-11	25-Apr-11	28-Apr-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature ( C)	Volume (Vstd m <sup>3</sup> )
709	229	4.1	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# 07551

GB144872 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Apr 21, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 07551

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

Report Date: 2011/05/10

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B157346****Received: 2011/04/27, 09:22**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/04/29	2011/05/03	BRL SOP-00201	CARB429(ARBM1,M2)mod

## Encryption Key

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

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

=====

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Total cover pages: 1

Maxxam Job #: B157346  
 Report Date: 2011/05/10

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

Maxxam ID		JH9303	JH9304		
Sampling Date		2011/04/21	2011/04/21		
COC Number		07551	07551		
	Units	LICAPUFF+QFF/CLS/APR 21,11	LICAPUFF+QFF/PORT/APR 21,11	RDL	QC Batch
<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	0.24	<0.10	0.10	2472368
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2472368
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2472368
2-Methylantracene	ug	<0.10	<0.10	0.10	2472368
2-Methylnaphthalene	ug	0.53	<0.10	0.10	2472368
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2472368
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2472368
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2472368
Acenaphthene	ug	<0.050	<0.050	0.050	2472368
Acenaphthylene	ug	0.060	<0.050	0.050	2472368
Anthracene	ug	<0.050	<0.050	0.050	2472368
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2472368
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2472368
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2472368
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2472368
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2472368
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2472368
Benzo(g,h,i)perylene	ug	0.052	<0.050	0.050	2472368
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2472368
Biphenyl	ug	<0.10	<0.10	0.10	2472368
Chrysene	ug	<0.050	<0.050	0.050	2472368
Coronene	ug	<0.10	<0.10	0.10	2472368
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2472368
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2472368
Fluoranthene	ug	0.062	<0.050	0.050	2472368
Fluorene	ug	0.148	0.070	0.050	2472368
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2472368
m-Terphenyl	ug	<0.10	<0.10	0.10	2472368
Naphthalene	ug	0.450	0.126	0.072	2472368
o-Terphenyl	ug	<0.10	<0.10	0.10	2472368
Perylene	ug	<0.10	<0.10	0.10	2472368
Phenanthrene	ug	0.322	0.172	0.050	2472368
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					

Maxxam Job #: B157346  
 Report Date: 2011/05/10

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

Maxxam ID		JH9303	JH9304		
Sampling Date		2011/04/21	2011/04/21		
COC Number		07551	07551		
	Units	LICAPUFF+QFF/CLS/APR 21,11	LICAPUFF+QFF/PORT/APR 21,11	RDL	QC Batch
p-Terphenyl	ug	<0.10	<0.10	0.10	2472368
Pyrene	ug	0.058	<0.050	0.050	2472368
Quinoline	ug	<0.40	<0.40	0.40	2472368
Tetralin	ug	<0.10	<0.10	0.10	2472368
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	60	78		2472368
D10-Fluoranthene	%	80	94		2472368
D10-Fluorene (FS)	%	16 (1)	21 (1)		2472368
D10-Phenanthrene	%	76	90		2472368
D12-Benzo(a)anthracene	%	84	92		2472368
D12-Benzo(a)pyrene	%	88	96		2472368
D12-Benzo(b)fluoranthene	%	84	92		2472368
D12-Benzo(ghi)perylene	%	86	96		2472368
D12-Benzo(k)fluoranthene	%	86	88		2472368
D12-Chrysene	%	86	88		2472368
D12-Indeno(1,2,3-cd)pyrene	%	88	96		2472368
D12-Perylene	%	92	96		2472368
D14-Dibenzo(a,h)anthracene	%	84	98		2472368
D14-Terphenyl (FS)	%	73	87		2472368
D8-Acenaphthylene	%	66	86		2472368
D8-Naphthalene	%	58	74		2472368
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 #: B157346  
 Report Date: 2011/05/10

### Test Summary

<b>Maxxam ID</b>	JH9303	<b>Collected</b>	2011/04/21
<b>Sample ID</b>	LICAPUFF+QFF/CLS/APR 21,11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2472368	2011/04/29	2011/05/03	WENDY ZHAO

<b>Maxxam ID</b>	JH9304	<b>Collected</b>	2011/04/21
<b>Sample ID</b>	LICAPUFF+QFF/PORT/APR 21,11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2472368	2011/04/29	2011/05/03	WENDY ZHAO



Maxxam Job #: B157346  
Report Date: 2011/05/10

#### GENERAL COMMENTS

##### PAHMS-F

7,12-Dimethylbenzo(a)anthracene is above 25% RSD in initial calibration and Quinoline is above 25% RSD in continuing calibration. No positives found for these compounds.

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

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. #:  
 Project name:

Quality Assurance Report  
 Maxxam Job Number: GB157346

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2472368 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/05/03		74	%	50 - 150
		D10-Fluoranthene	2011/05/03		92	%	50 - 150
		D10-Phenanthrene	2011/05/03		94	%	50 - 150
		D12-Benzo(a)anthracene	2011/05/03		86	%	50 - 150
		D12-Benzo(a)pyrene	2011/05/03		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/05/03		92	%	50 - 150
		D12-Benzo(ghi)perylene	2011/05/03		92	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/05/03		84	%	50 - 150
		D12-Chrysene	2011/05/03		80	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/05/03		94	%	50 - 150
		D12-Perylene	2011/05/03		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/05/03		94	%	50 - 150
		D8-Acenaphthylene	2011/05/03		78	%	50 - 150
		D8-Naphthalene	2011/05/03		76	%	50 - 150
		Acenaphthene	2011/05/03		72	%	60 - 130
	RPD	Acenaphthene	2011/05/03	3.7		%	50
	Spiked Blank	Acenaphthylene	2011/05/03		75	%	60 - 130
	RPD	Acenaphthylene	2011/05/03	5.8		%	50
	Spiked Blank	Anthracene	2011/05/03		71	%	60 - 130
	RPD	Anthracene	2011/05/03	24.2		%	50
	Spiked Blank	Benzo(a)anthracene	2011/05/03		73	%	60 - 130
	RPD	Benzo(a)anthracene	2011/05/03	8.6		%	50
	Spiked Blank	Benzo(a)pyrene	2011/05/03		77	%	60 - 130
	RPD	Benzo(a)pyrene	2011/05/03	5.7		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/05/03		76	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/05/03	8.5		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/05/03		82	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/05/03	6.5		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/05/03		86	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/05/03	1.2		%	50
	Spiked Blank	Chrysene	2011/05/03		73	%	60 - 130
	RPD	Chrysene	2011/05/03	4.0		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/05/03		84	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/05/03	7.7		%	50
	Spiked Blank	Fluoranthene	2011/05/03		83	%	60 - 130
	RPD	Fluoranthene	2011/05/03	9.7		%	50
	Spiked Blank	Fluorene	2011/05/03		70	%	60 - 130
	RPD	Fluorene	2011/05/03	8.9		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/05/03		84	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/05/03	6.6		%	50
	Spiked Blank	Naphthalene	2011/05/03		62	%	60 - 130
	RPD	Naphthalene	2011/05/03	25.4		%	50
	Spiked Blank	Phenanthrene	2011/05/03		69	%	60 - 130
	RPD	Phenanthrene	2011/05/03	6.0		%	50
	Spiked Blank	Pyrene	2011/05/03		79	%	60 - 130
	RPD	Pyrene	2011/05/03	8.7		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/05/03		78	%	50 - 150
		D10-Fluoranthene	2011/05/03		88	%	50 - 150
		D10-Phenanthrene	2011/05/03		86	%	50 - 150
		D12-Benzo(a)anthracene	2011/05/03		80	%	50 - 150
		D12-Benzo(a)pyrene	2011/05/03		90	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/05/03		84	%	50 - 150
		D12-Benzo(ghi)perylene	2011/05/03		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/05/03		90	%	50 - 150
		D12-Chrysene	2011/05/03		86	%	50 - 150

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB157346

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2472368 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/05/03		88	%	50 - 150
		D12-Perylene	2011/05/03		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/05/03		86	%	50 - 150
		D8-Acenaphthylene	2011/05/03		80	%	50 - 150
		D8-Naphthalene	2011/05/03		80	%	50 - 150
		1-Methylnaphthalene	2011/05/03	<0.10		ug	
		1-Methylphenanthrene	2011/05/03	<0.10		ug	
		2-Chloronaphthalene	2011/05/03	<0.10		ug	
		2-Methylantracene	2011/05/03	<0.10		ug	
		2-Methylnaphthalene	2011/05/03	<0.10		ug	
		3-Methylcholanthrene	2011/05/03	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/05/03	<0.10		ug	
		9,10-Dimethylantracene	2011/05/03	<0.40		ug	
		Acenaphthene	2011/05/03	<0.050		ug	
		Acenaphthylene	2011/05/03	<0.050		ug	
		Anthracene	2011/05/03	<0.050		ug	
		Benzo(a)anthracene	2011/05/03	<0.050		ug	
		Benzo(a)fluorene	2011/05/03	<0.10		ug	
		Benzo(a)pyrene	2011/05/03	<0.050		ug	
		Benzo(b)fluoranthene	2011/05/03	<0.050		ug	
		Benzo(b)fluorene	2011/05/03	<0.10		ug	
		Benzo(e)pyrene	2011/05/03	<0.10		ug	
		Benzo(g,h,i)perylene	2011/05/03	<0.050		ug	
		Benzo(k)fluoranthene	2011/05/03	<0.050		ug	
		Biphenyl	2011/05/03	<0.10		ug	
		Chrysene	2011/05/03	<0.050		ug	
		Coronene	2011/05/03	<0.10		ug	
		Dibenz(a,h)anthracene	2011/05/03	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/05/03	<0.20		ug	
		Fluoranthene	2011/05/03	<0.050		ug	
		Fluorene	2011/05/03	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/05/03	0.050, RDL=0.050		ug	
		m-Terphenyl	2011/05/03	<0.10		ug	
		Naphthalene	2011/05/03	<0.072		ug	
		o-Terphenyl	2011/05/03	<0.10		ug	
		Perylene	2011/05/03	<0.10		ug	
		Phenanthrene	2011/05/03	<0.050		ug	
		p-Terphenyl	2011/05/03	<0.10		ug	
		Pyrene	2011/05/03	<0.050		ug	
		Quinoline	2011/05/03	<0.40		ug	
		Tetralin	2011/05/03	<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/Apr 27,11

Puf+ s/n: 100-1020  
 Motor s/n: 1138  
 Installation Date/Time: Apr 25, 2011 @ 8:03 mst  
 Removal Date/Time: Apr 28, 2011 @ 7:09 mst

Date and Time Information			
Sample Date	Start Time (MST)		Elapsed Time (Hours)
27-Apr-11	04/27/2011 0:00	04/28/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
20-Apr-11	28-Apr-11	04-May-11	????

Set Flow Rate (slpm): 230  
 Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature ( C)	Volume (Vstd m <sup>3</sup> )
708	229	9.0	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# 06976  
GB148807 PUFF # 1  
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Apr 27, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 06976

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

Report Date: 2011/05/10

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B159319****Received: 2011/04/30, 16:10**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/05/03	2011/05/07	BRL SOP-00201	CARB429(ARBM1,M2)mod

## Encryption Key

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

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

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Total cover pages: 1

Maxxam Job #: B159319  
 Report Date: 2011/05/10

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

Maxxam ID		J18547	J18548		
Sampling Date		2011/04/27 00:00	2011/04/27 00:00		
COC Number		06976	06976		
	<b>Units</b>	<b>LICA PUF+QFF/CLS/APR 27, 11</b>	<b>LICA PUF+QFF/PORT/APR 27, 11</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2475080
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2475080
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2475080
2-Methylantracene	ug	<0.10	<0.10	0.10	2475080
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2475080
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2475080
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2475080
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2475080
Acenaphthene	ug	<0.050	<0.050	0.050	2475080
Acenaphthylene	ug	<0.050	<0.050	0.050	2475080
Anthracene	ug	<0.050	<0.050	0.050	2475080
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2475080
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2475080
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2475080
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2475080
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2475080
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2475080
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2475080
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2475080
Biphenyl	ug	<0.10	<0.10	0.10	2475080
Chrysene	ug	<0.050	<0.050	0.050	2475080
Coronene	ug	<0.10	<0.10	0.10	2475080
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2475080
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2475080
Fluoranthene	ug	<0.050	<0.050	0.050	2475080
Fluorene	ug	0.102	<0.050	0.050	2475080
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2475080
m-Terphenyl	ug	<0.10	<0.10	0.10	2475080
Naphthalene	ug	0.204	0.094	0.072	2475080
o-Terphenyl	ug	<0.10	<0.10	0.10	2475080

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B159319  
 Report Date: 2011/05/10

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

Maxxam ID		J18547	J18548		
Sampling Date		2011/04/27 00:00	2011/04/27 00:00		
COC Number		06976	06976		
	<b>Units</b>	<b>LICA PUF+QFF/CLS/APR 27, 11</b>	<b>LICA PUF+QFF/PORT/APR 27, 11</b>	<b>RDL</b>	<b>QC Batch</b>

Perylene	ug	<0.10	<0.10	0.10	2475080
Phenanthrene	ug	0.288	0.138	0.050	2475080
p-Terphenyl	ug	<0.10	<0.10	0.10	2475080
Pyrene	ug	<0.050	<0.050	0.050	2475080
Quinoline	ug	<0.40	<0.40	0.40	2475080
Tetralin	ug	<0.10	<0.10	0.10	2475080
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	66	80		2475080
D10-Fluoranthene	%	94	88		2475080
D10-Fluorene (FS)	%	11 (1)	13 (1)		2475080
D10-Phenanthrene	%	84	84		2475080
D12-Benzo(a)anthracene	%	100	92		2475080
D12-Benzo(a)pyrene	%	94	88		2475080
D12-Benzo(b)fluoranthene	%	90	92		2475080
D12-Benzo(ghi)perylene	%	86	82		2475080
D12-Benzo(k)fluoranthene	%	92	86		2475080
D12-Chrysene	%	88	86		2475080
D12-Indeno(1,2,3-cd)pyrene	%	84	80		2475080
D12-Perylene	%	72	68		2475080
D14-Dibenzo(a,h)anthracene	%	82	78		2475080
D14-Terphenyl (FS)	%	85	79		2475080
D8-Acenaphthylene	%	68	76		2475080
D8-Naphthalene	%	62	76		2475080

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 #: B159319  
Report Date: 2011/05/10

### Test Summary

<b>Maxxam ID</b>	JI8547	<b>Collected</b>	2011/04/27
<b>Sample ID</b>	LICA PUF+QFF/CLS/APR 27, 11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2475080	2011/05/03	2011/05/07	WENDY ZHAO

<b>Maxxam ID</b>	JI8548	<b>Collected</b>	2011/04/27
<b>Sample ID</b>	LICA PUF+QFF/PORT/APR 27, 11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2475080	2011/05/03	2011/05/07	WENDY ZHAO



Maxxam Job #: B159319  
Report Date: 2011/05/10

#### 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.

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

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. #:  
 Project name:

### Quality Assurance Report

Maxxam Job Number: GB159319

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2475080 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/05/07		72	%	50 - 150
		D10-Fluoranthene	2011/05/07		96	%	50 - 150
		D10-Phenanthrene	2011/05/07		84	%	50 - 150
		D12-Benzo(a)anthracene	2011/05/07		100	%	50 - 150
		D12-Benzo(a)pyrene	2011/05/07		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/05/07		94	%	50 - 150
		D12-Benzo(ghi)perylene	2011/05/07		84	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/05/07		84	%	50 - 150
		D12-Chrysene	2011/05/07		88	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/05/07		84	%	50 - 150
		D12-Perylene	2011/05/07		70	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/05/07		82	%	50 - 150
		RPD	D8-Acenaphthylene	2011/05/07		70	%
	D8-Naphthalene		2011/05/07		70	%	50 - 150
	Spiked Blank	Acenaphthene	2011/05/07		68	%	60 - 130
		Acenaphthene	2011/05/07	3.6		%	50
	RPD	Acenaphthylene	2011/05/07		65	%	60 - 130
		Acenaphthylene	2011/05/07	6.3		%	50
	Spiked Blank	Anthracene	2011/05/07		78	%	60 - 130
		Anthracene	2011/05/07	16.4		%	50
	Spiked Blank	Benzo(a)anthracene	2011/05/07		85	%	60 - 130
		Benzo(a)anthracene	2011/05/07	1.8		%	50
	Spiked Blank	Benzo(a)pyrene	2011/05/07		76	%	60 - 130
		Benzo(a)pyrene	2011/05/07	2.0		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/05/07		85	%	60 - 130
		Benzo(b)fluoranthene	2011/05/07	2.7		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/05/07		76	%	60 - 130
		Benzo(g,h,i)perylene	2011/05/07	5.4		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/05/07		88	%	60 - 130
		Benzo(k)fluoranthene	2011/05/07	2.2		%	50
	Spiked Blank	Chrysene	2011/05/07		83	%	60 - 130
		Chrysene	2011/05/07	3.9		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/05/07		75	%	60 - 130
		Dibenz(a,h)anthracene	2011/05/07	6.9		%	50
	Spiked Blank	Fluoranthene	2011/05/07		87	%	60 - 130
		Fluoranthene	2011/05/07	14.4		%	50
	Spiked Blank	Fluorene	2011/05/07		71	%	60 - 130
		Fluorene	2011/05/07	1.1		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/05/07		76	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/05/07	6.8		%	50
Spiked Blank	Naphthalene	2011/05/07		67	%	60 - 130	
	Naphthalene	2011/05/07	7.5		%	50	
Spiked Blank	Phenanthrene	2011/05/07		75	%	60 - 130	
	Phenanthrene	2011/05/07	7.9		%	50	
Spiked Blank	Pyrene	2011/05/07		82	%	60 - 130	
	Pyrene	2011/05/07	13.1		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/05/07		76	%	50 - 150	
	D10-Fluoranthene	2011/05/07		82	%	50 - 150	
	D10-Phenanthrene	2011/05/07		76	%	50 - 150	
	D12-Benzo(a)anthracene	2011/05/07		96	%	50 - 150	
	D12-Benzo(a)pyrene	2011/05/07		90	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/05/07		92	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/05/07		78	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/05/07		84	%	50 - 150	
	D12-Chrysene	2011/05/07		88	%	50 - 150	

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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB159319

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2475080 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/05/07		78	%	50 - 150
		D12-Perylene	2011/05/07		70	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/05/07		76	%	50 - 150
		D8-Acenaphthylene	2011/05/07		72	%	50 - 150
		D8-Naphthalene	2011/05/07		76	%	50 - 150
		1-Methylnaphthalene	2011/05/07	<0.10		ug	
		1-Methylphenanthrene	2011/05/07	<0.10		ug	
		2-Chloronaphthalene	2011/05/07	<0.10		ug	
		2-Methylanthracene	2011/05/07	<0.10		ug	
		2-Methylnaphthalene	2011/05/07	<0.10		ug	
		3-Methylcholanthrene	2011/05/07	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/05/07	<0.10		ug	
		9,10-Dimethylanthracene	2011/05/07	<0.40		ug	
		Acenaphthene	2011/05/07	<0.050		ug	
		Acenaphthylene	2011/05/07	<0.050		ug	
		Anthracene	2011/05/07	<0.050		ug	
		Benzo(a)anthracene	2011/05/07	<0.050		ug	
		Benzo(a)fluorene	2011/05/07	<0.10		ug	
		Benzo(a)pyrene	2011/05/07	<0.050		ug	
		Benzo(b)fluoranthene	2011/05/07	<0.050		ug	
		Benzo(b)fluorene	2011/05/07	<0.10		ug	
		Benzo(e)pyrene	2011/05/07	<0.10		ug	
		Benzo(g,h,i)perylene	2011/05/07	<0.050		ug	
		Benzo(k)fluoranthene	2011/05/07	<0.050		ug	
		Biphenyl	2011/05/07	<0.10		ug	
		Chrysene	2011/05/07	<0.050		ug	
		Coronene	2011/05/07	<0.10		ug	
		Dibenz(a,h)anthracene	2011/05/07	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/05/07	<0.20		ug	
		Fluoranthene	2011/05/07	<0.050		ug	
		Fluorene	2011/05/07	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/05/07	<0.050		ug	
		m-Terphenyl	2011/05/07	<0.10		ug	
		Naphthalene	2011/05/07	<0.072		ug	
		o-Terphenyl	2011/05/07	<0.10		ug	
		Perylene	2011/05/07	<0.10		ug	
		Phenanthrene	2011/05/07	<0.050		ug	
		p-Terphenyl	2011/05/07	<0.10		ug	
		Pyrene	2011/05/07	<0.050		ug	
		Quinoline	2011/05/07	<0.40		ug	
		Tetralin	2011/05/07	<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  
April 2011

Prepared By:



May 11, 2011

# Lakeland Industry & Community Association

## Ambient Air Monitoring

### Maskwa

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## Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Maskwa  
Data Period: April 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 – April 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	0.44	10	7	7	4.2	297(WNW)	2.5	14	100.0
H2S (PPB)	10	3	0	0	0.05	1	VAR	VAR	VAR	VAR	0.3	27	100.0
THC (PPM)	-	-	-	-	2.15	6.3	21	10	4.7	203(SSW)	2.5	21	100.0
NOx (PPB)	-	-	-	-	2.96	37	20	6	3.6	215(SSW)	7.7	20	100.0
NO (PPB)	-	-	-	-	0.67	19	20	6	3.6	215(SSW)	3.7	20	100.0
NO <sub>2</sub> (PPB)	212	106	0	0	2.22	21	24	6	3.1	30(NNE)	4.1	20	100.0
VECTOR WS (KPH)	-	-	-	-	5.77	19.6	8	14	-	196(SSW)	11.2	14	100.0
VECTOR WD (DEGREES)	-	-	-	-	240(WSW)	-	-	-	-	-	-	-	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	60.08	91	27, 28	VAR	VAR	VAR	86.0	28	100.0
TEMPERATURE (DEG C)	-	-	-	-	2.85	16.6	25	15	10.1	170(SSE)	8.1	25	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	937	952	13	VAR	VAR	VAR	950.8	13	100.0
PRECIPITATION (MM)	-	-	-	-	0.04	3.2	27	23	6.7	190(S)	10.7	15	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 – 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

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.

#### Total HydroCarbon (PPM)

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

No operational issue was observed during this month. The inlet filter was changed before the monthly calibration was started. The maximum concentration reported on April 21<sup>st</sup> at 10:00, 12:00 and 13:00 may be lower than actual due to the analyzer going above the maximum scale. 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 - RM Young 5103VK, S/N: 46553

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

### 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 April 25<sup>th</sup>.

# Continuous Monitoring

# Monthly Summaries, Graphs & Wind Roses

# Sulphur Dioxide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2011

## SULPHUR DIOXIDE (SO<sub>2</sub>) 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	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	IZS	0	0	0	0	0	0	0	2	4	0	1	2	0	0	0	0	0	0	0	4	0.4	24	
2	0	0	0	IZS	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0.2	24	
3	0	0	IZS	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24	
4	0	IZS	0	0	0	0	0	0	0	1	1	1	1	0	0	0	2	0	0	0	0	0	0	1	2	0.3	24	
5	IZS	0	0	0	0	0	0	1	3	2	1	0	0	0	1	0	0	0	0	0	0	1	1	IZS	3	0.5	24	
6	0	1	0	0	0	0	0	0	7	7	1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	7	0.7	24
7	0	0	0	1	2	2	3	10	5	0	0	0	0	0	1	3	4	0	0	1	IZS	0	0	10	1.4	24		
8	0	0	0	0	0	0	0	0	1	1	0	1	1	0	2	2	1	0	0	1	IZS	1	1	1	2	0.6	24	
9	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	IZS	0	1	1	1	1	0.3	24	
10	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	0.1	24	
11	0	0	0	0	0	1	1	1	1	1	1	1	0	0	1	1	0	IZS	1	1	2	9	4	0	9	1.1	24	
12	0	0	0	0	2	3	2	1	0	0	0	0	1	2	0	0	IZS	0	0	0	0	0	0	1	3	0.5	24	
13	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	IZS	0	0	0	0	0	0	0	0	1	0.0	24	
14	2	0	0	0	0	0	0	1	1	0	1	3	3	4	IZS	4	2	6	9	7	5	0	4	5	9	2.5	24	
15	3	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	3	0.1	24	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
17	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
18	0	0	0	0	0	0	0	0	3	1	IZS	0	0	1	0	1	0	1	0	0	0	0	0	0	3	0.3	24	
19	0	0	0	0	0	0	0	1	3	IZS	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0.3	24
20	0	0	0	0	0	0	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
21	0	0	0	0	0	0	0	IZS	1	2	0	0	0	2	1	0	0	0	0	2	2	0	0	0	2	0.4	24	
22	0	0	1	1	1	0	IZS	7	2	3	1	3	1	0	0	1	0	0	0	0	0	0	0	0	7	0.9	24	
23	0	0	1	0	0	IZS	1	4	0	1	1	2	1	2	0	1	0	1	0	0	0	0	0	0	4	0.7	24	
24	0	0	0	1	IZS	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
25	0	0	0	IZS	0	0	0	0	0	0	0	0	0	C	C	C	C	C	1	1	1	0	0	0	1	0.2	24	
26	0	0	IZS	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0.1	24	
27	0	IZS	0	0	0	0	1	2	1	1	2	2	2	2	1	2	1	0	0	0	1	1	0	0	2	0.8	24	
28	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	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	1	0	2	1	1	0	1	1	0	IZS	0	1	2	0.3	24	
HOURLY MAX	3	1	1	1	2	3	3	10	7	7	2	3	3	4	2	4	3	6	9	7	5	9	4	5				
HOURLY AVG	0.3	0.1	0.1	0.1	0.2	0.2	0.3	1.0	1.1	0.8	0.4	0.5	0.6	0.6	0.3	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.4				

### STATUS FLAG CODES

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

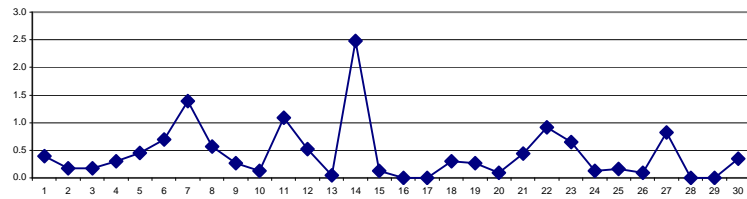
OBJECTIVE LIMIT:

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

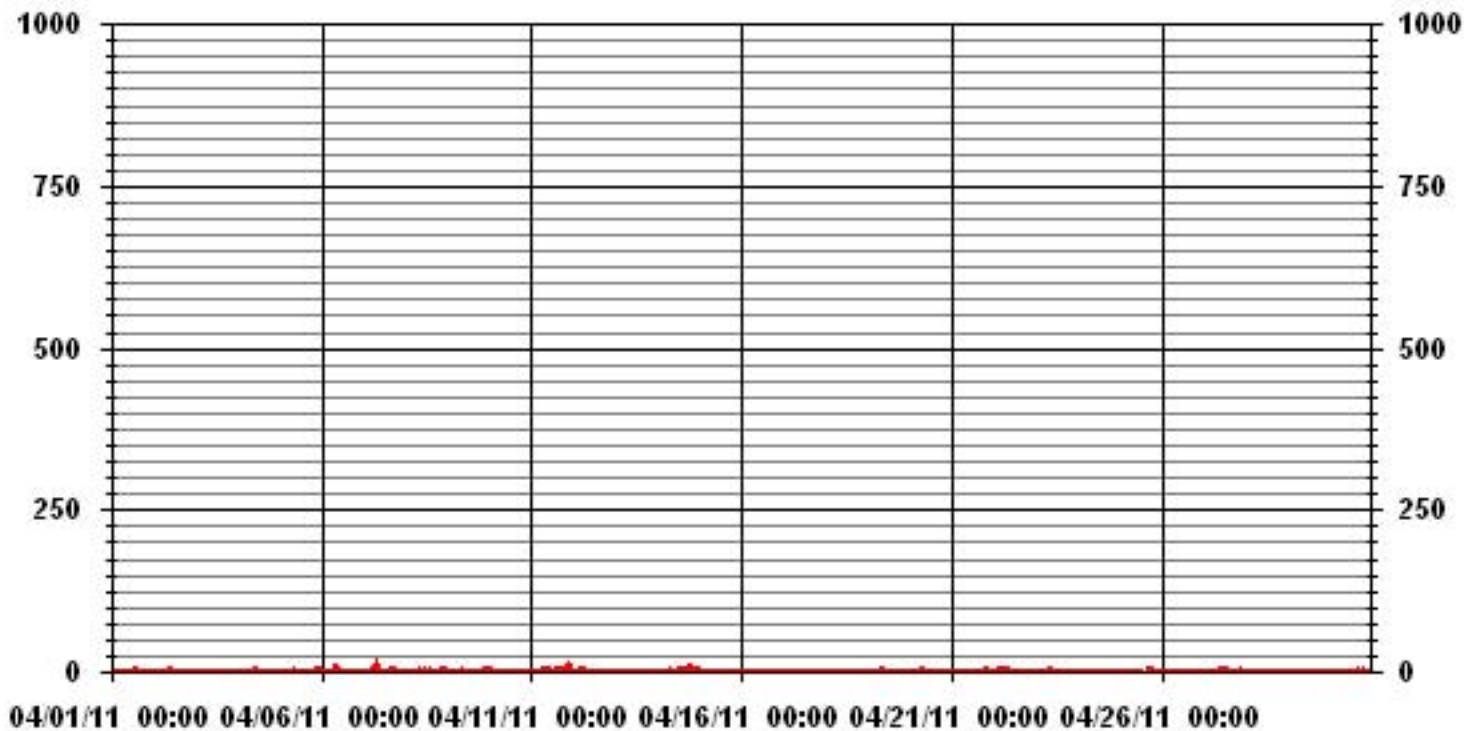
NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	159					
MAXIMUM 1-HR AVERAGE:	10	PPB	@ HOUR(S)	7	ON DAY(S)	7
MAXIMUM 24-HR AVERAGE:	2.5	PPB			ON DAY(S)	14
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	1.13		MONTHLY AVERAGE:	0.44	PPB	

24 HOUR AVERAGES FOR APRIL 2011





### 01 Hour Averages



— LICA30 SO2\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

APRIL 2011

## SULPHUR DIOXIDE MAX instantaneous maximum in ppt

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	1	1	1	0	0	IZS	0	0	0	0	0	0	0	11	16	7	8	8	1	0	0	0	0	1	1	16	2.4	24	
2	0	0	0	0	IZS	0	0	0	0	1	7	4	3	2	1	0	1	2	1	1	0	0	0	0	0	7	1.0	24	
3	0	0	IZS	0	0	0	0	0	0	7	7	2	2	1	2	0	0	0	0	0	0	0	0	0	0	7	0.9	24	
4	0	IZS	1	1	1	1	1	1	1	1	1	2	2	1	1	1	4	7	1	2	1	1	1	1	3	7	1.6	24	
5	IZS	1	1	1	1	1	1	1	2	4	5	4	1	1	4	6	1	1	1	1	1	1	1	1	1	IZS	6	1.9	24
6	1	1	1	1	0	0	0	1	19	17	2	1	0	0	0	1	1	1	0	1	1	1	0	IZS	0	19	2.1	24	
7	0	0	0	3	5	5	7	20	13	3	1	1	1	0	3	3	12	19	1	3	2	IZS	0	0	20	4.4	24		
8	0	1	1	1	1	1	1	1	2	1	1	1	1	1	4	4	1	0	1	2	IZS	2	1	1	4	1.3	24		
9	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	IZS	1	1	2	2	2	1.2	24	
10	1	2	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	IZS	0	1	0	0	0	2	0.5	24	
11	1	0	0	0	1	1	1	2	1	1	1	2	1	1	1	1	1	IZS	8	8	14	16	16	1	16	3.4	24		
12	1	0	0	4	15	13	11	4	1	0	0	4	7	10	1	1	IZS	0	0	0	0	0	0	4	15	3.3	24		
13	2	0	0	0	1	0	1	1	1	2	0	1	4	4	1	IZS	0	0	0	0	0	0	0	0	4	0.8	24		
14	4	1	0	0	0	0	0	6	3	4	6	7	8	7	IZS	9	5	10	16	11	12	1	11	10	16	5.7	24		
15	8	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	8	0.3	24	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	2	2	0	0	0	0	2	0.2	24	
17	0	0	0	0	0	0	0	0	0	2	0	0	IZS	0	0	2	1	1	0	0	0	0	1	1	0	2	0.3	24	
18	0	0	0	0	0	0	1	0	7	4	IZS	1	6	5	1	3	1	8	1	1	1	0	0	0	8	1.7	24		
19	0	0	0	0	0	0	0	3	16	IZS	1	4	1	1	1	0	0	0	5	0	0	0	0	0	16	1.4	24		
20	0	0	1	0	0	1	1	3	IZS	1	1	1	1	2	0	0	0	0	0	0	0	0	0	0	3	0.5	24		
21	0	1	1	0	0	1	1	IZS	2	6	1	1	0	6	6	1	0	0	0	8	5	1	1	1	8	1.9	24		
22	1	1	2	1	1	1	IZS	19	7	17	7	14	11	3	2	8	1	1	1	0	0	0	0	0	19	4.3	24		
23	0	3	2	1	0	IZS	7	15	1	3	3	7	6	11	2	3	1	5	5	1	1	1	1	1	15	3.5	24		
24	1	1	1	2	IZS	3	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	0	0	3	0.9	24		
25	0	0	1	IZS	0	1	2	1	1	1	1	1	1	C	C	C	C	C	1	1	1	1	1	1	1	2	0.9	24	
26	1	1	IZS	0	0	0	0	0	1	1	0	1	10	1	11	8	0	0	0	0	1	0	0	0	11	1.6	24		
27	0	IZS	1	1	1	1	3	5	1	3	4	6	6	6	3	4	1	1	1	1	1	1	1	1	6	2.3	24		
28	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	
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	5	5	0	0	0	0	IZS	0	5	0.5	24	
30	0	0	1	1	1	1	1	1	2	2	1	1	1	1	9	3	2	1	2	2	1	1	IZS	0	6	9	1.7	24	
HOURLY MAX		8	3	2	4	15	13	11	20	19	17	7	14	11	16	11	9	12	19	16	11	14	16	16	10				
HOURLY AVG		0.8	0.5	0.6	0.7	1.1	1.1	1.4	3.0	3.2	3.1	1.5	2.2	2.9	3.0	2.3	2.4	1.7	2.0	1.9	1.5	1.5	1.0	1.4	1.1				

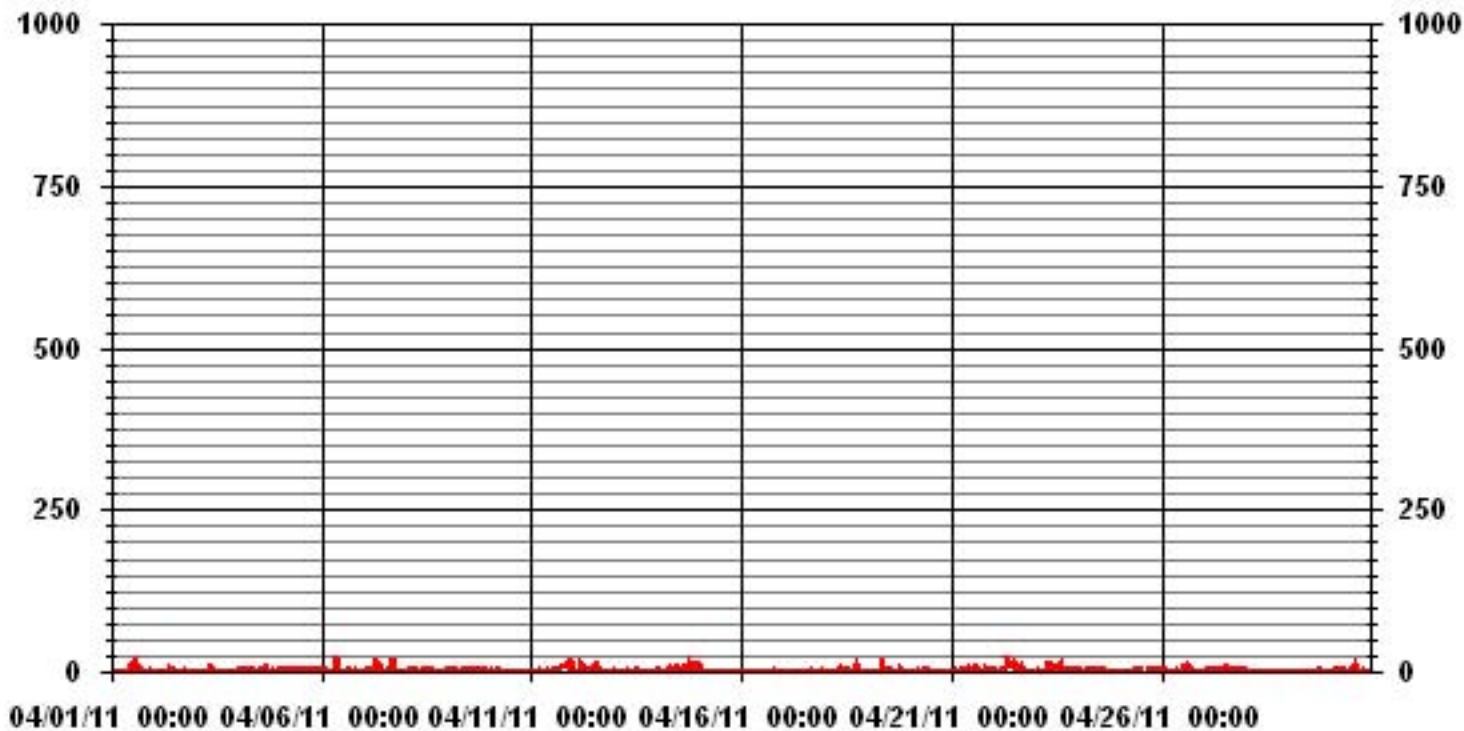
**STATUS FLAG CODES**

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:	397					
MAXIMUM INSTANTANEOUS VALUE:	20	PPB	@ HOUR(S)	7	ON DAY(S)	7
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	3.21					

### 01 Hour Averages



LICA30  
 SO2\_ / WDR Joint Frequency Distribution (Percent)

April 2011

Distribution By % Of Samples

Logger Id : 30  
 Site Name : LICA30  
 Parameter : SO2\_  
 Units : PPB

Wind Parameter : WDR  
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	4.97	6.29	9.07	7.32	4.53	4.09	4.68	2.19	2.19	16.69	11.12	5.12	5.85	8.78	4.09	2.92	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	4.97	6.29	9.07	7.32	4.53	4.09	4.68	2.19	2.19	16.69	11.12	5.12	5.85	8.78	4.09	2.92	

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
< 20	34	43	62	50	31	28	32	15	15	114	76	35	40	60	28	20	683
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	34	43	62	50	31	28	32	15	15	114	76	35	40	60	28	20	

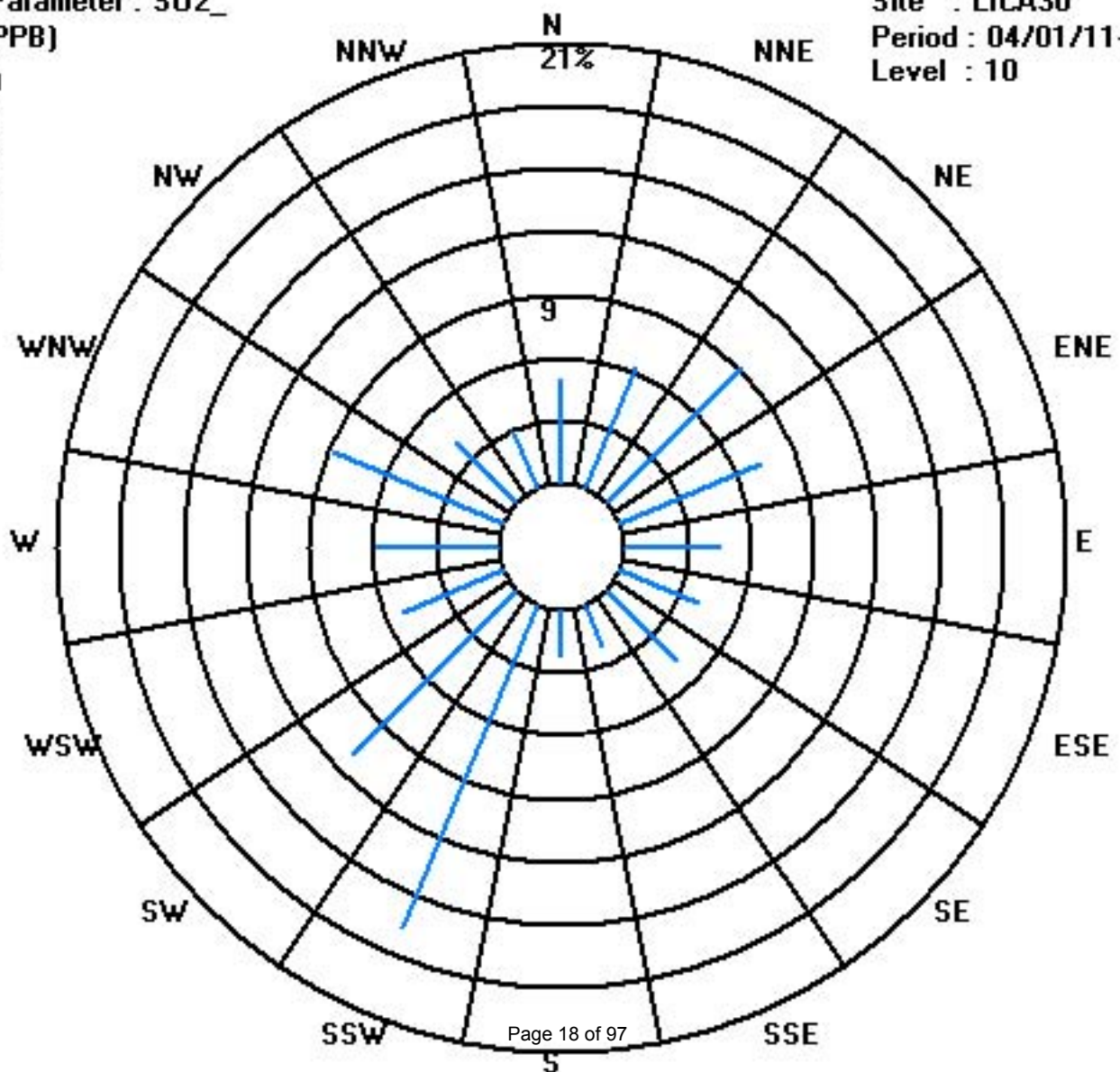
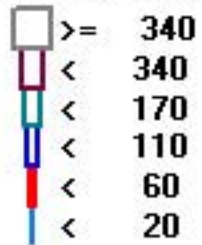
Calm : .00 %

Total # Operational Hours : 683

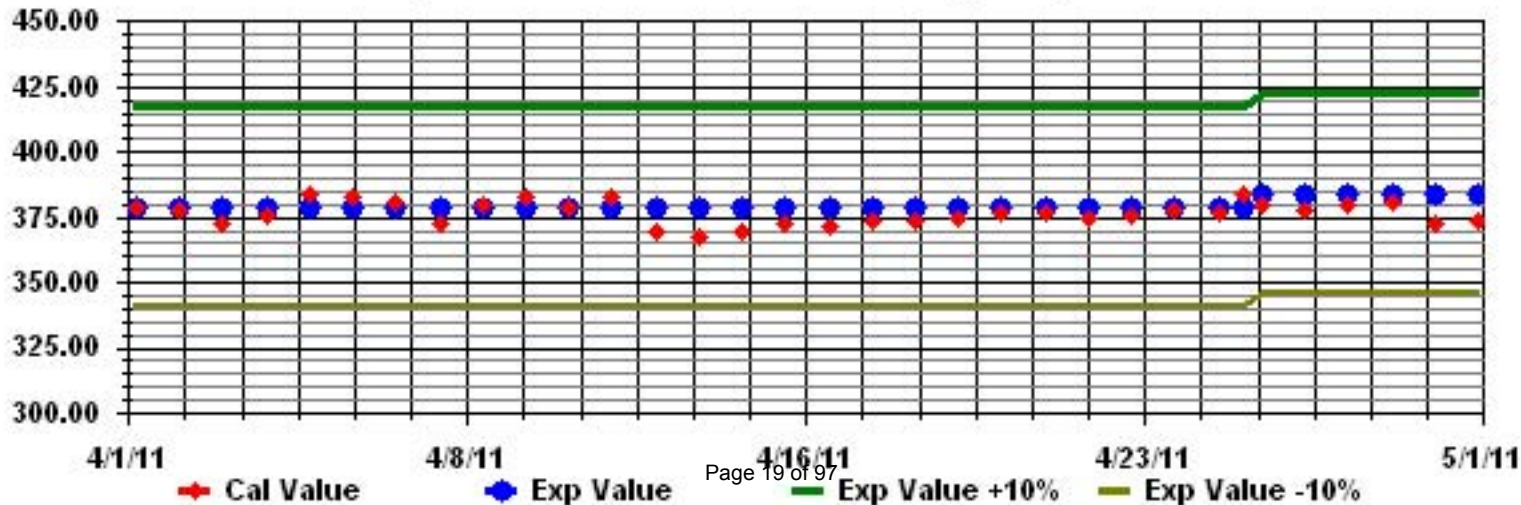
Class Limits (PPB)

Period : 04/01/11-04/30/11

Level : 10



Calibration Graph for Site: LICA30 Parameter: SO2\_ Sequence: S02 Phase: SPAll



# Hydrogen Sulphide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2011

## HYDROGEN SULPHIDE (H<sub>2</sub>S) 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	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	0	0	1	IZS	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
3	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
4	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
5	IZS	0	0	1	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
6	0	0	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	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	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	0.1	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
11	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
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	1	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
22	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
23	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	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	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	1	1	IZS	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
27	0	0	IZS	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
28	0	0	0	0	0	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		1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	0	0	0	0	0	0			
HOURLY AVG		0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

### 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

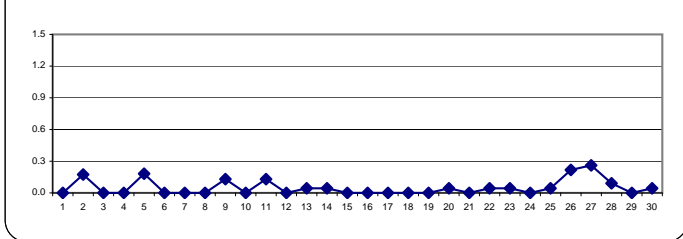
OBJECTIVE LIMIT:

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

### MONTHLY SUMMARY

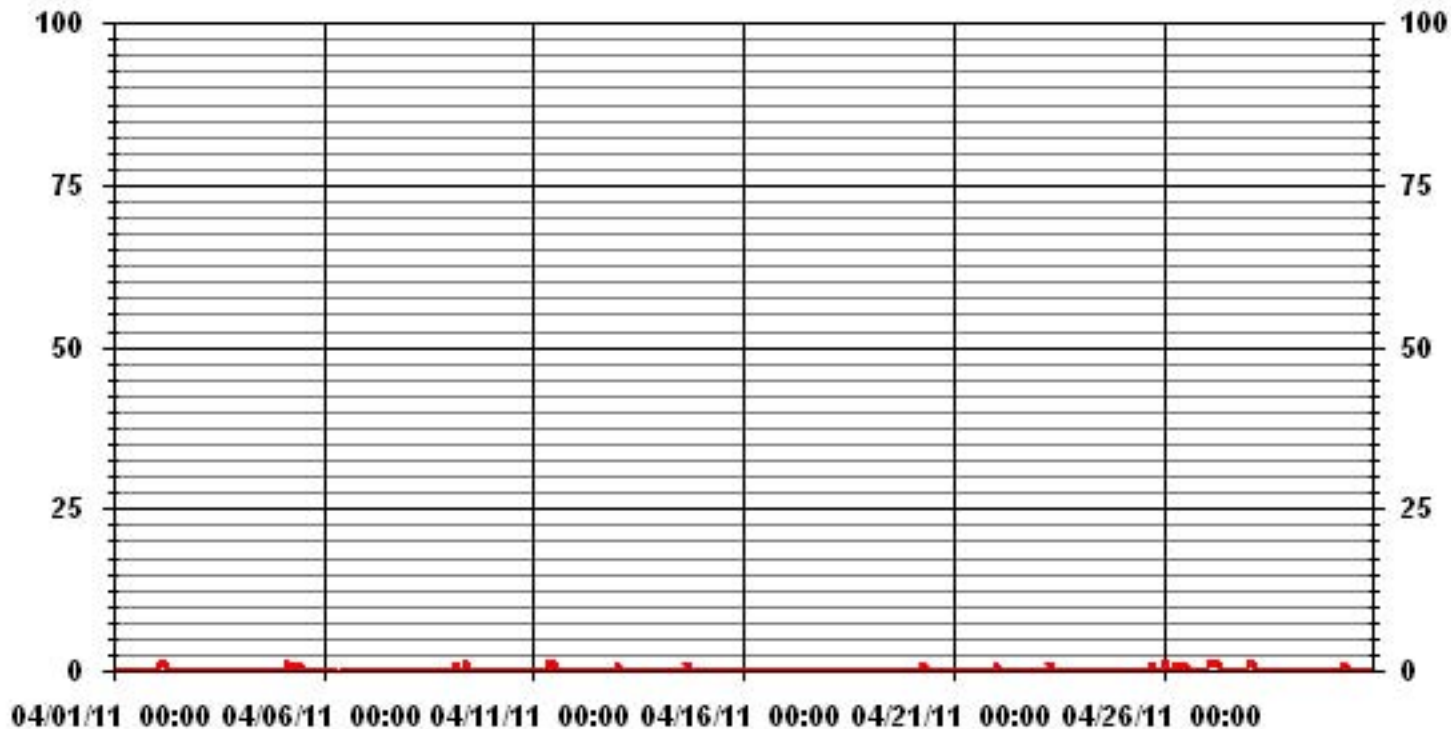
NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	34
MAXIMUM 1-HR AVERAGE:	1 PPB @ HOUR(S) VAR ON DAY(S) VAR
MAXIMUM 24-HR AVERAGE:	0.3 PPB ON DAY(S) VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
OPERATIONAL TIME:	720 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.22
MONTHLY AVERAGE:	0.05 PPB

24 HOUR AVERAGES FOR APRIL 2011





# 01 Hour Averages



— LICA30 H2S\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

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

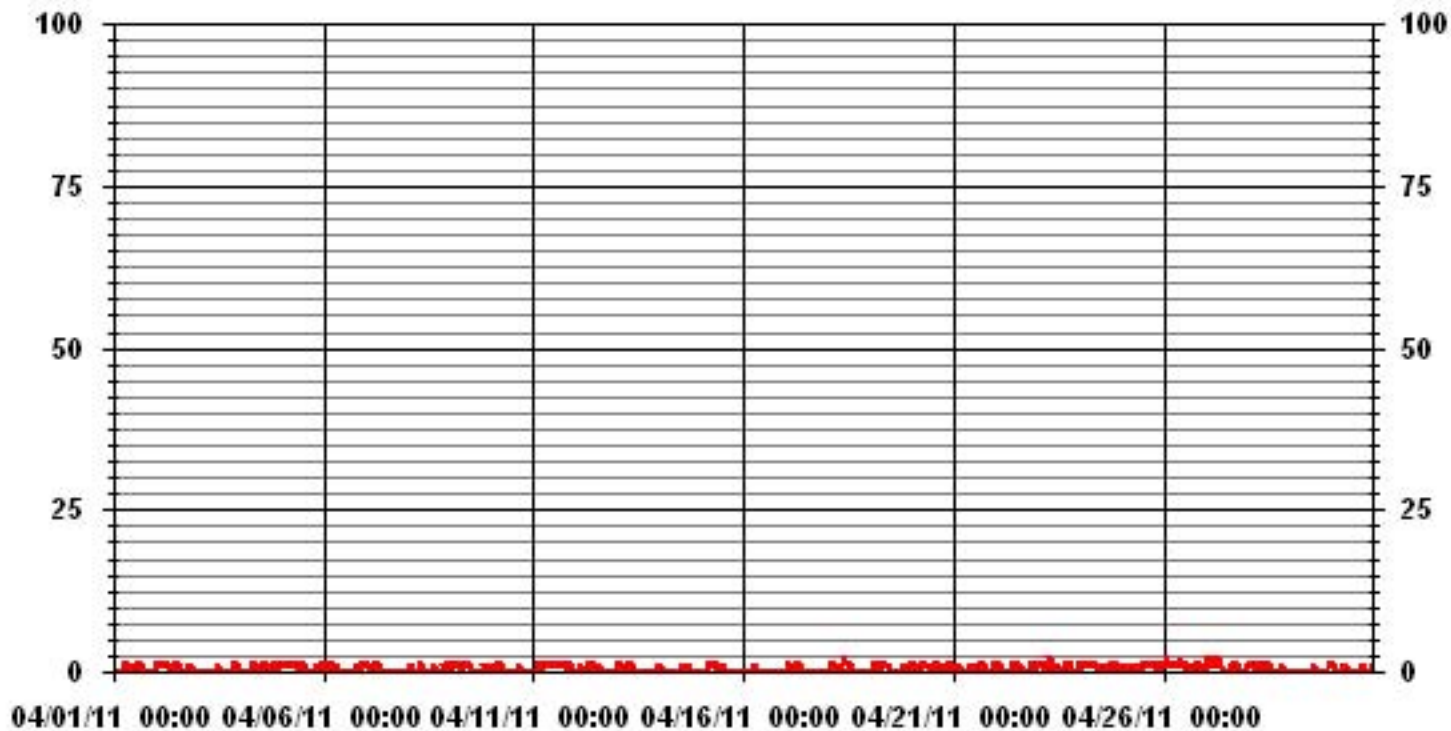
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	236					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.51					

### 01 Hour Averages



— LICA30 H2S MAX PPB

LICA30  
H2S\_ / WDR Joint Frequency Distribution (Percent)

April 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	4.97	6.28	9.06	7.30	4.53	4.09	4.82	2.33	2.63	16.66	10.81	5.11	5.84	8.47	4.09	2.92	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.97	6.28	9.06	7.30	4.53	4.09	4.82	2.33	2.63	16.66	10.81	5.11	5.84	8.47	4.09	2.92	

Calm : .00 %

Total # Operational Hours : 684

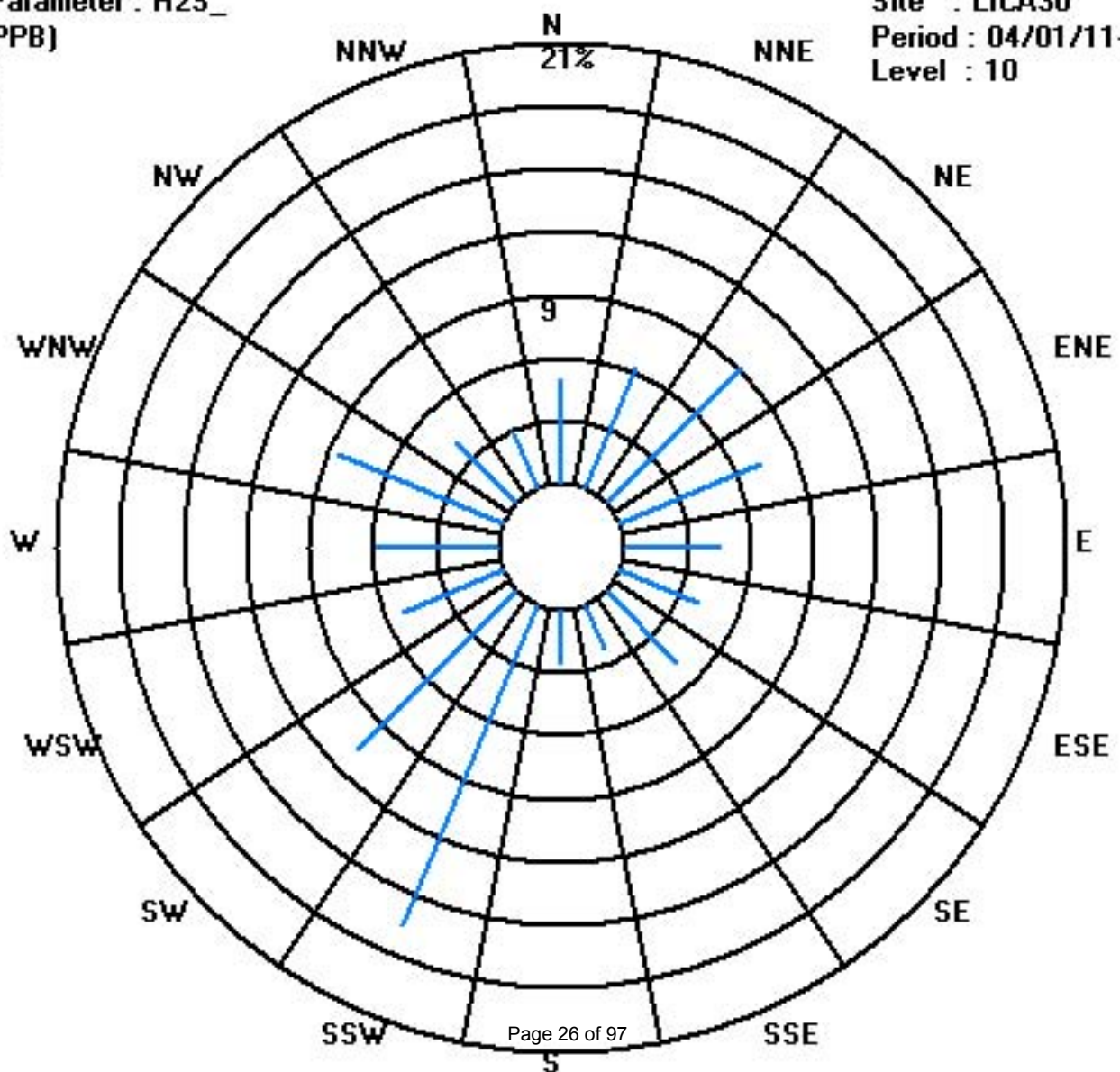
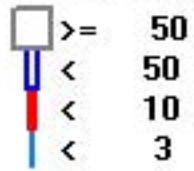
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	34	43	62	50	31	28	33	16	18	114	74	35	40	58	28	20	684
< 10																	
< 50																	
>= 50																	
Totals	34	43	62	50	31	28	33	16	18	114	74	35	40	58	28	20	

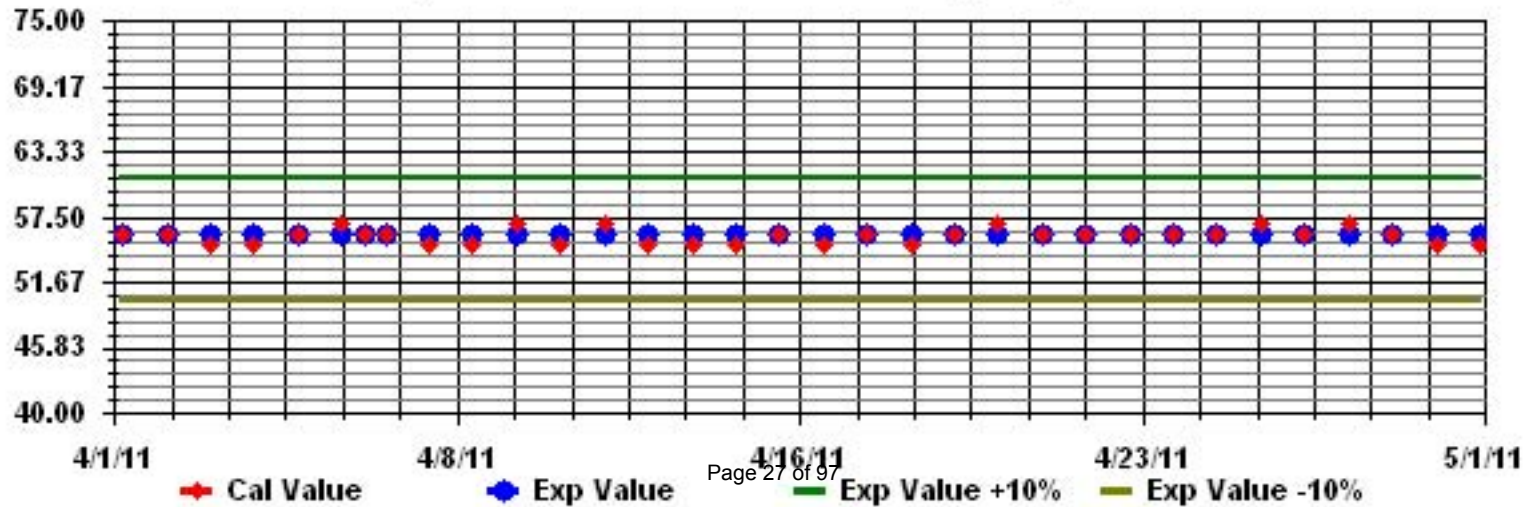
Calm : .00 %

Total # Operational Hours : 684

Class Limits (PPB)



Calibration Graph for Site: LICA30 Parameter: H2S\_ Sequence: H2S Phase: SPAll



# Total Hydrocarbons

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

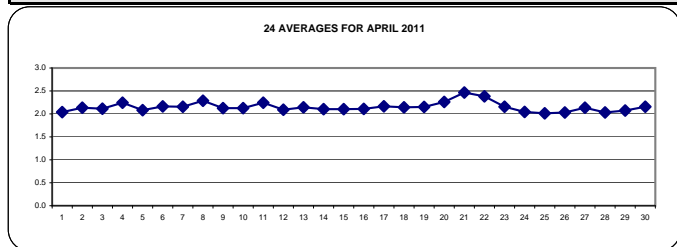
APRIL 2011

## TOTAL HYDROCARBONS hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR				
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		2	2	2	2	IZS	2	2	2	2	2	2	2	2.1	2.1	2	2	2.1	2	2	2.1	2.1	2.1	2.1	2.2	2.2	2.0	24		
2		2.1	2.2	2.3	IZS	2.3	2.4	2.4	2.2	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	2.4	2.1	24	
3		2.1	2.1	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.1	24		
4		2.2	IZS	2.3	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.2	2.3	2.3	2.2	2.1	2.1	2.1	2	2	2	2.1	2.1	2.1	2.1	2.5	2.2	24	
5		IZS	2.2	2.3	2.2	2.1	2.2	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.2	IZS	2.3	2.1	24		
6		2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.4	2.3	2.1	2.2	C	C	C	C	2	2	2	2	2.1	2.1	2.1	IZS	2.1	2.4	2.2	24		
7		2.3	2.3	2.4	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2.2	2.2	2.4	2.2	24	
8		2.3	2.4	2.6	2.7	2.8	2.7	2.6	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2	2.1	2.1	2.1	IZS	2.2	2.2	2.2	2.8	2.3	24		
9		2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	IZS	2.1	2.1	2.1	2.1	2.3	2.1	24	
10		2.2	2.2	2.3	2.6	2.5	2.5	2.2	2	2	2	2	2	2	2	2	2	2	2	2	IZS	2	2.1	2.1	2.1	2.1	2.6	2.1	24	
11		2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.6	2.6	2.5	2.6	2.5	2.4	2.3	2.2	2.3	2.1	IZS	2	2	2	2	2	2	2	2.6	2.2	24	
12		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	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	24		
13		2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	IZS	2.1	2.1	2	2	2	2	2.1	2.1	2.1	2.3	2.1	24	
14		2.1	2.1	2	2	2	2	2	2.1	2.1	2	2.1	2.1	2.1	2.1	IZS	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	24	
15		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	2.1	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
16		2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	24	
17		2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.2	2.1	2.1	2.1	IZS	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.2	24	
18		2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.1	2.1	2.1	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.1	24
19		2.1	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.3	IZS	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	2.3	2.2	24	
20		2.2	2.3	2.4	2.4	2.4	3	2.9	2.7	IZS	2.3	2.2	2.1	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	3.0	2.3	24	
21		2.1	2.2	2.2	2.1	2.2	2.2	2.2	IZS	2.1	3.9	6.3	2.1	3	3.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	6.3	2.5	24
22		2.2	2.4	2.5	2.4	2.4	2.3	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	4.1	3.8	3.3	4.1	2.4	24	
23		3	2.5	2.3	2.1	2.1	IZS	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2.1	2.1	2	2.1	2.1	2.1	2.3	3.0	2.2	24		
24		2.3	2.2	2.1	2.1	IZS	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.3	2.0	24	
25		2	2	2.1	IZS	2	2	2	2	2	2	2	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.0	24	
26		2	2	IZS	2	2	2.1	2	2	2.1	2	2	2.1	2	2	2	2	2	2	2	2	2	2.1	2	2.1	2.1	2.1	2.0	24	
27		2.2	IZS	2.3	2.3	2.2	2.2	2.3	2.9	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.9	2.1	24	
28		IZS	2.1	2.1	2.2	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.2	2.0	24	
29		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	2.2	IZS	2.2	2.2	2.1	24	
30		2.3	2.4	2.4	2.2	2.2	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	IZS	2.1	2.2	2.4	2.2	24
HOURLY MAX		3.0	2.5	2.6	2.7	2.8	3.0	2.9	2.9	2.6	3.9	6.3	2.5	3.0	3.1	2.2	2.3	2.1	2.2	2.2	2.2	2.2	4.1	3.8	3.3					
HOURLY AVG		2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	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	2.1	2.2	2.2	2.2				

### STATUS FLAG CODES

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

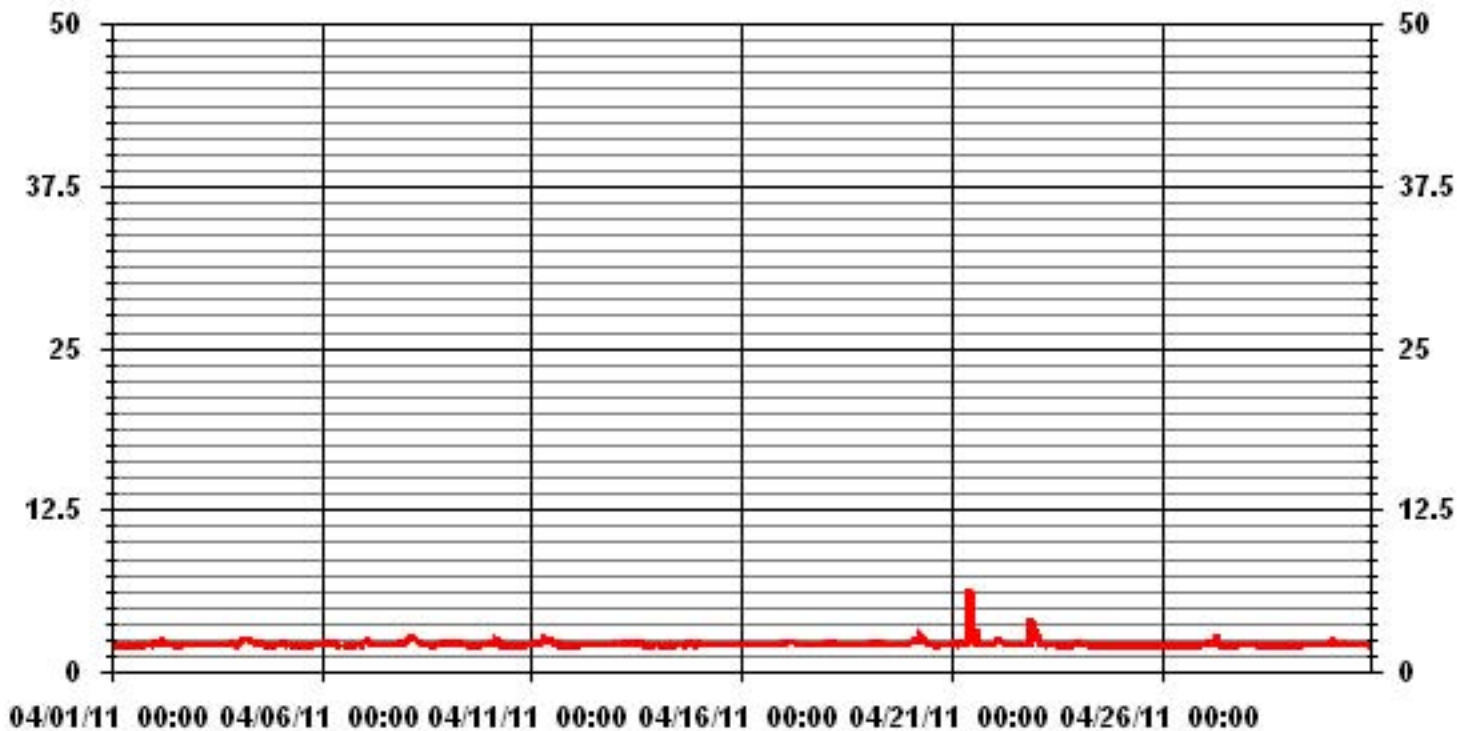


### MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684
MAXIMUM 1-HR AVERAGE:	6.3 PPM @ HOUR(S) 10 ON DAY(S) 21
MAXIMUM 24-HR AVERAGE:	2.5 PPM ON DAY(S) 21
	VAR- VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.25
OPERATIONAL TIME:	720 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	2.15 PPM



### 01 Hour Averages



— LICA30 THC PPM

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2011

## TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

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	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.
1	2	2.1	2.1	2	<b>IZS</b>	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	2.2	2.3	2.3	2.1	24	
2	2.2	2.2	2.4	<b>IZS</b>	2.4	2.4	2.6	2.4	2.1	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	2.2	2.1	2.2	2.1	24	
3	2.1	2.1	<b>IZS</b>	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	24	
4	2.2	<b>IZS</b>	2.4	2.4	2.5	2.5	2.6	2.5	2.5	2.5	2.3	2.3	2.4	2.4	2.3	2.2	2.2	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.6	24	
5	<b>IZS</b>	2.3	2.4	2.4	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2	2	2.1	2	2	2	2	2.1	2.1	2.1	2.2	2.2	<b>IZS</b>	2.4	2.1	24	
6	2.2	2.3	2.3	2.3	2.2	2.2	2.4	2.4	2.6	2.2	2.3	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	2	2	2	2	2.1	2.1	2.1	2.1	<b>IZS</b>	2.2	2.6	20	
7	2.4	2.4	2.5	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.1	2.1	2.2	<b>IZS</b>	2.3	2.3	2.5	2.2	24	
8	2.4	2.4	2.8	2.8	2.9	2.8	2.8	2.4	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	<b>IZS</b>	2.2	2.2	2.2	2.9	24	
9	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.4	2.3	2.2	2.1	2.1	2.1	2	2.1	2	2	2	2	<b>IZS</b>	2.1	2.1	2.1	2.2	2.4	2.2	24	
10	2.2	2.3	2.4	2.6	2.6	2.6	2.4	2.1	2	2.1	2.6	2	2	2	2	2	2	2	<b>IZS</b>	2.1	2.1	2.1	2.1	2.2	2.6	2.2	24	
11	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.7	2.7	2.6	2.6	2.6	2.6	2.4	2.4	2.4	2.2	<b>IZS</b>	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.7	24	
12	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	<b>IZS</b>	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.1	24	
13	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	<b>IZS</b>	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.2	24
14	2.1	2.1	2.1	2	2.1	2	2	2.2	2.1	2.2	2.3	2.2	2.2	2.3	<b>IZS</b>	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.1	2.3	2.3	2.3	2.2	24
15	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	<b>IZS</b>	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.1	24
16	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	<b>IZS</b>	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	24
17	2.3	2.3	2.3	2.4	2.3	2.4	2.9	2.3	2.2	2.2	2.1	<b>IZS</b>	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.9	2.2	24
18	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.3	2.2	2.1	<b>IZS</b>	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	2.4	2.2	24
19	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.4	2.3	<b>IZS</b>	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.4	2.2	24
20	2.2	2.4	2.5	2.5	2.7	3.2	3.1	2.8	<b>IZS</b>	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	3.2	2.3	24
21	2.2	2.2	2.3	2.2	2.2	2.3	2.3	<b>IZS</b>	2.1	27.9	54.1	2.1	54.1	54.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	<b>54.1</b>	10.1	24
22	2.2	2.5	2.6	2.5	2.5	2.4	<b>IZS</b>	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	6.8	5.4	3.8	6.8	2.6	24
23	3.2	2.8	2.5	2.2	2.1	<b>IZS</b>	2.3	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2	2	2.1	2.2	2.1	2.1	2.3	2.4	3.2	2.2	24	
24	2.4	2.2	2.2	2.2	<b>IZS</b>	2.2	2.2	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.4	2.1	24
25	2.1	2.1	2.1	<b>IZS</b>	2.1	2.1	2.1	2.1	2	2	2.1	2.1	2.1	2.1	2	<b>M</b>	<b>M</b>	2	2	2	2.1	2.1	2.1	2.1	2	2.1	2.1	22
26	2.1	2.1	<b>IZS</b>	2.1	2.1	2.1	2.2	2.1	2.2	2.3	2.1	2.1	2.1	2.1	2	2.1	2.1	2	2	2	2	2.1	2.1	2.2	2.2	2.3	2.1	24
27	2.3	<b>IZS</b>	2.4	2.4	2.3	2.3	5.4	2.2	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	5.4	2.3	24
28	<b>IZS</b>	2.1	2.8	2.4	2.2	2.2	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	<b>IZS</b>	2.8	2.1	23
29	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	2.2	<b>IZS</b>	2.3	2.3	2.1	24
30	2.4	2.6	2.5	2.3	2.2	2.2	2.2	2.2	2.5	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	<b>IZS</b>	2.2	2.3	2.6	2.2	24
HOURLY MAX	3	3	3	3	3	3	3	5	3	28	54	3	54	54	2	2	2	3	2	2	2	7	5	4				
HOURLY AVG	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.2	3.1	4.0	2.1	4.0	4.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.3				

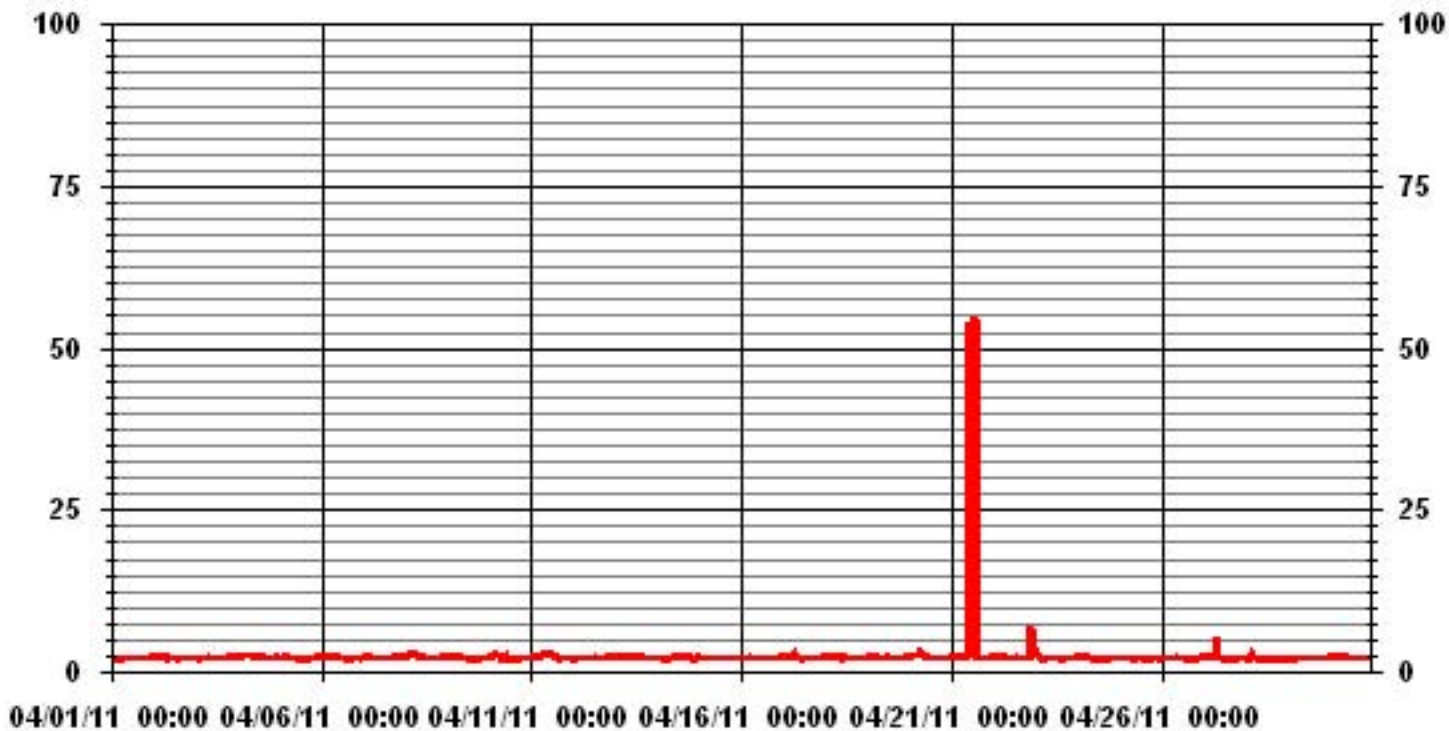
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	682					
MAXIMUM INSTANTANEOUS VALUE:	54.1	PPM	@ HOUR(S)	VAR	ON DAY(S)	21
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:		713	HRS
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	3.58					

### 01 Hour Averages



— LICA30 THCMAX PPM

LICA30  
 THC / WDR Joint Frequency Distribution (Percent)

April 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	4.97	6.28	9.06	7.30	4.53	4.09	4.67	2.33	2.33	15.93	10.67	4.97	5.84	8.77	3.94	2.92	98.68
< 10.0	.00	.00	.00	.00	.00	.00	.14	.00	.29	.58	.00	.14	.00	.00	.14	.00	1.31
< 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	4.97	6.28	9.06	7.30	4.53	4.09	4.82	2.33	2.63	16.52	10.67	5.11	5.84	8.77	4.09	2.92	

Calm : .00 %

Total # Operational Hours : 684

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	34	43	62	50	31	28	32	16	16	109	73	34	40	60	27	20	675
< 10.0							1		2	4		1			1		9
< 50.0																	
>= 50.0																	
Totals	34	43	62	50	31	28	33	16	18	113	73	35	40	60	28	20	

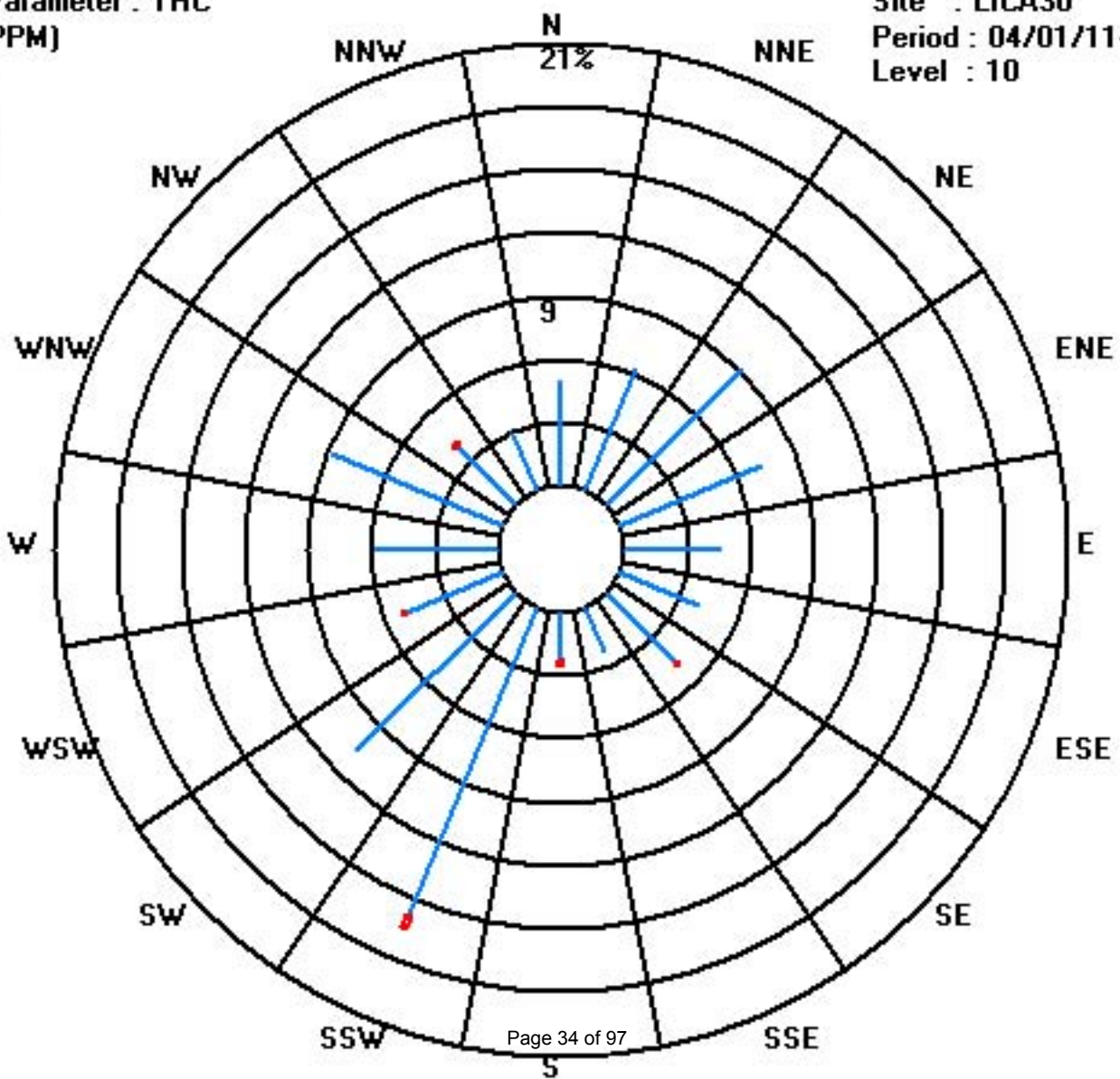
Calm : .00 %

Total # Operational Hours : 684

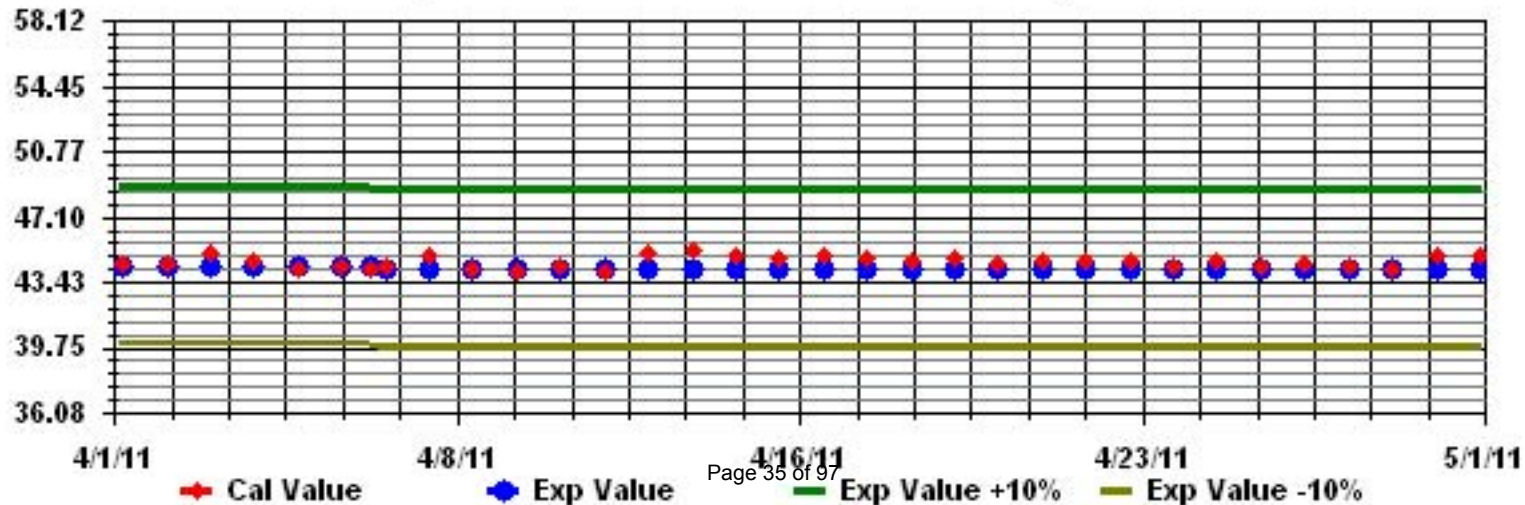
Class Limits (PPM)

Period : 04/01/11-04/30/11

Level : 10



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



# Nitrogen Dioxide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 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	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	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	0	0	IZS	0	1	1	0	1	1	1	4	6	1	2	5	1	0	0	1	1	2	3	6	1.4	24																							
2	2	2	2	IZS	2	3	2	1	0	1	1	1	1	1	1	1	3	1	3	3	1	1	0	1	3	1.5	24																							
3	2	2	IZS	1	1	1	1	1	3	6	2	1	1	0	0	0	0	0	1	1	1	1	1	6	1.2	24																								
4	1	IZS	3	4	5	5	7	6	5	5	6	5	5	4	2	5	2	3	1	1	2	3	4	7	3.9	24																								
5	IZS	3	5	4	1	5	9	7	15	7	2	0	0	1	1	0	0	1	2	3	3	4	IZS	15	3.3	24																								
6	2	4	5	2	5	7	15	7	C	C	C	C	C	C	1	1	1	1	2	2	2	IZS	2	15	3.7	24																								
7	2	3	3	5	8	8	12	12	6	2	1	2	1	1	2	2	4	8	1	2	4	IZS	1	1	12	4.0	24																							
8	3	5	6	6	7	8	7	4	5	3	2	2	1	1	1	1	1	0	1	1	IZS	1	1	2	8	3.0	24																							
9	2	2	2	2	2	4	5	4	4	3	2	2	1	1	1	0	1	0	0	IZS	2	2	4	5	5	2.2	24																							
10	4	5	5	7	7	8	6	1	0	0	0	0	0	0	0	0	0	0	IZS	1	2	2	3	2	8	2.3	24																							
11	2	2	2	2	2	2	4	4	4	4	4	4	3	2	3	3	2	IZS	2	5	5	12	11	3	12	3.8	24																							
12	2	0	0	1	2	4	2	1	1	1	1	1	2	2	1	1	IZS	0	1	1	0	0	0	3	4	1.2	24																							
13	1	0	0	0	2	0	1	1	1	1	1	0	1	1	1	IZS	0	0	0	0	0	0	1	0	2	0.5	24																							
14	4	1	0	0	0	0	0	3	3	1	1	3	4	6	IZS	6	2	9	12	11	9	1	6	9	12	4.0	24																							
15	5	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	5	0.2	24																							
16	0	1	1	1	2	2	1	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24																							
17	0	0	0	0	0	0	1	1	1	3	0	IZS	2	1	3	2	2	1	1	1	2	3	2	2	3	1.2	24																							
18	2	2	3	4	5	4	8	2	4	4	IZS	2	1	3	2	2	1	2	1	1	1	1	1	1	8	2.5	24																							
19	1	1	0	0	1	1	1	7	9	IZS	8	5	8	4	6	10	2	0	1	0	1	2	3	10	3.1	24																								
20	2	3	5	4	3	15	17	17	IZS	6	8	4	3	4	1	2	0	0	0	0	0	0	0	0	17	4.1	24																							
21	0	1	1	1	1	2	2	IZS	3	5	5	1	2	6	5	3	1	1	1	4	5	3	4	3	6	2.6	24																							
22	3	5	8	8	8	7	IZS	8	2	5	2	4	2	1	1	1	1	0	0	0	0	1	1	1	8	3.0	24																							
23	2	3	5	4	2	IZS	15	11	2	2	2	4	1	2	0	1	0	1	2	1	0	0	1	2	15	2.7	24																							
24	2	4	1	4	IZS	6	21	4	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	21	2.6	24																							
25	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2	1.0	24																							
26	1	2	IZS	1	1	0	2	2	2	2	1	1	6	3	2	4	2	0	0	0	4	1	1	1	6	1.7	24																							
27	1	IZS	4	6	6	9	10	7	3	3	5	5	4	4	3	3	2	2	2	2	2	3	2	2	10	3.9	24																							
28	IZS	1	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	IZS	2	0.5	24																							
29	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	IZS	0	1	0.1	24																							
30	0	0	0	0	0	0	0	1	1	1	0	0	0	0	3	2	2	1	2	3	0	IZS	5	13	13	1.5	24																							
HOURLY MAX	NA	5	8	8	8	15	21	17	15	7	8	5	8	6	6	10	5	9	12	11	9	12	11	13																										
HOURLY AVG	NA	1.9	2.3	2.5	2.7	3.6	5.2	4.0	2.8	2.4	2.0	1.8	2.0	2.0	1.6	1.8	1.4	1.1	1.3	1.5	1.7	1.5	2.1	2.4																										

### STATUS FLAG CODES

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

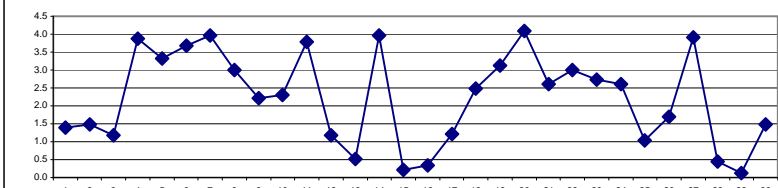
### OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	212	PPB	24-HR	106	PPB
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### MONTHLY SUMMARY

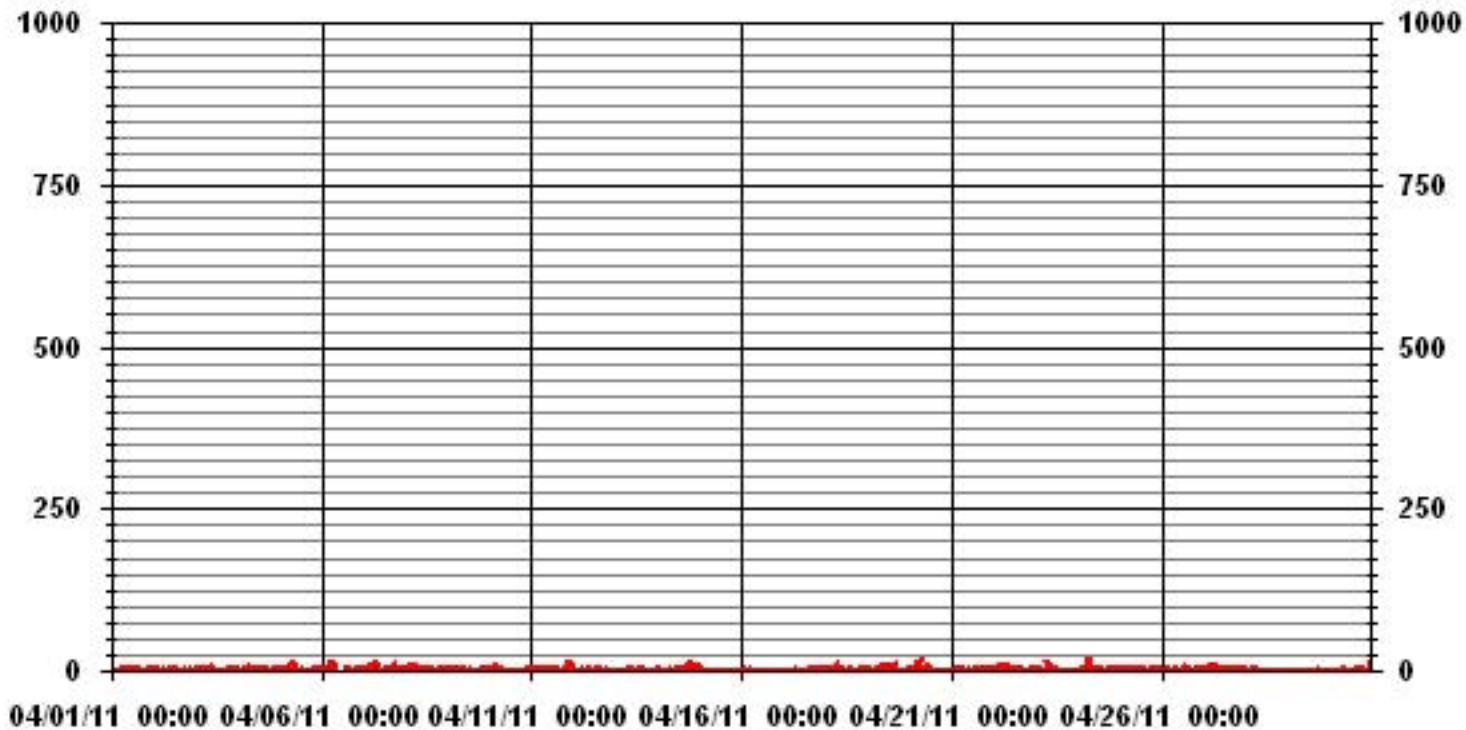
NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	507					
MAXIMUM 1-HR AVERAGE:	21	PPB	@ HOUR(S)	6	ON DAY(S)	24
MAXIMUM 24-HR AVERAGE:	4.1	PPB			ON DAY(S)	20
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	2.75		MONTHLY AVERAGE:	2.22	PPB	

24 HOUR AVERAGES FOR APRIL 2011





### 01 Hour Averages



— LICA30 NO2\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 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	0	13	10	1	IZS	1	3	1	1	2	2	2	15	14	8	11	11	4	0	2	2	2	4	4	15	4.9	24	
2	3	2	4	IZS	3	4	2	1	1	7	3	3	2	5	2	3	6	4	7	7	1	1	1	4	7	3.3	24	
3	3	4	IZS	2	1	3	3	2	9	20	6	3	4	4	2	1	1	1	2	2	2	2	1	1	20	3.4	24	
4	2	IZS	4	5	6	6	12	18	6	6	6	7	5	6	5	9	13	3	5	2	5	8	7	6	18	6.6	24	
5	IZS	5	7	6	3	11	16	27	19	16	7	1	1	8	6	1	1	1	3	4	5	5	5	IZS	27	7.2	24	
6	3	5	11	3	23	20	28	9	C	C	C	C	C	C	C	1	2	2	3	3	2	2	IZS	4	28	7.6	24	
7	3	7	3	10	13	13	22	17	16	6	2	3	2	2	4	4	11	24	4	5	7	IZS	1	7	24	8.1	24	
8	5	11	9	9	9	11	12	6	25	5	3	2	2	2	2	2	1	1	1	2	IZS	2	2	3	25	5.5	24	
9	4	2	2	2	3	5	6	5	6	5	3	6	2	2	2	2	1	1	1	IZS	3	3	7	7	7	3.5	24	
10	5	6	6	12	8	9	12	6	1	1	1	1	1	1	1	0	0	0	IZS	2	2	6	9	2	12	4.0	24	
11	3	3	2	2	3	4	5	5	5	5	11	5	5	5	6	4	4	IZS	13	16	22	22	23	11	23	8.0	24	
12	6	1	0	7	17	16	10	9	2	2	1	3	6	8	2	1	IZS	1	1	1	1	1	1	8	17	4.6	24	
13	6	1	0	1	4	2	2	3	2	2	1	1	4	6	2	IZS	1	0	1	1	1	1	2	1	6	2.0	24	
14	10	4	1	0	0	0	1	9	6	8	7	7	9	12	IZS	13	6	14	15	15	15	4	14	13	15	8.0	24	
15	14	1	0	1	1	1	1	1	1	1	1	0	0	IZS	0	0	0	0	1	0	0	0	0	1	14	1.1	24	
16	1	2	2	2	3	3	2	0	0	0	0	0	IZS	0	0	0	0	0	2	2	1	1	0	0	3	0.9	24	
17	0	0	0	2	1	1	3	3	2	9	1	IZS	3	2	5	3	3	2	2	2	2	3	3	2	9	2.3	24	
18	2	3	6	6	5	5	36	3	8	6	IZS	14	8	8	16	9	3	12	2	2	2	2	2	1	36	7.0	24	
19	2	1	1	1	2	1	11	38	33	IZS	39	22	22	20	30	48	7	1	3	1	1	3	2	7	48	12.9	24	
20	8	4	6	5	6	32	41	55	IZS	40	35	25	13	18	3	4	7	1	1	1	1	1	1	1	55	13.4	24	
21	1	3	3	2	2	3	3	IZS	5	18	44	3	9	18	23	18	2	2	2	12	10	4	33	6	44	9.8	24	
22	5	7	11	16	31	9	IZS	21	8	20	7	15	9	4	3	8	2	2	1	1	1	2	1	2	31	8.1	24	
23	4	9	8	6	2	IZS	65	25	3	4	4	10	6	12	3	4	1	8	9	1	1	1	2	3	65	8.3	24	
24	3	39	3	7	IZS	9	38	11	2	2	2	2	2	2	3	3	2	2	2	2	2	1	1	1	39	6.1	24	
25	1	1	1	IZS	1	1	3	2	2	2	2	2	2	2	2	M	M	2	2	2	2	2	2	2	3	1.8	22	
26	2	3	IZS	5	4	1	4	3	6	6	2	6	14	7	12	11	5	1	1	1	9	2	2	1	14	4.7	24	
27	2	IZS	6	7	8	22	15	11	4	5	6	8	8	9	5	6	3	4	4	3	4	5	2	3	22	6.5	24	
28	IZS	1	5	4	1	2	3	3	1	1	0	0	0	0	1	1	0	0	0	1	2	1	0	IZS	5	1.2	24	
29	2	2	2	1	2	1	0	1	0	0	0	1	0	1	0	2	2	7	4	1	1	1	1	1	7	1.4	24	
30	1	1	1	1	1	2	1	2	4	4	1	0	1	1	13	5	5	2	6	7	1	IZS	11	26	26	4.2	24	
HOURLY MAX	14	39	11	16	31	32	65	55	33	40	44	25	22	20	30	48	13	24	15	16	22	22	33	26				
HOURLY AVG	3.6	5.0	4.1	4.5	5.8	6.8	12.4	10.2	6.4	7.3	7.0	5.4	5.5	6.4	5.8	6.2	3.6	3.5	3.3	3.5	3.7	3.1	5.0	4.6				

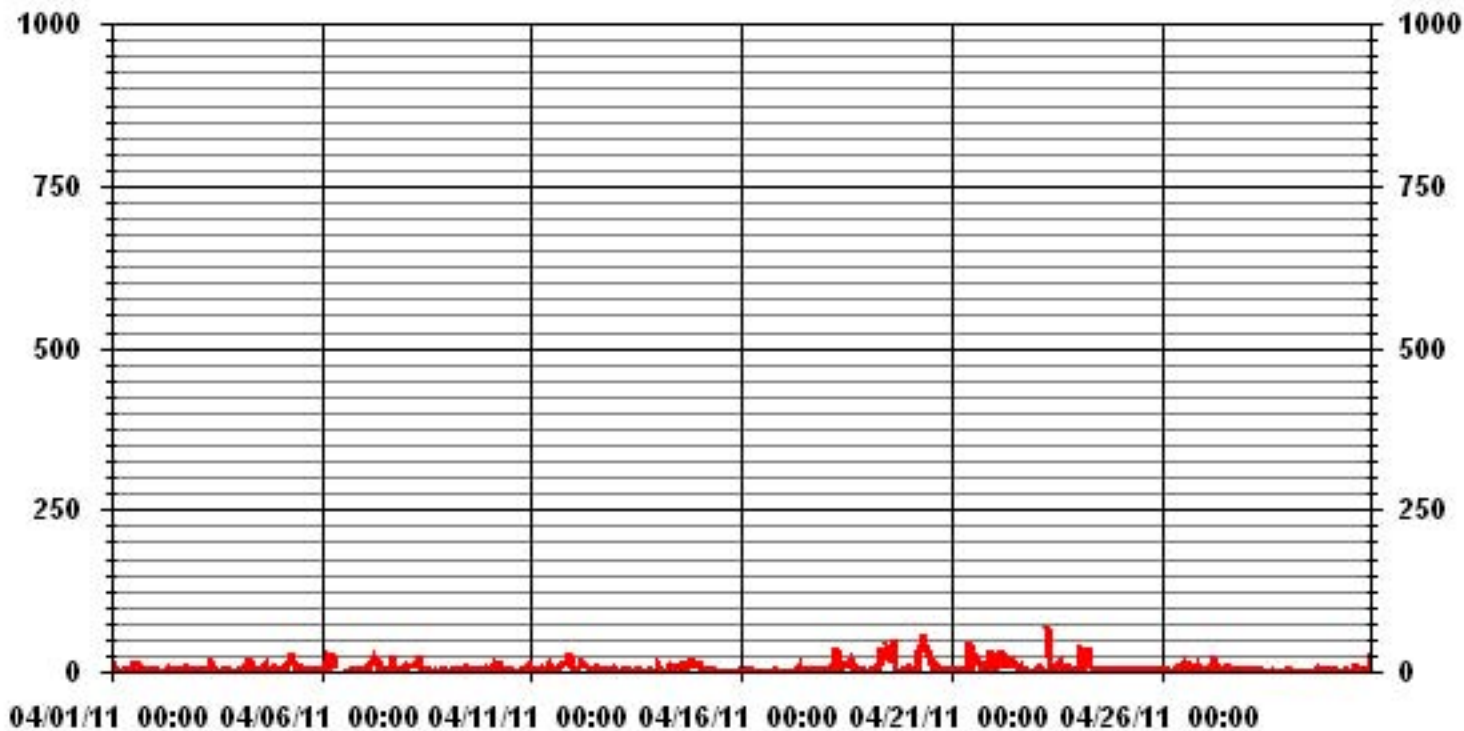
### STATUS FLAG CODES

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:	627
MAXIMUM INSTANTANEOUS VALUE:	65 PPB @ HOUR(S) 6 ON DAY(S) 23
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	7.60
OPERATIONAL TIME:	718 HRS

### 01 Hour Averages



— LICA30 NO2MAX PPB

LICA30  
 NO2\_ / WDR Joint Frequency Distribution (Percent)

April 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	4.99	6.31	9.10	7.34	4.55	4.11	4.84	2.34	2.64	16.59	10.57	5.13	5.87	8.51	4.11	2.93	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	4.99	6.31	9.10	7.34	4.55	4.11	4.84	2.34	2.64	16.59	10.57	5.13	5.87	8.51	4.11	2.93	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

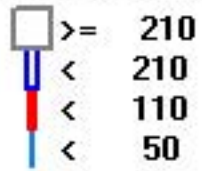
	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	34	43	62	50	31	28	33	16	18	113	72	35	40	58	28	20	681
< 110																	
< 210																	
>= 210																	
Totals	34	43	62	50	31	28	33	16	18	113	72	35	40	58	28	20	

Calm : .00 %

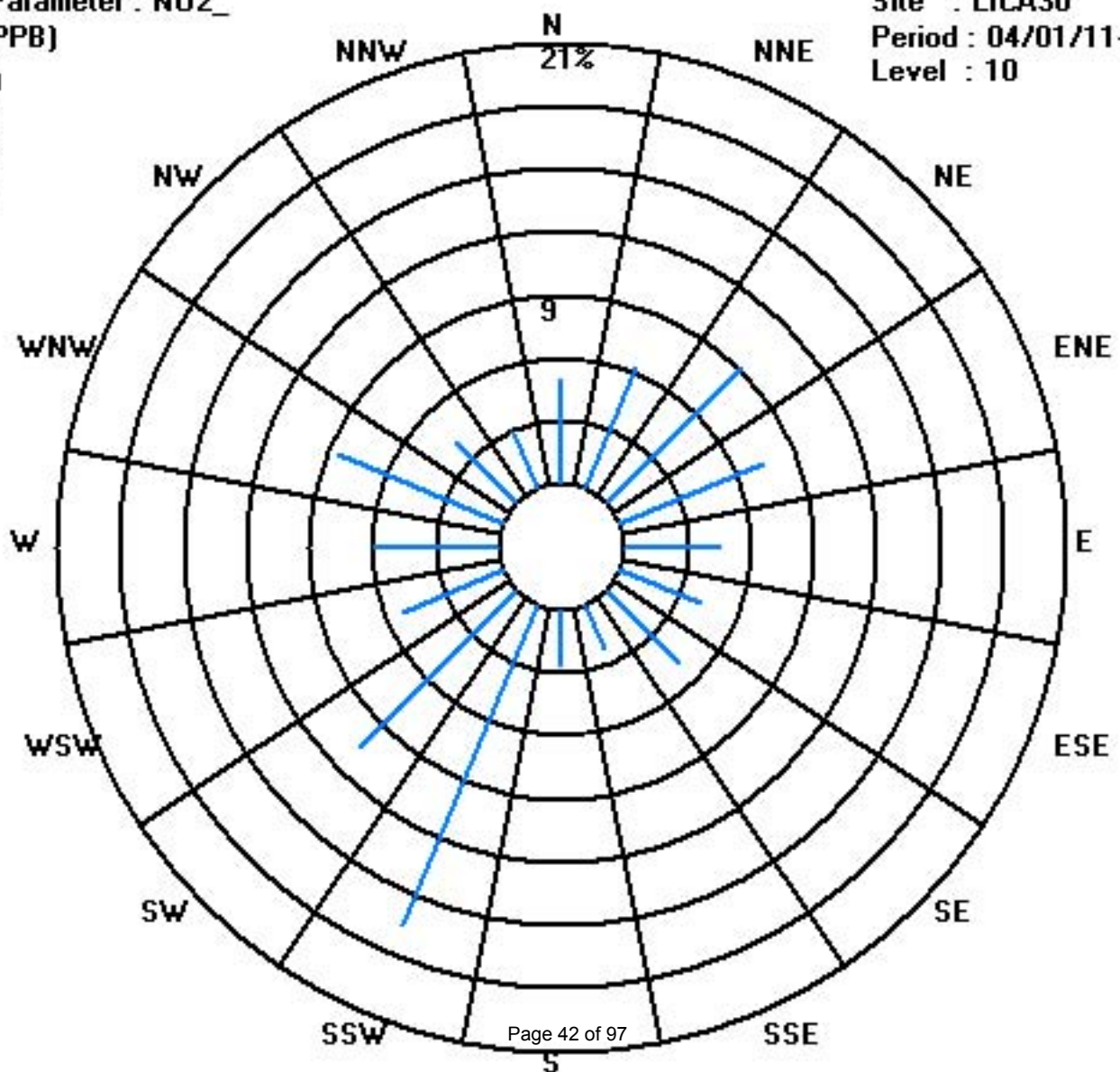
Total # Operational Hours : 681

Class Limits (PPB)

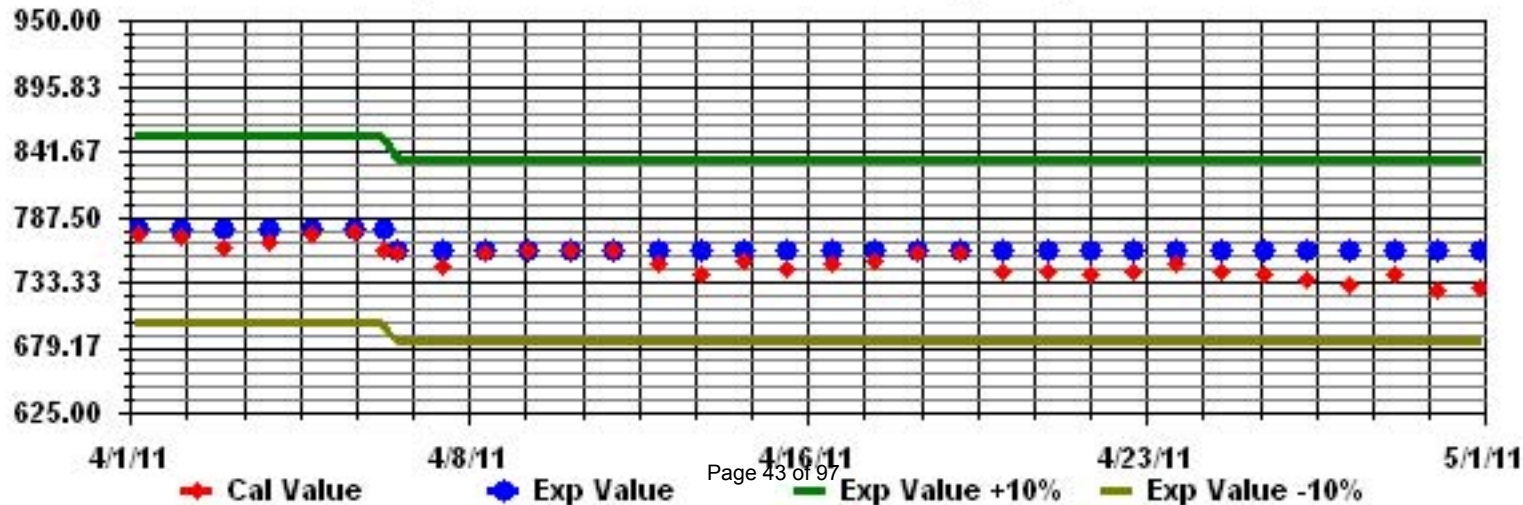
Period : 04/01/11-04/30/11



Level : 10



Calibration Graph for Site: LICA30 Parameter: NO2\_ Sequence: NO2 Phase: SPAN



# Nitric Oxide

# LAKELAND INDUSTRY & COMMUNITY ASSOICATION - MASKWA

APRIL 2011

NITRIC OXIDE hourly averages in ppb

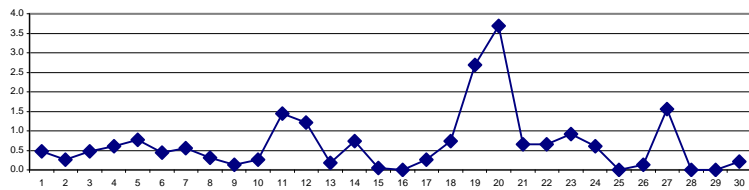
MST

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	IZS	0	0	0	0	1	1	0	2	3	1	1	2	0	0	0	0	0	0	0	3	0.5	24	
2	0	0	0	IZS	1	0	0	0	0	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0.3	24	
3	0	0	IZS	0	0	1	0	1	1	3	2	1	1	1	0	0	0	0	0	0	0	0	0	0	3	0.5	24	
4	0	IZS	1	0	1	0	1	1	1	1	2	1	1	1	1	1	1	0	0	0	0	0	0	0	2	0.6	24	
5	IZS	0	0	0	0	0	2	2	7	3	1	0	0	1	1	0	0	0	0	0	0	0	0	IZS	7	0.8	24	
6	0	0	0	0	1	1	3	2	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	IZS	3	0.4	24	
7	0	0	0	0	0	0	2	4	3	0	0	0	0	0	0	1	3	0	0	0	0	IZS	0	0	4	0.6	24	
8	0	0	0	0	0	0	1	1	3	1	1	0	0	0	0	0	0	0	0	0	IZS	0	0	0	3	0.3	24	
9	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	IZS	0	0	0	0	1	0.1	24	
10	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	0.3	24	
11	1	1	1	1	1	1	2	1	2	2	2	2	1	1	1	1	1	IZS	1	1	2	4	2	1	4	1.4	24	
12	1	1	1	1	2	2	2	2	2	1	1	2	3	3	2	2	IZS	0	0	0	0	0	0	0	3	1.2	24	
13	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	IZS	0	0	0	0	0	0	0	0	1	0.2	24	
14	0	0	0	0	0	0	0	1	1	0	1	1	2	2	IZS	2	0	1	2	2	1	0	0	1	2	0.7	24	
15	1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
16	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
17	0	0	0	0	0	0	1	1	1	1	0	IZS	1	0	0	0	1	0	0	0	0	0	0	0	1	0.3	24	
18	0	0	0	0	0	0	6	0	2	2	IZS	2	1	1	2	1	0	0	0	0	0	0	0	0	6	0.7	24	
19	0	0	0	0	0	0	1	5	6	IZS	11	4	10	5	7	11	2	0	0	0	0	0	0	0	11	2.7	24	
20	0	0	0	0	0	11	19	18	IZS	10	11	5	3	5	1	2	0	0	0	0	0	0	0	0	19	3.7	24	
21	0	0	0	0	0	0	1	IZS	1	4	2	0	1	3	1	2	0	0	0	0	0	0	0	0	4	0.7	24	
22	0	0	0	1	1	1	IZS	3	1	3	1	2	1	0	0	1	0	0	0	0	0	0	0	0	3	0.7	24	
23	0	0	0	0	0	IZS	9	5	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	9	0.9	24	
24	0	1	0	0	IZS	0	11	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0.6	24	
25	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	
26	0	0	IZS	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
27	0	IZS	1	1	1	5	6	3	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	6	1.6	24	
28	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	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	1	1	0	0	0	0	1	1	0	0	0	0	0	0	IZS	0	1	0.2	24	
HOURLY MAX	1	1	1	1	2	11	19	18	7	10	11	5	10	5	7	11	2	3	2	2	2	2	4	2	1			
HOURLY AVG	0.1	0.1	0.1	0.1	0.3	0.8	2.3	1.8	1.4	1.4	1.4	0.9	1.1	1.1	0.7	0.9	0.3	0.2	0.1	0.2	0.2	0.2	0.1	0.2				

### STATUS FLAG CODES

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

24 HOUR AVERAGES FOR APRIL 2011

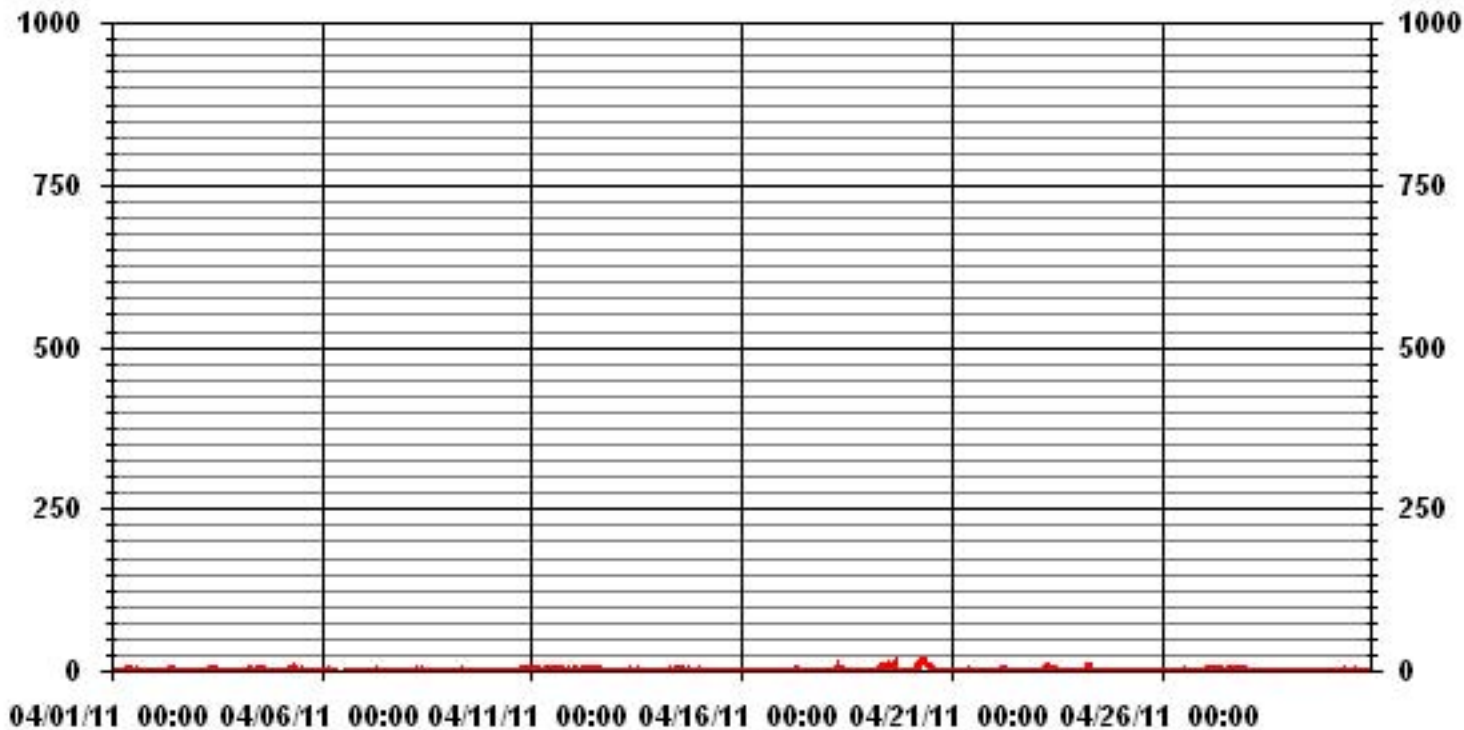


### MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	214					
MAXIMUM 1-HR AVERAGE:	19	PPB	@ HOUR(S)	6	ON DAY(S)	20
MAXIMUM 24-HR AVERAGE:	3.7	PPB			ON DAY(S)	20
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	1.76		MONTHLY AVERAGE:	0.67	PPB	



### 01 Hour Averages



— LICA30 NO\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 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	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	IZS	1	1	2	1	2	2	1	8	8	5	4	4	1	1	1	1	1	1	1	1	8	2.2	24
2	1	1	1	IZS	1	1	1	1	1	4	2	2	2	2	1	1	3	1	1	1	1	1	1	1	1	4	1.4	24
3	1	2	IZS	1	1	2	1	1	3	18	4	2	6	2	1	1	1	1	1	1	1	1	1	1	1	18	2.3	24
4	1	IZS	2	2	1	1	2	10	2	2	2	2	2	2	1	3	3	1	1	1	1	2	1	1	10	2.0	24	
5	IZS	1	2	2	1	1	4	17	11	9	4	1	1	7	3	1	1	1	1	1	1	1	1	1	IZS	17	3.3	24
6	1	1	1	1	4	6	9	3	C	C	C	C	C	C	C	1	1	1	1	1	0	1	IZS	1	9	2.1	24	
7	1	2	0	0	1	1	6	8	23	2	1	1	1	1	2	1	4	11	1	1	1	1	IZS	1	23	3.1	24	
8	1	2	1	1	1	1	3	2	50	2	2	1	1	1	1	1	1	1	0	1	IZS	1	1	1	50	3.3	24	
9	1	0	1	1	0	1	1	1	2	1	1	3	1	1	1	1	1	1	1	IZS	1	1	1	1	3	1.0	24	
10	1	1	1	2	1	1	4	2	1	1	1	1	1	1	1	0	0	0	IZS	2	2	2	2	2	2	4	1.3	24
11	2	1	2	2	2	2	5	2	2	3	6	2	2	2	2	2	2	IZS	3	3	7	7	7	2	7	3.0	24	
12	1	2	2	2	9	8	6	13	3	2	2	4	8	8	2	2	IZS	1	1	1	1	1	1	1	13	3.5	24	
13	1	1	1	1	1	1	2	1	1	2	1	1	3	3	2	IZS	1	1	1	1	1	1	1	1	3	1.3	24	
14	1	1	1	1	1	1	1	4	2	2	3	3	4	4	IZS	4	1	2	2	2	2	2	1	2	2	4	2.0	24
15	3	1	1	1	1	1	1	1	1	1	1	1	0	IZS	1	1	1	1	1	1	1	1	1	1	3	1.0	24	
16	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
17	1	1	1	1	1	1	2	2	2	4	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	4	1.3	24	
18	0	1	1	1	1	1	38	1	4	4	IZS	27	3	3	19	2	2	2	1	1	1	1	1	1	38	5.0	24	
19	1	1	1	1	1	1	23	52	47	IZS	41	31	47	28	37	34	7	1	1	1	1	0	1	1	52	15.6	24	
20	1	1	1	1	1	54	66	48	IZS	103	42	22	26	28	3	5	12	1	1	1	1	1	1	1	103	18.3	24	
21	1	1	1	1	1	1	1	IZS	2	23	23	1	27	27	16	23	1	1	1	1	1	1	1	13	1	27	7.3	24
22	1	1	1	4	18	2	IZS	9	5	12	4	7	3	2	2	4	1	1	1	1	1	1	1	1	18	3.6	24	
23	1	1	1	1	1	IZS	87	15	2	3	2	4	2	5	1	1	1	2	2	1	1	1	1	1	87	6.0	24	
24	0	10	1	1	IZS	1	33	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	33	3.0	24	
25	1	1	1	IZS	1	1	1	1	1	1	1	1	1	0	0	M	M	0	0	0	0	1	1	1	1	0.8	22	
26	1	1	IZS	1	1	1	1	1	1	1	1	1	4	2	1	1	1	1	1	0	1	1	1	1	4	1.1	24	
27	0	IZS	2	2	2	50	13	8	2	3	3	3	3	3	2	2	1	2	2	1	1	1	2	1	50	4.7	24	
28	IZS	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	1	0	1	1	1	0	1	IZS	1	0.5	24	
29	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	0	IZS	1	2	1.0	24	
30	1	1	1	1	1	1	1	1	22	2	1	1	1	1	5	2	2	1	2	1	1	IZS	1	3	22	2.3	24	
HOURLY MAX	3	10	2	4	18	54	87	52	50	103	42	31	47	28	37	34	12	11	3	3	7	7	13	3				
HOURLY AVG	1.0	1.4	1.1	1.3	2.0	5.0	10.9	7.5	6.9	7.5	5.5	4.5	5.7	5.2	4.1	3.6	2.0	1.4	1.1	1.1	1.2	1.2	1.8	1.2				

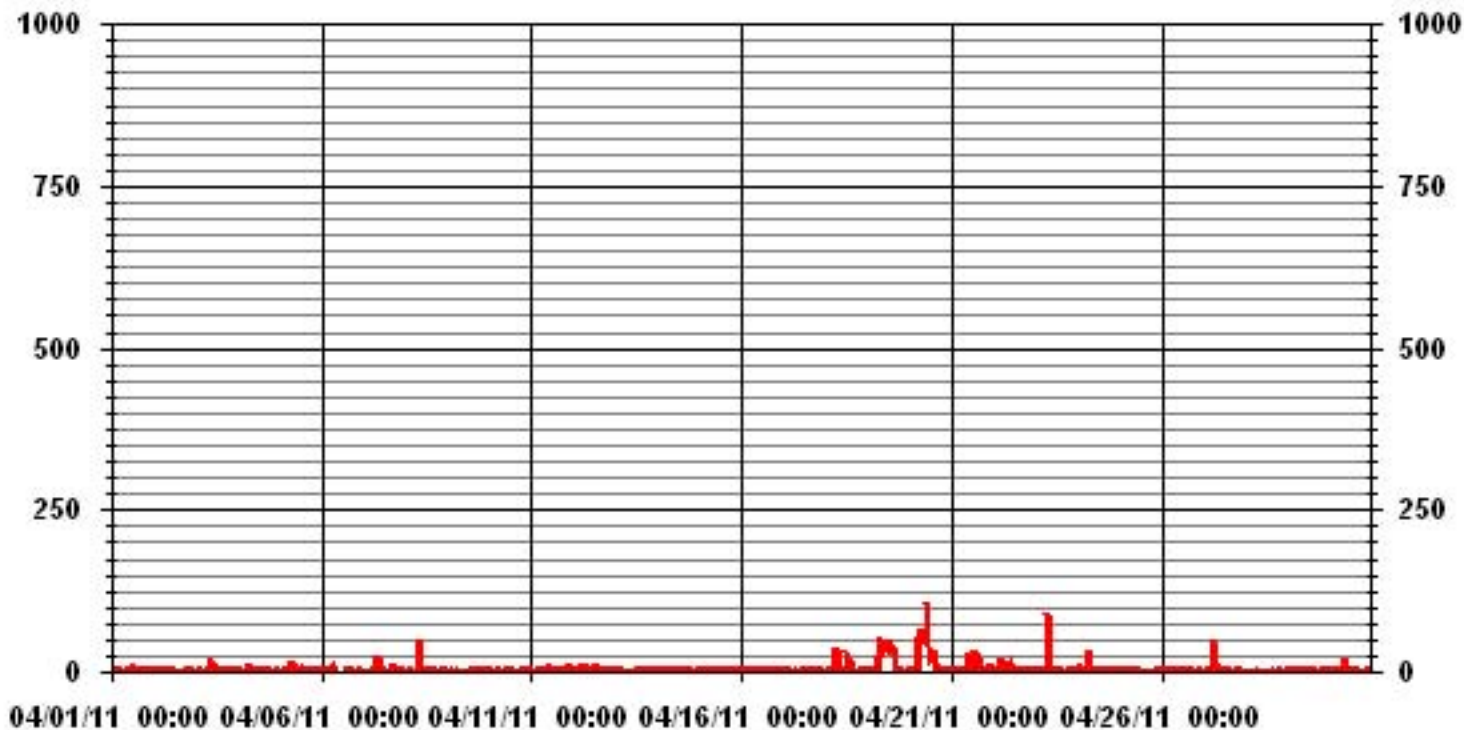
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	645
MAXIMUM INSTANTANEOUS VALUE:	103 PPB @ HOUR(S) 9 ON DAY(S) 20
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	8.99
OPERATIONAL TIME:	718 HRS

### 01 Hour Averages



LICA30  
 NO\_ / WDR Joint Frequency Distribution (Percent)

April 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	4.99	6.31	9.10	7.34	4.55	4.11	4.84	2.34	2.64	16.59	10.57	5.13	5.87	8.51	4.11	2.93	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	4.99	6.31	9.10	7.34	4.55	4.11	4.84	2.34	2.64	16.59	10.57	5.13	5.87	8.51	4.11	2.93	

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	34	43	62	50	31	28	33	16	18	113	72	35	40	58	28	20	681
< 110																	
< 210																	
>= 210																	
Totals	34	43	62	50	31	28	33	16	18	113	72	35	40	58	28	20	

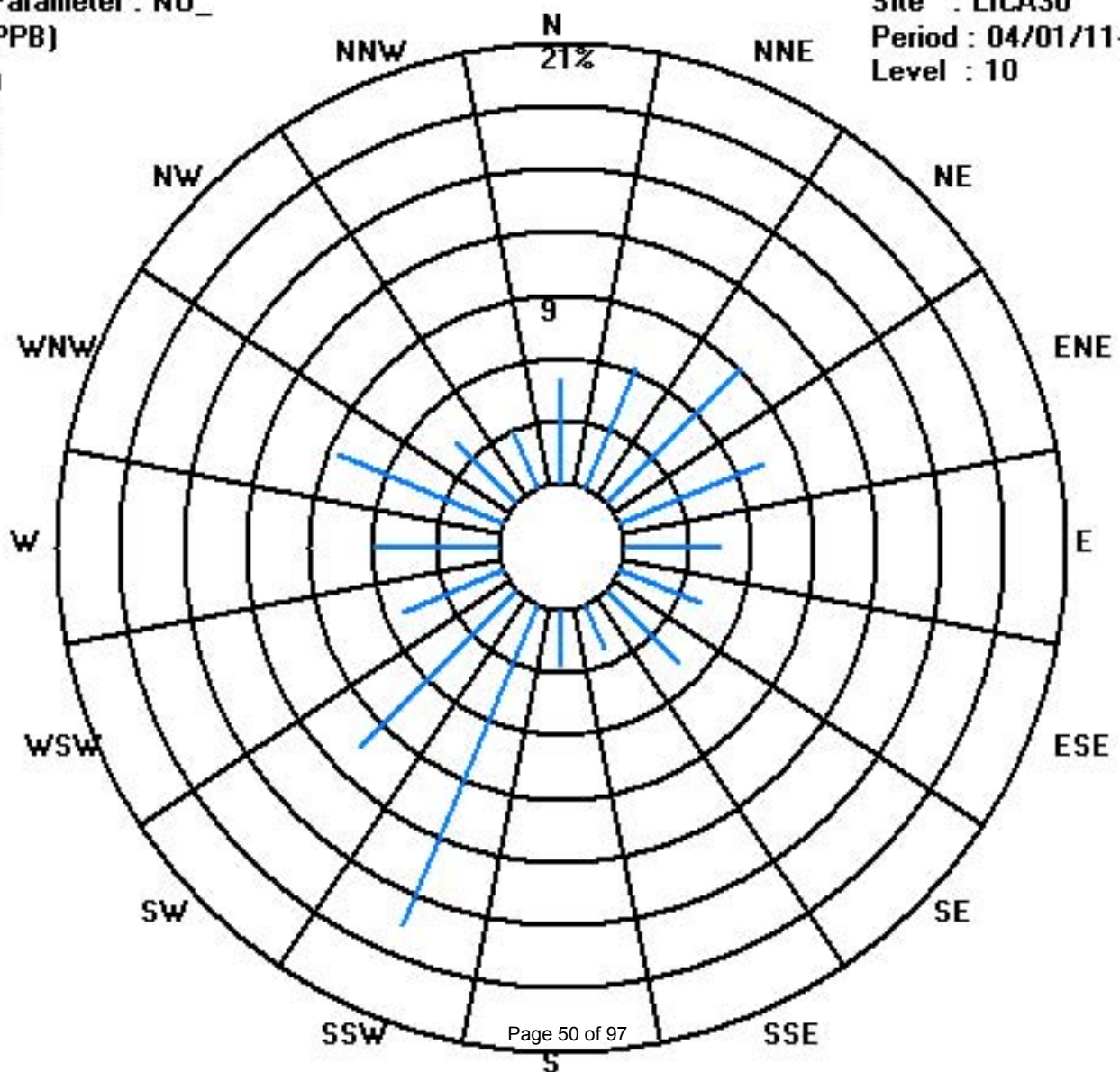
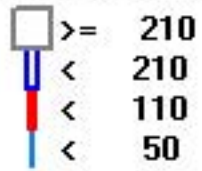
Calm : .00 %

Total # Operational Hours : 681

Class Limits (PPB)

Period : 04/01/11-04/30/11

Level : 10



# Oxides of Nitrogen

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2011

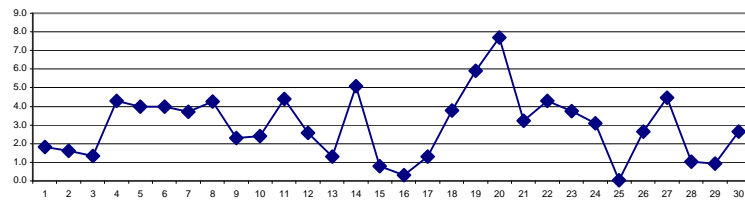
## OXIDES OF NITROGEN hourly averages in ppb

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	0	2	1	0	IZS	1	1	1	1	1	1	1	6	9	1	2	7	1	0	0	1	1	2	2	9	1.8	24
2	2	2	2	IZS	3	3	2	1	0	2	2	1	1	1	1	4	1	3	3	1	0	0	1	4	1.6	24	
3	2	2	IZS	1	1	2	1	1	3	9	4	1	1	1	0	0	0	0	0	0	1	1	0	9	1.3	24	
4	1	IZS	3	4	5	5	8	7	6	6	7	7	6	6	4	3	6	1	3	1	1	2	3	4	8	4.3	24
5	IZS	3	5	4	1	5	11	10	22	10	2	0	0	1	2	0	0	0	1	2	3	3	3	IZS	22	4.0	24
6	2	4	5	2	6	8	18	9	C	C	C	C	C	C	C	1	1	1	1	2	2	1	IZS	1	18	4.0	24
7	1	2	2	4	7	7	13	15	8	2	1	1	0	1	0	4	9	0	0	3	IZS	2	2	15	3.7	24	
8	4	7	7	7	8	9	8	7	9	6	4	3	3	2	3	2	1	1	1	2	IZS	1	1	2	9	4.3	24
9	2	1	1	2	2	4	5	4	5	4	2	3	2	1	1	0	1	0	0	IZS	2	2	4	5	5	2.3	24
10	4	5	6	7	7	8	6	2	0	0	0	0	0	0	0	0	0	0	IZS	1	2	2	3	2	8	2.4	24
11	2	2	2	2	2	2	4	4	4	4	5	5	4	3	3	2	IZS	3	6	6	16	13	4	16	4.4	24	
12	3	1	1	1	4	6	4	3	3	2	2	3	5	4	3	2	IZS	2	2	1	1	1	1	4	6	2.6	24
13	2	1	1	1	3	1	2	2	2	2	2	2	3	3	2	IZS	0	0	0	0	0	0	1	0	3	1.3	24
14	4	1	0	0	0	0	0	3	4	2	2	4	6	8	IZS	9	3	11	14	14	11	2	8	11	14	5.1	24
15	7	1	1	1	1	1	1	1	1	1	1	1	0	IZS	0	0	0	0	0	0	0	0	0	0	7	0.8	24
16	0	0	1	1	2	2	1	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	2	0.3	24
17	0	0	0	0	0	0	2	2	1	4	0	IZS	2	1	3	2	2	1	1	1	1	3	2	2	4	1.3	24
18	1	2	3	4	5	4	14	2	6	6	IZS	5	3	5	6	4	2	3	2	2	2	2	2	2	14	3.8	24
19	2	1	1	1	1	1	3	12	16	IZS	19	9	19	9	12	20	4	0	1	1	0	1	1	2	20	5.9	24
20	2	3	5	4	3	25	37	35	IZS	16	18	9	6	9	2	3	0	0	0	0	0	0	0	0	37	7.7	24
21	0	1	1	0	1	1	2	IZS	4	9	8	2	3	9	6	4	1	1	1	4	5	3	5	3	9	3.2	24
22	3	6	8	8	9	7	IZS	13	4	8	4	7	3	2	2	3	2	1	1	1	1	2	2	2	13	4.3	24
23	3	4	6	4	3	IZS	23	16	3	3	3	5	2	3	0	1	0	2	2	0	0	0	1	2	23	3.7	24
24	2	5	1	4	IZS	6	31	6	2	1	1	1	1	1	1	2	1	1	1	1	0	0	1	1	31	3.1	24
25	0	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
26	0	1	IZS	2	2	1	3	3	3	3	2	3	9	4	3	5	3	1	1	1	5	2	2	2	9	2.7	24
27	2	IZS	5	6	6	12	14	9	3	3	6	5	4	4	3	4	2	2	2	2	2	3	2	2	14	4.5	24
28	IZS	1	3	3	1	2	2	2	1	1	1	0	0	0	1	0	0	0	0	1	2	1	1	IZS	3	1.0	24
29	2	1	1	1	1	0	1	1	0	0	0	1	1	1	1	1	1	1	2	1	1	1	IZS	1	2	0.9	24
30	1	1	1	1	1	1	1	2	3	3	1	1	1	1	5	4	3	2	4	4	1	IZS	5	14	2.7	24	
HOURLY MAX	7	7	8	8	9	25	37	35	22	16	19	9	19	9	12	20	7	11	14	14	14	11	16	13	14		
HOURLY AVG	1.9	2.2	2.6	2.7	3.0	4.3	7.5	6.0	4.1	3.9	3.5	2.9	3.3	3.1	2.4	2.6	1.7	1.4	1.6	1.8	1.8	1.8	2.4	2.5			

### 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

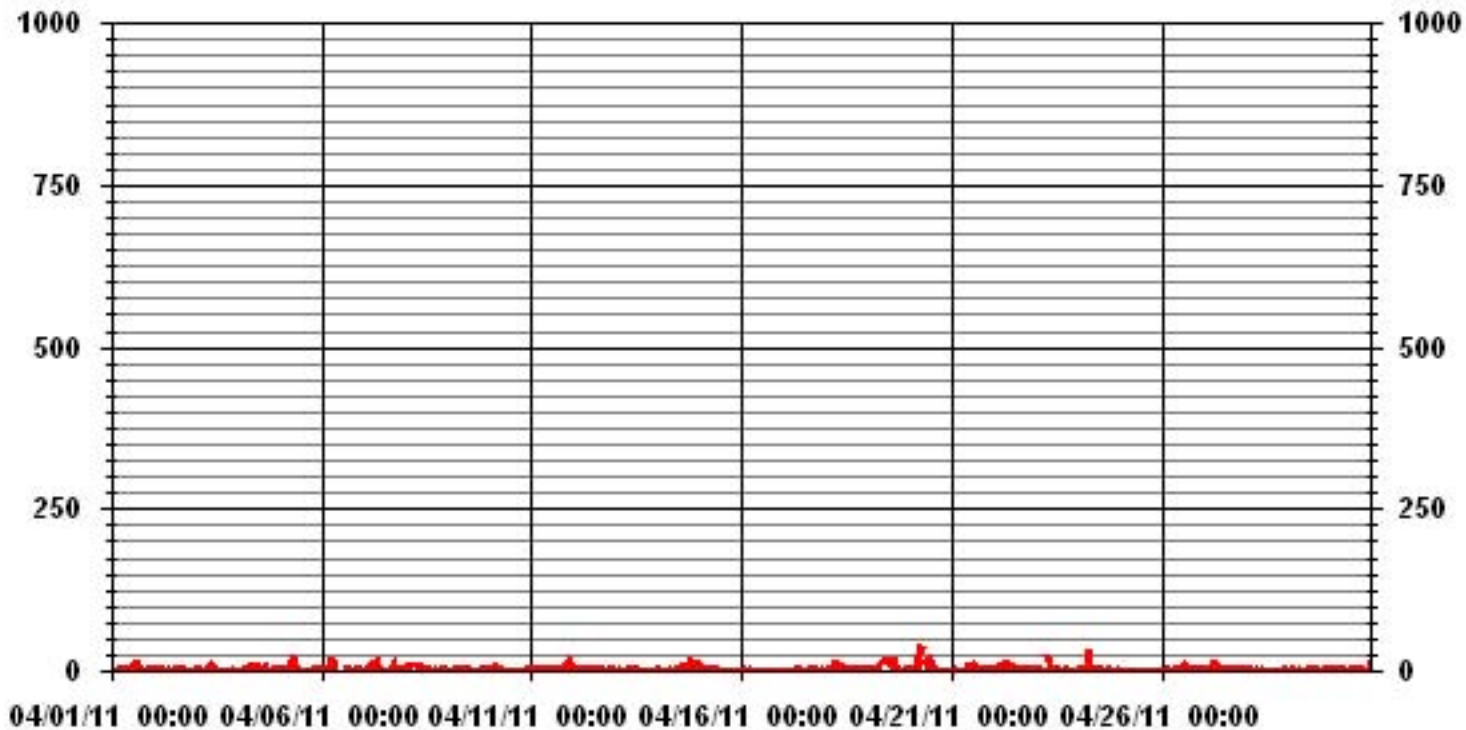
24 HOUR AVERAGES FOR APRIL 2011



### MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	543
MAXIMUM 1-HR AVERAGE:	37 PPB @ HOUR(S) 6 ON DAY(S) 20
MAXIMUM 24-HR AVERAGE:	7.7 PPB ON DAY(S) 20
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	7 HRS
OPERATIONAL TIME:	720 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION	4.08
MONTHLY AVERAGE	2.96 PPB

### 01 Hour Averages



— LICA30 NOX\_ PPB



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 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	1	15	11	3	IZS	2	3	2	1	4	3	3	23	20	12	14	15	5	0	2	2	2	4	4	23	6.6	24	
2	2	2	4	IZS	4	4	2	2	1	11	5	4	3	6	2	4	8	4	7	8	1	1	1	4	11	3.9	24	
3	3	5	IZS	2	1	5	3	2	12	37	10	5	8	6	2	1	1	1	1	1	1	2	1	1	37	4.8	24	
4	2	IZS	4	7	7	7	14	27	8	8	8	9	7	6	6	11	16	3	5	2	5	9	7	6	27	8.0	24	
5	IZS	5	8	8	3	11	19	42	29	25	10	2	1	14	9	2	1	1	4	4	5	4	5	IZS	42	9.6	24	
6	3	5	12	3	27	25	36	11	C	C	C	C	C	C	C	2	3	2	3	3	2	2	IZS	3	36	8.9	24	
7	2	8	2	8	12	12	27	24	32	7	2	2	1	1	5	4	13	33	3	4	6	IZS	3	8	33	9.5	24	
8	6	13	10	11	10	13	15	8	67	7	5	4	3	3	4	3	2	2	2	2	IZS	2	2	3	67	8.6	24	
9	4	2	2	2	3	6	7	6	8	6	3	8	3	2	2	2	2	1	1	IZS	4	3	7	7	8	4.0	24	
10	5	6	6	14	9	9	16	6	1	1	2	0	0	1	0	0	0	0	IZS	2	3	6	9	3	16	4.3	24	
11	2	2	2	2	3	4	11	6	6	6	15	6	6	6	6	5	5	IZS	16	20	29	29	30	12	30	10.0	24	
12	6	2	1	8	25	24	16	21	5	3	3	7	14	15	4	3	IZS	3	2	2	2	1	1	10	25	7.7	24	
13	7	2	1	2	5	3	4	5	3	4	3	3	8	9	4	IZS	1	1	1	0	1	1	2	1	9	3.1	24	
14	10	4	1	0	0	0	1	13	8	9	10	10	12	15	IZS	17	7	16	18	18	18	5	16	16	18	9.7	24	
15	16	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	0	0	0	0	0	0	0	1	16	1.3	24	
16	0	2	2	2	3	3	3	0	0	0	0	0	IZS	0	0	0	0	0	2	2	0	0	0	0	3	0.8	24	
17	0	0	0	2	1	1	5	3	3	12	1	IZS	3	2	5	4	4	2	2	2	2	3	3	2	12	2.7	24	
18	2	3	6	6	6	5	71	3	12	9	IZS	32	11	12	29	12	6	15	3	3	3	3	3	2	71	11.2	24	
19	2	2	2	2	3	3	29	90	79	IZS	63	52	63	45	65	62	14	1	3	1	1	3	2	7	90	25.8	24	
20	8	5	6	5	5	81	96	82	IZS	111	72	43	33	40	6	9	13	1	1	1	1	1	1	1	111	27.0	24	
21	1	3	3	2	3	3	3	IZS	6	32	63	3	35	42	38	38	2	2	2	12	11	4	45	6	63	15.6	24	
22	5	7	11	19	47	11	IZS	31	15	32	11	23	13	5	5	13	3	3	2	2	2	2	3	3	47	11.7	24	
23	5	10	9	7	3	IZS	151	40	5	7	5	13	8	16	3	5	0	10	11	1	1	1	1	3	151	13.7	24	
24	3	47	3	7	IZS	10	70	18	3	2	2	2	2	2	3	3	2	1	2	2	1	1	1	1	70	8.2	24	
25	1	1	1	IZS	0	0	3	1	1	1	1	1	1	1	1	M	M	0	1	1	1	1	1	1	3	1.0	22	
26	1	2	IZS	6	5	2	5	4	7	7	4	8	18	9	13	13	6	2	2	2	10	3	3	2	18	5.8	24	
27	3	IZS	7	7	8	65	26	18	5	6	7	9	9	11	6	6	3	5	5	3	4	5	3	2	65	9.7	24	
28	IZS	2	5	5	2	3	5	4	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	IZS	5	2.0	24	
29	3	3	3	1	2	1	1	1	1	1	1	2	2	2	1	3	3	10	6	1	2	2	IZS	2	10	2.3	24	
30	2	2	2	2	2	3	2	3	25	6	2	2	2	2	20	7	7	3	8	9	2	IZS	11	28	28	6.6	24	
HOURLY MAX	16	47	12	19	47	81	151	90	79	111	72	52	63	45	65	62	16	33	18	20	29	29	45	28				
HOURLY AVG	3.8	5.8	4.5	5.1	7.1	10.9	22.2	16.3	12.3	12.7	11.2	9.1	10.4	10.5	9.0	8.7	4.9	4.4	3.9	3.9	4.2	3.5	5.9	5.0				

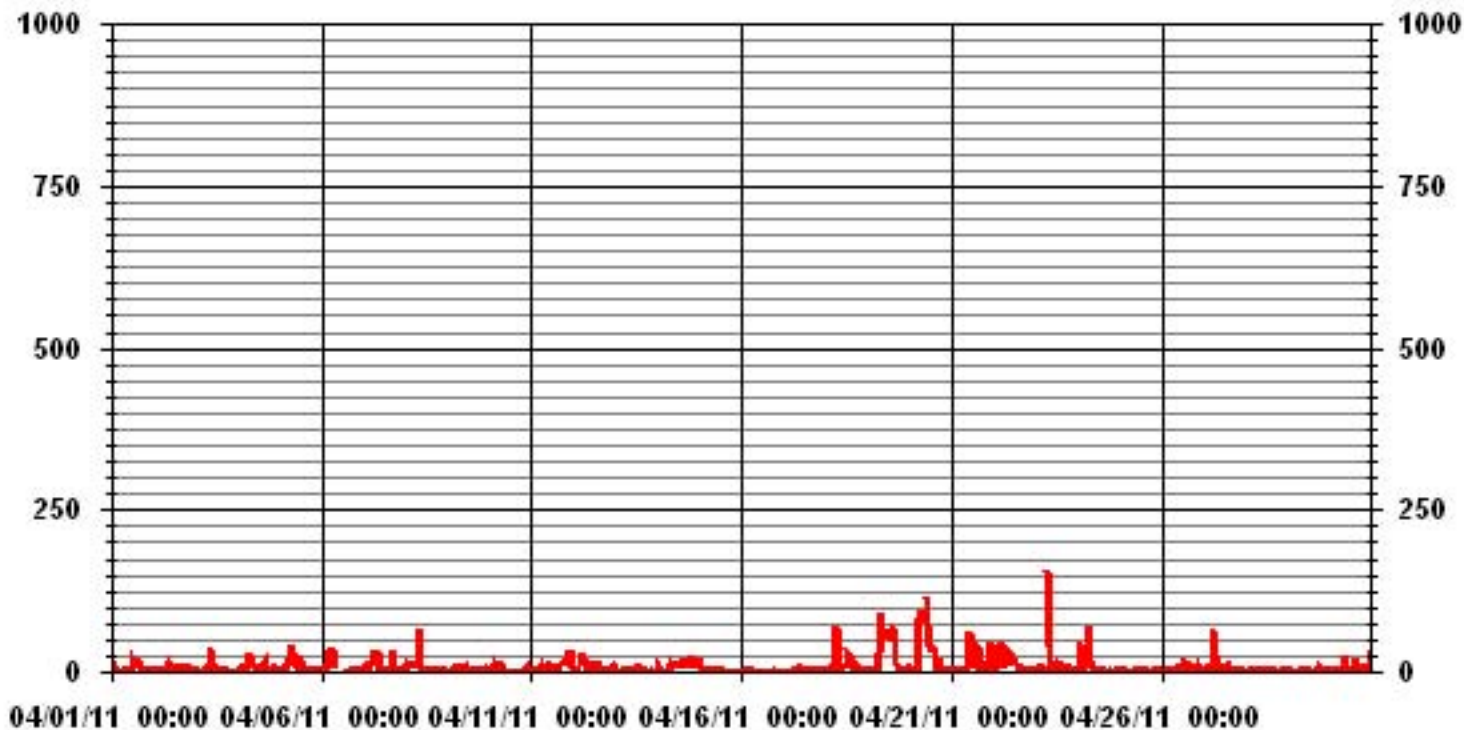
**STATUS FLAG CODES**

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:	638
MAXIMUM INSTANTANEOUS VALUE:	151 PPB @ HOUR(S) 6 ON DAY(S) 23
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	14.48
OPERATIONAL TIME:	718 HRS

### 01 Hour Averages



— LICA30 NOxMAX PPB

LICA30  
 NOX\_ / WDR Joint Frequency Distribution (Percent)

April 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	4.99	6.31	9.10	7.34	4.55	4.11	4.84	2.34	2.64	16.59	10.57	5.13	5.87	8.51	4.11	2.93	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	4.99	6.31	9.10	7.34	4.55	4.11	4.84	2.34	2.64	16.59	10.57	5.13	5.87	8.51	4.11	2.93	

Calm : .00 %

Total # Operational Hours : 681

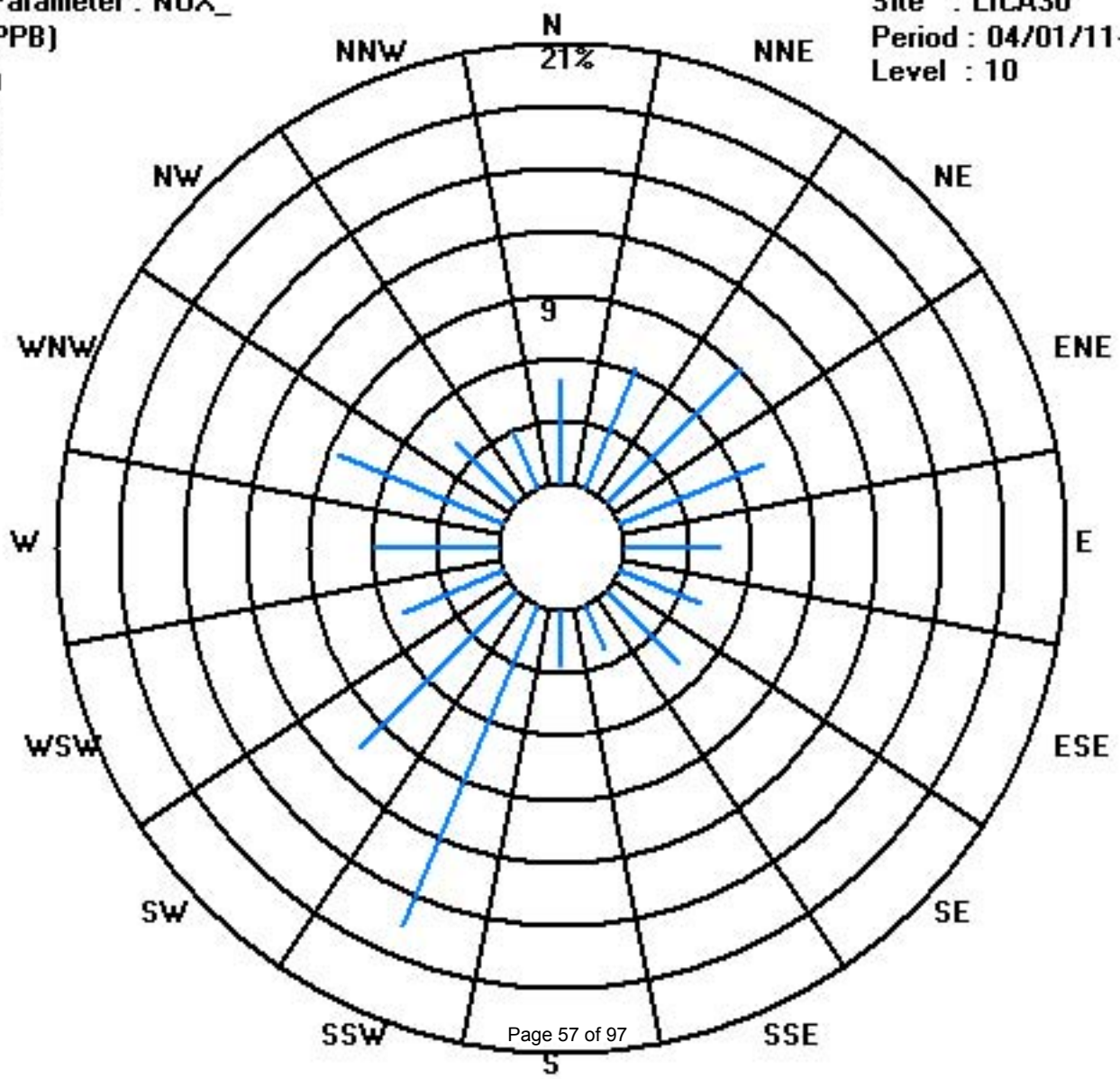
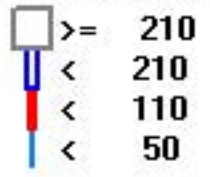
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	34	43	62	50	31	28	33	16	18	113	72	35	40	58	28	20	681
< 110																	
< 210																	
>= 210																	
Totals	34	43	62	50	31	28	33	16	18	113	72	35	40	58	28	20	

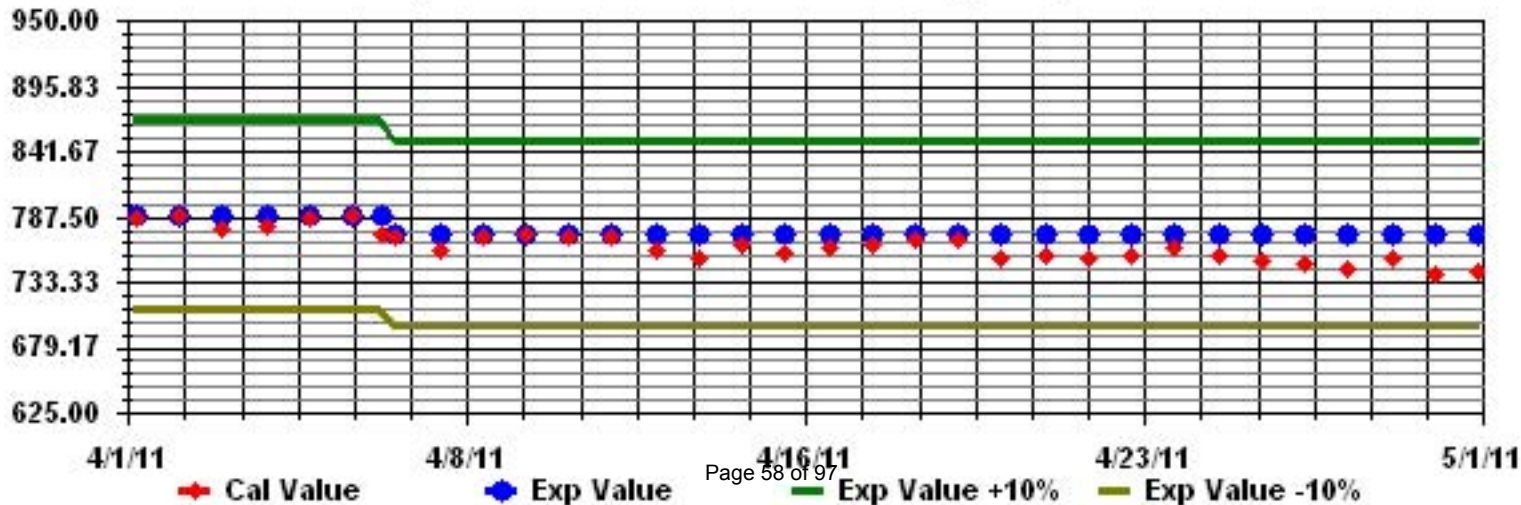
Calm : .00 %

Total # Operational Hours : 681

Class Limits (PPB)



Calibration Graph for Site: LICA30 Parameter: NOX\_ Sequence: NO2 Phase: SPAN



# Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 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		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	1.5	1.8	1.2	0.6	-0.1	-0.4	0.4	3.3	5	7.1	9.1	10.6	10.8	9.1	8.9	6.9	8.9	8.4	6	3.3	0.6	-1.8	-2.8	-3.4	10.8	4.0	24
2	-4.2	-4.9	-5.4	-6.2	-7.1	-7.8	-6.7	-1.9	2	5.9	8.5	10.5	7.9	3.4	6	3.8	5.3	4.5	1.4	0.3	0.1	0	0	-0.9	10.5	0.6	24
3	-2.2	-3	-2.4	-2	-1.9	-2.3	-2.3	-0.7	0.7	1.6	4.8	4.4	6.1	6.4	6.1	5.6	5.1	4.3	2	0.5	-0.6	-1.1	-1.5	-2.2	6.4	1.1	24
4	-2.6	-2.7	-2.7	-2.9	-3.7	-3.9	-3.8	-2.1	0	0.9	3.7	7.4	8.2	7.5	8.4	9.2	8.1	6	4.2	2.3	1.6	1.7	2	1.5	9.2	2.0	24
5	1	0.3	-0.7	-1.5	-1.4	-2.2	-1.7	2.2	5.5	8.3	10	10.8	10.8	11.3	11.1	10.5	10.4	8.3	6.2	4.3	4.2	3.7	1.8	0.9	11.3	4.8	24
6	0	-1.2	-2.2	-2.2	-3.8	-4.3	-2.9	1.6	5.5	8.8	9.8	9.8	7.9	7.6	6.9	7.2	7.4	6.1	4.1	2.5	1	-0.9	-1.9	-2.5	9.8	2.7	24
7	-3.1	-3.5	-4.4	-4.8	-4.3	-3.5	-2.5	1.1	3.6	4.8	5.7	5.1	6.4	7	6.8	6.9	6.5	6.6	3.7	1	-0.7	-2.2	-3	-3.8	7.0	1.2	24
8	-2.5	-2.6	-3.1	-3.4	-3.9	-4.1	-3.2	-0.6	2.3	4	5.7	6.5	6.7	6.8	6.6	5.8	5.1	4.2	3.2	2.3	1.8	1.2	0.7	0.5	6.8	1.7	24
9	0.2	0	0.1	-0.1	-0.1	-0.3	0.5	1.4	3.9	6.5	8	8.8	9.4	10.7	10.9	10.5	10.3	9.6	7.9	5.8	4.2	3	2	2	10.9	4.8	24
10	2.5	2.1	0.7	0.1	-0.4	-0.5	1.7	6.3	8.7	9.8	10.6	10.9	11.7	11.7	12.5	12.2	11.8	11	9.3	7	5.7	4.3	3.2	1.4	12.5	6.4	24
11	-0.3	-1.8	-2.5	-1.8	-2	0	0.8	5	6.4	8	9.7	12.3	14.7	15.2	15	14.5	13.9	11.2	9.6	8.5	6.8	5.4	4.6	3.8	15.2	6.5	24
12	2.9	2.1	1.4	1.2	0.1	-0.4	-1.2	-2	-2.8	-2.5	-0.8	0.9	2	2.7	3.1	3.6	3.8	3.3	1.7	-0.7	-2.5	-3.4	-4.3	-4.6	3.8	0.2	24
13	-4.7	-5	-5.4	-5.8	-6.6	-7.3	-5.2	-1.6	1	3.3	4.8	5.4	6.4	7.1	7.6	7.4	6.9	6	4.4	2.3	0.2	0.1	0.2	-1	7.6	0.9	24
14	-1.7	-2.6	-2.8	-3.4	-3.8	-4.1	-3.4	-1.3	-0.2	0.6	1.5	2.9	3.7	3.7	4.1	4.3	3.8	3.2	2.2	1.5	0.9	0.1	0.1	-0.4	4.3	0.4	24
15	-1.3	-1.9	-2.3	-2.5	-2.5	-2.5	-2.3	-1.8	-1.2	-0.3	0.4	0.8	1.1	1.1	0.7	1.2	0.8	0.1	-0.5	-1.2	-1.6	-1.8	-2.2	-3.6	1.2	-1.0	24
16	-5.2	-6.1	-6.9	-7.9	-8.6	-8.6	-6.4	-3.2	-0.5	1.6	1.3	0.6	0.7	2.3	2	1.7	1.5	0.7	0.6	-2.4	-4.4	-5.5	-6.7	-8.2	2.3	-2.8	24
17	-8.8	-8.2	-9.1	-9.5	-10.2	-10.3	-6	-1.1	1.8	1.8	4.1	4.5	3.1	4.3	-0.7	2.2	3	3.1	0.2	-1.6	-2.4	-2.9	-3.4	-4	4.5	-2.1	24
18	-5.2	-6.3	-7.2	-8.1	-9.4	-10.1	-6.7	-2.1	1.6	4.4	6.3	7.4	6.7	6.4	7	5	4.1	3.5	1.9	0.8	-1.7	-1.8	-2.8	-4	7.4	-0.4	24
19	-4.9	-5.5	-6.6	-6.9	-7.1	-6.6	-3.7	0.2	3.6	5.9	6.5	4.9	6.9	6.7	7.4	6.9	7.1	4.1	3.8	2.3	0.2	-0.4	-0.7	-0.8	7.4	0.9	24
20	-2.3	-2.7	-2.5	-3.4	-3.7	-3.2	-1.5	1.4	4.1	5.9	7.3	8	8.2	8.3	8.7	8.7	9.1	9	6.8	4.9	2.7	0.7	-0.4	-1.4	9.1	3.0	24
21	-2.4	-3.1	-3.2	-3.5	-3.6	-4.2	-1	4.5	7.5	9.1	8.3	7.9	7.1	9.3	8.5	8.2	9.3	7.2	5.4	5.3	2.4	0.6	-0.1	-1.2	9.3	3.3	24
22	-0.5	-0.3	-0.9	-1.5	-1.8	-2	1.2	4.2	6.3	8	8.5	7.6	8.4	9.3	9.5	9.2	8.9	8.1	6.6	3.6	0.8	-1	-2.5	-3.1	9.5	3.6	24
23	-3.2	-3.5	-3.2	-3	-3.4	-3.8	-1	3.6	5.9	7.5	9.2	8.8	9.3	9.5	9.5	8.8	8.5	8.3	7.1	5.1	3.4	2.5	1.5	0.4	9.5	3.7	24
24	-0.1	-0.3	-0.7	-2.1	-2.9	-2.8	-0.6	1.9	3.8	5.3	5.4	6.1	7.1	6.4	6.6	7.4	8.5	8.3	7.1	5	2.4	0.8	-0.4	-1.2	8.5	3.0	24
25	-0.7	-0.9	-0.4	-0.5	-1.7	-1.8	0.9	4.1	6.6	8.5	10.7	12.7	14.5	15.5	16.2	16.6	16.5	16.2	14.6	11.8	9.1	9.4	8.8	7.8	16.6	8.1	24
26	5.2	3.7	3.9	4.2	4.3	4	4.3	4.5	6.4	7.3	7.8	8.8	9.3	10.3	10.5	8.5	9.1	9	8	6.1	4.9	3.8	3.4	2.7	10.5	6.3	24
27	1.3	0.6	0.2	-0.2	0.6	0.7	3.1	7.3	10.7	13	14.4	13.7	14	15.4	14.9	15.8	12.8	9.6	9.5	7.6	6.3	7	7.5	6.3	15.8	8.0	24
28	5.6	5.2	5	4.4	4.3	4.4	4.8	5.5	5.1	4.9	4.6	4.6	4.7	4.8	5.6	5.5	5.7	5.8	5.7	5.3	5.1	4.7	4.8	4.7	5.8	5.0	24
29	4.3	3.8	3.2	2.7	1.9	1.1	2.1	3.5	5.4	7.1	7.8	8.8	9.7	9.9	10.4	11.4	10.9	10.9	9.6	6.3	2.7	0.3	-1.3	-2.6	11.4	5.4	24
30	-3.1	-3.2	-3.5	-2.1	-1.4	-0.4	1.2	3.9	6.9	8.6	10.6	12.1	12	11.1	9.3	7.7	7.9	8.7	9.2	6.7	3.9	3.1	1.3	-0.5	12.1	4.6	24
HOURLY MAX	5.6	5.2	5.0	4.4	4.3	4.4	4.8	7.3	10.7	13.0	14.4	13.7	14.7	15.5	16.2	16.6	16.5	16.2	14.6	11.8	9.1	9.4	8.8	7.8			
HOURLY AVG	-1.2	-1.7	-2.1	-2.4	-2.8	-2.9	-1.4	1.6	3.9	5.5	6.8	7.5	7.8	8.0	8.0	7.8	7.7	6.8	5.4	3.6	1.9	1.0	0.3	-0.6			

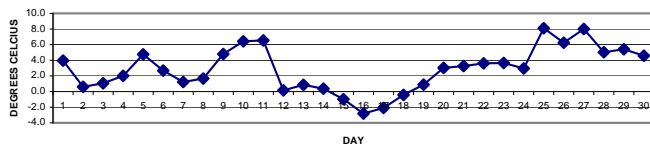
STATUS FLAG CODES

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

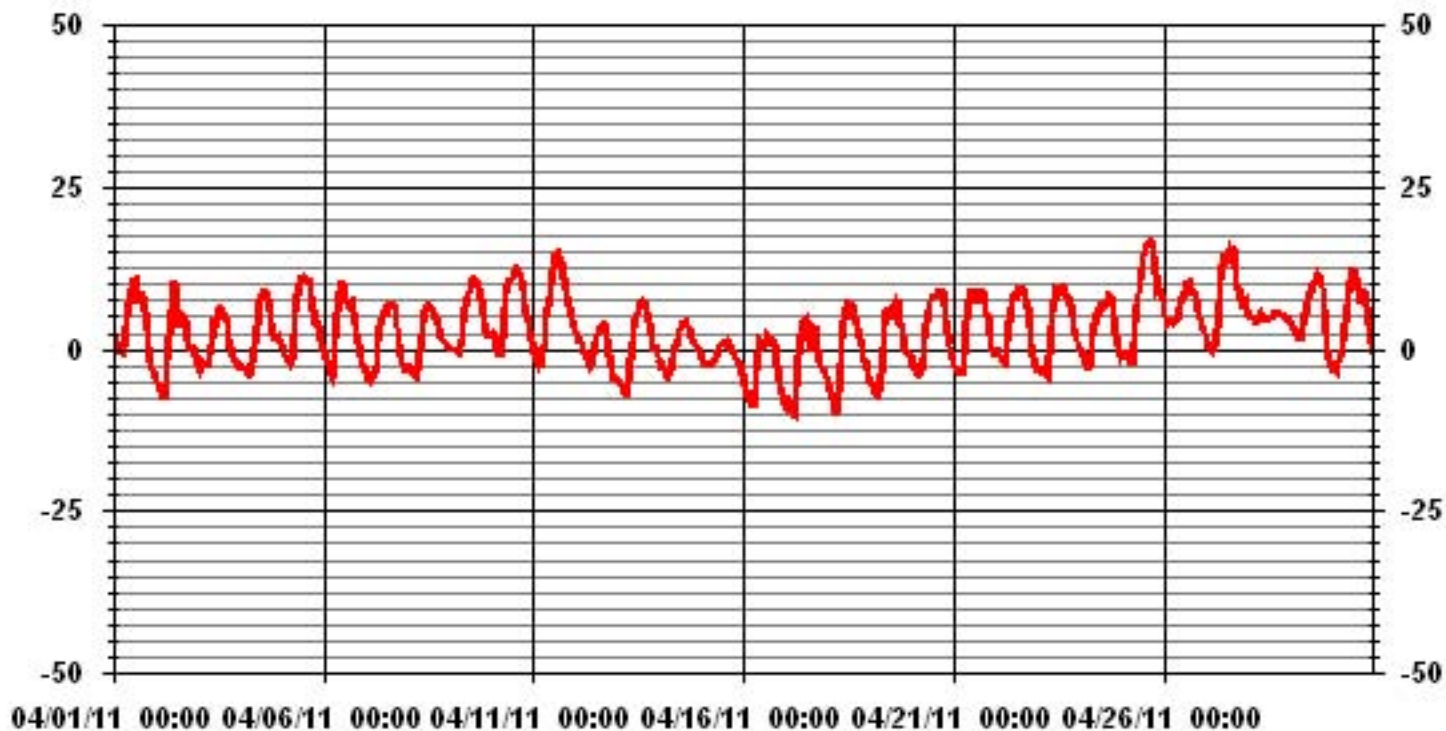
MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-10.3 °C	@ HOUR(S)	5	ON DAY(S)	17
MAXIMUM 1-HR AVERAGE:	16.6 °C	@ HOUR(S)	15	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	8.1 °C			ON DAY(S)	25
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
STANDARD DEVIATION:	5.25		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	2.85	°C

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA30 TPX DGC



# Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 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	0.1	0.6	0	0	0	0	0.3	0.1	0	0.1	0	0.1	0.6	1.3	24	
3	3	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24	
4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0	0	0	0	0	0.1	0.2	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	0.0	0.0	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	0.0	0.0	24	
12	12	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	0.1	0.1	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	0.0	0.0	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	0.0	0.0	24	
15	15	0	0	0.4	0.6	0.7	0.9	1	0.7	0.6	0	0.7	1	1.1	0.8	0.5	0.7	0.5	0.1	0.1	0.3	0	0	0	0	1.1	10.7	24	
16	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	17	0	0	0	0	0	0	0	0	0	0.1	0	0	0.2	0	0.9	0.1	0	0	0	0	0	0	0	0	0	0.9	1.3	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	0.1	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	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	0.1	0.3	0	0.2	0.1	0	0	0	0	0	0	0	0	1.3	0	0	0	0	0	0	0	0	1.3	2.0	24	
27	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3	0	0	0	0	0	0.6	3.2	4.2	24	
28	28	0.8	1.4	0.6	0	0	0.1	0.2	0	0.1	0.1	0.1	0.3	1.7	1	0	0	0	0	0	0	0	0	0	0	1.7	6.4	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	0.4	0	0	0	0	0	0	0	0	0.4	0.4	24	
HOURLY MAX		0.8	1.4	0.6	0.6	0.7	0.9	1.0	0.7	0.6	0.1	0.7	1.0	1.7	1.0	0.9	1.3	0.5	0.3	0.3	0.3	0.0	0.1	0.6	3.2				

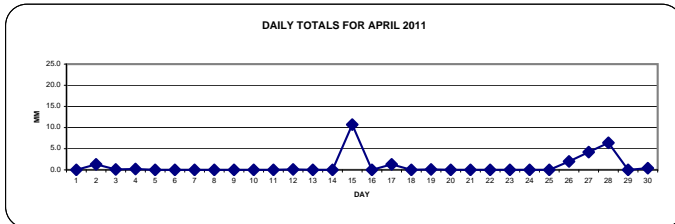
STATUS FLAG CODES

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

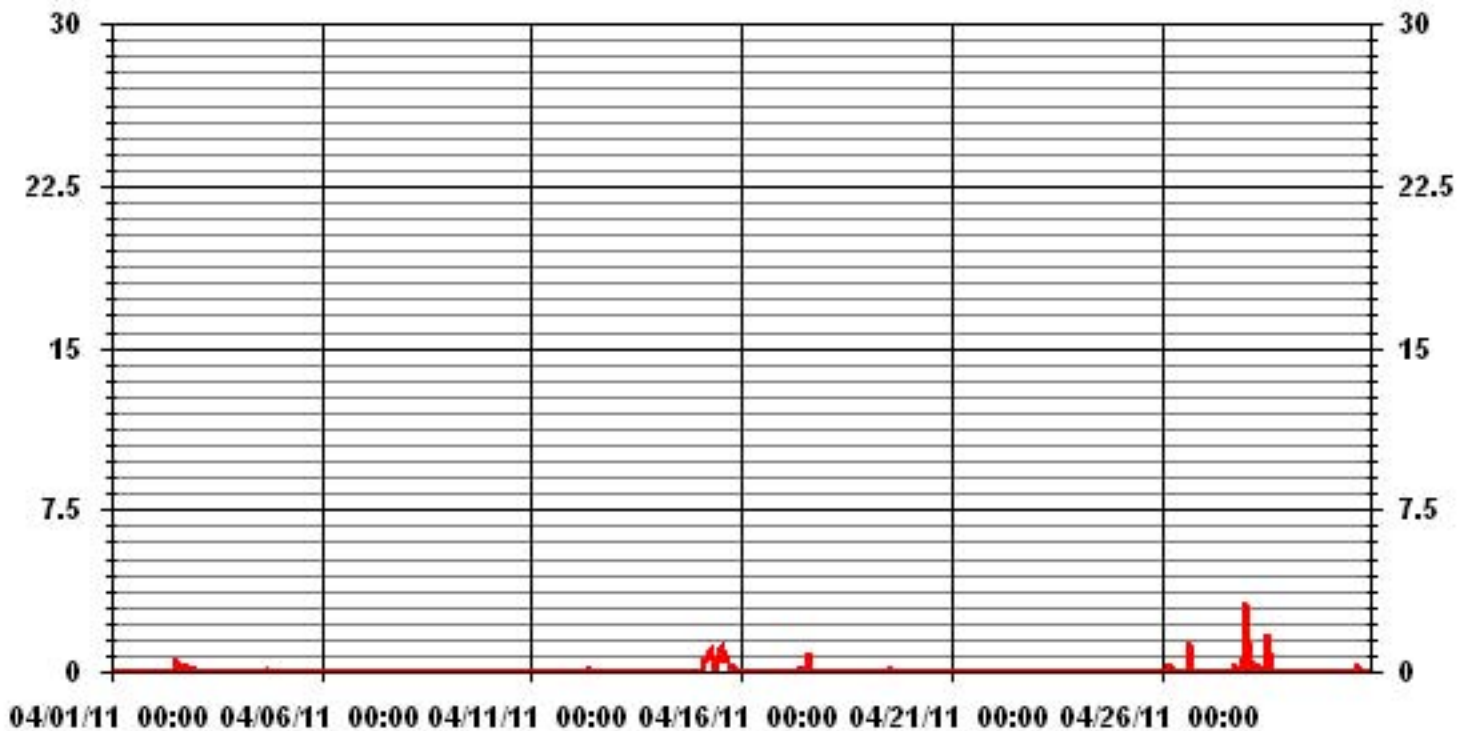
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	3.2	MM	HOUR(S)	23	ON DAY(S)	27
MAXIMUM DAILY TOTAL	10.7	MM			ON DAY(S)	15
MONTHLY TOTAL	26.8	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
STANDARD DEVIATION:	0.20		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.04	MM	

DAILY TOTALS FOR APRIL 2011



# 01 Hour Averages



# Relative Humidity

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

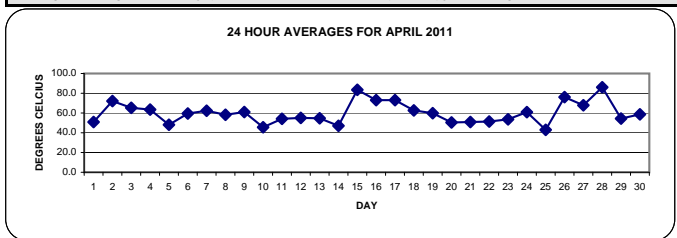
APRIL 2011

## 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	1	59	60	63	66	69	72	68	58	53	45	37	32	28	27	28	43	36	32	37	45	53	67	70	73	73	50.9	24	
2	1	77	79	81	82	84	84	82	67	61	51	43	36	46	69	59	70	67	65	83	88	89	90	89	89	90	90	72.1	24
3	1	89	89	89	88	87	88	85	77	67	62	44	41	36	36	38	39	44	54	62	67	67	69	72	76	89	89	65.3	24
4	1	79	79	78	78	80	81	79	73	66	62	53	42	41	42	42	36	38	52	65	72	76	74	68	67	81	81	63.5	24
5	1	65	67	69	70	68	71	69	56	47	38	32	29	28	27	27	29	36	41	47	49	48	55	59	71	81	48.1	24	
6	1	62	66	71	72	80	83	78	64	54	39	34	30	44	45	48	46	46	48	55	62	67	74	78	81	83	59.5	24	
7	1	82	82	84	85	81	80	79	68	62	58	52	54	49	44	41	37	34	35	52	58	63	69	71	75	85	62.3	24	
8	1	69	68	70	71	74	77	76	68	57	51	44	42	41	39	37	38	41	46	53	59	62	67	72	75	77	58.2	24	
9	1	77	79	80	81	81	82	80	76	68	59	52	46	44	39	39	40	42	42	46	54	59	63	67	68	82	61.0	24	
10	1	67	68	72	75	75	74	63	47	34	28	26	23	22	23	23	22	23	25	30	41	52	56	59	66	75	45.6	24	
11	1	72	77	79	78	79	73	72	60	56	53	49	40	34	30	29	33	32	34	40	47	54	62	59	57	79	54.1	24	
12	1	54	56	59	63	69	67	70	69	72	68	60	52	49	45	40	35	32	34	36	43	53	62	67	66	72	55.0	24	
13	1	69	72	71	73	77	79	74	63	57	51	46	43	41	38	35	33	34	37	42	48	54	56	58	61	79	54.7	24	
14	1	63	67	66	66	68	68	59	50	46	40	34	30	28	27	24	24	26	27	33	40	50	65	62	66	68	47.0	24	
15	1	75	78	83	85	86	87	87	85	85	84	82	81	81	81	84	81	81	84	86	84	85	86	86	87	87	83.5	24	
16	1	88	88	87	86	86	85	81	75	68	61	62	64	63	59	59	60	58	60	59	72	79	83	85	85	88	88	73.0	24
17	1	84	84	84	84	83	83	80	66	55	62	51	45	62	52	82	73	66	63	72	81	85	85	85	86	86	86	73.0	24
18	1	86	86	87	86	84	83	80	72	61	52	45	36	26	31	30	37	43	48	58	63	73	74	79	83	87	62.6	24	
19	1	85	85	85	85	85	85	80	70	56	46	41	44	48	35	35	36	31	47	46	51	60	66	67	67	85	59.8	24	
20	1	71	71	69	74	76	73	70	63	56	48	41	36	33	35	31	30	27	25	29	37	44	51	58	63	76	50.5	24	
21	1	68	71	73	74	76	78	67	48	36	29	30	31	38	30	31	35	30	39	44	45	54	62	65	67	78	50.9	24	
22	1	63	62	64	67	68	68	58	51	43	35	33	34	33	31	31	34	32	37	44	52	62	71	78	82	82	51.4	24	
23	1	82	82	76	72	72	73	65	50	46	41	35	32	30	30	33	38	41	37	37	53	61	64	67	69	82	53.6	24	
24	1	65	62	61	65	69	69	66	65	62	59	61	62	58	61	63	57	50	45	47	53	59	64	67	71	81	60.9	24	
25	1	69	69	65	62	65	66	58	49	45	43	39	36	31	26	23	20	19	19	22	28	34	42	48	53	69	43.0	24	
26	1	61	66	72	81	77	80	85	85	77	72	69	66	66	62	59	77	83	80	80	81	84	86	88	89	89	76.1	24	
27	1	90	91	91	91	91	91	91	76	61	50	46	46	45	40	40	37	46	64	65	71	75	71	73	86	91	67.8	24	
28	1	90	90	90	91	91	91	91	90	89	89	88	88	88	88	85	83	81	79	79	79	79	82	82	82	82	91	86.0	24
29	1	82	81	79	77	76	74	69	62	56	50	43	38	37	35	30	28	29	27	29	39	50	65	72	77	82	54.4	24	
30	1	77	77	79	72	69	64	53	42	35	34	33	30	29	35	53	66	64	61	56	63	72	76	82	86	86	58.7	24	
HOURLY MAX		90	91	91	91	91	91	91	90	89	89	88	88	88	88	85	83	83	84	86	88	89	90	89	89				
HOURLY AVG		74.0	75.1	75.9	76.7	77.5	77.6	73.8	64.8	57.7	52.0	46.8	43.6	43.3	42.1	42.6	43.8	43.5	46.1	50.9	57.4	63.5	68.3	71.0	73.7				

### STATUS FLAG CODES

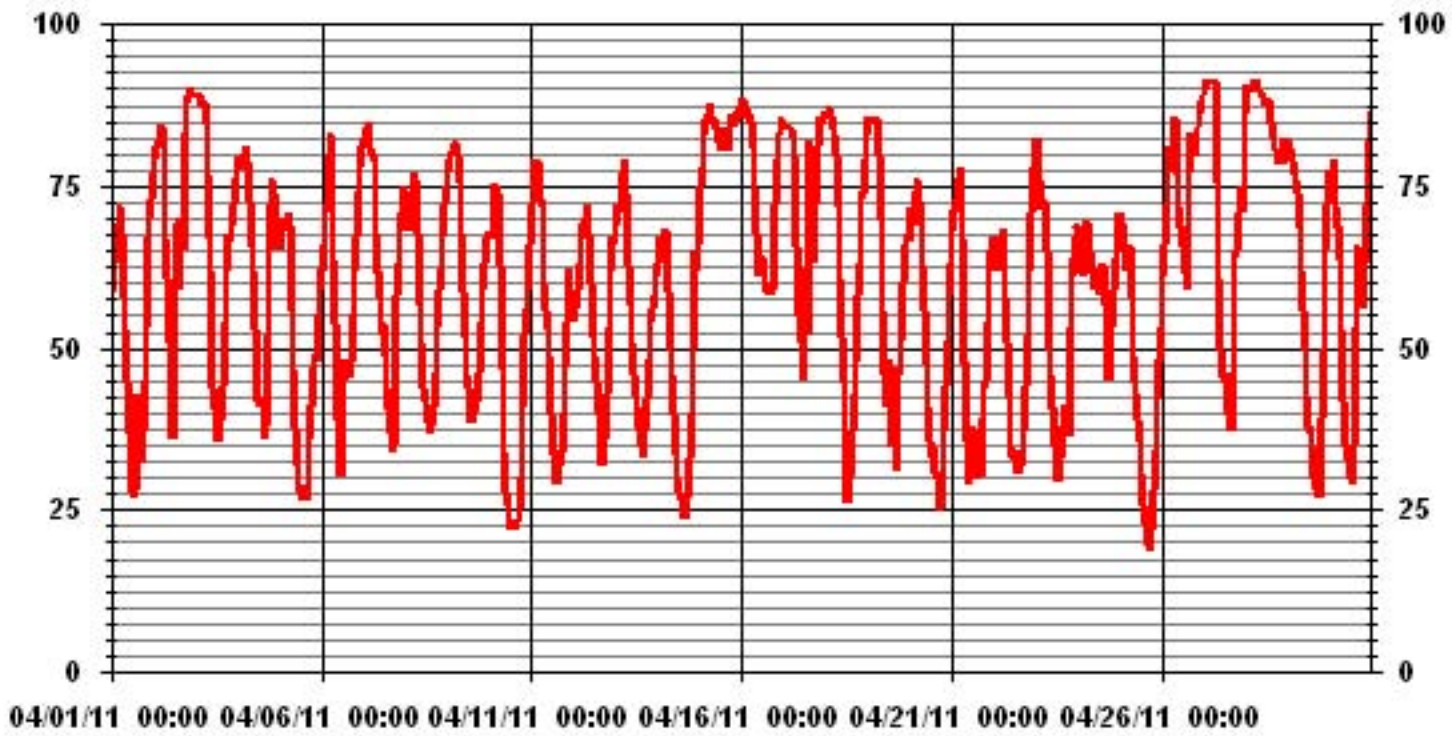
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	91	%	@ HOUR(S)	VAR	ON DAY(S)	27, 28
MAXIMUM 24-HR AVERAGE:	86.0	%			ON DAY(S)	28
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
STANDARD DEVIATION:	19.01		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	60.08	%	

### 01 Hour Averages



# Barometric Pressure

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

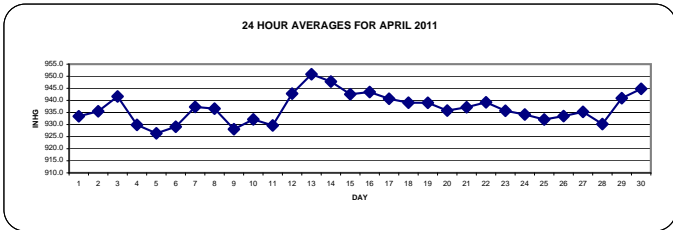
APRIL 2011

## 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	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	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		931	931	931	932	932	932	933	933	934	934	935	935	935	934	934	934	934	934	934	934	934	934	934	934	934	935	933.4	24
2		933	933	933	933	933	933	933	934	934	935	936	936	936	935	935	936	936	937	937	937	938	939	940	940	940	940	935.5	24
3		939	939	941	942	942	942	943	944	944	944	944	944	944	943	942	942	942	942	941	940	939	939	938	937	944	941.6	24	
4		936	935	934	933	932	932	931	931	931	930	930	930	929	929	928	928	928	928	928	927	927	926	926	926	926	936	929.9	24
5		926	925	925	925	925	925	925	926	926	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	926.4	24
6		927	927	927	927	927	927	928	928	929	929	930	930	930	930	930	930	930	930	930	930	930	930	931	931	931	931	929.1	24
7		931	932	932	932	933	933	934	935	936	937	938	938	939	939	940	940	940	940	941	941	941	941	941	941	941	941	937.3	24
8		941	941	941	941	941	940	939	940	940	940	939	938	937	937	936	935	934	933	932	931	931	931	930	930	941	936.6	24	
9		929	929	929	929	928	928	928	928	929	929	929	929	928	928	928	928	927	927	927	927	927	927	927	928	928	929	928.1	24
10		928	928	928	929	929	930	930	932	932	933	933	934	934	934	934	934	934	934	934	934	934	934	933	932	934	932.1	24	
11		932	931	931	930	930	930	929	930	930	929	930	929	929	928	928	927	928	928	928	929	930	931	932	932	932	932	929.6	24
12		933	934	934	935	937	937	938	939	941	942	943	944	945	946	946	947	947	947	948	948	948	949	949	950	950	950	942.8	24
13		950	950	950	951	951	951	951	952	952	952	952	952	952	951	951	950	950	950	950	950	950	950	950	950	952	950.8	24	
14		950	950	950	949	949	949	949	949	949	949	948	948	948	948	947	947	946	946	946	946	946	946	946	946	946	950	947.8	24
15		945	944	944	943	942	942	942	941	941	941	941	941	941	942	941	942	943	943	943	943	944	944	944	944	945	942.5	24	
16		943	944	944	944	944	943	944	944	945	945	944	944	944	944	943	943	943	943	943	943	942	942	942	942	945	943.5	24	
17		942	942	941	941	941	941	941	942	942	942	942	942	941	941	940	940	940	940	940	939	939	939	939	939	942	940.7	24	
18		939	939	939	938	938	938	938	939	940	940	940	940	940	939	939	939	939	939	939	939	939	939	939	939	940	939.0	24	
19		939	939	939	939	939	939	939	940	940	941	940	940	940	939	939	939	939	938	938	938	938	937	937	941	939.0	24		
20		937	937	937	936	936	936	937	937	937	937	937	936	936	936	935	935	935	935	935	934	935	935	934	934	937	935.8	24	
21		935	934	935	935	935	935	936	937	937	938	938	938	938	938	938	938	938	938	938	938	939	938	939	939	939	937.2	24	
22		938	939	939	938	939	939	939	940	940	941	941	940	940	940	940	940	940	939	939	939	938	938	937	941	939.2	24		
23		937	937	937	937	937	937	937	937	938	937	937	937	936	936	935	935	935	935	934	934	934	933	933	933	938	935.7	24	
24		932	933	933	932	932	932	933	934	934	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	935	934.2	24
25		935	935	935	934	934	933	933	933	933	933	933	932	932	931	931	931	930	930	930	930	930	930	930	931	935	932.1	24	
26		931	931	931	931	931	932	932	932	933	933	934	934	935	935	935	935	935	935	935	934	935	935	935	935	935	935	933.5	24
27		934	934	935	935	935	935	936	937	937	937	937	937	937	936	936	936	935	935	935	934	934	934	934	934	937	935.3	24	
28		933	932	931	931	930	930	930	930	930	929	929	929	929	929	929	929	930	930	930	930	931	931	931	932	933	930.2	24	
29		932	933	934	935	936	937	938	939	941	942	942	943	943	944	944	944	945	945	945	945	944	944	944	944	945	940.9	24	
30		944	944	944	944	944	944	945	945	946	946	946	946	945	945	945	945	945	945	945	944	944	944	944	945	946	944.8	24	
HOURLY MAX		950	950	950	951	951	951	951	952	952	952	952	952	952	952	951	951	950	950	950	950	950	950	950	950	950			
HOURLY AVG		936	936	936	936	936	936	936	937	937	938	938	938	938	937	937	937	937	937	937	937	937	937	937	937	937			

### STATUS FLAG CODES

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

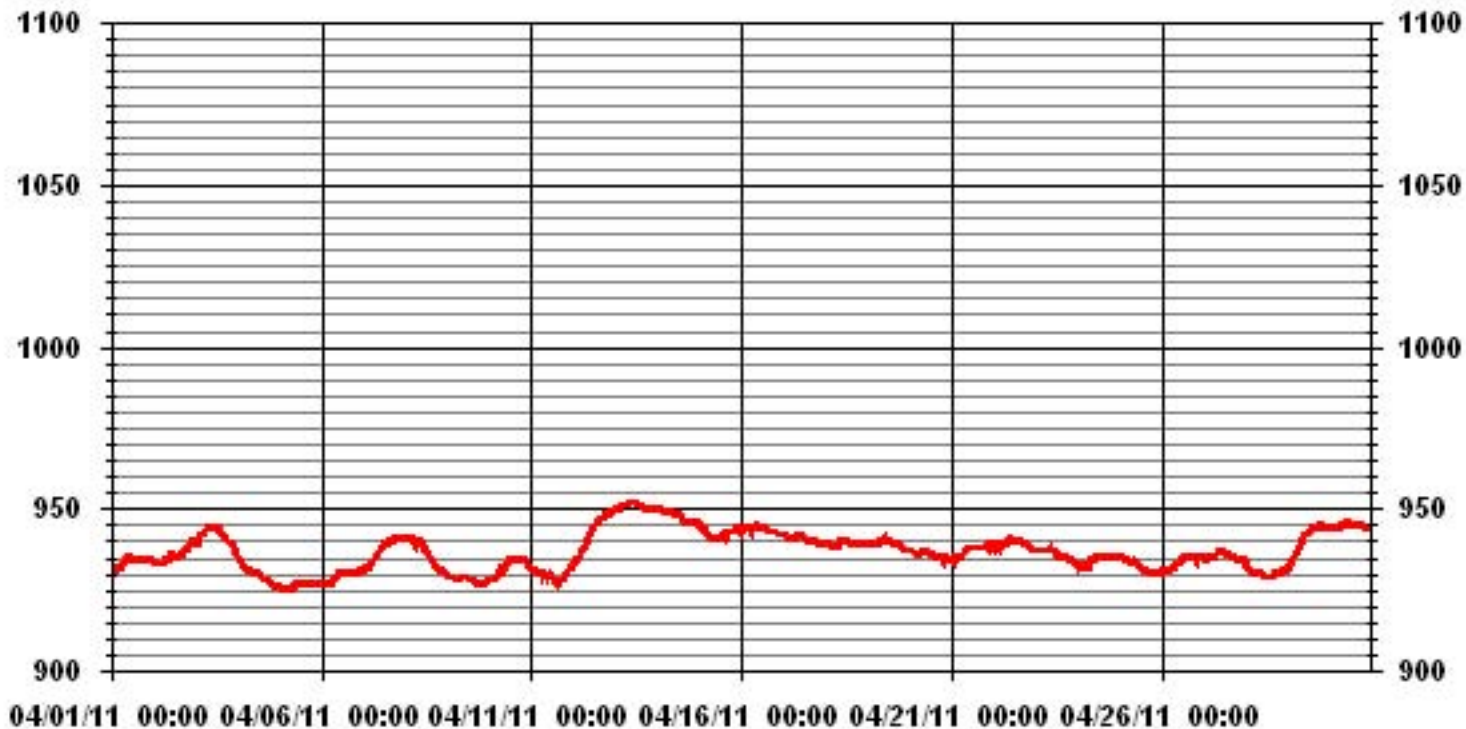


### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	952	MB	@ HOUR(S)	VAR	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	950.8	MB			ON DAY(S)	13
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	6.22		MONTHLY AVERAGE:	937	MB	



### 01 Hour Averages



— LICA30 BP MB

# Vector Wind Speed

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

APRIL 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	6.1	7.8	9.1	8.5	6.9	6.2	6.9	9.3	11.1	9.6	9.3	8.6	9.7	10.2	8.8	9	5.6	8.6	5.4	1.6	2.1	1.1	1.6	2	11.1	6.5	24
2	1.4	1.2	2.8	0.2	0.6	0.4	2.2	4.6	6.1	4.2	2.7	3.5	5.7	3	3.8	4.6	5.9	4.5	2.1	3.4	4.3	4.4	4	3	6.1	1.2	24
3	1.1	1.4	0.5	2.6	1.3	1.9	3.2	2	2.5	3.3	5.4	6.6	7	6.3	7.5	7.2	6.1	10.1	9	7.8	6	7.6	10.3	8	10.3	3.4	24
4	6.8	8.3	9.6	8.5	6.8	5.3	7.6	7.5	6.6	6.4	6.4	5.6	9.8	9	10.4	6.4	8.4	6	1.3	5	6.3	4.9	2.2	1.9	10.4	6	24
5	3.2	3.5	4.8	3.1	3.3	3.3	2.6	2.7	3.5	6.8	7.7	7.5	7.1	8.6	9	8.8	6.6	9.2	6.7	6.5	6.6	3.9	4.7	5.4	9.2	4.7	24
6	4.6	2.6	1.7	2.6	2.4	2.4	2.2	2.7	1.6	2.9	3.6	8.2	10.4	9.7	8.8	7.6	7.6	6.5	5.7	1.7	1.6	1.1	2.6	3	10.4	4	24
7	2	2.5	0.8	1.6	1.3	0.9	1.7	4.2	5.1	5.9	6.6	9.5	7.7	7.8	5.4	5.1	5.4	7.2	5.2	1.4	1.6	1.8	3	3.4	9.5	2.7	24
8	4.3	3.8	5.1	4.1	4.1	4.8	10.1	8.3	9.3	11	13.1	16.4	16.9	17.9	<b>19.6</b>	18.7	17.1	14.3	14.2	14.1	12	11.1	9.2	8.9	<b>19.6</b>	11.1	24
9	6.4	6.2	7.3	6.3	7	6.1	4.5	6.6	4.7	6.6	7.9	8.5	9	8.4	9.5	11.5	10.6	10.5	7.8	7	6.3	5.4	4.4	4.5	11.5	7.1	24
10	5.8	6.2	5.3	5.9	5.4	4.3	3	8.7	10.9	12.7	12.2	14.9	12.6	13.3	7.9	8.9	10.1	6.2	4.2	5.1	5.5	4.6	4.3	0.9	14.9	6.2	24
11	1	1	2.1	3	1.8	3.1	2.2	5	6.6	6.5	7.9	7.7	7.4	9.1	9.9	8.5	6.2	13	9.8	11	12.9	14.3	12.9	13.5	14.3	3.7	24
12	14.1	12.1	10.9	9.6	7.4	6.4	9	9.5	9	8.8	9.3	8.6	8.9	8.1	8.1	7.7	6.9	6.7	7	4.3	2.9	3.1	2.6	3.5	14.1	5.9	24
13	4	3.9	4.7	3	3	2.6	3.1	4.8	3.3	4.2	6.5	6.2	9.4	9.2	8.7	10.1	9.8	9.4	8.7	5.4	4.2	6	8.3	5.6	10.1	5.6	24
14	4.7	4.9	6.2	6	6.2	7.3	10	11.7	12.3	13.6	15	15.6	14.6	16.5	14.9	13.3	13	13.8	15	14.6	13.6	11.3	8.8	12.4	16.5	<b>11.2</b>	24
15	11	11.6	10.3	10.5	8.7	7.4	8.4	8.7	9.2	8.8	9.6	9.4	9.7	10.5	8.6	8.3	9.6	10.9	11.1	9.9	9.6	8.8	7.1	3	11.6	8.8	24
16	1.1	1.2	1.4	1.4	0.6	1	4.6	6.1	7.5	8	7.3	9.3	10.7	7.5	6.1	6.5	6.7	5.6	3.5	1.5	0.4	1	0.7	0.3	10.7	3.9	24
17	0.8	0.7	0.7	1.8	0.5	0.1	0	3.9	5.3	3.9	5.8	5.4	4.4	4.5	4.9	7.7	5	5.5	3.8	3.9	3.9	3.4	2.8	3	7.7	2.9	24
18	2.8	1.3	0.9	1.2	0.1	0.1	1.4	3.5	2.6	2.9	4.3	6	3.5	4.6	6.1	5	4.2	4.1	0.5	2	0.1	2.6	1.6	0.3	6.1	1.2	24
19	1.1	1.1	0.2	0.5	0.6	0.9	1.1	1	0.8	3.3	9.7	4.9	8.9	4.2	6.2	8.9	4.4	6	2.6	1.1	2	2.8	1.3	2.6	9.7	1.9	24
20	2.7	3	2.7	2.2	3.7	4.7	3.6	5	5.2	8.4	7.3	8.3	7.6	7.5	6.8	7.9	7.6	6.6	5.6	5.2	3.7	2.5	2.4	2.5	8.4	4.7	24
21	2.7	1.8	2.3	2.3	0.7	1.6	0.7	0.4	1.9	2	4.7	1.8	8.5	4.2	3.7	5.6	5	9.3	4	2.2	2.5	2.7	3	2.9	9.3	1.1	24
22	3.7	5.5	4	3.8	3.7	2.6	6.8	6.8	7.1	8.2	8.2	7.4	7.7	8.3	8.2	8.1	8.9	4.7	2.4	0.8	2.2	2.1	2	0.4	8.9	3.7	24
23	1.3	1.9	2	2.8	2	1.8	2.1	3.5	5.4	3.7	3	6.1	5.6	7.6	8	7.1	7.3	3.5	4.8	4.9	5.5	6	4.9	2.9	8	2.1	24
24	2.4	1.9	1.6	0.1	0.4	0.9	3.1	6.3	6.1	6.4	6.8	6.5	4.9	6	7.3	7.7	6	7.1	3.5	3.2	3.3	3.6	3.5	3.8	7.7	3.6	24
25	4.4	3.5	4.3	5.5	3.5	3.8	3.8	8.9	10.8	11.1	10.4	9.7	9.4	10.5	10.5	10.1	9.7	9.5	8.8	5.4	4.7	9	8	5.7	11.1	6.5	24
26	3.6	3.4	1.7	4.3	4.6	2	1.7	3.9	4	4.3	2.1	2.1	3.2	4	3.8	3.3	3.8	4.1	4.1	1.3	2.2	1.2	1.5	1	4.6	1.7	24
27	1.4	0.5	0.9	1.4	1.5	1.4	1.5	1.6	0.7	1.2	1.8	2.7	1.9	2.2	4.9	1.1	1.2	6.7	2.7	0.3	0.9	4.6	5.3	6.7	6.7	1	24
28	3.7	2	2	1.5	1	0.4	0.5	4.1	6.8	7.9	9.5	9.7	13.3	11.5	13.3	13	15.5	14.1	13.2	12.6	11.4	10.5	11.4	12.9	15.5	7.8	24
29	13.8	13.6	13.6	15.7	12.5	11.3	13.4	15.6	13.8	11.2	15.5	13.6	12.5	12.3	12.3	9	7.8	7.4	5.2	2.3	1.6	2.6	0.5	1.3	15.7	9.4	24
30	1.5	3	1.8	3.6	3.4	3.4	3.5	5	2.5	4.3	2.7	2.9	3.4	9.7	5.9	0.7	3.6	4.5	3.4	2.5	2.4	2.6	1.3	1	9.7	0.9	24
HOURLY MAX	14.1	13.6	13.6	15.7	12.5	11.3	13.4	15.6	13.8	13.6	15.5	16.4	16.9	17.9	19.6	18.7	17.1	14.3	15.0	14.6	13.6	14.3	12.9	13.5			
HOURLY AVG	4.1	4.0	4.0	4.1	3.5	3.3	4.2	5.7	6.1	6.6	7.4	7.8	8.4	8.4	8.3	7.9	7.5	7.9	6.0	4.9	4.7	4.9	4.5	4.2			

### STATUS FLAG CODES

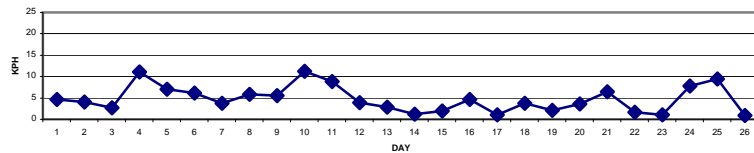
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: March 10, 2011

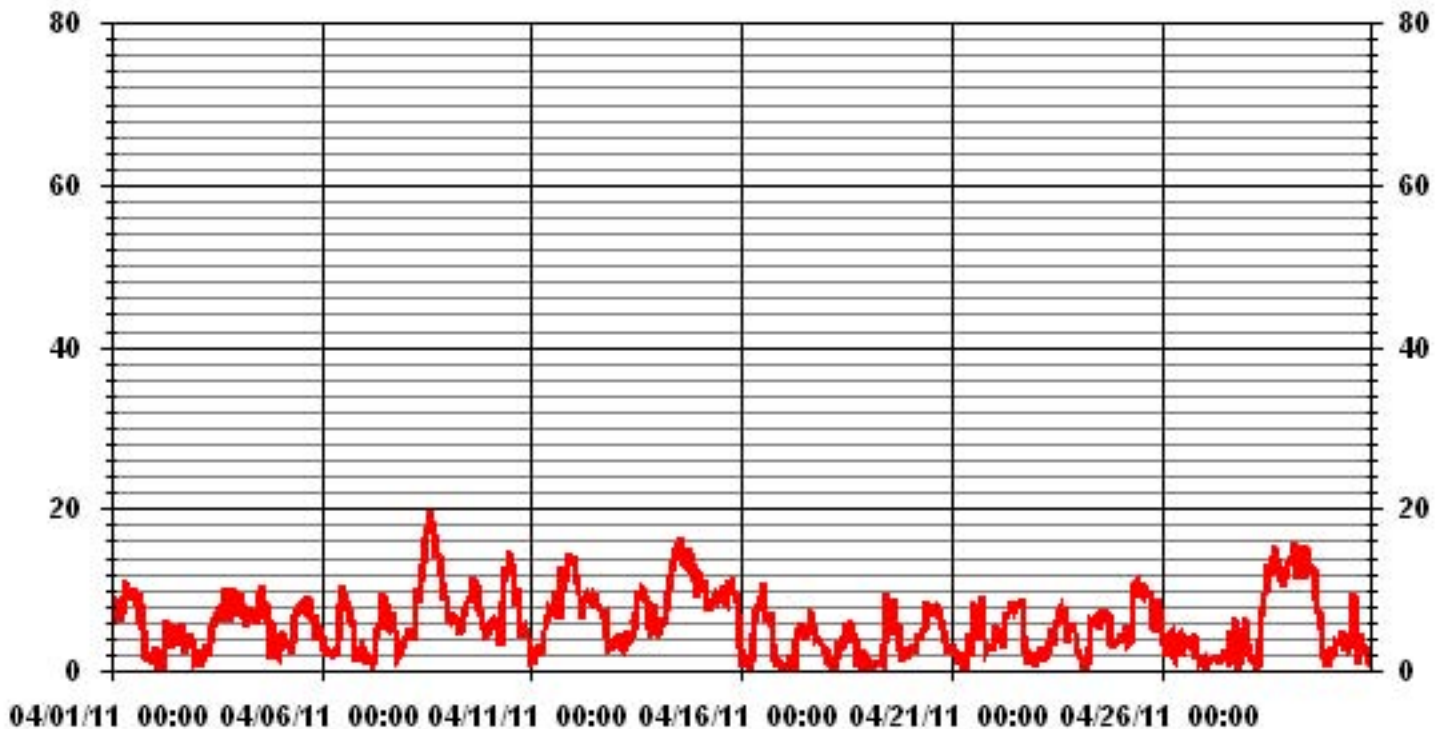
### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	19.6	KPH	@ HOUR(S)	14	ON DAY(S)	8	
MAXIMUM 24-HR AVERAGE:	11.2	KPH			ON DAY(S)	14	
CALMS (≤ 1 KPH)	5.11	%					
MONTHLY CALIBRATION TIME:	0	HRS			OPERATIONAL TIME:	720	HRS
STANDARD DEVIATION	3.83				AMD OPERATION UPTIME	100.0	%
					MONTHLY AVERAGE	5.77	KPH

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA30 WSP KPH

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 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	21.1	24.9	28.9	24	23.8	18.5	22.1	29	30.1	29	27.6	32.9	33	31.9	38	47.9	23.8	23.2	21.1	15.6	8.9	7	5.4	11	47.9
2	5.7	7.8	6.5	3.3	2.6	3.7	6.1	12.3	15.3	15.7	11.7	16.4	39.8	15.8	13.1	16.7	18.3	17.7	23.8	24.2	12.1	11	9.7	12.8	39.8	
3	6.9	4.9	3.9	8.3	6	5.1	9.1	6.5	8.3	10.8	19.3	22.1	23.2	24.6	20.6	21.6	27.8	28.9	19.5	14.9	19.9	22.3	16	28.9	28.9	
4	15.3	18.4	20	18.6	14.6	15.9	17.2	19.1	19.6	16.5	15.8	15.6	22.5	21.6	23.1	28.8	35.4	21.4	18.8	9.3	12.6	10.7	8.3	9	35.4	
5	9.2	8.8	14.6	8.4	7.8	8.7	9.1	12.8	16.4	17.6	23.7	24.4	29.1	29.9	27.8	30.6	24.1	27.7	19.4	17.9	20.3	11.2	9.7	10.4	30.6	
6	11.3	7.5	7	8	5.1	8.6	7.2	7.3	6.8	11	19	25.3	30.8	30.8	25.9	21.3	20	17.8	15.2	11.5	6.5	6	6.6	9.5	30.8	
7	5.7	7.4	3.4	6.4	8.7	7.4	5.9	17.3	15.5	16.9	20.2	30.2	21.9	27	20.4	18	22.9	21.5	33.9	7.5	6.5	4.7	5.8	6.6	33.9	
8	9.8	8.3	10.5	9.4	11.6	12.4	19.8	16.1	20.6	22.9	29	33.9	37.8	39.8	43	46.6	43.4	36.3	32.6	36.9	27.5	23.9	22.7	20.4	46.6	
9	17.2	20.2	18.5	13.3	13	12.5	10.5	17.4	12.5	18.3	22.8	23.3	25.8	29	31.5	30.2	25.2	28.4	22.1	18	14.4	11.6	12.1	9.5	31.5	
10	13	13.3	10.7	16.3	11.5	10.1	11.8	28	32.2	43.2	41.6	45.5	45	47.3	26.5	33.9	31	27.6	18.7	14.9	14.1	11.3	9.3	5.3	47.3	
11	2.5	4.8	5.6	7.6	10.9	9.7	9.7	12.6	16.1	16.7	22.1	21	22.5	25.6	23.2	19.3	33.4	45.4	41.9	36.4	41.7	<b>49.9</b>	43.2	44.3	<b>49.9</b>	
12	40.2	31.8	39.5	31.3	26.1	34	29	33.8	35.8	30.9	29.4	29.5	30.7	26.7	26.6	26.3	26.4	18.5	16.5	9.6	7	8.3	8.2	10.4	40.2	
13	11.1	13.5	12.6	12.4	7.4	7.1	12.3	13.8	11.5	16.3	21.4	22.4	26.2	27.5	30.5	28.7	27.1	25.5	22.3	17.9	8.1	16.3	21.8	21.3	30.5	
14	13.9	13.6	18.4	17.6	16.9	26.1	28.3	33.1	32.8	37.4	39.9	43.4	39.4	46.7	45.3	39.7	39.4	40.6	43	48	45.8	35.9	30.5	37.4	48	
15	33.6	35.7	28.3	26.9	24.1	21	21.4	23.3	24.7	24.9	25.6	27	26.5	26.4	31.7	23.2	24.6	25.3	32.6	22.8	21.6	19.4	17.1	9.3	35.7	
16	4.1	5.5	6.9	6.2	3.2	5.4	11.9	15.5	21.8	22.1	20.3	22.7	23.8	29.2	16.6	17.5	17	12.6	11.7	5.4	3.1	3.2	3.2	2.3	29.2	
17	3.5	4.1	2.9	4.4	3	2.8	0	10.4	14.1	17.8	16.8	22.1	24.3	23.4	17.4	21.1	18.3	21.1	15.6	9	8.2	7.4	8.6	6.2	24.3	
18	6.2	6	3.5	4.1	1.7	1.8	6.4	8.5	9	12.4	15.6	19.8	20.2	19.6	19.5	25.3	19.1	25.5	11.4	8.5	4.6	7.6	5.7	3.7	25.5	
19	5.1	4.6	2.3	3.7	3.8	4.9	6.9	12	9.2	16.9	32.7	32.1	32.4	25.3	27.5	27.1	23.1	17.1	13.2	4.6	7.6	8.9	7.7	6.6	32.7	
20	6.6	9.3	7.8	5.6	8.7	10.5	10.2	11.7	13.1	20.3	28.4	31	36.4	43.3	27.3	31.2	26.3	26.5	28.4	15.8	13.5	7.4	7.9	5.5	43.3	
21	9.3	6.6	5.4	8.7	7.4	5.6	4.5	3.5	8.1	15.4	19.5	24.8	20.8	21.4	17.9	17.5	19	32.2	14.4	24.2	6.9	6.6	6.8	6.8	32.2	
22	10.1	11.5	10.8	8.8	8	12.9	17.7	24.1	23.3	30.4	28.3	23.1	31.6	37.8	32	27.1	25.6	20.2	11.5	9.9	4.4	5.7	6.5	2.4	37.8	
23	5.3	8.4	6.6	7.4	6.8	6.4	12.3	11.3	15.1	17	28	23.9	31.4	27.2	28.7	30.8	24.3	23.1	25.6	11.8	9.3	11.8	9.9	8.1	31.4	
24	7.8	7.1	7.7	5.4	3.1	3.9	9.1	12.9	17.7	19.7	18.2	20.2	16.6	21.6	18.8	21.3	18.3	17.1	11.7	8.6	10.3	9.8	10.2	9.9	21.6	
25	10.4	10.2	14	15.9	10	9.1	22.3	26.5	34.9	30.8	27.6	32.3	26.2	33.5	30.5	36.5	23.7	25.2	22.4	16.2	9.8	19.5	19.5	19	36.5	
26	8.1	7.7	13.5	19.5	12	14.2	13.6	10.5	12.7	16.8	14.5	11.4	14	14.7	15.5	12.4	11.8	11.2	11.5	6.6	15	5.5	5.6	5	19.5	
27	4.6	5.8	4.5	3.9	6	4.8	9.5	6.7	10.1	13.1	13.1	11.8	13.5	16.3	15.6	13.2	27.7	21.2	8.5	6.1	5.6	18.9	13.4	20.5	27.7	
28	12.9	7.9	10.5	7.3	6.7	4.1	3.4	16.3	19.6	17.7	24.6	26	26.1	24.4	34.3	33.2	35.8	33.5	26.5	30.5	30	26.4	29.4	33.1	35.8	
29	31	31.5	42	38.9	29	27.1	29.4	34.3	35.1	34.1	39.6	36.9	36.4	34.9	34.1	28.5	25.8	22.8	19.8	11.4	3.7	5.6	5.4	4.5	42	
30	7.2	6.9	6.9	8.3	9	8.7	18	15.2	11.9																18	
PEAK		40.2	35.7	42.0	38.9	29.0	34.0	29.4	34.3	35.8	43.2	41.6	45.5	45.0	47.3	45.3	47.9	43.4	45.4	43.0	48.0	45.8	49.9	43.2	44.3	

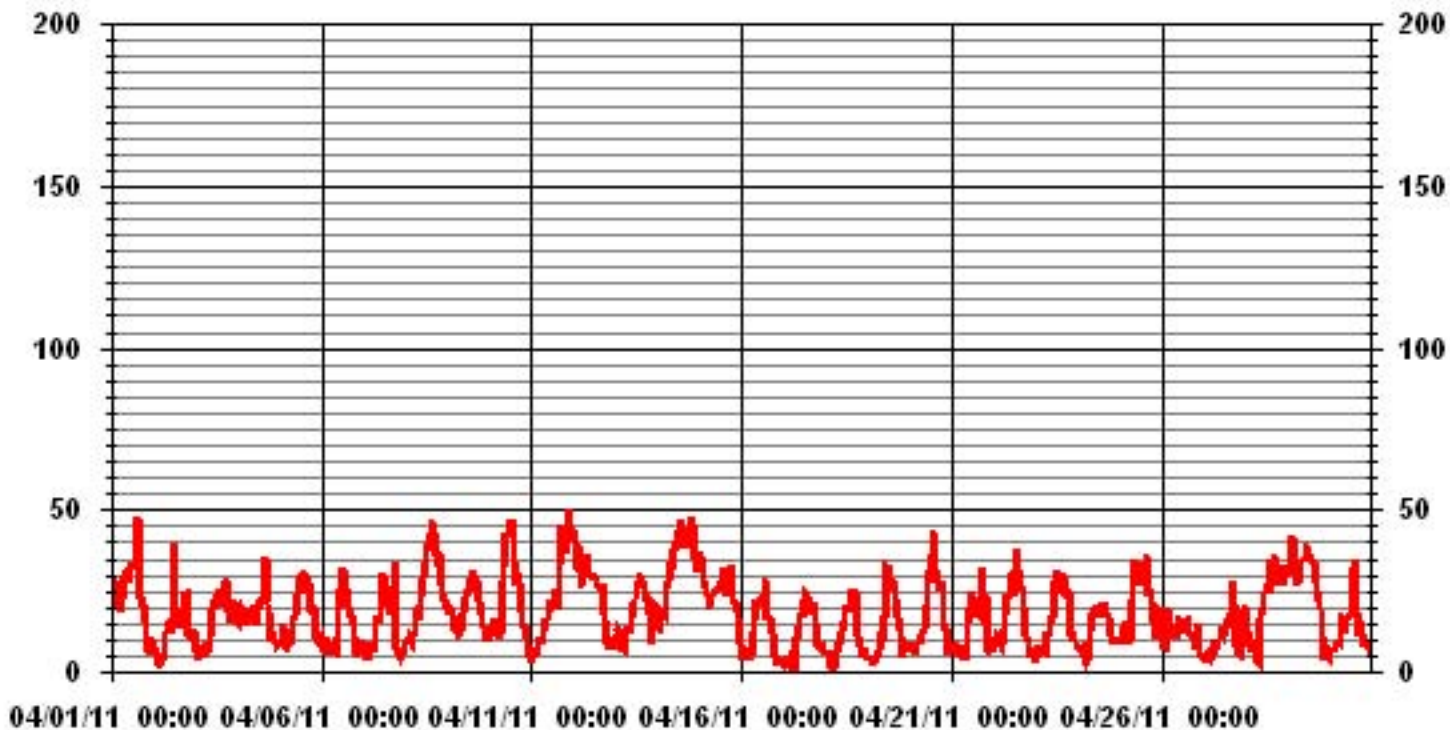
**STATUS FLAG CODES**

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**

MAXIMUM INSTANTANEOUS READING	49.9	KPH	@ HOUR(S)	21
			ON DAY(S)	11

### 01 Hour Averages



— LICA30 WSMAX KPH

LICA30  
WSP / WDR Joint Frequency Distribution (Percent)

April 2011

Distribution By % Of Samples

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

Wind Parameter : WDR  
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	2.22	2.91	4.16	5.00	2.91	2.50	2.63	1.11	1.25	8.75	7.77	3.88	3.75	2.63	2.08	1.94	55.55
< 12.0	2.22	1.25	4.44	2.08	.97	.27	2.08	1.11	1.11	6.66	3.47	1.25	1.94	4.72	1.66	.97	36.25
< 20.0	.41	2.08	.41	.00	.83	1.11	.00	.00	.13	1.38	.00	.00	.00	1.52	.13	.00	8.05
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.86	6.25	9.02	7.08	4.72	3.88	4.72	2.22	2.50	16.80	11.25	5.13	5.69	8.88	3.88	2.91	

Calm : .13 %

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	16	21	30	36	21	18	19	8	9	63	56	28	27	19	15	14	400
< 12.0	16	9	32	15	7	2	15	8	8	48	25	9	14	34	12	7	261
< 20.0	3	15	3		6	8			1	10				11	1		58
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	35	45	65	51	34	28	34	16	18	121	81	37	41	64	28	21	

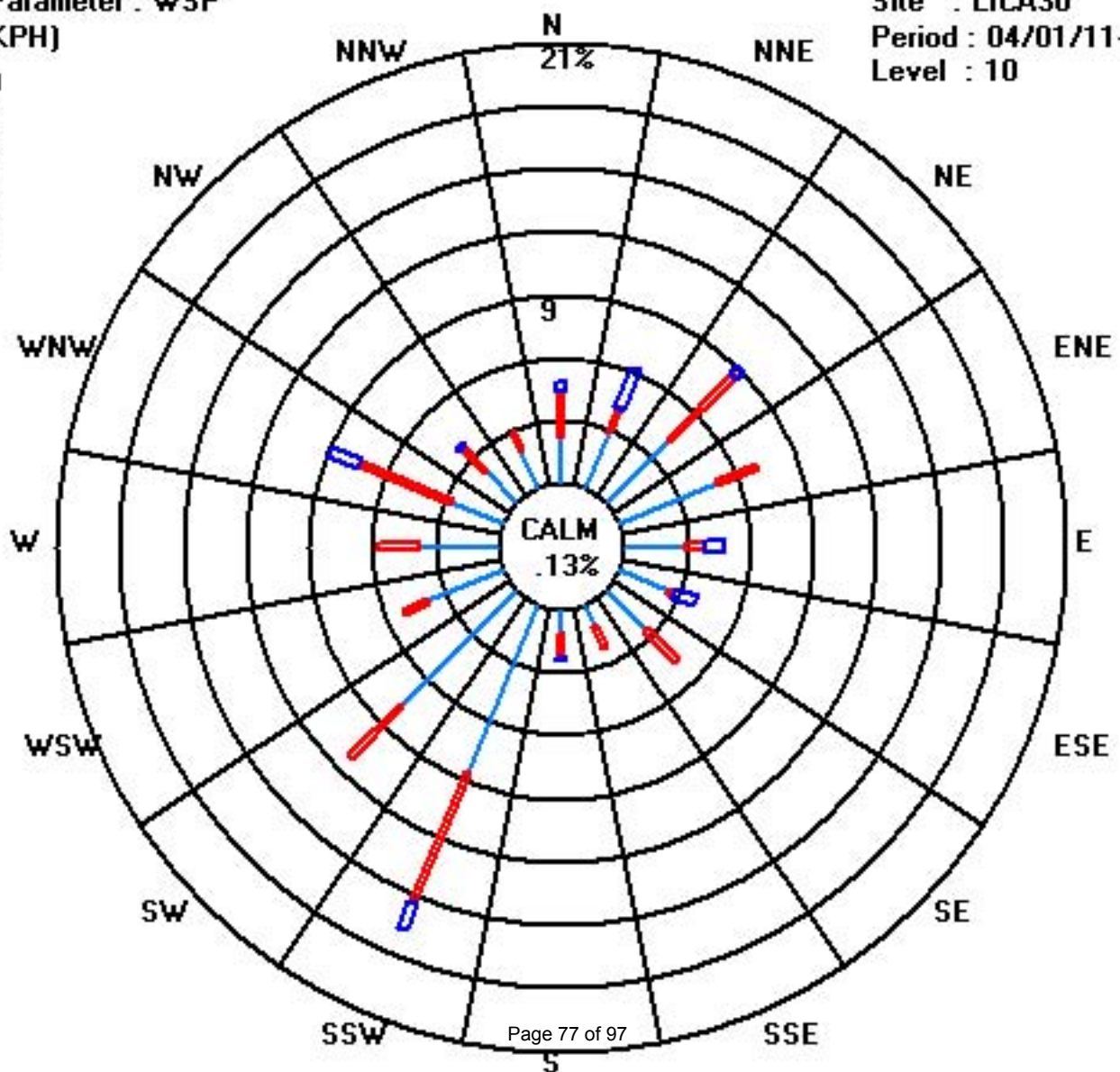
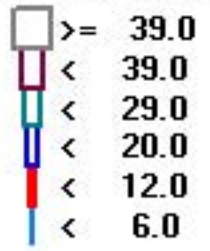
Calm : .13 %

Total # Operational Hours : 720

Class Limits (KPH)

Period : 04/01/11-04/30/11

Level : 10





# Vector Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -COLD LAKE- MASKWA

APRIL 2011

## WIND DIRECTION 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		
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	279	288	285	285	283	278	278	286	292	290	293	283	294	295	278	316	297	289	282	300	178	152	208	206	286	WNW	24	
2	189	103	117	68	146	9	69	38	53	53	53	103	38	143	229	243	228	272	323	7	37	37	23	12	45	NE	24	
3	336	30	337	12	32	358	12	352	318	296	280	288	288	278	266	291	249	217	215	208	215	203	202	206	249	WSW	24	
4	205	200	196	199	202	207	202	207	217	215	218	213	202	215	198	271	294	227	258	196	203	213	254	242	213	SSW	24	
5	218	220	223	234	235	225	252	273	270	294	290	291	291	280	283	289	259	219	217	208	221	220	204	208	252	WSW	24	
6	213	205	250	243	217	236	221	229	288	294	222	221	210	217	219	216	211	218	204	211	41	178	205	217	219	219	SW	24
7	223	221	221	292	271	302	270	297	306	358	351	6	352	352	341	348	317	309	1	315	228	203	197	200	326	NW	24	
8	208	209	207	218	212	200	197	203	193	190	193	196	196	201	196	198	202	196	191	193	197	192	193	193	197	SSW	24	
9	205	199	202	205	203	206	201	208	222	204	198	217	217	226	221	210	212	213	220	214	209	211	219	220	211	SSW	24	
10	212	209	209	209	215	228	250	286	290	291	286	289	286	289	268	278	286	272	253	215	213	209	205	199	264	W	24	
11	112	61	44	24	100	140	137	181	196	203	195	186	167	174	200	198	254	292	298	291	293	314	297	290	251	WSW	24	
12	290	286	285	296	328	321	326	340	347	353	356	339	326	337	359	2	356	18	38	69	63	63	71	95	338	NNW	24	
13	112	129	145	110	61	55	81	131	120	153	153	144	114	124	131	132	141	146	145	135	137	152	149	131	133	SE	24	
14	95	73	80	73	72	78	79	95	97	94	97	102	104	102	100	100	97	106	108	105	115	127	104	105	99	E	24	
15	96	84	79	72	65	57	54	53	54	52	60	55	52	43	52	55	42	36	37	39	34	37	33	30	54	NE	24	
16	30	28	41	29	38	30	32	43	52	65	55	40	37	61	76	63	46	37	85	147	80	110	119	123	53	NE	24	
17	127	169	55	142	127	66	146	193	197	229	204	221	273	269	247	211	243	249	228	205	210	220	225	219	222	SW	24	
18	224	225	218	213	236	320	52	51	25	239	207	187	217	269	205	305	242	330	66	166	121	193	115	157	228	WSW	24	
19	73	99	67	97	60	68	94	207	321	209	200	259	223	257	239	226	269	70	143	112	139	197	241	206	213	SSW	24	
20	205	221	213	204	202	205	215	223	215	197	230	242	259	245	246	252	239	268	272	279	265	237	226	208	236	SW	24	
21	212	212	204	216	223	95	52	44	360	185	203	208	206	318	345	222	217	42	72	1	158	216	214	203	211	SSW	24	
22	217	211	219	220	220	252	293	318	312	306	310	315	295	287	313	296	292	343	355	87	98	129	188	209	291	WNW	24	
23	240	282	207	245	238	236	282	313	25	11	319	305	313	344	357	349	0	272	284	198	197	200	210	217	299	WNW	24	
24	237	248	282	204	15	56	30	27	35	69	52	41	58	86	35	22	67	33	68	65	65	59	59	56	48	NE	24	
25	52	68	77	82	76	56	93	131	139	137	135	125	141	170	157	170	172	163	149	141	129	136	148	147	138	SE	24	
26	96	83	89	87	47	107	35	65	119	70	75	352	308	336	338	277	359	9	7	23	328	39	339	270	33	NNE	24	
27	292	288	246	221	290	207	260	346	39	262	258	262	318	15	35	30	344	246	226	323	265	173	184	190	242	WSW	24	
28	277	279	283	74	60	282	343	37	58	40	38	39	32	34	44	43	36	33	29	21	18	10	18	18	30	NNE	24	
29	22	19	16	18	17	12	15	21	18	9	15	10	7	9	13	356	351	332	350	15	157	115	134	99	13	NNE	24	
30	83	78	50	47	57	64	96	112	75	36	60	103	72	21	265	6	207	252	264	277	254	255	274	303	42	NE	24	
HOURLY AVG	336	288	337	296	328	358	343	352	360	358	356	352	352	352	359	356	359	343	355	323	328	314	339	303				

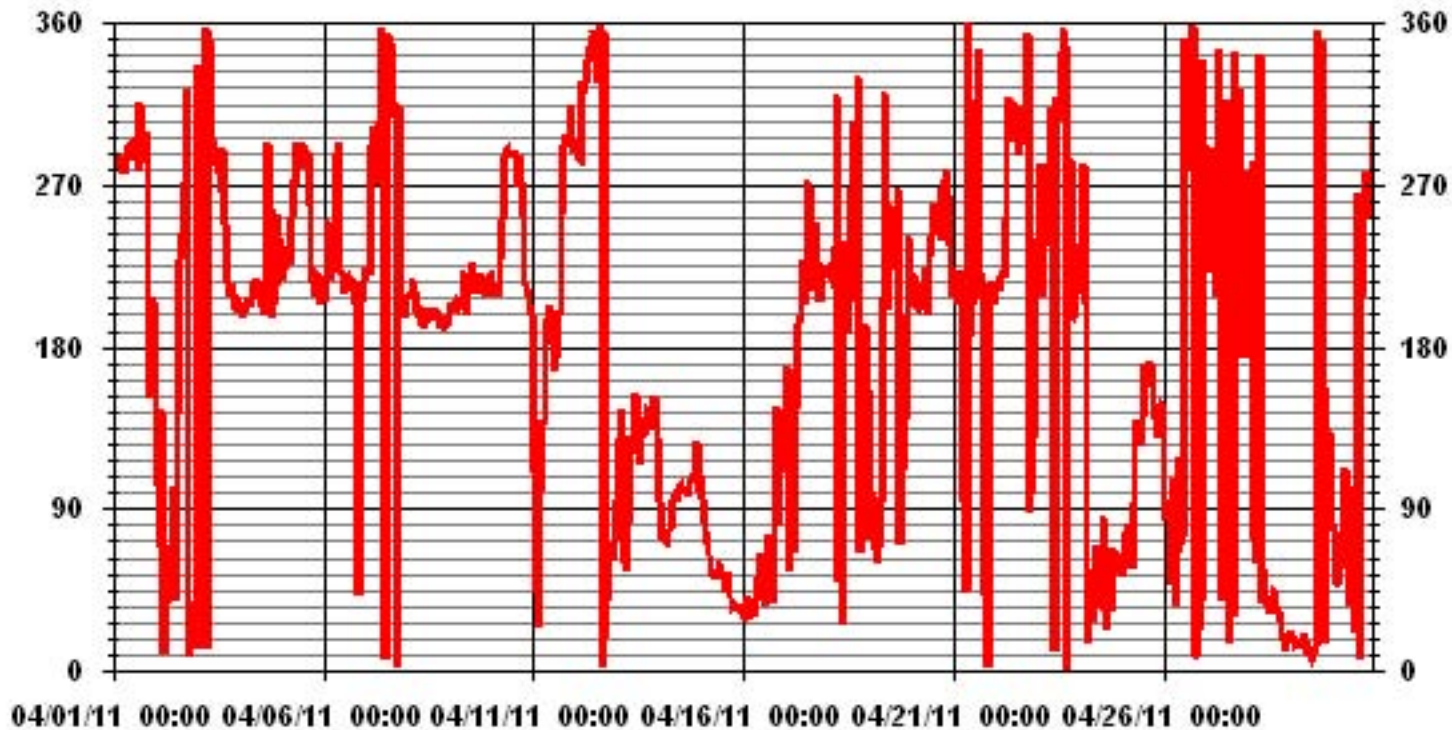
**STATUS FLAG CODES**

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:	March 10, 2011
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
STANDARD DEVIATION	99.01		AMD OPERATION UPTIME	100.0	%
			MONTHLY AVERAGE	240	DEG

### 01 Hour Averages



# Standard Deviation Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 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	24	23	23	23	23	28	28	26	24	27	28	36	29	29	32	32	39	25	24	48	12	45	50	53
2	62	55	16	53	8	52	16	18	23	41	60	54	50	39	24	33	27	35	29	24	17	17	14	13
3	18	22	46	20	17	17	12	21	24	29	41	34	34	41	37	30	32	23	21	16	18	16	15	15
4	15	16	14	15	16	24	16	20	25	23	24	27	20	21	20	37	28	35	52	8	12	16	31	36
5	16	14	14	20	17	14	19	37	29	25	32	33	39	34	35	30	37	23	21	16	24	20	12	13
6	18	15	25	19	14	18	11	23	46	48	46	34	26	27	29	27	28	21	14	23	42	16	22	21
7	16	12	10	18	21	58	33	28	24	31	34	31	33	34	36	37	34	31	24	24	23	11	8	9
8	12	12	13	15	12	7	14	16	16	18	20	18	18	20	18	20	19	17	19	18	16	17	17	18
9	28	19	17	14	13	14	22	23	30	27	31	28	28	31	30	22	22	22	21	20	15	16	14	15
10	15	12	10	11	12	17	28	24	26	29	30	27	32	29	36	36	30	35	33	18	19	15	11	23
11	11	14	13	12	58	21	49	27	24	24	27	29	31	28	26	23	34	25	30	24	25	32	25	26
12	26	25	27	29	35	36	34	34	33	29	31	35	34	34	37	34	29	26	17	14	16	19	20	21
13	21	24	19	25	19	16	28	28	41	43	34	38	33	33	35	28	28	25	21	17	10	15	19	19
14	21	21	20	21	23	25	23	25	26	26	27	26	27	24	26	28	26	24	24	24	25	25	26	23
15	25	25	26	24	24	24	23	22	23	23	25	25	25	22	25	27	21	18	18	18	16	17	14	11
16	12	13	15	12	10	9	12	22	26	31	29	24	19	31	32	28	21	17	30	24	11	8	12	4
17	6	35	26	34	11	21	6	19	30	39	30	35	60	44	31	25	31	34	24	14	14	11	11	10
18	11	40	13	33	20	21	18	24	47	43	46	46	54	38	38	42	35	34	40	48	36	16	17	15
19	10	22	10	20	31	26	45	53	64	65	29	42	31	49	43	30	42	26	41	44	40	18	41	11
20	12	15	14	12	11	14	22	24	31	25	39	35	42	41	43	36	31	37	33	24	21	23	21	40
21	16	13	14	15	42	22	31	43	51	50	42	59	25	48	53	43	40	26	22	41	14	16	19	12
22	15	14	14	13	14	25	22	32	32	35	34	35	37	40	36	38	30	31	26	36	17	23	7	15
23	15	21	28	21	29	27	27	33	30	46	51	46	44	39	32	34	32	41	32	15	9	9	10	14
24	16	28	30	45	35	24	9	15	24	33	36	44	41	32	24	28	35	27	25	15	20	18	22	18
25	18	22	23	22	23	18	26	24	27	29	29	32	33	31	31	31	30	25	20	14	15	18	18	22
26	14	16	64	35	28	62	52	25	34	49	70	39	37	33	32	40	26	17	19	31	36	19	14	49
27	11	16	29	16	12	25	31	28	45	71	41	44	58	55	26	52	54	26	30	37	47	31	17	29
28	26	21	45	25	35	34	15	17	24	19	19	21	15	17	22	21	17	16	15	17	20	22	20	18
29	16	18	19	21	19	20	20	19	22	28	24	27	30	29	31	35	35	36	32	34	25	15	16	13
30	18	13	19	14	22	25	36	33	48															

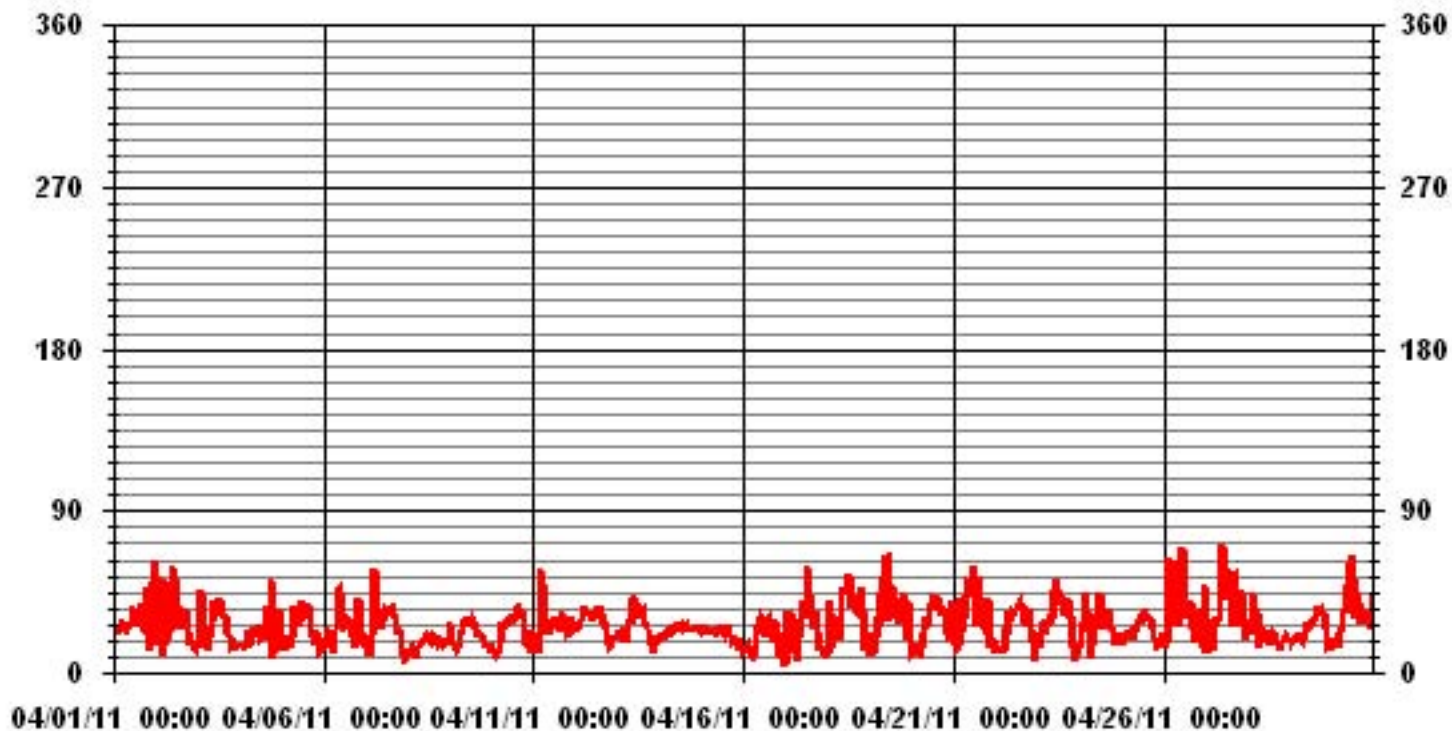
### STATUS FLAG CODES

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:	March 10, 2011
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CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	720 HRS
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### 01 Hour Averages



— LICA30 STDWDIR DEG

# Calibration Reports

# Sulphur Dioxide



### SO<sub>2</sub> Calibration Report

#### Station Information

Calibration Date	April 25, 2011	Previous Calibration	March 15, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	12:39	End Time (MST)	16:24
Reason:	Monthly Calibration		
Barometric Pressure	932 mBar	Station Temperature	23 Deg C
Cal Gas	49 ppm	Cal Gas Expiry date	April 2, 2013
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	0 - 1 Volts

#### Equipment Information

Analyzer Make / Model:	API 100E	S/N :	508	Method:	Fluorescent
Converter Make / Model:	-	S/N :	-		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Flow Meter:	API 700	S/N :	831		

#### Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 1000 ppb	0 - 1000 ppb	
Sample Flow / Box Temp	588 ccm 30.3 Deg C	584 ccm 31.7 Deg C	
HVPS / Lamp Setting	494 2983	494 2978	
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 Deg C	
Offset / Slope	34.1 1.111	35.3 1.118	

#### 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
4923	76.5	750	745	1.0064
4922	76.5	750	751	0.9986
4960	40.8	400	396	1.0095
4981	17.3	170	169	1.0035
4996	0	0	0	N/A
Sum of Least Squares				1.0011
New Correction Factor				0.9986

#### Before Calibration

#### After Calibration

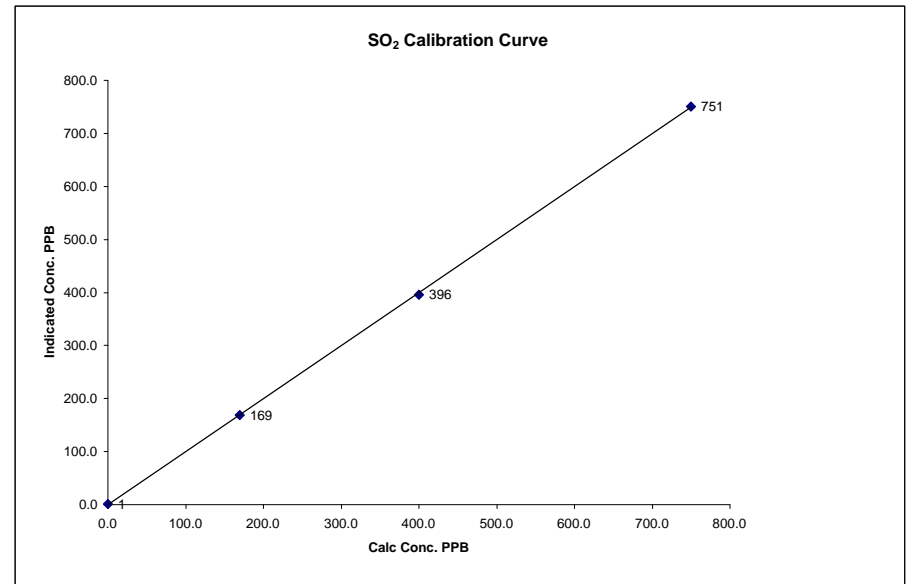
Auto Zero	1.2	0.3
Auto Span	377	384
Sample Lines Connected	YES	
Percent Change from Previous Calibration	-0.6%	

Calibration Performed by: Ting Xu

### SO<sub>2</sub> Calibration Curve

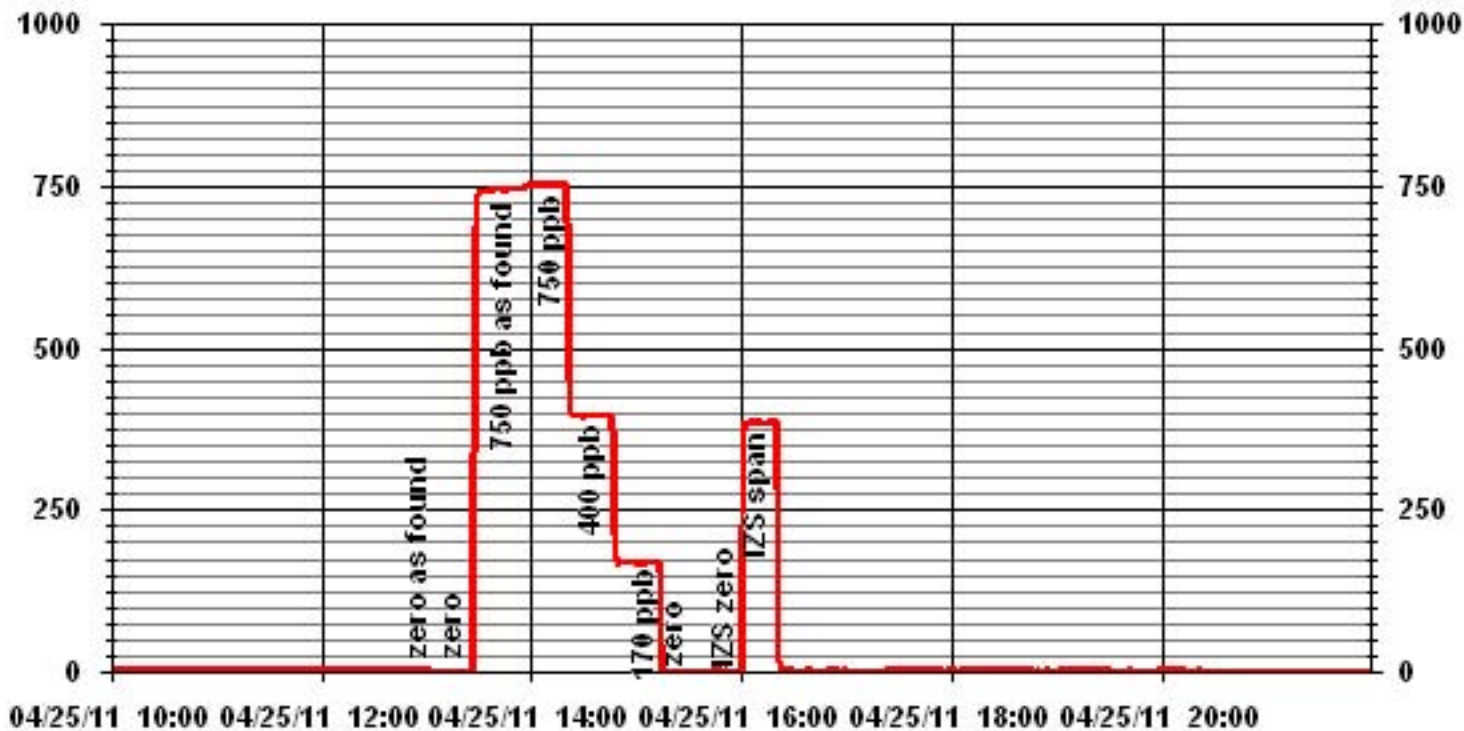
Calibration Date	April 25, 2011
Company	Lakeland Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	12:39
End Time (MST)	16:24

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999951
0	1	n/a	Intercept	(± 3% F.S.)	-0.526021
170	169	1.0035			
400	396	1.0095			
750	751	0.9986			



Notes:

### 01 Minute Averages



# Hydrogen Sulphide

## H<sub>2</sub>S Calibration Report

### Station Information

Calibration Date	April 6, 2011		Previous Calibration	March 14, 2011	
Company	Lakelnad Industry & Community Association				
Plant / Location	Cold Lake - Maskwa				
Start Time (MST)	8:43		End Time (MST)	11:57	
Reason:	Monthly Calibration				
Barometric Pressure	929	mBar	Station Temperature	22	Deg C
Cal Gas	10.2	ppm	Cal Gas Install date	02/22/2012	
DAS Output Voltage	0 - 1		Volts		

### Equipment Information

Analyzer Make / Model:	API 101E	S/N :	511	Method:	Fluorescent
Converter Make / Model:	Internal	S/N :	N/A		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Flow Meter:	API 700	S/N :	831		

### Analyzer Settings

		Before Calibration		After Calibration	
Concentration Range		0 - 100		ppb	
Sample Flow / Box Temp	527	ccm	30.9	Deg C	525
HVPS / Lamp Setting	552		2169		552
PMT / RxCell Temp	7.9	Deg C	50	Deg C	7.9
Converter / IZS Temp	315.7	Deg C	45	Deg C	315.2
Offset / Slope	30		0.991		30
					0.991

### Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4959	0	0	0	N/A
4959	39.2	80	80	1.0000
4979	19.6	40	40	0.9999
4986	11.2	23	23	0.9939
4995	0	0	0	N/A
Sum of Least Squares				0.9996
New Correction Factor				1.0000

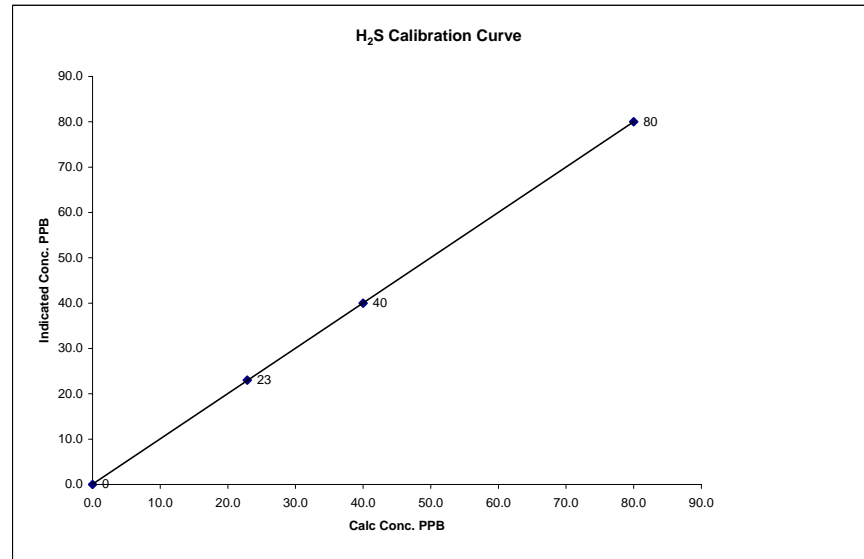
		Before Calibration	After Calibration
Auto Zero		0.3	-0.3
Auto Span		57	56
Sample Lines Connected			YES
Percent Change from Previous Calibration			0.3%

Calibration Performed by: Ting Xu

## H<sub>2</sub>S Calibration Curve

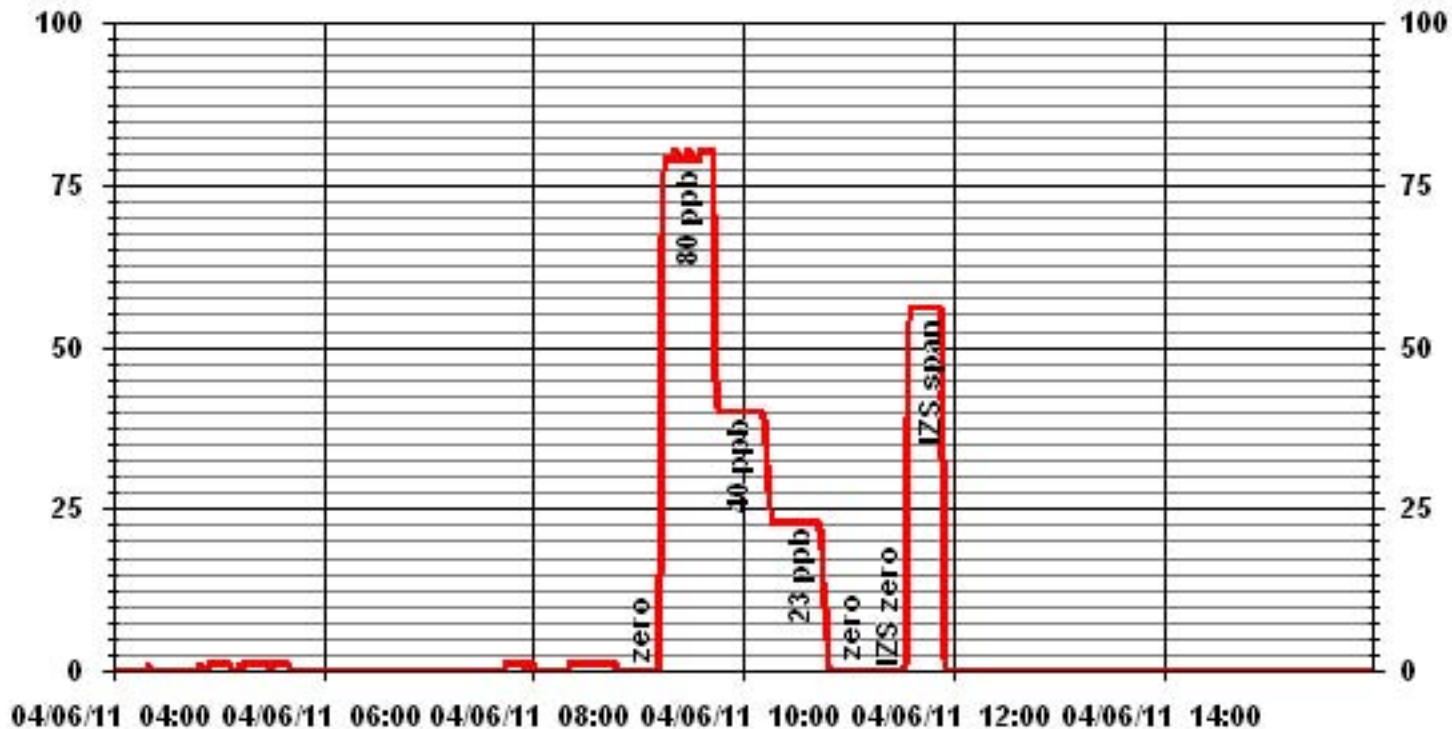
Calibration Date	April 6, 2011	
Company	Lakelnad Industry & Community Association	
Plant / Location	Cold Lake - Maskwa	
Start Time (MST)	8:43	End Time (MST) 11:57

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999996 0.999524
0	0	n/a	Intercept	(± 3% F.S.)	0.053787
23	23	0.9939			
40	40	0.9999			
80	80	1.0000			



Notes:

### 01 Minute Averages



# Total Hydrocarbons

### THC Calibration Report

Station Information			
Calibration Date:	April 6, 2011	Previous Calibration	March 14, 2011
Company:	Lakeland Industry & Community Association		
Plant / Location:	Cold Lake - Maskwa		
:	(MST) 11:19	End Time	(MST) 14:36
Reason:	Monthly Calibration		
Barometric Pressure:	930 mBar	Station Temperature:	23 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	207 Prop/ 602 Meth/1171.25THC	ppm	Cal Gas Expiry Date: June 11, 2012
DAS make & Model:	ESC 8832	S/N :	AO 791
Output Voltage Range:	0 - 10	VDC	

### Analyzer Information

Make / Model	TECO 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
1999	0.0	0.0	0.0	N/A
1999	70.0	39.6	40.1	0.9882
1999	70.0	39.6	39.9	0.9931
1998	34.9	20.1	20.0	1.0054
1998	20.0	11.6	11.6	1.0007
1998	0	0.0	0.0	N/A
Correction Factor:				0.9931

Previous Calibration Correction Factor:	0.9931
Current Correction Factor Before Span Adjust:	0.9882
Percent Change:	0.50%

### IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	44.3	44.2
Sample Lines Connected		YES

### Cylinder Pressures

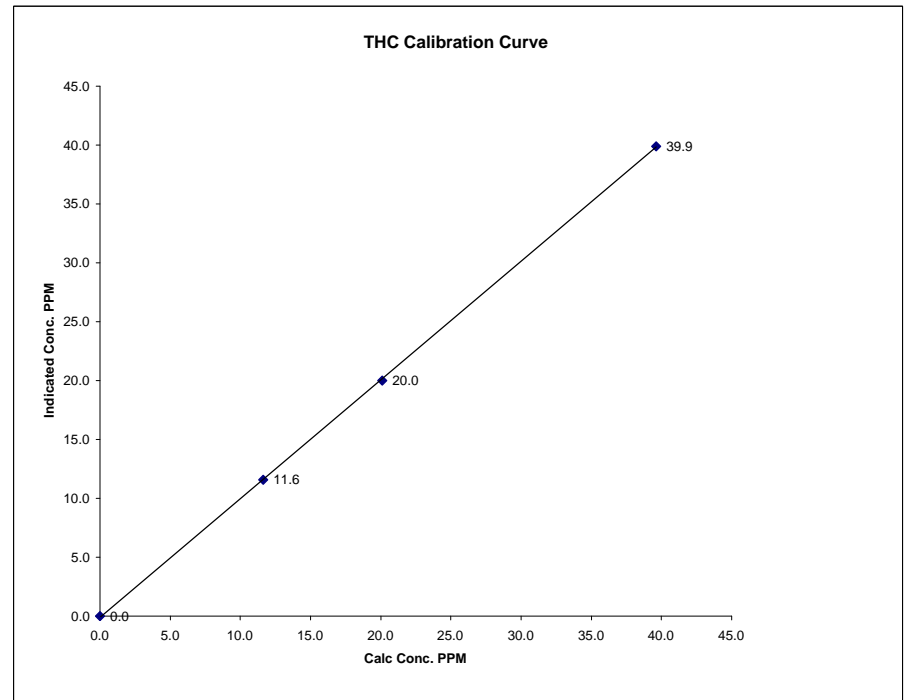
Span	700	psi
Hydrogen	1450	psi
Zero Air	32	psi

Calibration Performed by: Ting Xu

### THC Calibration Curve

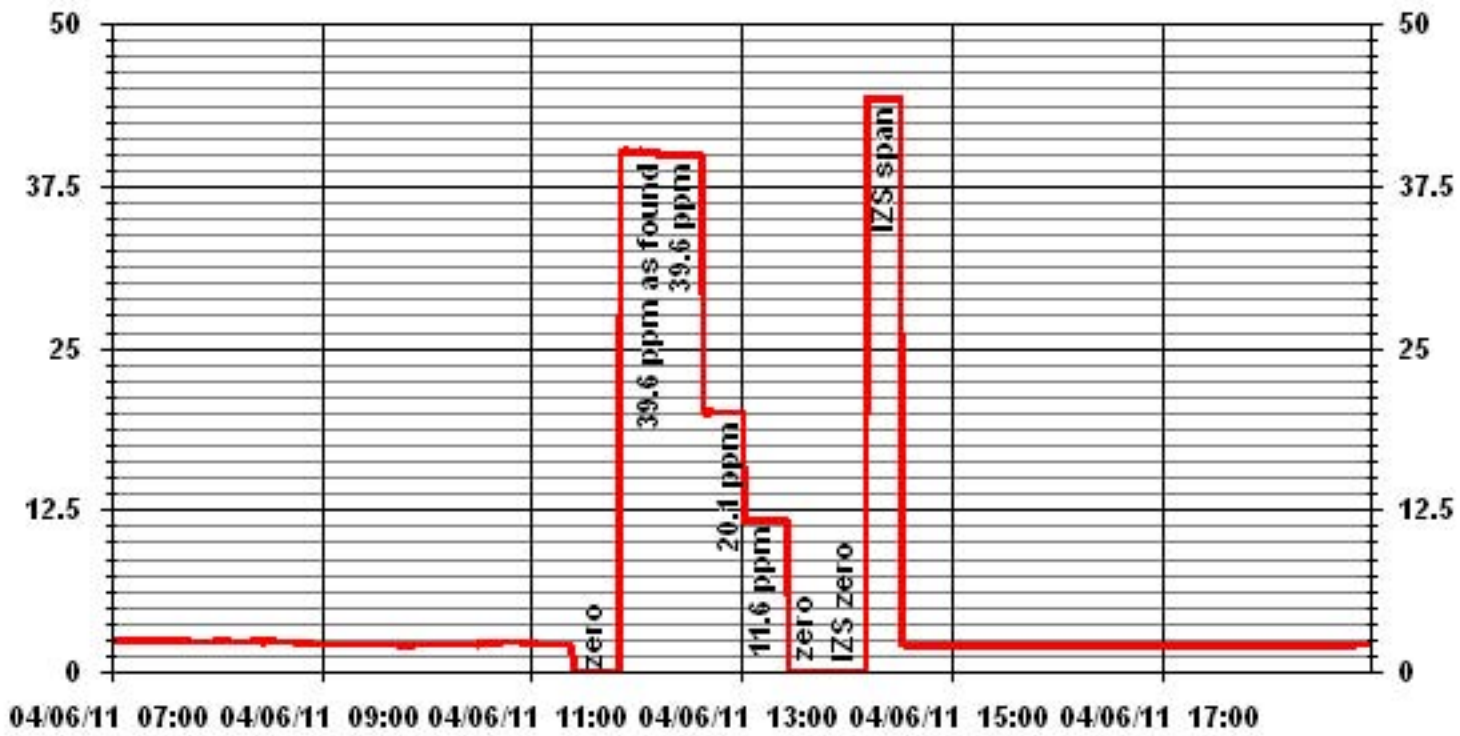
Calibration Date	April 6, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	11:19	End Time (MST)	14:36

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999952
0.0	0.0		Intercept	(± 3% F.S.)	-0.083361
11.6	11.6	1.0007			
20.1	20.0	1.0054			
39.6	39.9	0.9931			



Notes:

### 01 Minute Averages



— LICA30 THC PPM



# Nitrogen Dioxide

**NOx - NO- NO2 Calibration Report**

**Station Information**

Calibration Date	April 6, 2011	Previous Calibration	March 14, 2011
Company	LICA	Plant/Location	Maskwa
Start Time (MST)	8:43	End Time (MST)	14:25
Reason:	Monthly Calibration	Other	
Barometric Pressure	929 mmHg	Station Temperature	22 Deg C
Cal Gas Concentration	NOx 51.7 ppm	NO 50.4 ppm	Cal Gas Expiry date 04-Feb-13
DAS Output Voltage	0 - 1	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:	NA	S/N:	NA		
Flow Meter:	EnviroNics 6100	S/N :	4760		

**Analyzer Settings**

Before Calibration				After Calibration			
Concentration Range			0-1000	ppb			
Sample Flow/Conv. Temp	451 ccm	315.2 Deg C		452 ccm	315.8 Deg C		
Ozone Flow / Vacuum	78 ccm	5.7 "Hg-A		78 ccm	5.7 "Hg-A		
HVPS / A ZERO	767 Volts	15.7 MV		767 Volts	17.2 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	29.8 Deg C	45.1 Deg C		32.3 Deg C	45 Deg C		
Offset	1.5 NOx	0.5 NO		1.5 NOx	0.5 NO		
Slope	1.173 NOx	1.145 NO		1.151 NOx	1.128 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
4995	0.0	----	0	0	0	0	1	1	----	----
4921	74.2	----	768	749	----	782	759	23	0.9821	0.9877
4921	74.2	----	768	749	----	769	750	19	0.9987	0.9995
4960	34.6	----	358	349	----	359	350	9	0.9976	-0.8537
4973	19.8	----	205	200	----	206	202	5	0.9953	-0.3588
4995	0.0	----	0	0	0	0	0	0	----	----

**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	74.2	----	768	749	----	771	755	16	----	----
4921	74.2	600	768	----	577	771	194	578	1.0000	100.18%
4921	74.2	250	768	----	250	773	521	252	0.9960	100.85%
4921	74.2	140	768	----	146	773	625	148	0.9932	101.54%

Linearity	Sum of Least Squares	NOx= 0.998	NO= 0.998	NO2= 0.997	
OK?	Yes No	Correction Factors:	NOx= 0.9987	NO= 0.9995	NO2= 1.0000
Average Converter Efficiency= 100.86%					

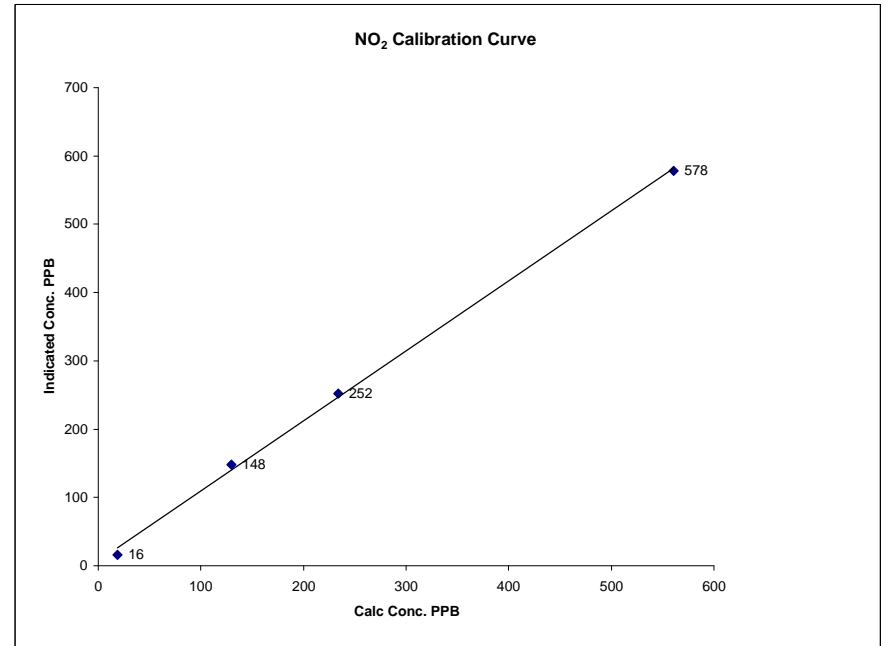
Before Calibration				After Calibration			
Auto Zero	0.7 NOx	0.9 NO2		-0.4 NOx	-0.8 NO2		
Auto Span	789 NOx	775 NO2		773 NOx	759 NO2		
Sample Lines Connected				YES			
Percent Change from Previous Calibration		NOx 1.6%	NO 0.9%	NO2 0.2%			

Notes

**NO2 Calibration Curve**

Calibration Date	April 6, 2011	<b>LICA</b>	
Company		<b>Maskwa</b>	
Plant / Location			
Start Time (MST)	8:43	End Time (MST)	14:25

Calculated Conc.	Indicated Response	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.998774
ppb	ppb		Slope	(0.85 to 1.15)	1.025812
19	16	N/A	Intercept	(± 3% F.S.)	6.40834
130	148	0.8784			
234	252	0.9286			
561	578	0.9706			



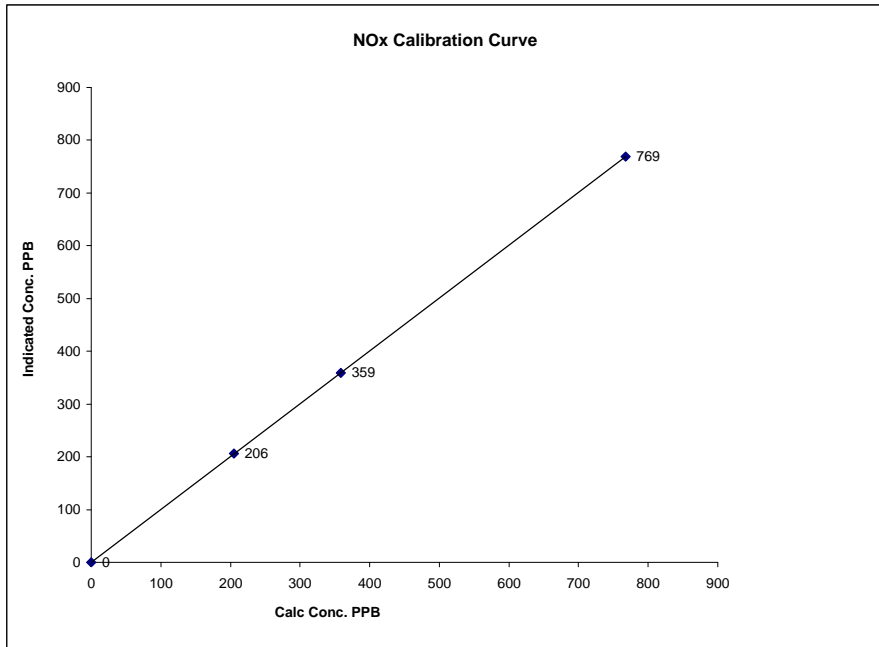
Notes:

Calibration Performed by: Ting Xu

### NOx Calibration Curve

Calibration Date April 6, 2011  
 Company LICA  
 Plant / Location Maskwa  
 Start Time (MST) 8:43 End Time (MST) 14:25

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999999
0	0	N/A	Slope (0.85 to 1.15)	1.001096
205	206	0.9953	Intercept (± 3% F.S.)	0.34941
358	359	0.9976		
768	769	0.9987		

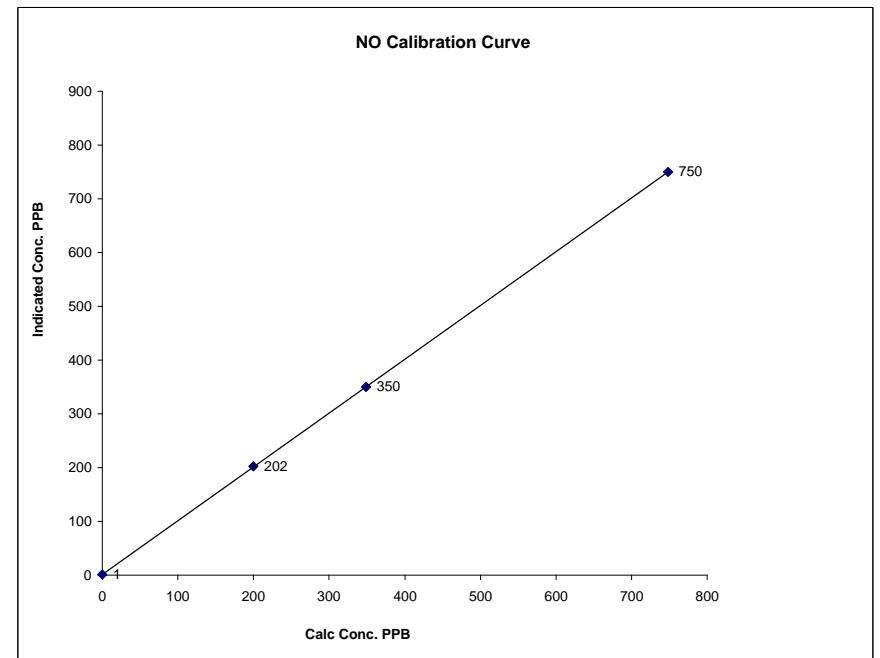


Notes:

### NO Calibration Curve

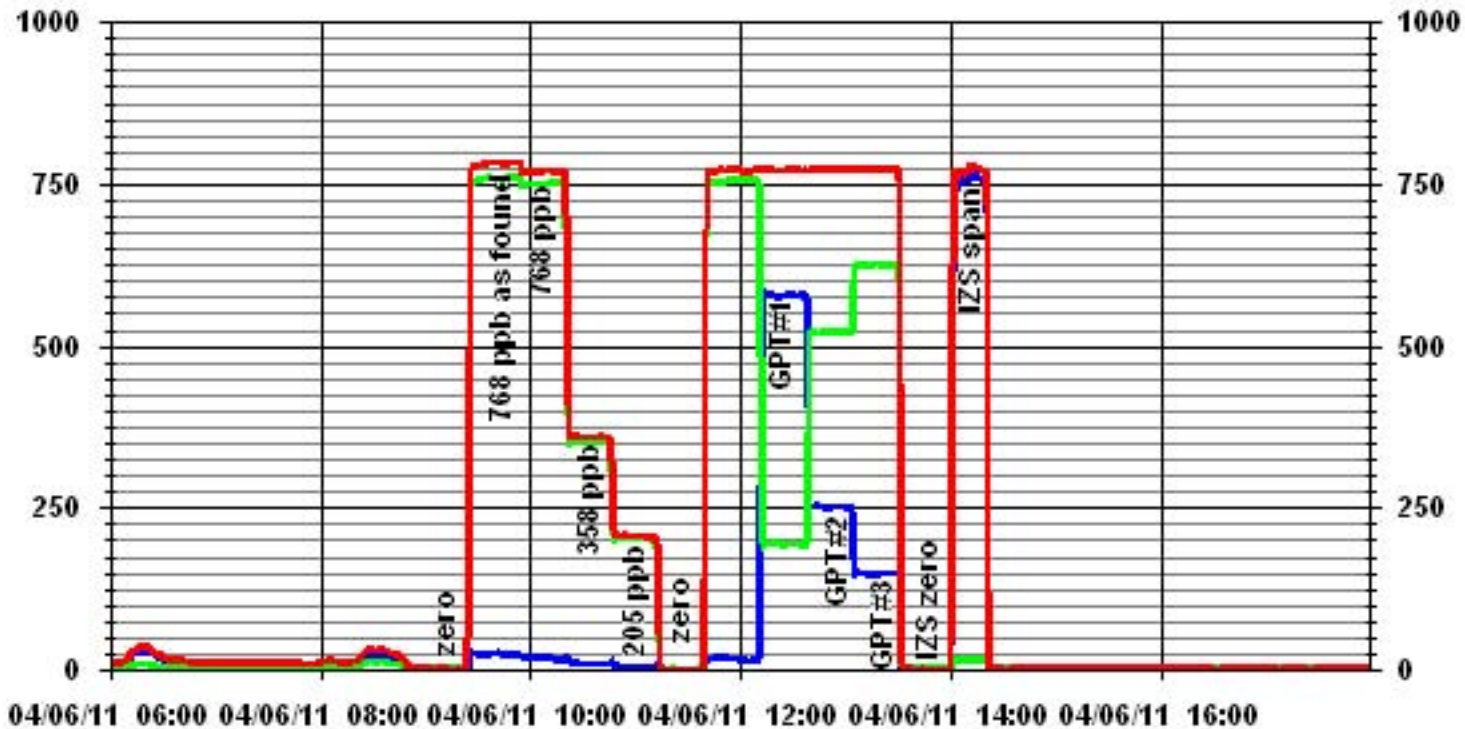
Calibration Date April 6, 2011  
 Company LICA  
 Plant / Location Maskwa  
 Start Time (MST) 8:43 End Time (MST) 14:25

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999997
0	1	N/A	Slope (0.85 to 1.15)	0.999123
200	202	0.9895	Intercept (± 3% F.S.)	0.4264
349	350	0.9976		
749	750	0.9982		



Notes:

### 01 Minute Averages



— LICA30 IIOX\_ PPB    
 — LICA30 IIO\_ PPB    
 — LICA30 IIO2\_ PPB

# Lakeland Industry & Community Association

St. Lina Monitoring Site  
Ambient Air Monitoring  
Data Report  
For  
April 2011

Prepared By:



May 12, 2011

# Lakeland Industry & Community Association

## St. Lina

### Ambient Air Monitoring

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## Introduction

The following Ambient Air Monitoring report was prepared for:

Mr. Mike Bisaga

**Lakeland Industry & Community Association**

Box 8237

5107W – 50 Street

Bonnyville, Alberta

T9N 2J5

Monitoring Location: St. Lina

Data Period: April 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 – April 2011

LICA ST. LINA SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)		
						OBJECTIVES					EXCEEDENCES				
PARAMETER	1-HR		24-HR		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY			
	SO2 (PPB)	172	48	0									0	0.12	3
H2S (PPB)	10	3	0	0	0.05	1	VAR	VAR	VAR	VAR	0.6	11	94.9		
THC (PPM)	-	-	-	-	2.11	2.7	11, 13	VAR	VAR	VAR	2.3	13	97.1		
OZONE (PPB)	82	-	0	-	43.06	59	6	20, 21	9.8, 12.5	118(ESE), 117(ESE)	51.2	10	99.7		
NOx (PPB)	-	-	-	-	1.28	6	18, 19	VAR	VAR	VAR	2.8	18	99.7		
NO (PPB)	-	-	-	-	0.15	2	VAR	VAR	VAR	VAR	0.4	4, 11	99.7		
NO2 (PPB)	212	106	0	0	1.17	5	VAR	VAR	VAR	VAR	2.5	18	99.7		
PM2.5 (ug/m3)	-	30	-	0	4.74	23.3	4	10	12.3	316(NW)	11.2	4	99.7		
TEMPERATURE (DEGREE C)	-	-	-	-	3.21	16.3	25	15, 16	11.9, 11	84(E), 78(ENE)	8.5	26	99.7		
BP (MILLIBAR)	-	-	-	-	925	939	13	VAR	VAR	VAR	937.1	13	99.7		
RH (%)	-	-	-	-	58.21	91	27	VAR	VAR	VAR	87.8	28	99.7		
PRECIPITATION (MM)	-	-	-	-	0.02	1.4	27	15	10.4	357(N)	6.6	28	100.0		
VECTOR WS (KPH)	-	-	-	-	9.79	22.8	9	15	-	250(WSW)	11.1	4	99.7		
VECTOR WD (DEGREES)	-	-	-	-	279(W)	-	-	-	-	-	-	-	99.7		

VAR-VARIOUS

# General Monthly Summary

## Equipment Operation

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

### AQM STATION – LICA – St. Lina

#### Sulphur Dioxide (PPB)

- Analyzer make / model - API 100E, S/N: 468

No operational issue was observed during this month. The inlet filter was changed before the monthly calibration was started. Two hours of data were invalidated due to a power failure on April 3<sup>rd</sup>. Data was corrected using daily zero information.

#### Hydrogen Sulphide (PPB)

- Analyzer make / model - API 101E, S/N: 510

The analyzer spanned high on April 8<sup>th</sup>. It was noticed that the analyzer had a “system flow warm” on April 9<sup>th</sup>. Performed troubleshooting by replacing the exhaust pump. A post-repair calibration was performed on April 11<sup>th</sup>. Data was invalidated back to the last valid daily calibration, which was April 7<sup>th</sup>. 35 hours of data were invalidated. The inlet filter was changed before the calibration was started. Two hours of data were invalidated due to a power failure on April 3<sup>rd</sup>. Data was corrected using daily zero information.

#### Total HydroCarbon (PPM)

- Analyzer make / model –TECO 51C, S/N: 77021-384

The analyzer flamed out on April 4<sup>th</sup>, and it was relit on April 5<sup>th</sup>. 19 hours of data were invalidated. The inlet filter was changed before the monthly calibration was started. Two hours of data were invalidated due to a power failure on April 3<sup>rd</sup>. 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

No operational issue was observed during this month. The inlet filter was changed before the monthly calibration was started. Two hours of data were invalidated due to a power failure on April 3<sup>rd</sup>. Data was corrected using daily zero information.

### Nitrogen Dioxide (PPB)

- Analyzer make / model - API 200E, S/N: 592

No operational issue was observed during this month. The inlet filter was changed before the monthly calibration was started. Two hours of data were invalidated due to a power failure on April 3<sup>rd</sup>. 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 April 21<sup>st</sup>. 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. No data was invalidated as all data were above –3 ug/m3. Two hours of data were invalidated due to a power failure on April 3<sup>rd</sup>. The Teom flow was changed from “Standard” to “Actual” as per an AE requirement on April 4<sup>th</sup>.

### Temperature (Degree C)

- Analyzer make / model – Met One 060

No operational issue was observed during the month. Two hours of data were invalidated due to a power failure on April 3<sup>rd</sup>.

# 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. Two hours of data were invalidated due to a power failure on April 3<sup>rd</sup>.

### Relative Humidity (%)

- Analyzer make / model - Met One 083

No operational issue was observed during this month. Two hours of data were invalidated due to a power failure on April 3<sup>rd</sup>.

### 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. Two hours of data were invalidated due to a power failure on April 3<sup>rd</sup>.

### 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 April 21<sup>st</sup>.

#### **Air Quality Index (AQI)**

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. Ninety-seven hours of AQI values recorded in April 2011 were in the Fair range, and they were all due to ozone. Others were within the Good range, and they were all due to ozone as well. The highest hourly concentration of Ozone was 59 ppb and an AQI value of 33, on April 6<sup>th</sup>, hour of 20 and 21.

# Continuous Monitoring

# Monthly Summaries, Graphs & Wind Roses

# Air Quality Index



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

APRIL 2011

AIR QUALITY INDEX (AQI)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
DAY	HOURLY 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	
1	24	24	24	23	23	23	-	23	24	24	25	25	27	28	29	29	29	28	27	26	25	25	25	25	25	29	
2	03	03	03	03	03	03	NA	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
3	24	23	22	22	23	-	24	24	24	23	23	24	25	25	26	26	27	25	25	24	24	24	24	24	23	27	
4	03	03	03	03	03	NA	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
5	22	22	21	21	-	19	18	18	18	-	22	23	23	23	24	24	24	24	24	24	24	24	24	24	24	24	
6	03	03	03	03	NA	03	03	03	03	03	NA	NA	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
7	24	24	24	-	24	23	23	22	23	23	23	25	27	29	32	28	28	28	27	27	25	25	24	24	24	32	
8	03	03	03	NA	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
9	23	22	-	22	22	22	23	20	21	24	24	25	25	27	27	28	28	27	27	25	28	29	28	27	29	29	
10	03	03	NA	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
11	26	-	24	23	23	23	21	21	21	22	24	26	26	28	28	28	29	31	31	31	31	31	33	33	32	33	
12	03	NA	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
13	-	26	24	23	23	22	22	22	22	23	24	25	25	24	24	23	24	23	24	23	23	23	23	22	22	-	26
14	NA	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
15	21	21	22	22	20	18	18	20	22	25	25	26	29	30	31	31	31	30	29	28	26	25	-	24	31		
16	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
17	23	22	21	20	20	19	18	18	21	24	25	25	27	27	28	28	28	30	29	28	-	28	27	30	30		
18	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
19	28	24	24	23	23	24	23	24	25	28	28	29	29	28	28	28	28	28	29	-	28	27	26	29	29		
20	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
21	25	25	23	21	21	20	19	18	19	22	23	21	22	23	23	23	25	26	24	-	23	23	22	22	26		
22	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
23	21	21	18	17	16	16	16	15	13	12	12	13	15	16	17	17	18	18	-	19	19	19	19	18	21		
24	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
25	16	14	13	14	13	13	13	14	15	18	18	19	20	20	21	21	21	21	-	21	19	18	18	19	21		
26	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
27	18	18	17	17	17	17	17	18	18	21	22	24	24	23	24	24	-	23	22	21	20	19	19	18	24		
28	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
29	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	
30	25	25	23	21	21	20	19	18	19	22	23	21	22	23	23	23	25	26	24	-	23	23	22	22	26		
PEAK	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	

STATUS FLAG CODES NA - NOT APPLICABLE

V - VARIOUS

AQI CLASS	OZONE (O <sub>3</sub> )				PARTICULATE MATTER 2.5 (PM <sub>2.5</sub> )				NITROGEN DIOXIDE (NO <sub>2</sub> )				SULPHUR DIOXIDE (SO <sub>2</sub> )				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)	97	13.5%	33	20,21	6	0	0.0%	-	-	-	0	0.0%	-	-	-	97	13.5%	
GOOD (1-25)	581	80.7%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	581	80.7%	
OVERALL	678	94.2%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	678	94.2%	
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	5.8%	

# Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2011

SULPHUR DIOXIDE (SO<sub>2</sub>) 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	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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	0	0	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
3	0	0	0	0	IZS	0	0	0	0	P	P	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0.1	22	
4	1	1	1	IZS	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
5	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0.1	24	
6	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0.1	24	
7	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	24
8	0	0	0	1	1	1	0	1	1	1	1	1	1	1	1	2	2	2	2	3	2	2	IZS	0	3	1.1	24	
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	IZS	0	0	1	0.1	24	
10	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	
11	0	0	0	0	0	0	0	0	2	2	1	1	0	0	1	1	0	0	0	IZS	0	0	0	0	2	0.3	24	
12	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	
13	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	
14	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	
15	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	
16	0	0	0	0	0	0	1	1	1	1	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	1	0.2	24	
17	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	
18	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	1	1	1	1	0	1	0.2	24	
19	0	0	0	0	0	0	0	1	1	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
20	1	1	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
21	0	0	0	0	0	0	0	0	C	C	C	C	1	1	1	0	0	0	0	0	1	1	1	1	1	1	0.4	24
22	1	1	0	0	1	1	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
23	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
24	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
25	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
26	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	IZS	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0.1	24
28	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	1	0.1	24
29	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
30	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
HOURLY MAX	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	2	2	2	2	3	2	2	1	1				
HOURLY AVG	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1				

STATUS FLAG CODES

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

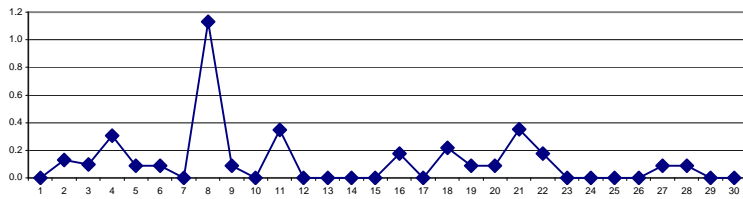
OBJECTIVE LIMIT:

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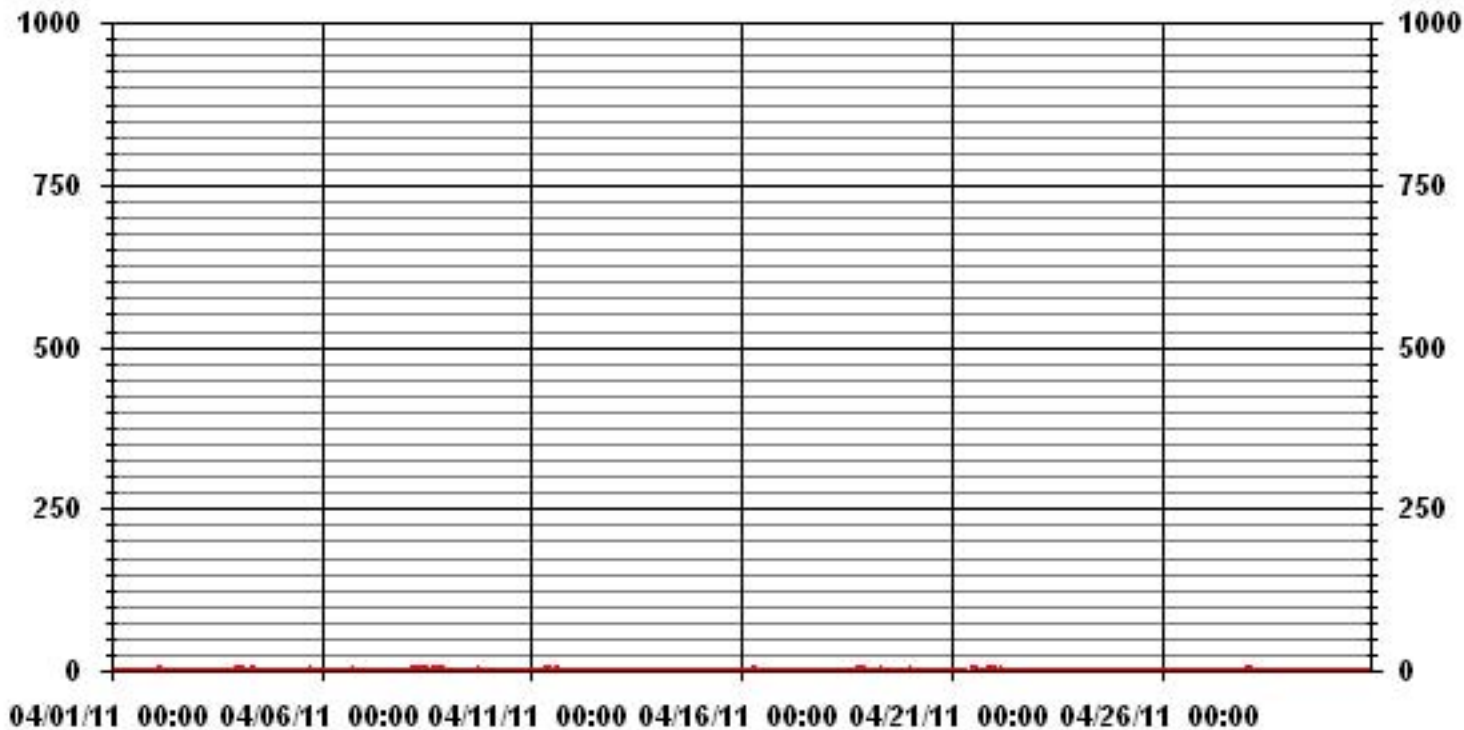
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	70		
MAXIMUM 1-HR AVERAGE:	3 PPB @ HOUR(S) 19 ON DAY(S) 8		
MAXIMUM 24-HR AVERAGE:	1.1 PPB ON DAY(S) 8		
IZS CALIBRATION TIME:	31 HRS	OPERATIONAL TIME:	718 HRS
MONTHLY CALIBRATION TIME:	4 HRS	AMD OPERATION UPTIME:	99.7 %
STANDARD DEVIATION:	0.37	MONTHLY AVERAGE:	0.12 PPB

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA31 SO2\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

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

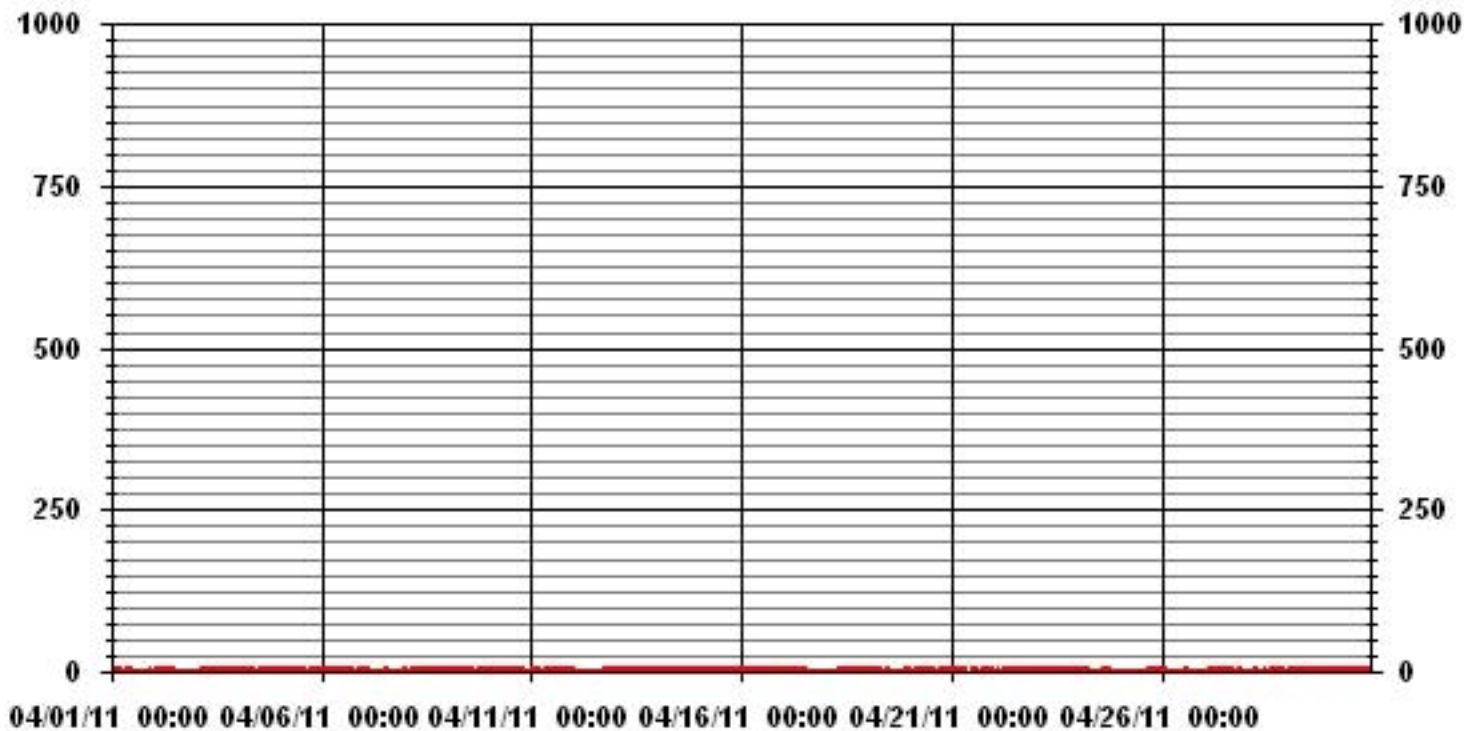
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	551
MAXIMUM INSTANTANEOUS VALUE:	4 PPB @ HOUR(S) 18, 19 ON DAY(S) 8
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.59
OPERATIONAL TIME:	714 HRS

### 01 Hour Averages



— LICA31 SO2MAX PPB

LICA31  
 SO2\_ / WDR Joint Frequency Distribution (Percent)

April 2011

Distribution By % Of Samples

Logger Id : 31  
 Site Name : LICA31  
 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	4.09	5.71	6.29	5.85	6.73	7.61	4.24	5.56	4.97	5.71	9.22	5.85	4.97	8.63	9.66	4.83	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	4.09	5.71	6.29	5.85	6.73	7.61	4.24	5.56	4.97	5.71	9.22	5.85	4.97	8.63	9.66	4.83	

Calm : .00 %

Total # Operational Hours : 683

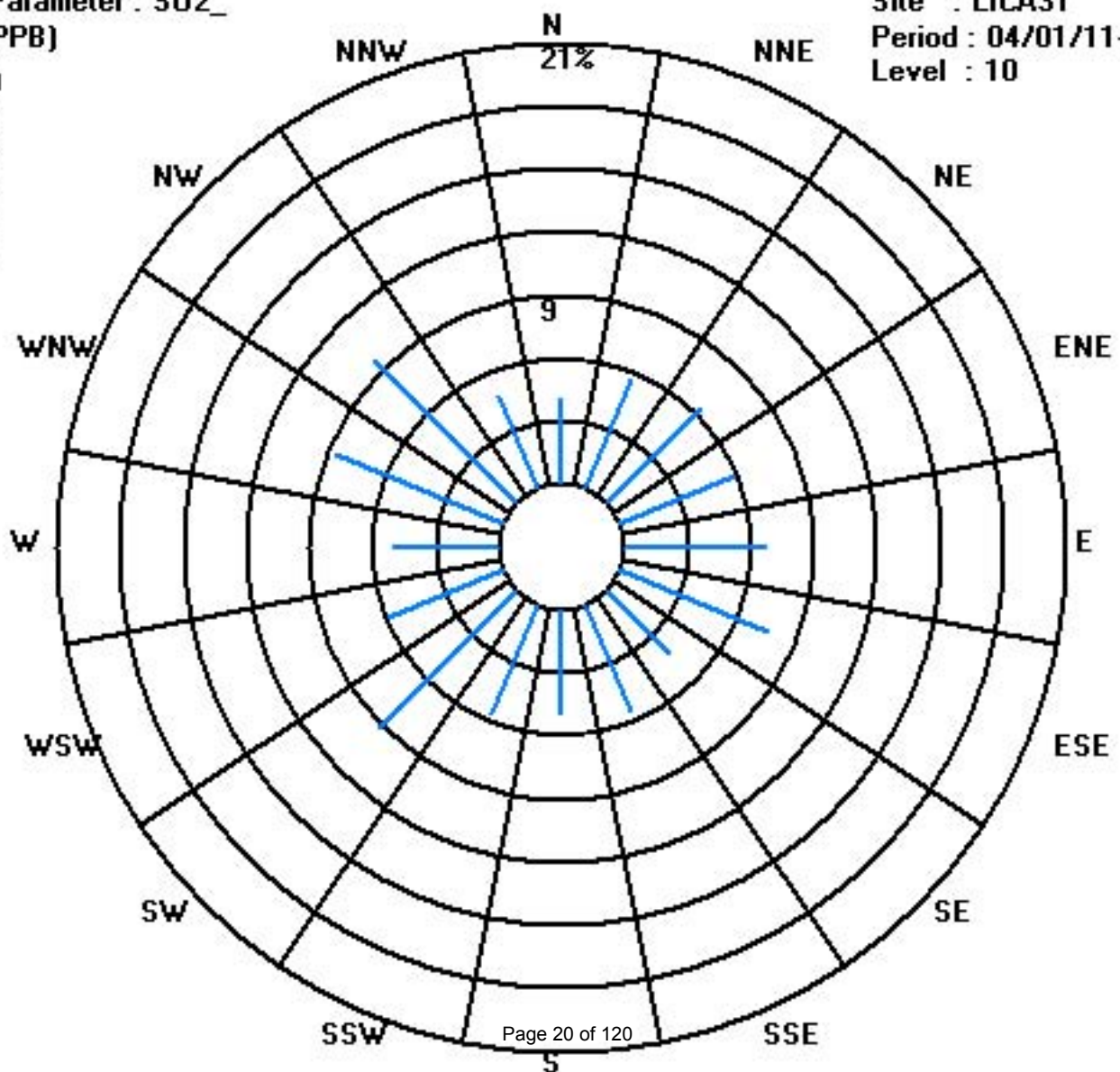
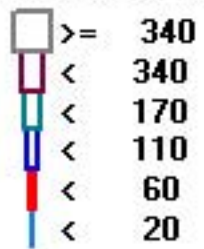
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	28	39	43	40	46	52	29	38	34	39	63	40	34	59	66	33	683
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	28	39	43	40	46	52	29	38	34	39	63	40	34	59	66	33	

Calm : .00 %

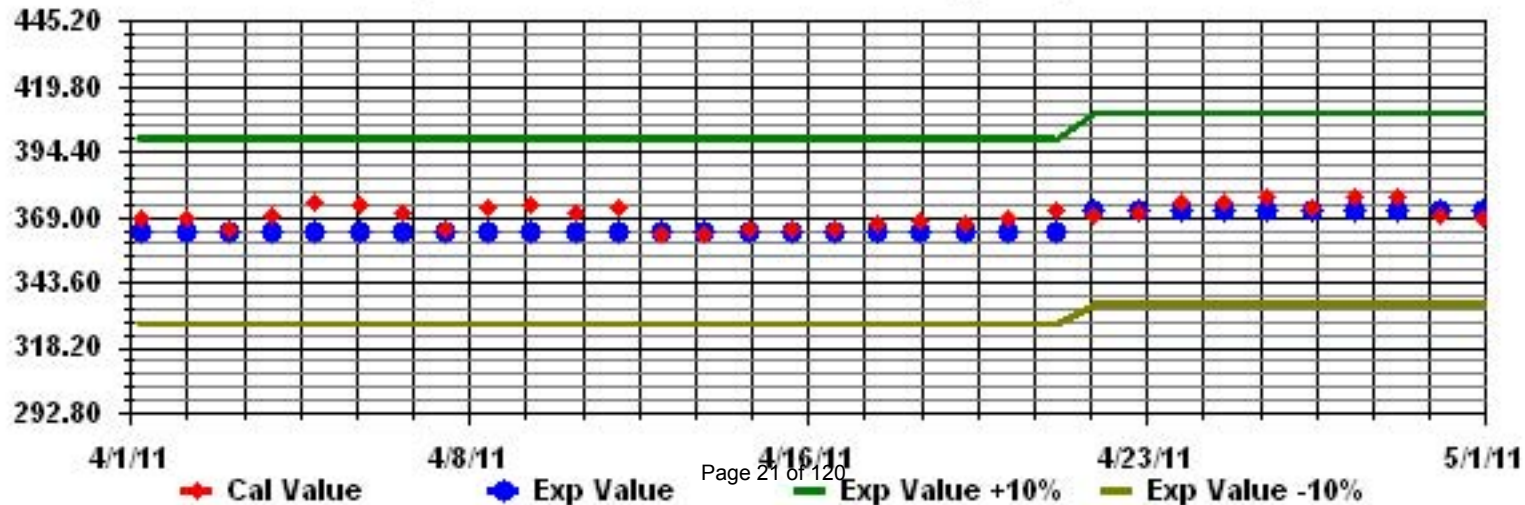
Total # Operational Hours : 683

Class Limits (PPB)





Calibration Graph for Site: LICA31 Parameter: S02\_ Sequence: S02 Phase: SPAll



# Hydrogen Sulphide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2011

## HYDROGEN SULPHIDE (H<sub>2</sub>S) 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		
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	IZS	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	IZS	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	IZS	0	0	0	0	P	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	22	
4	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
5	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
6	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	
7	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	24	
8	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	0	
9	N	N	N	N	N	N	N	N	N	N	N	M	C	1	0	0	0	0	0	0	0	0	0	0	IZS	0	1	0.1	13
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	IZS	0	0	0.0	24
11	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	C	C	C	C	0	IZS	0	0	0	0	1	0.6	24	
12	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	
13	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	
14	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	
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	1	1	1	0.1	24
26	1	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	1	0.5	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	1	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	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		1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1			
HOURLY AVG		0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	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

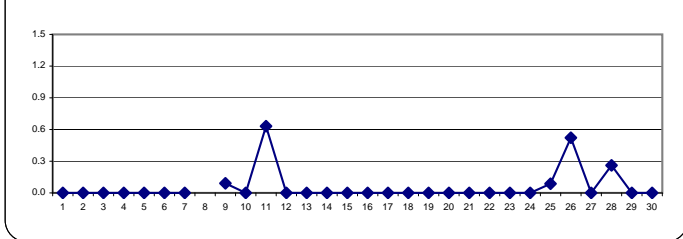
OBJECTIVE LIMIT:

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

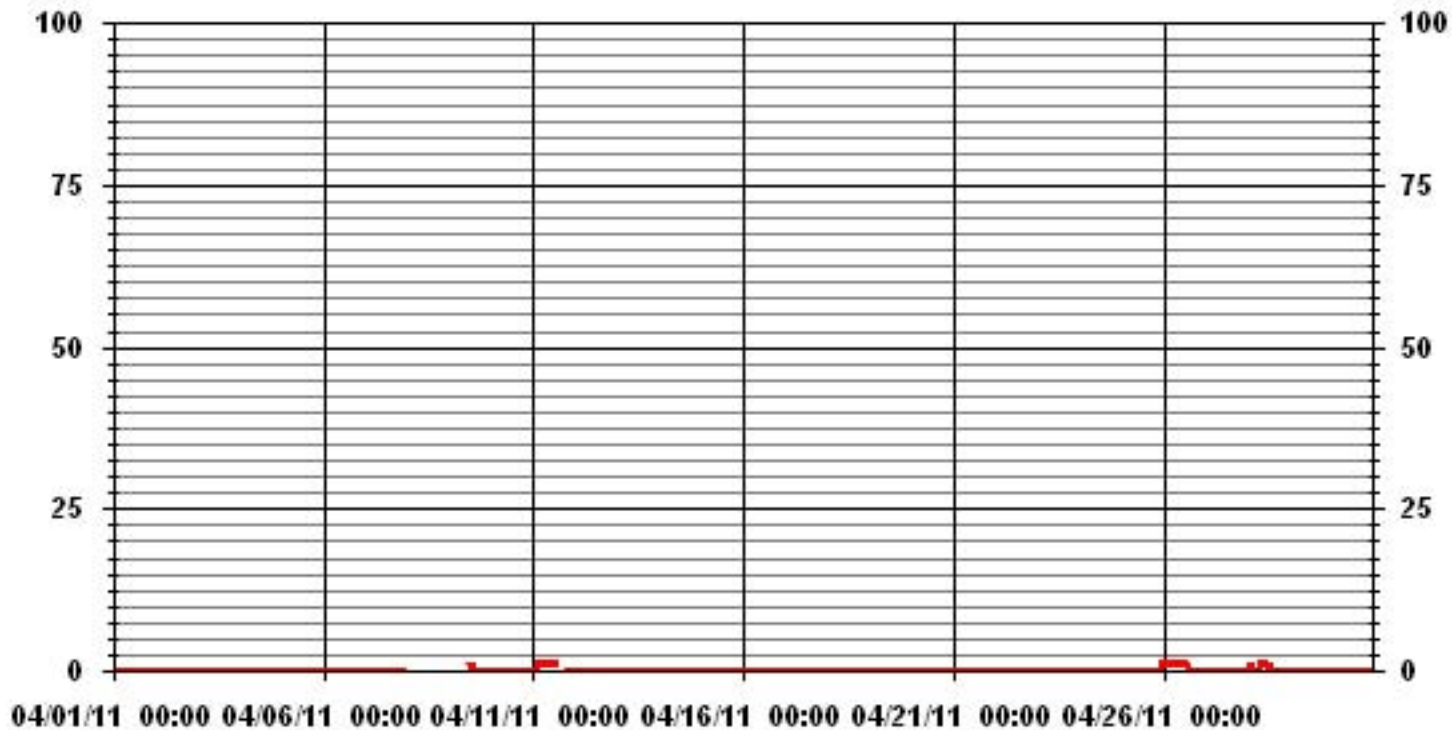
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	33
MAXIMUM 1-HR AVERAGE:	1 PPB @ HOUR(S) VAR ON DAY(S) VAR
MAXIMUM 24-HR AVERAGE:	0.6 PPB VAR-VARIOUS ON DAY(S) VAR
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	5 HRS
OPERATIONAL TIME:	683 HRS
AMD OPERATION UPTIME:	94.9 %
STANDARD DEVIATION:	0.22
MONTHLY AVERAGE:	0.05 PPB

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA31 H2S\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

APRIL 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	24:00	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	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
2		0	0	0	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
3		0	0	0	0	IZS	0	0	0	0	0	P	P	2	0	0	0	0	0	0	0	0	0	0	0	2	0.1	22		
4		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	
5		0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.0	24	
6		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	
7		IZS	0	0	0	0	0	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	23	
8		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	1	
9		N	N	N	N	N	N	N	N	N	N	M	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	13	
10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	1	0	1	0.0	24
11		1	1	1	1	1	1	1	1	1	1	1	1	1	C	C	C	C	C	0	IZS	0	1	0	0	1	0.8	24		
12		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
13		0	1	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0	IZS	0	0	0	0	0	0	0	1	0.2	24	
14		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	
15		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	
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	P	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0.0	23	
18		0	0	0	0	P	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0.0	23	
19		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	
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	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		0	0	0	0	0	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	IZS	0	0	1	0	0	0	1	0	1	0	1	1	0	1	1	1	1	1	1	1	0.4	24
26		1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	1	0.7	24		
27		0	1	1	1	IZS	1	1	0	0	P	0	0	0	0	0	0	0	1	1	0	0	1	1	0	1	0.4	23		
28		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	1	1.0	24	
29		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	
30		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	
HOURLY MAX		1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
HOURLY AVG		0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0				

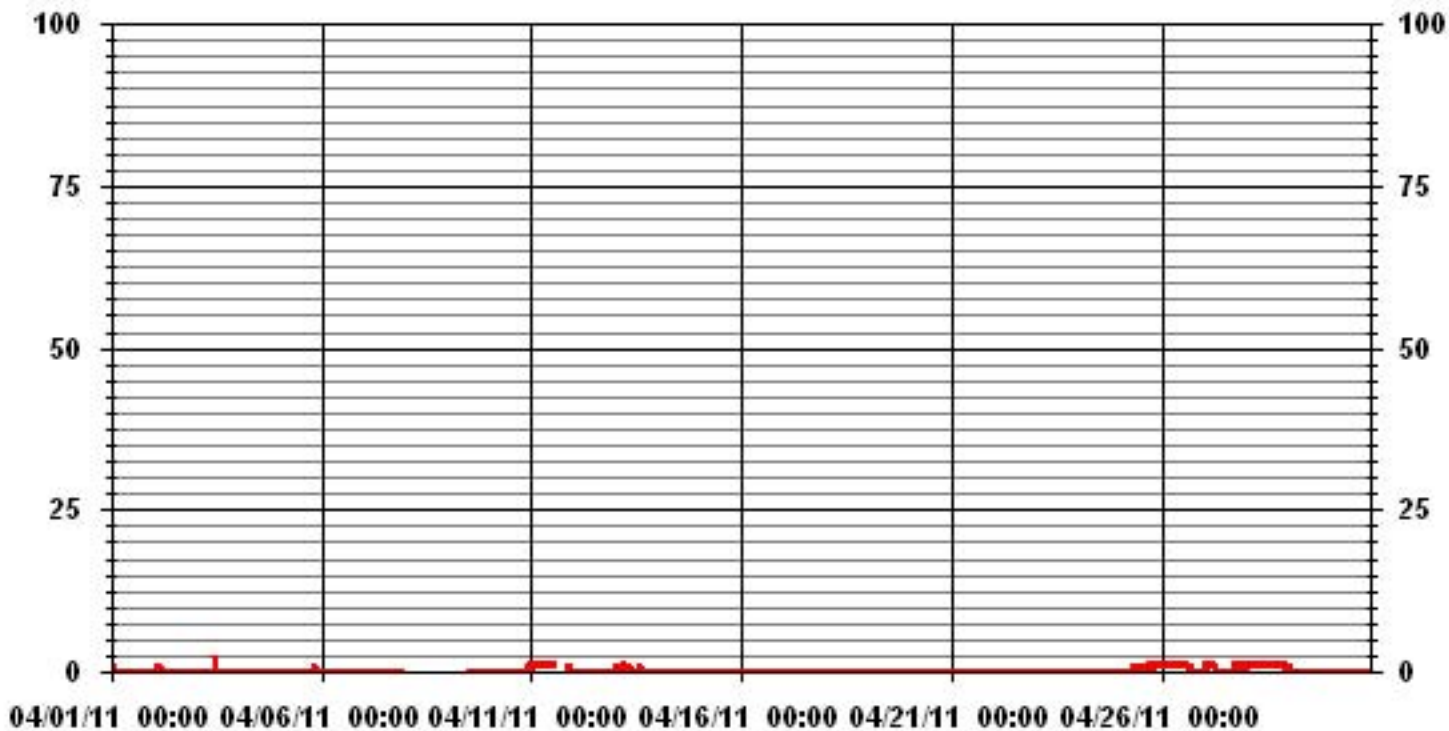
**STATUS FLAG CODES**

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:	80
MAXIMUM INSTANTANEOUS VALUE:	2 PPB @ HOUR(S) 11 ON DAY(S) 3
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	0.34
OPERATIONAL TIME:	678 HRS

### 01 Hour Averages



— LICA31 H2S MAX PPB

LICA31  
H2S\_ / WDR Joint Frequency Distribution (Percent)

April 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	4.17	5.87	6.49	6.18	7.10	8.03	4.63	5.71	5.40	6.02	8.96	4.79	4.48	8.80	9.42	3.86	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.17	5.87	6.49	6.18	7.10	8.03	4.63	5.71	5.40	6.02	8.96	4.79	4.48	8.80	9.42	3.86	

Calm : .00 %

Total # Operational Hours : 647

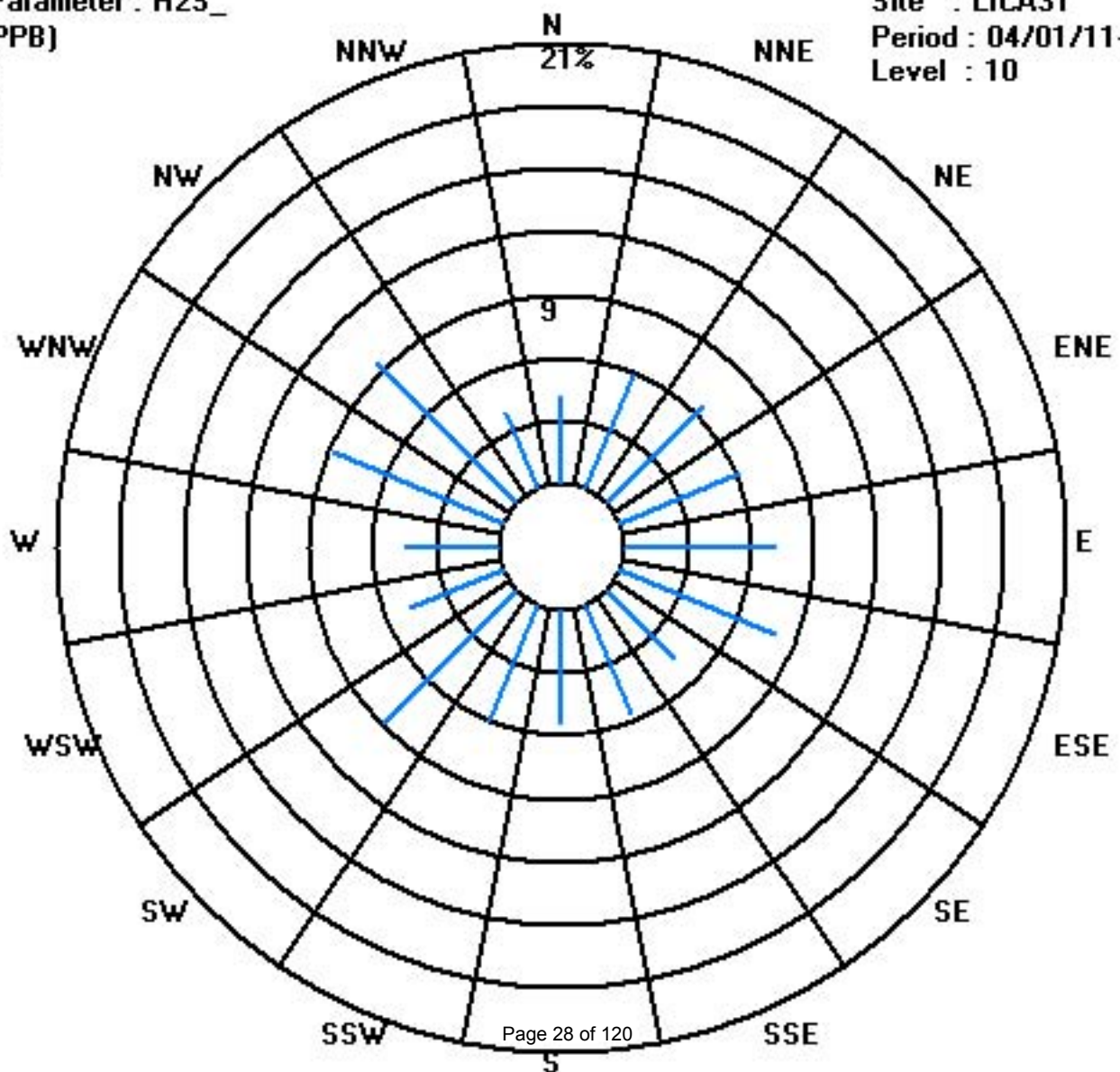
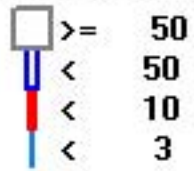
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	27	38	42	40	46	52	30	37	35	39	58	31	29	57	61	25	647
< 10																	
< 50																	
>= 50																	
Totals	27	38	42	40	46	52	30	37	35	39	58	31	29	57	61	25	

Calm : .00 %

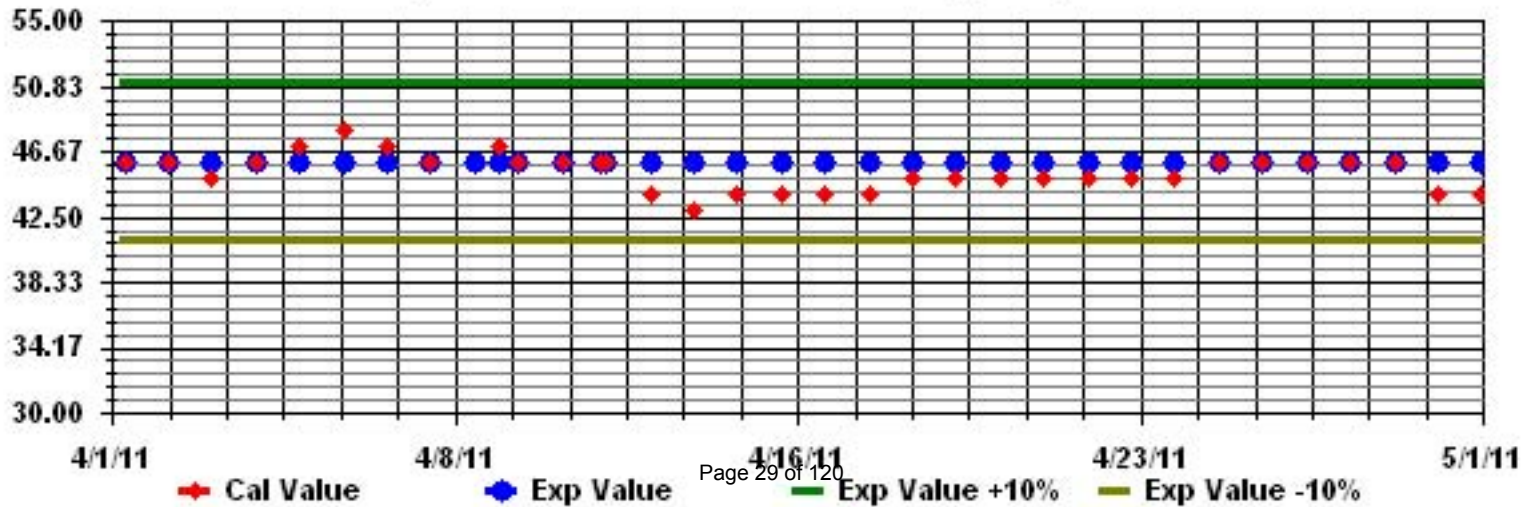
Total # Operational Hours : 647

Class Limits (PPB)





Calibration Graph for Site: LICA31 Parameter: H2S\_ Sequence: H2S Phase: SPAll



# Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

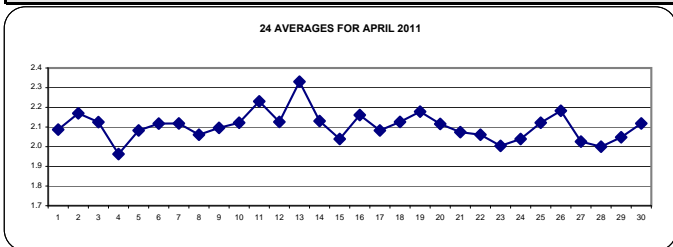
APRIL 2011

TOTAL HYDROCARBONS hourly averages in ppm

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

STATUS FLAG CODES

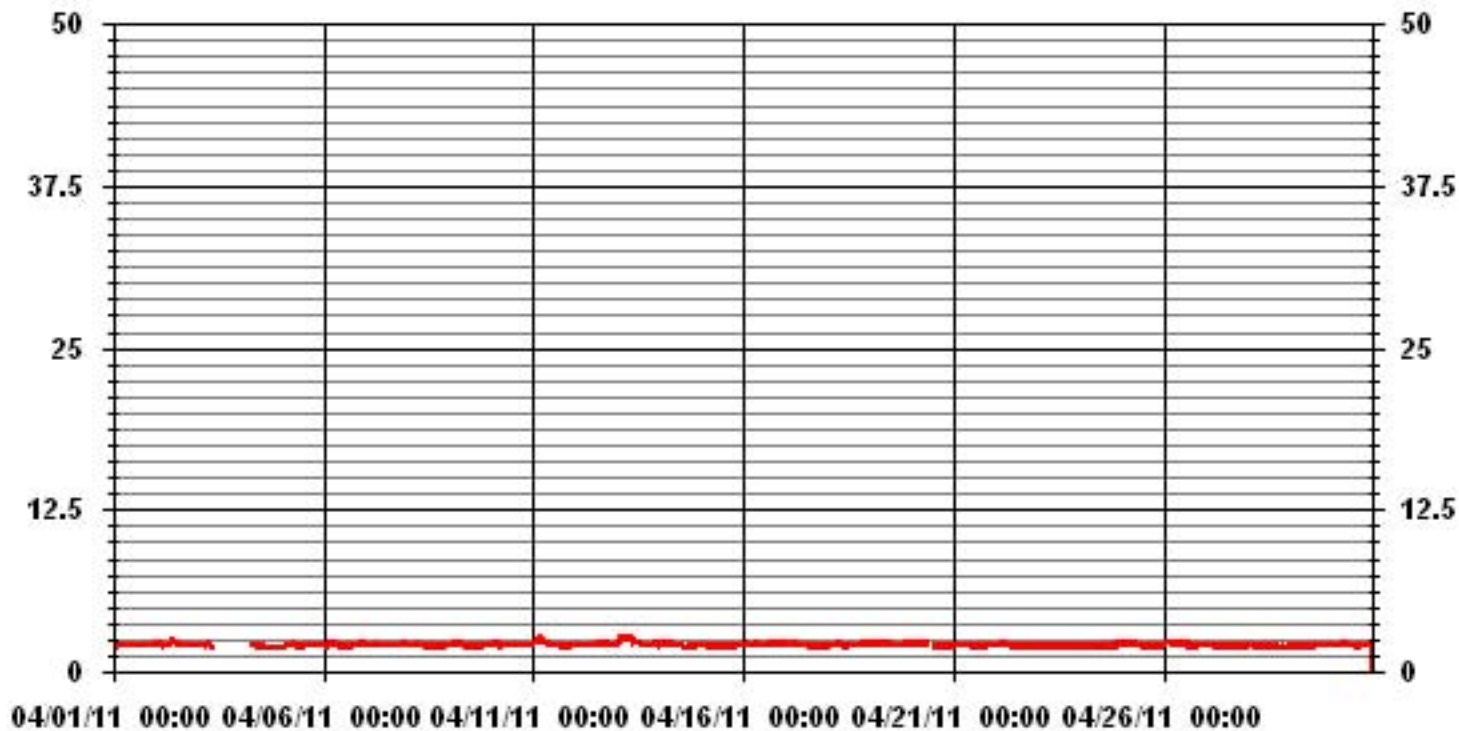
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	662
MAXIMUM 1-HR AVERAGE:	2.7 PPM @ HOUR(S) VAR ON DAY(S) 11, 13
MAXIMUM 24-HR AVERAGE:	2.3 PPM ON DAY(S) 13
	VAR- VARIOUS
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	6 HRS
OPERATIONAL TIME:	699 HRS
AMD OPERATION UPTIME:	97.1 %
STANDARD DEVIATION:	0.11
MONTHLY AVERAGE:	2.11 PPM

### 01 Hour Averages



— LICA31 THC PPM

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

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

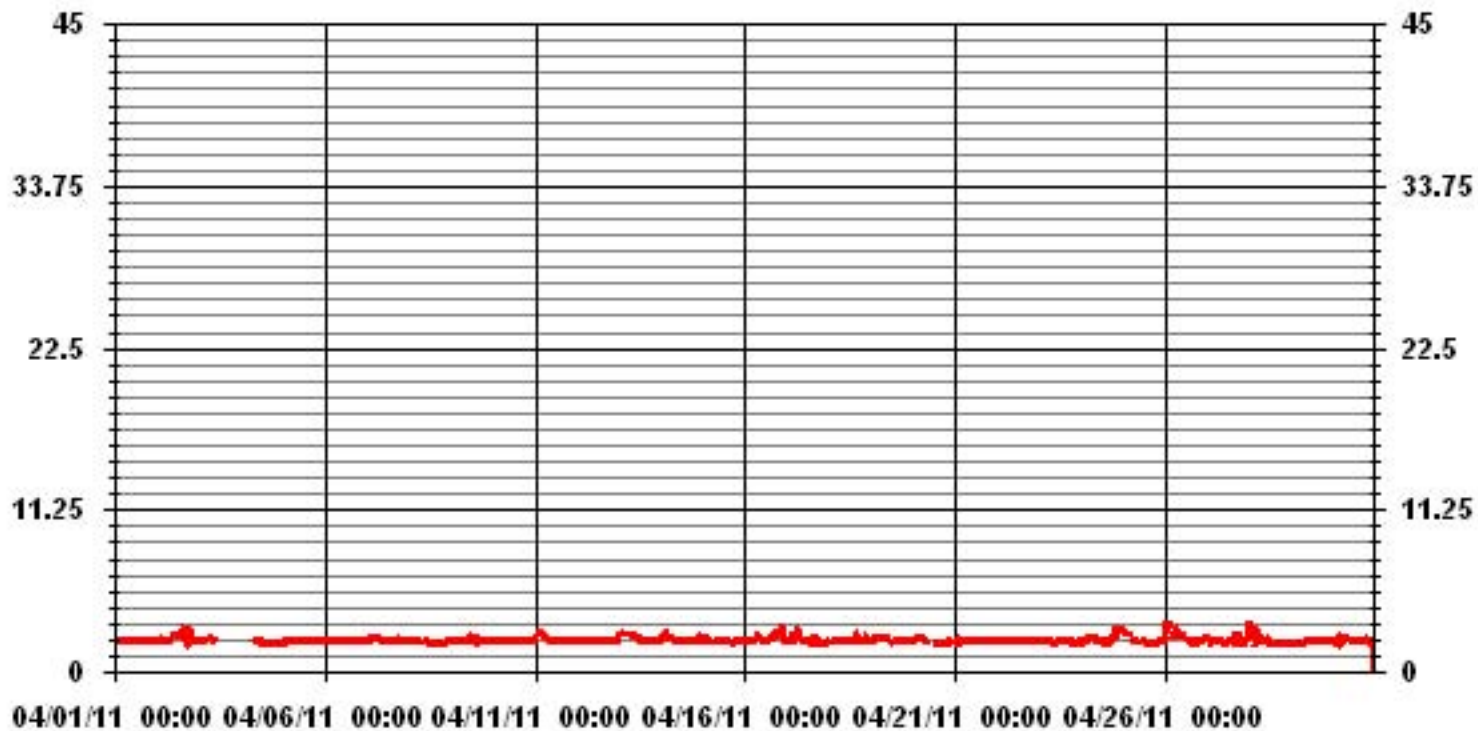
**STATUS FLAG CODES**

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:	656					
MAXIMUM INSTANTANEOUS VALUE:	3.5	PPM	@ HOUR(S)	1	ON DAY(S)	26
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	692	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.21					

### 01 Hour Averages



— LICA31 THCMAX PPM

LICA31  
 THC / WDR Joint Frequency Distribution (Percent)

April 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	4.07	5.89	6.49	6.04	6.94	7.85	4.53	5.74	5.13	5.58	8.76	5.89	4.98	8.45	8.76	4.83	100.00
< 10.0	.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
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.07	5.89	6.49	6.04	6.94	7.85	4.53	5.74	5.13	5.58	8.76	5.89	4.98	8.45	8.76	4.83	

Calm : .00 %

Total # Operational Hours : 662

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	39	43	40	46	52	30	38	34	37	58	39	33	56	58	32	662
< 10.0																	
< 50.0																	
>= 50.0																	
Totals	27	39	43	40	46	52	30	38	34	37	58	39	33	56	58	32	

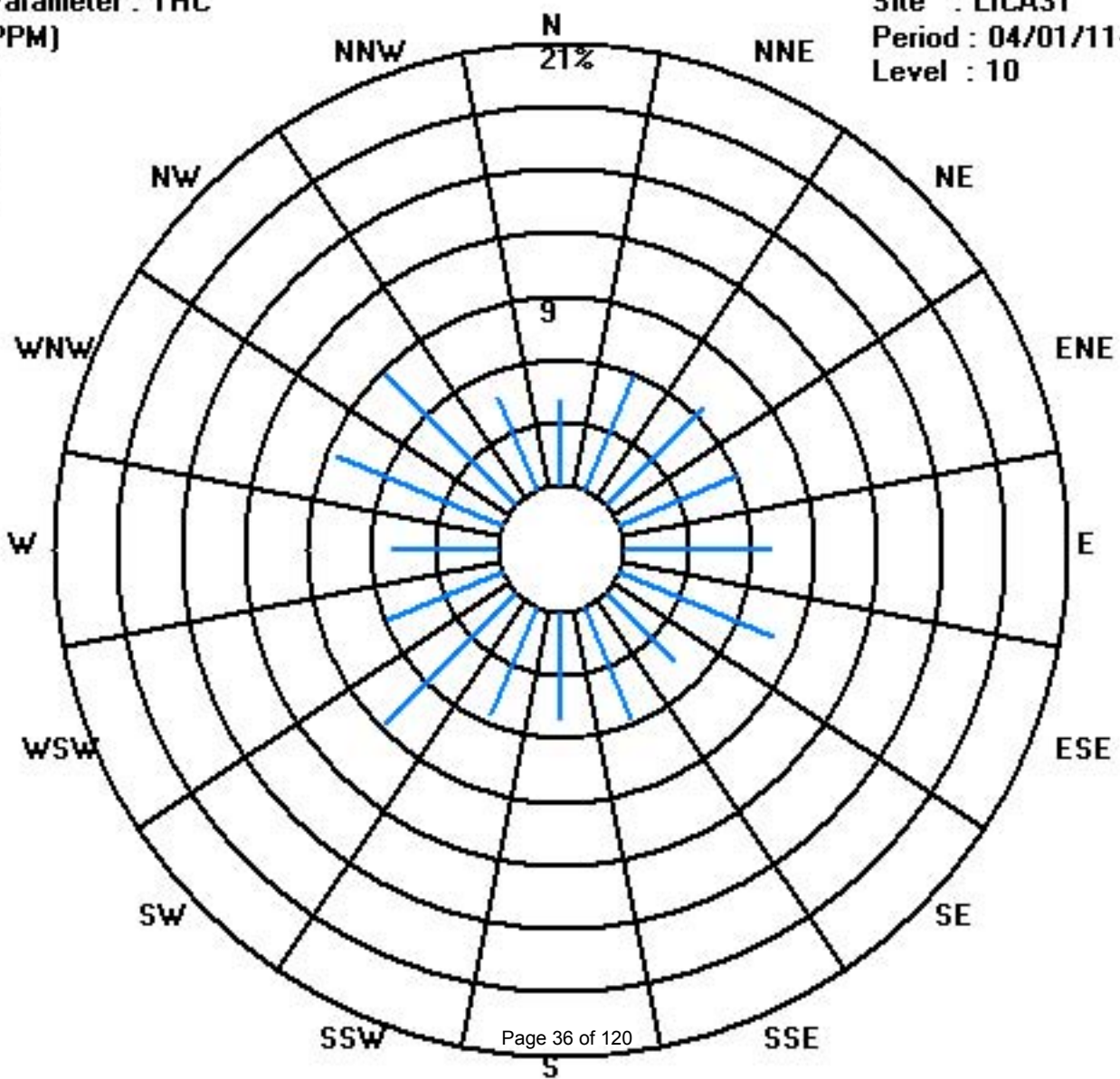
Calm : .00 %

Total # Operational Hours : 662

Class Limits (PPM)

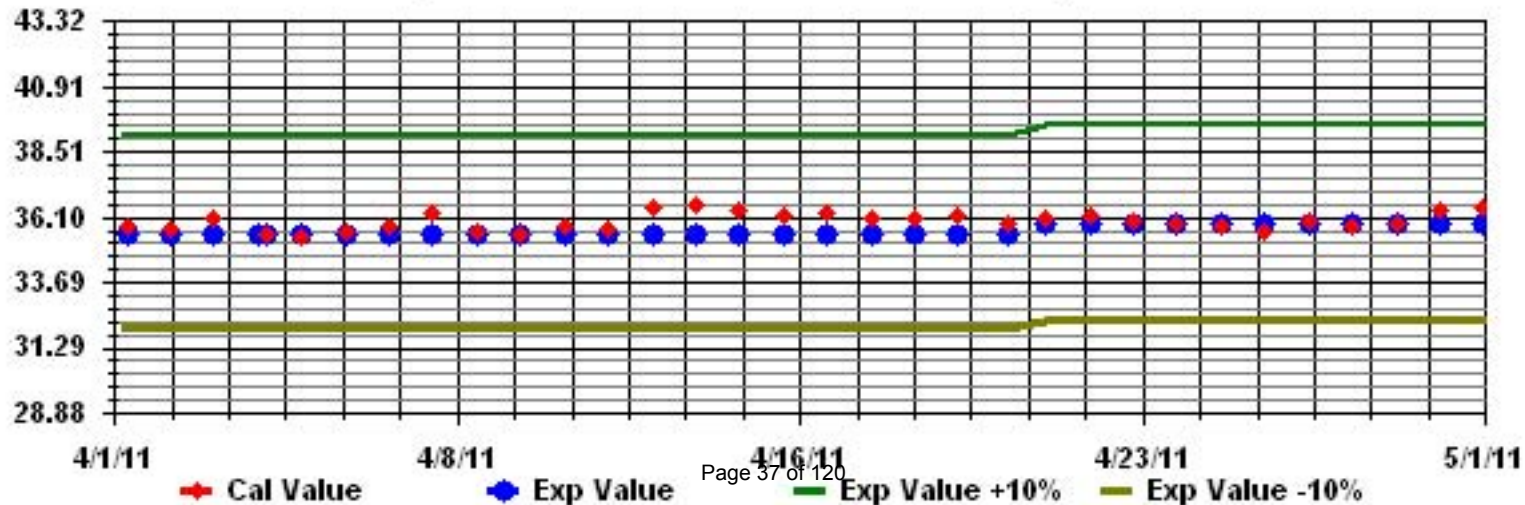
Period : 04/01/11-04/30/11

Level : 10





Calibration Graph for Site: LICA31 Parameter: THC Sequence: THC Phase: SPAll



# Ozone

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2011

## OZONE (O<sub>3</sub>) hourly averages in ppb

MST

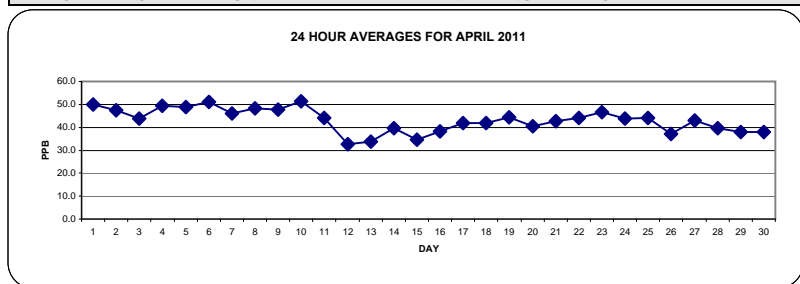
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	48	48	47	46	46	46	<b>IZS</b>	46	47	48	49	50	52	54	55	55	55	54	52	51	50	50	50	49	55	49.9	24	
2	48	46	44	44	46	<b>IZS</b>	48	47	47	46	46	47	49	50	51	51	52	50	49	48	48	47	46	43	52	47.5	24	
3	43	43	42	41	<b>IZS</b>	38	36	35	36	<b>P</b>	<b>P</b>	44	45	46	46	47	47	47	48	48	47	47	47	47	48	43.8	22	
4	47	48	48	<b>IZS</b>	47	46	45	44	45	45	45	50	52	55	58	54	53	53	52	52	50	49	48	47	58	49.3	24	
5	46	44	<b>IZS</b>	44	43	44	46	40	42	47	48	49	50	52	52	53	53	52	52	50	53	55	54	52	55	48.7	24	
6	51	<b>IZS</b>	47	46	46	46	42	41	42	43	48	51	51	53	54	54	55	57	57	57	<b>59</b>	<b>59</b>	58	56	<b>59</b>	51.0	24	
7	<b>IZS</b>	51	48	46	45	44	43	43	43	46	48	49	49	48	47	46	47	46	45	46	45	44	43	<b>IZS</b>	51	46.0	24	
8	42	42	44	43	39	36	35	39	44	49	50	51	55	56	57	57	57	56	55	53	51	50	<b>IZS</b>	47	57	48.2	24	
9	45	43	41	40	39	37	36	36	42	47	50	50	52	52	53	54	54	56	56	55	53	<b>IZS</b>	53	52	56	47.7	24	
10	53	48	47	46	46	48	45	47	49	53	54	55	55	54	53	53	53	53	54	55	<b>IZS</b>	54	52	51	55	<b>51.2</b>	24	
11	50	49	45	42	41	39	37	36	37	43	45	42	43	45	46	45	50	51	48	<b>IZS</b>	45	45	44	43	51	44.0	24	
12	42	41	36	33	32	31	31	30	26	23	23	25	29	31	33	34	35	36	<b>IZS</b>	37	37	37	37	35	33	42	32.6	24
13	31	28	26	27	26	25	25	27	29	35	35	37	39	40	41	42	41	<b>IZS</b>	41	38	36	36	37	37	42	33.9	24	
14	36	36	34	33	34	34	34	35	36	41	43	47	47	46	47	47	<b>IZS</b>	45	44	42	40	38	37	36	47	39.7	24	
15	36	35	35	35	34	35	35	35	35	35	35	35	35	34	34	<b>IZS</b>	34	34	33	32	34	35	37	36	37	34.7	24	
16	35	34	33	32	32	32	32	33	34	38	40	41	42	43	<b>IZS</b>	44	44	44	43	42	41	41	41	40	41	44	38.2	24
17	41	40	40	39	39	40	39	37	40	41	43	44	44	<b>IZS</b>	44	44	44	45	44	44	44	44	44	43	43	45	42.0	24
18	39	37	37	37	36	33	31	31	35	41	46	49	<b>IZS</b>	50	50	49	50	49	48	44	43	42	43	43	50	41.9	24	
19	43	42	41	40	39	38	36	34	36	41	46	<b>IZS</b>	50	51	50	50	50	49	49	49	49	49	46	47	46	51	44.4	24
20	44	42	40	38	34	31	32	32	35	42	<b>IZS</b>	44	44	43	43	43	42	43	43	43	43	43	43	42	44	40.4	24	
21	40	38	41	43	43	40	34	36	<b>C</b>	<b>C</b>	<b>C</b>	44	46	45	46	46	46	46	45	44	46	46	43	41	46	42.8	24	
22	40	40	39	37	36	36	38	39	<b>IZS</b>	46	46	47	47	47	47	47	48	49	49	49	49	49	48	48	45	49	44.2	24
23	46	45	44	43	43	43	41	<b>IZS</b>	43	46	49	49	49	49	50	50	50	50	49	48	48	47	46	44	50	46.6	24	
24	45	45	43	42	41	43	<b>IZS</b>	40	42	43	45	46	48	49	49	48	47	46	45	43	42	40	37	36	49	43.7	24	
25	35	33	32	31	31	<b>IZS</b>	31	35	36	38	40	44	49	53	56	58	57	56	55	54	52	51	45	42	58	44.1	24	
26	39	34	31	30	<b>IZS</b>	30	29	27	27	27	28	29	29	39	48	48	49	51	46	44	42	42	42	41	51	37.0	24	
27	38	37	35	<b>IZS</b>	31	29	31	30	34	40	50	53	55	56	55	52	50	45	45	46	47	45	44	41	56	43.0	24	
28	36	37	<b>IZS</b>	34	32	31	36	38	37	40	42	41	40	44	44	45	44	43	42	41	40	40	42	42	45	39.6	24	
29	41	<b>IZS</b>	34	33	32	31	31	32	33	35	37	37	39	39	41	42	42	43	43	42	43	42	41	39	43	37.9	24	
30	<b>IZS</b>	36	36	36	34	32	29	26	27	36	40	42	42	43	43	42	43	43	43	42	41	40	40	<b>IZS</b>	43	38.0	24	
HOURLY MAX	53	51	48	46	47	48	48	47	49	53	54	55	55	56	58	58	57	57	57	57	59	59	58	56				
HOURLY AVG	42.1	40.8	39.6	38.6	38.1	37.1	36.0	36.2	37.8	41.3	43.4	44.6	45.8	47.1	48.0	48.3	48.0	48.0	47.4	46.1	45.4	44.9	44.3	43.4				

### STATUS FLAG CODES

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

OBJECTIVE LIMIT:

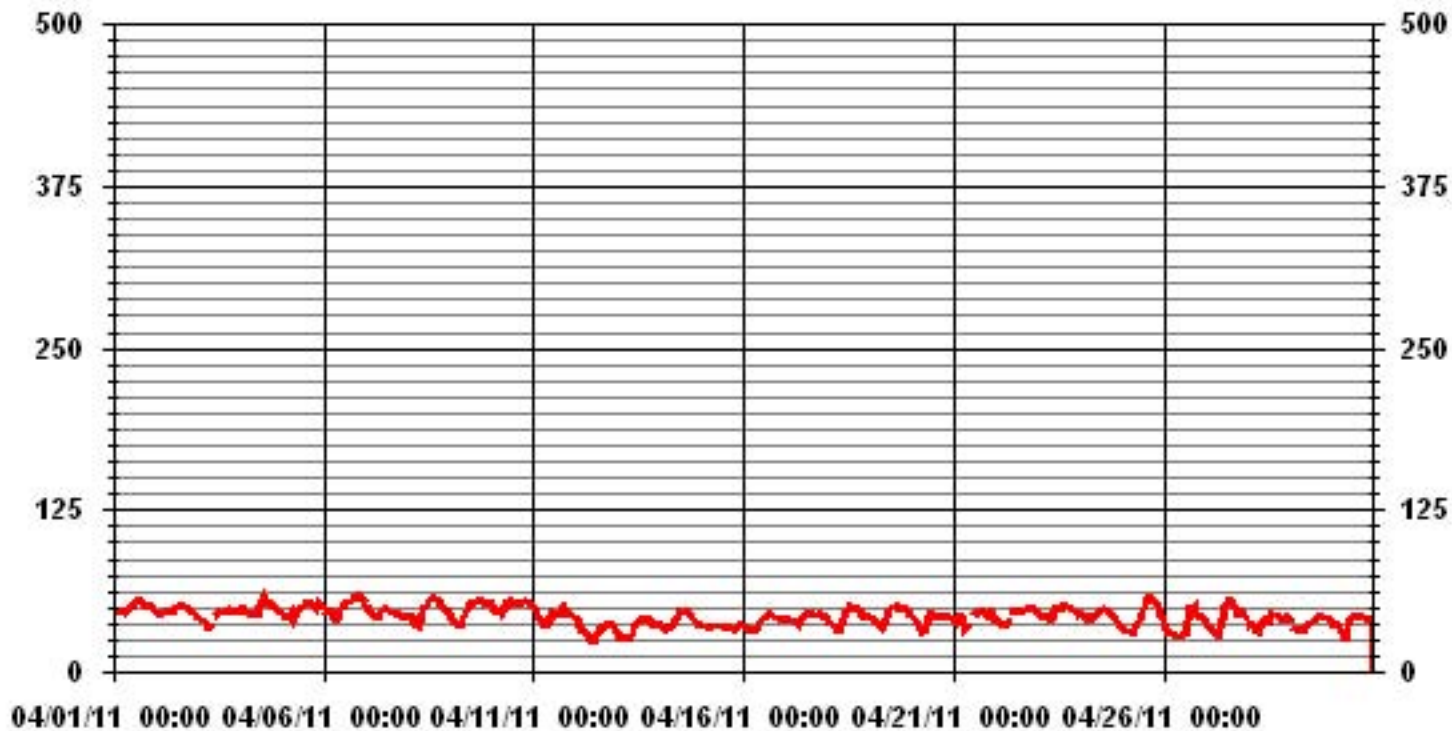
ALBERTA ENVIRONMENT: 1-HR 82 PPB



### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	683					
MAXIMUM 1-HR AVERAGE:	59	PPB	@ HOUR(S)	20, 21	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	51.2	PPB			ON DAY(S)	10
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME	99.7	%	
STANDARD DEVIATION	7.13		MONTHLY AVERAGE	43.06	PPB	

### 01 Hour Averages



— LICA31\_03\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 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	49	48	48	47	46	46	<b>IZS</b>	47	48	49	50	51	54	54	56	56	56	55	53	52	51	50	50	50	56	50.7	24	
2	50	48	45	45	47	<b>IZS</b>	49	48	48	47	47	50	50	51	52	54	54	51	51	49	48	47	47	45	54	48.8	24	
3	43	43	43	42	<b>IZS</b>	39	38	37	38	<b>P</b>	<b>P</b>	45	46	47	47	48	48	49	49	48	48	48	48	49	44.8	22		
4	48	49	49	<b>IZS</b>	48	47	46	45	45	45	47	52	53	57	59	58	54	54	53	53	51	50	48	47	59	50.3	24	
5	47	45	<b>IZS</b>	45	44	46	47	45	46	48	49	50	52	52	53	54	54	53	53	51	55	56	55	54	56	50.2	24	
6	52	<b>IZS</b>	48	47	47	48	45	43	43	46	52	52	55	55	55	57	58	58	59	<b>60</b>	<b>60</b>	59	58	<b>60</b>	52.6	24		
7	<b>IZS</b>	52	50	47	46	45	<b>P</b>	44	44	47	49	50	50	48	47	47	46	46	46	45	44	<b>IZS</b>	52	47.1	23			
8	43	43	45	45	40	38	37	42	47	51	51	53	57	58	58	58	56	56	54	53	51	<b>IZS</b>	49	58	49.7	24		
9	46	45	42	41	40	38	37	39	46	50	51	52	53	53	54	55	55	57	58	55	55	<b>IZS</b>	54	54	58	49.1	24	
10	54	52	49	47	47	49	48	49	52	55	56	56	56	54	53	54	55	55	55	56	<b>IZS</b>	55	53	52	56	52.7	24	
11	51	51	46	44	42	41	39	38	39	47	50	43	45	47	48	48	54	54	49	<b>IZS</b>	47	45	45	44	54	46.0	24	
12	43	42	40	35	33	32	33	32	28	25	24	29	30	34	35	35	36	37	<b>IZS</b>	37	37	37	37	34	43	34.1	24	
13	33	30	27	27	27	26	26	28	31	36	36	38	41	41	42	42	42	<b>IZS</b>	42	40	37	37	37	38	42	35.0	24	
14	37	36	35	34	35	36	35	35	38	42	46	48	48	47	48	48	<b>IZS</b>	46	45	43	42	39	38	38	48	40.8	24	
15	37	36	36	36	35	35	35	35	35	35	36	35	35	35	35	<b>IZS</b>	35	35	34	34	35	37	38	37	38	35.5	24	
16	36	35	34	33	33	33	33	33	37	40	41	42	43	43	<b>IZS</b>	45	44	44	43	42	42	42	41	41	45	39.1	24	
17	41	41	41	42	40	41	41	40	<b>P</b>	43	44	45	45	<b>IZS</b>	45	45	46	47	46	45	45	45	44	44	47	43.5	23	
18	42	38	38	38	<b>P</b>	35	32	32	40	45	49	50	<b>IZS</b>	51	51	51	51	51	50	45	43	43	44	44	51	43.8	23	
19	44	43	42	40	40	39	38	36	39	45	49	<b>IZS</b>	51	51	52	51	50	50	50	49	51	48	48	47	52	45.8	24	
20	45	43	42	39	36	33	33	34	38	44	<b>IZS</b>	45	45	45	43	43	43	44	44	44	44	44	44	44	45	41.7	24	
21	41	40	43	45	46	44	36	40	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	46	46	47	47	47	46	45	47	47	45	43	47	44.3	24		
22	40	40	40	39	37	37	40	40	<b>IZS</b>	47	47	48	48	48	48	48	49	50	50	50	50	49	49	47	50	45.3	24	
23	46	45	45	44	44	45	45	<b>IZS</b>	46	48	50	50	50	50	50	51	50	51	50	49	48	48	47	45	51	47.7	24	
24	47	46	44	43	42	44	<b>IZS</b>	43	43	44	46	47	49	51	51	50	49	47	46	45	43	42	39	37	51	45.1	24	
25	36	34	33	32	32	<b>IZS</b>	34	36	37	40	43	47	52	57	58	59	58	57	56	55	54	54	48	43	59	45.9	24	
26	42	35	33	31	<b>IZS</b>	32	31	28	28	30	30	32	31	45	52	52	51	52	51	44	44	43	44	43	52	39.3	24	
27	40	39	38	<b>IZS</b>	34	30	33	31	<b>P</b>	45	53	55	57	57	57	54	52	51	48	48	48	48	46	44	57	45.8	23	
28	42	40	<b>IZS</b>	40	35	32	40	39	42	43	46	43	52	45	45	47	45	44	43	43	41	41	43	43	52	42.3	24	
29	42	<b>IZS</b>	35	34	33	32	32	33	34	36	38	38	40	41	41	43	43	44	44	44	43	43	43	42	40	44	38.9	24
30	<b>IZS</b>	37	37	37	35	33	31	29	31	38	41	43	43	44	44	43	44	44	44	44	43	43	41	41	<b>IZS</b>	44	39.4	24
HOURLY MAX	54	52	50	47	48	49	49	49	52	55	56	56	57	58	59	59	58	58	58	58	59	60	60	59	58			
HOURLY AVG	43.5	42.0	41.0	40.0	39.4	38.4	37.6	38.0	40.1	43.3	45.2	46.0	47.4	48.6	49.2	49.7	49.2	49.3	48.7	47.2	46.6	46.0	45.4	44.8				

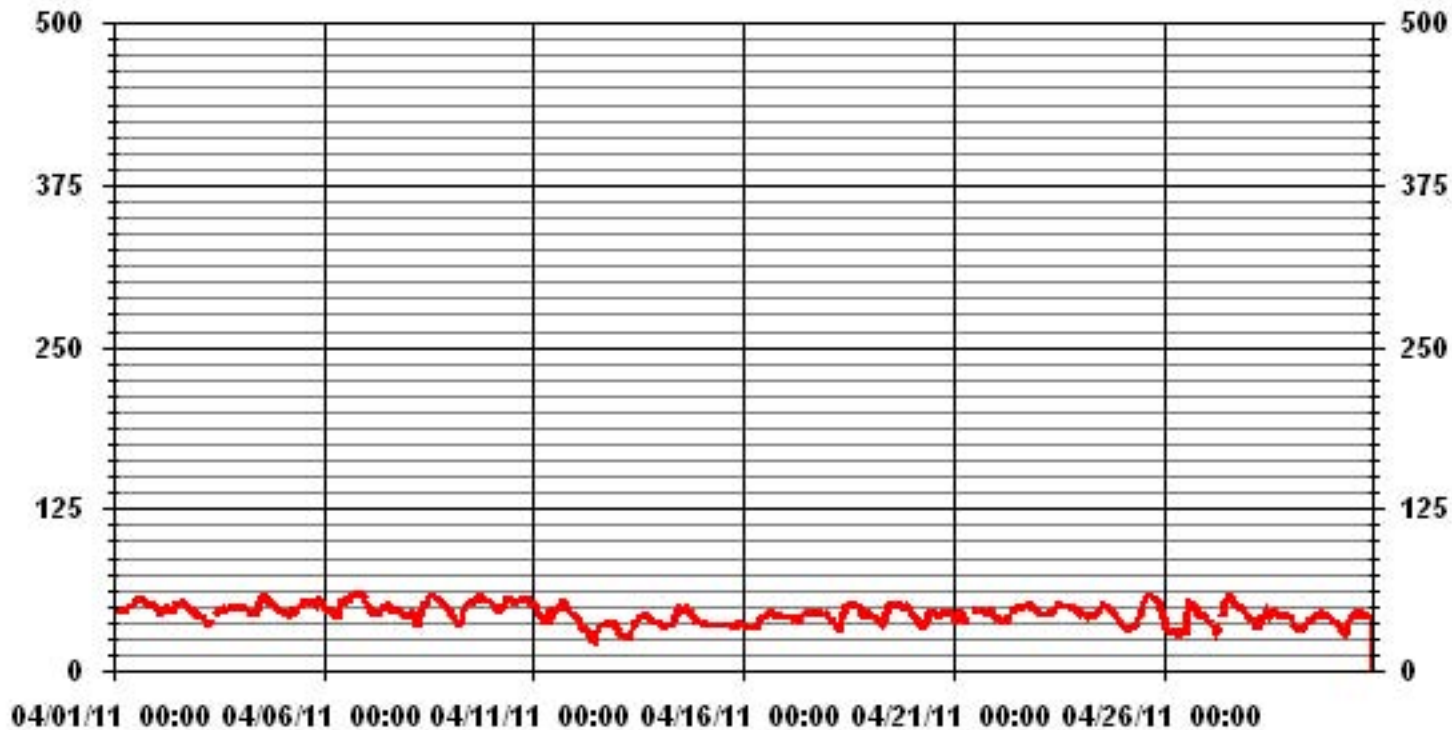
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	678				
MAXIMUM INSTANTANEOUS VALUE:	60	PPB	@ HOUR(S)	20, 21	ON DAY(S) 6
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	714	HRS
MONTHLY CALIBRATION TIME:	5	HRS			
STANDARD DEVIATION:	7.10				

### 01 Hour Averages



— LICA31 O3MAX PPB

LICA31  
 O3\_ / WDR Joint Frequency Distribution (Percent)

April 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	3.66	4.68	5.41	4.53	6.29	5.41	2.78	2.48	4.53	5.41	7.61	4.39	3.80	7.17	8.49	4.83	81.55
< 110	.43	1.02	.87	1.31	.43	2.19	1.46	3.07	.43	.29	1.61	1.46	1.17	1.46	1.17	.00	18.44
< 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	4.09	5.71	6.29	5.85	6.73	7.61	4.24	5.56	4.97	5.71	9.22	5.85	4.97	8.63	9.66	4.83	

Calm : .00 %

Total # Operational Hours : 683

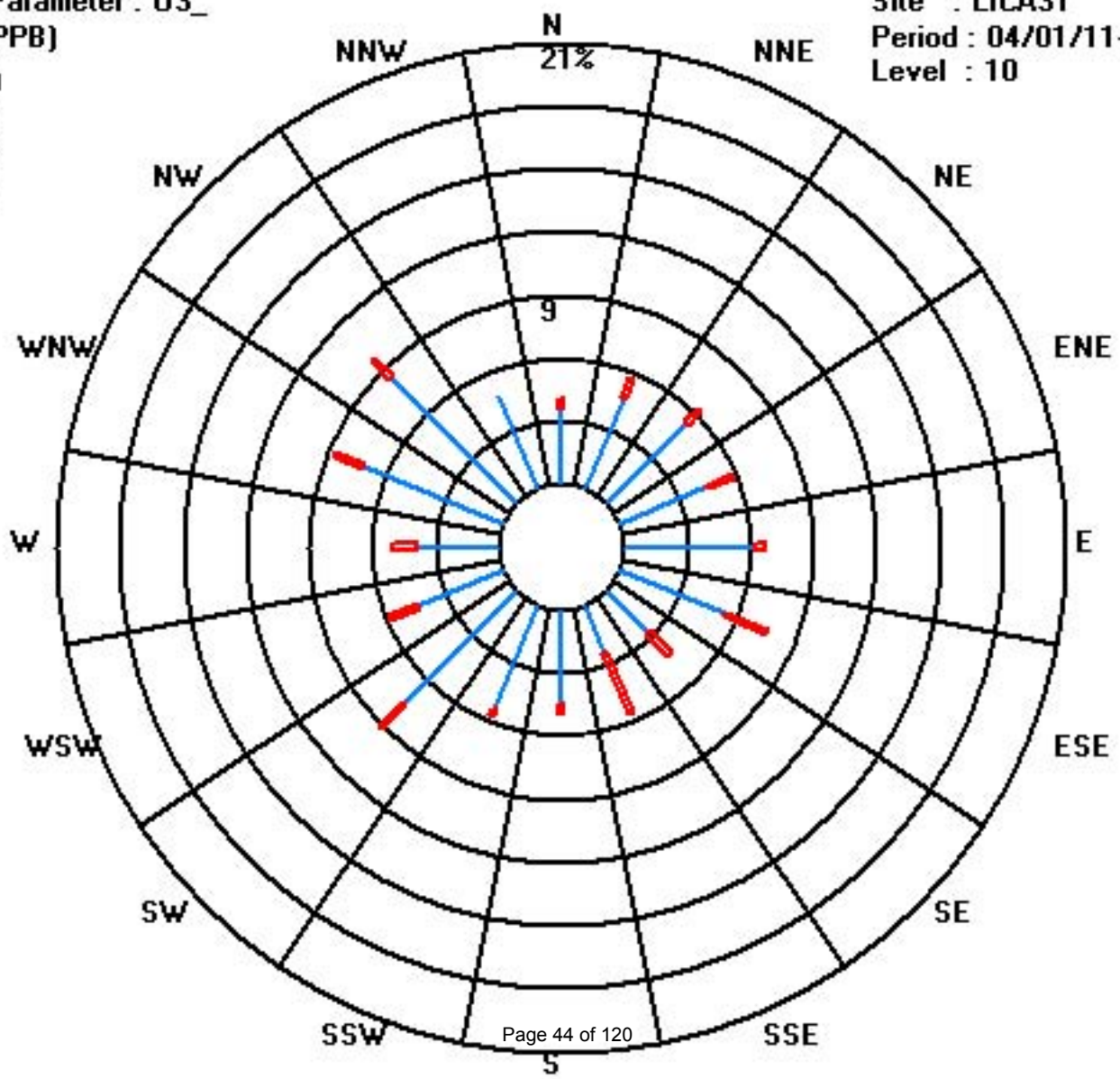
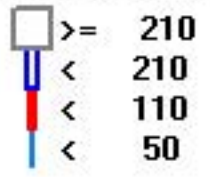
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	25	32	37	31	43	37	19	17	31	37	52	30	26	49	58	33	557
< 110	3	7	6	9	3	15	10	21	3	2	11	10	8	10	8		126
< 210																	
>= 210																	
Totals	28	39	43	40	46	52	29	38	34	39	63	40	34	59	66	33	

Calm : .00 %

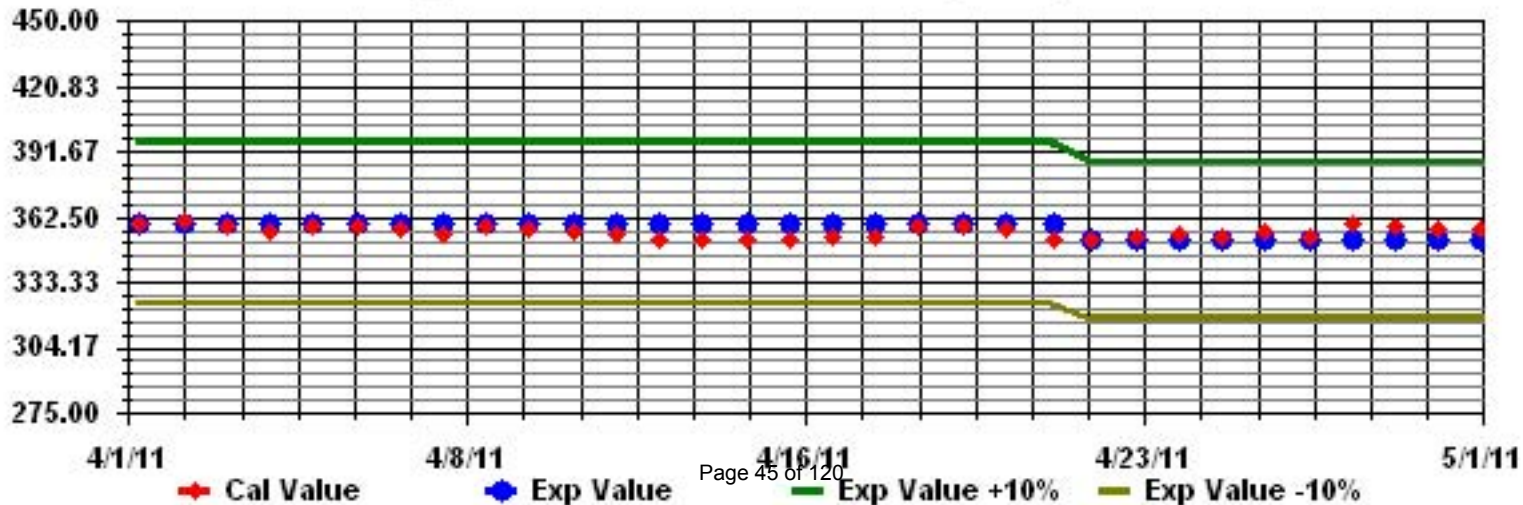
Total # Operational Hours : 683

Class Limits (PPB)





Calibration Graph for Site: LICA31 Parameter: 03\_ Sequence: 03 Phase: SPAN



# Nitrogen Dioxide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION. - ST. LINA

APRIL 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	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		1	0	0	0	1	1	IZS	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0.6	24
2		2	2	3	3	3	IZS	1	1	1	2	3	3	1	0	0	0	0	0	1	1	0	0	0	0	0	3	1.2	24
3		0	0	0	0	IZS	0	1	1	1	P	P	0	0	1	0	0	0	0	1	1	2	2	2	3	3	0.7	22	
4		3	4	4	IZS	3	3	4	4	4	5	5	4	3	3	2	1	1	0	0	0	0	0	0	0	0	5	2.3	24
5		1	1	IZS	2	2	2	1	3	2	1	1	0	0	1	1	1	1	3	2	2	2	2	3	3	3	1.6	24	
6		2	IZS	3	3	3	3	3	3	3	3	2	1	1	1	1	1	1	1	3	3	3	3	3	3	3	2.3	24	
7		IZS	1	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
8		0	1	1	2	3	4	4	4	3	3	2	2	2	2	2	2	2	3	2	3	2	2	IZS	1	4	2.3	24	
9		1	1	1	2	2	2	2	2	2	1	0	1	0	0	0	0	0	0	1	1	1	1	IZS	2	2	1.1	24	
10		2	3	3	3	3	2	2	1	1	0	0	0	0	0	0	0	0	1	1	1	IZS	1	1	0	3	1.1	24	
11		1	1	2	2	2	2	3	4	5	5	4	3	2	2	2	3	2	1	1	IZS	0	0	0	0	5	2.0	24	
12		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	0.3	24	
13		2	3	3	3	3	3	3	3	2	2	2	2	2	1	1	1	1	IZS	0	0	1	1	1	1	0	3	1.7	24
14		1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	1	0.3	24
15		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	1	1	1	1	1	0.3	24
16		1	2	1	1	1	1	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.6	24
17		0	0	0	1	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	0.5	24
18		2	2	2	2	2	3	3	3	3	3	2	2	IZS	0	1	1	1	2	3	5	4	5	4	3	5	2.5	24	
19		2	2	2	2	2	2	3	4	5	4	3	IZS	0	0	0	0	0	0	0	0	0	1	1	1	5	1.5	24	
20		1	2	2	2	2	3	3	2	2	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	3	1.1	24
21		1	1	0	0	0	1	1	1	1	IZS	1	2	1	2	1	1	1	1	1	2	2	2	2	3	3	1.2	24	
22		3	3	3	3	3	3	3	2	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1.7	24
23		1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
24		1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
25		2	2	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
26		2	2	1	2	IZS	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	1	1	1	2	2	1.6	24	
27		2	2	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
28		1	2	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	2	1.0	24	
29		0	IZS	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	
30		IZS	1	1	1	1	2	4	4	2	1	1	0	0	0	0	0	0	0	0	0	0	1	0	IZS	4	0.9	24	
HOURLY MAX		3	4	4	3	3	4	4	4	5	5	5	4	3	3	2	3	2	3	3	5	4	5	4	3				
HOURLY AVG		1.3	1.4	1.4	1.4	1.5	1.6	1.8	1.7	1.6	1.4	1.2	1.0	0.8	0.8	0.7	0.7	0.7	0.8	0.9	1.1	1.0	1.1	1.1	1.2				

### STATUS FLAG CODES

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

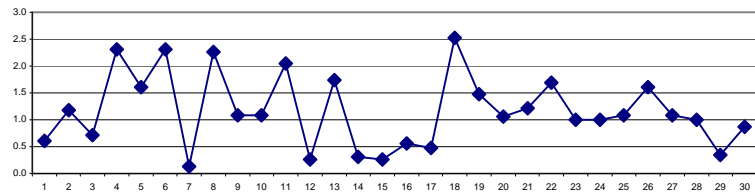
### OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	212	PPB	24-HR	106	PPB
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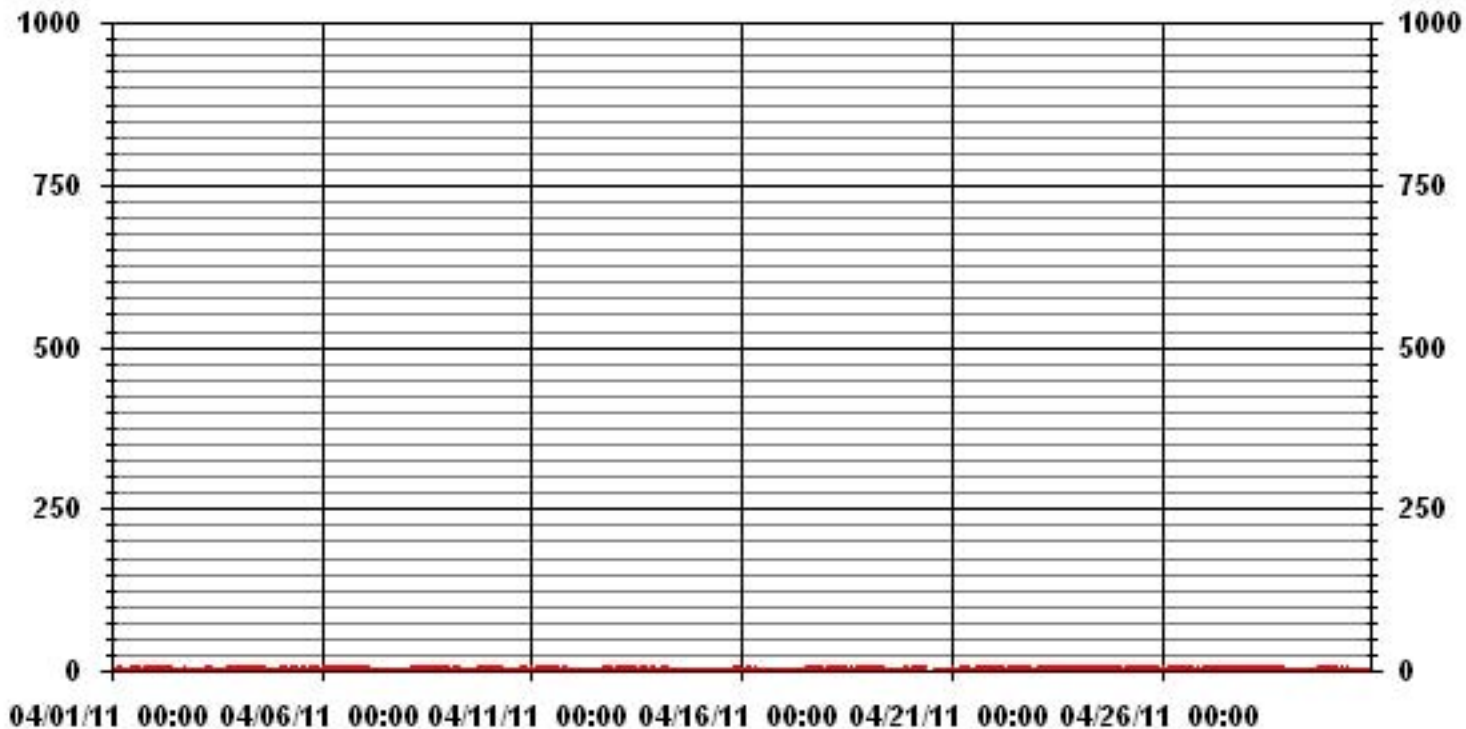
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	477					
MAXIMUM 1-HR AVERAGE:	5	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	2.5	PPB			ON DAY(S)	18
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	1.10		MONTHLY AVERAGE:	1.17	PPB	

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA31 NO2\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 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	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	2	2	2	1	1	2	11	2	2	2	11	1.7	24	
2	3	3	4	4	4	IZS	2	2	2	3	4	4	2	2	1	1	1	1	3	3	1	1	1	1	4	2.3	24	
3	1	1	1	1	IZS	1	2	1	2	P	P	2	1	2	4	1	1	1	2	2	3	2	3	4	4	1.8	22	
4	4	4	5	IZS	4	4	4	5	6	6	6	6	4	3	3	2	1	1	1	1	1	1	1	1	6	3.2	24	
5	2	2	IZS	2	3	2	2	4	4	2	1	1	1	2	2	2	2	4	3	3	2	3	3	4	4	2.4	24	
6	3	IZS	4	4	4	3	5	4	4	4	3	2	2	2	8	1	2	2	4	4	4	4	4	3	8	3.5	24	
7	IZS	2	2	1	1	1	P	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1	IZS	2	0.6	23	
8	1	1	2	2	5	6	5	5	4	3	3	3	3	2	3	3	3	3	4	4	3	3	3	IZS	1	6	3.1	24
9	2	2	2	2	2	2	2	3	3	2	1	2	8	9	8	0	0	2	2	2	2	IZS	3	3	9	2.8	24	
10	3	4	4	4	4	3	3	2	2	1	1	1	1	1	1	1	1	2	2	2	IZS	2	1	1	4	2.0	24	
11	2	2	3	3	3	3	3	5	5	6	5	4	3	3	3	4	3	2	1	IZS	1	1	1	1	6	2.9	24	
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	IZS	2	2	2	2	2	2	2	1.3	24
13	2	4	4	4	3	3	4	4	3	3	2	2	2	2	2	2	2	IZS	1	1	1	1	1	1	4	2.3	24	
14	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	IZS	0	1	1	1	1	1	1	2	1.0	24	
15	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	2	2	2	2	2	1.3	24	
16	2	2	2	2	2	1	2	3	3	2	1	0	0	0	IZS	0	0	1	1	0	1	1	1	1	3	1.2	24	
17	1	1	1	6	1	1	1	1	1	P	1	1	0	0	IZS	2	2	2	3	2	2	2	2	2	2	6	1.6	23
18	3	3	3	3	P	4	4	4	3	11	3	2	IZS	1	2	2	2	3	6	6	6	6	21	6	4	21	4.6	23
19	3	3	3	3	3	4	8	25	5	5	4	IZS	1	1	0	1	1	1	0	0	0	2	2	1	25	3.3	24	
20	2	2	3	3	4	4	4	3	3	C	C	C	C	C	C	C	0	0	0	0	1	1	0	1	4	1.8	24	
21	1	2	1	1	1	2	2	2	2	IZS	2	M	M	2	2	3	2	1	3	3	2	3	3	4	4	2.1	22	
22	4	3	4	4	4	4	4	3	IZS	1	1	2	2	2	1	1	2	1	1	1	2	2	2	3	4	2.3	24	
23	2	1	2	2	2	2	2	IZS	2	2	9	1	1	2	1	1	1	2	2	2	2	2	2	2	9	2.0	24	
24	2	2	2	1	2	2	IZS	2	1	1	1	1	1	1	1	2	2	2	2	2	3	2	2	2	3	1.7	24	
25	2	2	2	2	2	IZS	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	1.9	24	
26	2	2	2	2	IZS	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2.3	24	
27	2	2	2	IZS	2	2	2	2	P	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.0	23	
28	2	2	IZS	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	3	1.8	24	
29	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	3	2	2	2	2	2	3	1.3	24	
30	IZS	2	2	2	2	3	6	6	14	2	2	1	1	1	1	1	1	1	1	1	1	1	2	1	14	2.5	24	
HOURLY MAX	4	4	5	6	5	6	8	25	14	11	9	6	8	9	8	4	3	4	6	6	11	21	6	4				
HOURLY AVG	2.0	2.1	2.3	2.3	2.4	2.4	2.9	3.4	3.0	2.6	2.3	1.7	1.7	1.8	2.1	1.5	1.4	1.6	1.9	1.9	2.2	2.5	1.9	2.0				

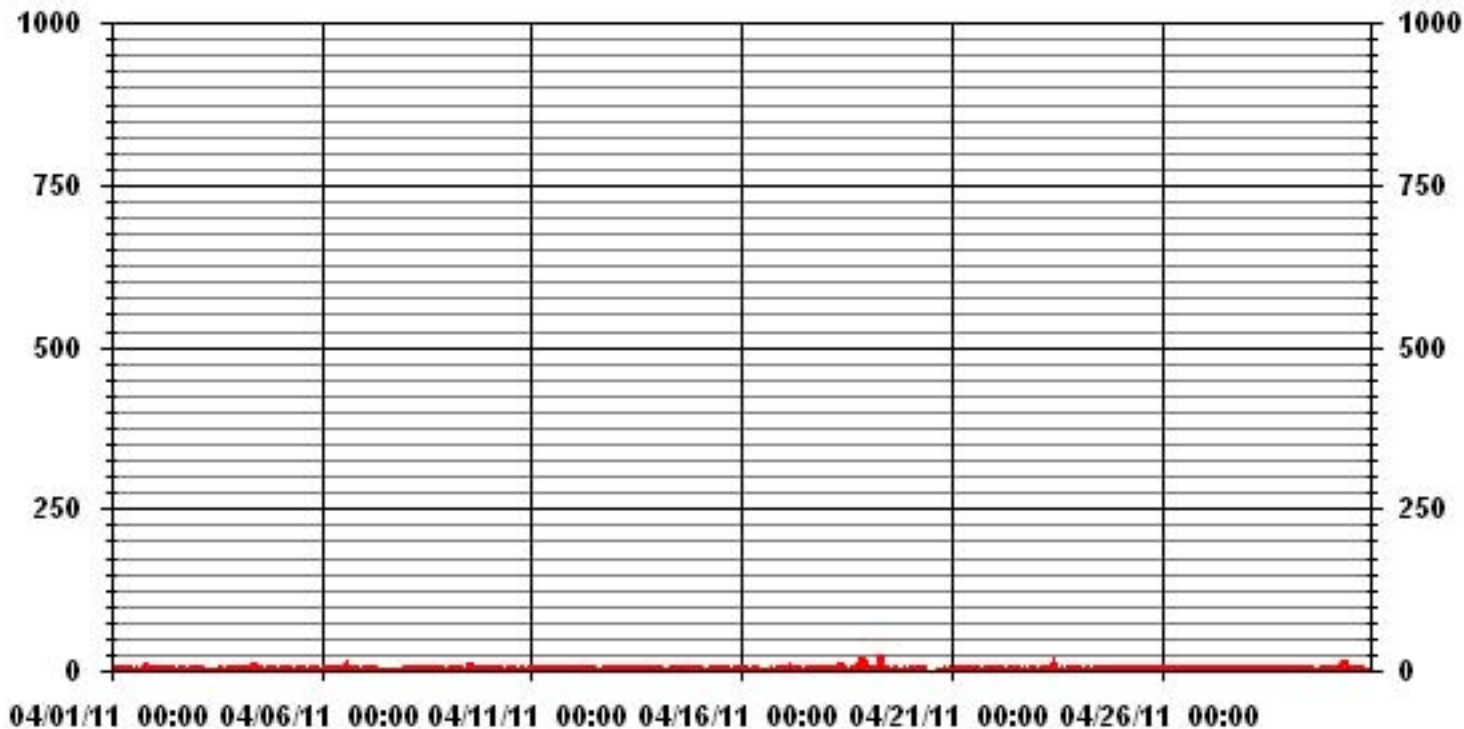
**STATUS FLAG CODES**

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:	643					
MAXIMUM INSTANTANEOUS VALUE:	25	PPB	@ HOUR(S)	7	ON DAY(S)	19
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	712	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	1.88					

### 01 Hour Averages



— LICA31 IIO2MAX PPB

LICA31  
 NO2\_ / WDR Joint Frequency Distribution (Percent)

April 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	4.11	5.72	6.31	5.87	6.75	7.63	4.40	5.58	5.28	5.72	9.25	5.87	4.99	8.07	9.54	4.84	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	4.11	5.72	6.31	5.87	6.75	7.63	4.40	5.58	5.28	5.72	9.25	5.87	4.99	8.07	9.54	4.84	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

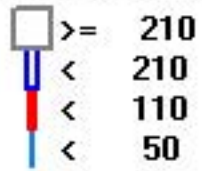
	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	28	39	43	40	46	52	30	38	36	39	63	40	34	55	65	33	681
< 110																	
< 210																	
>= 210																	
Totals	28	39	43	40	46	52	30	38	36	39	63	40	34	55	65	33	

Calm : .00 %

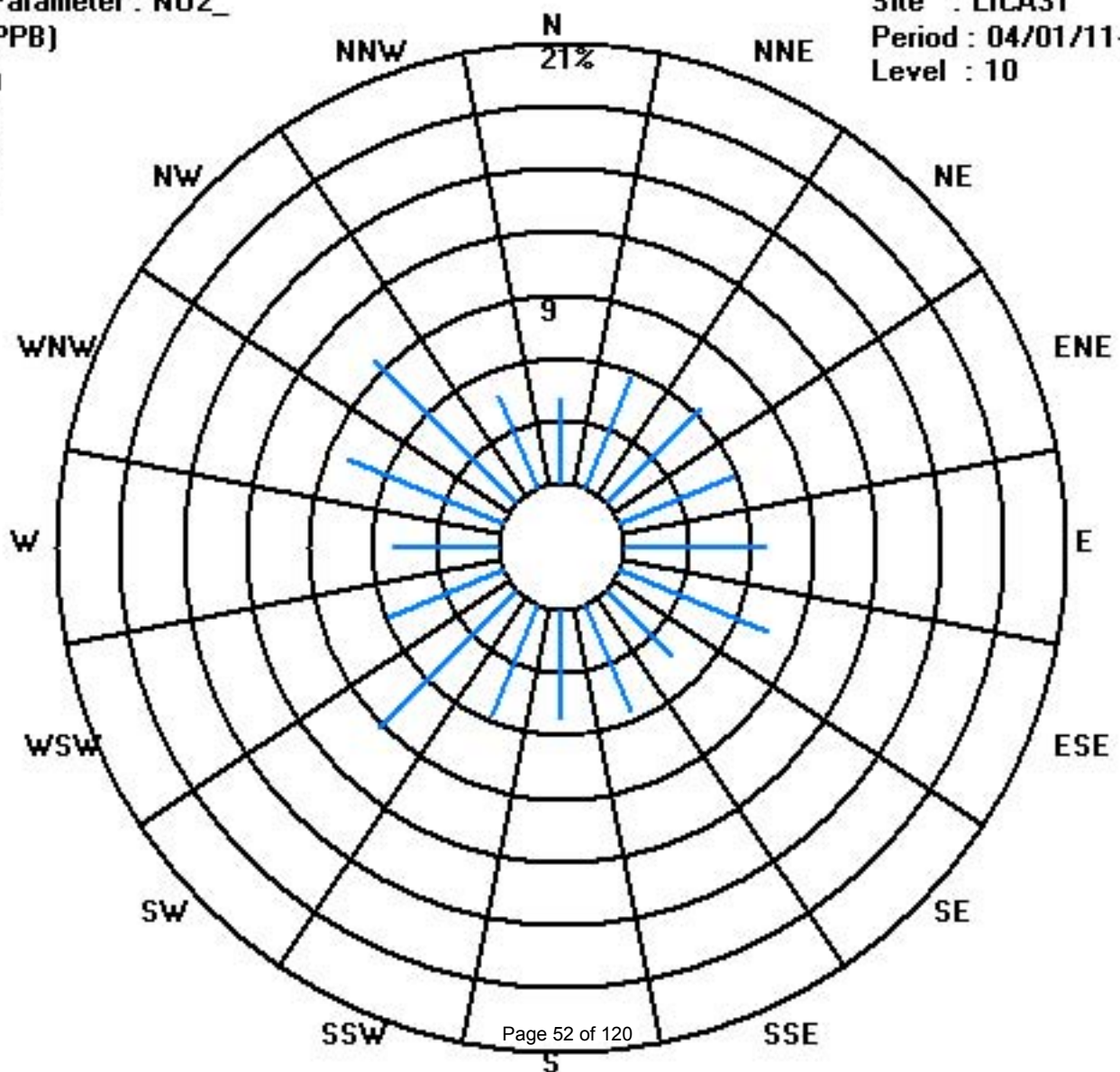
Total # Operational Hours : 681

Class Limits (PPB)

Period : 04/01/11-04/30/11

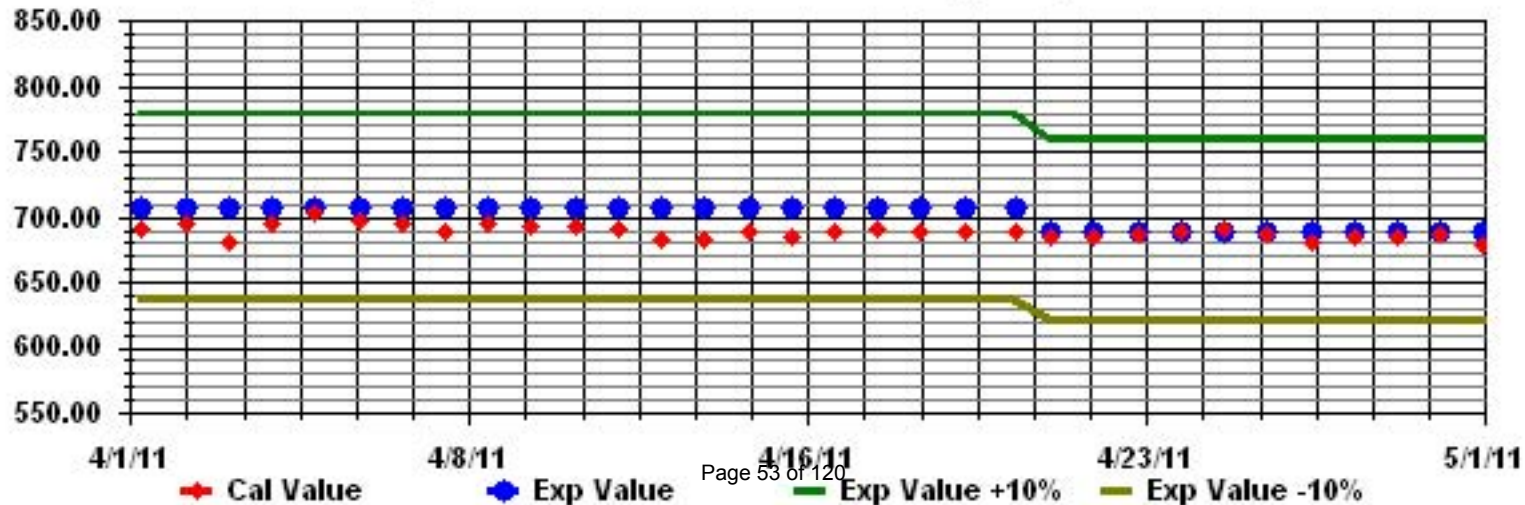


Level : 10





Calibration Graph for Site: LICA31 Parameter: NO2\_ Sequence: NO2 Phase: SPAN



# Nitric Oxide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2011

NITRIC OXIDE hourly averages in ppb

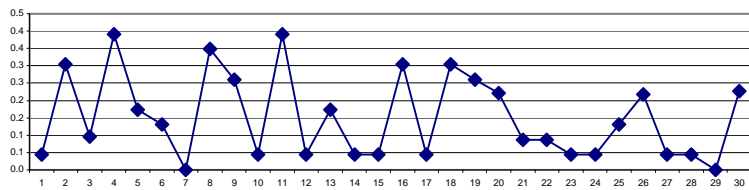
MST

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

### 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

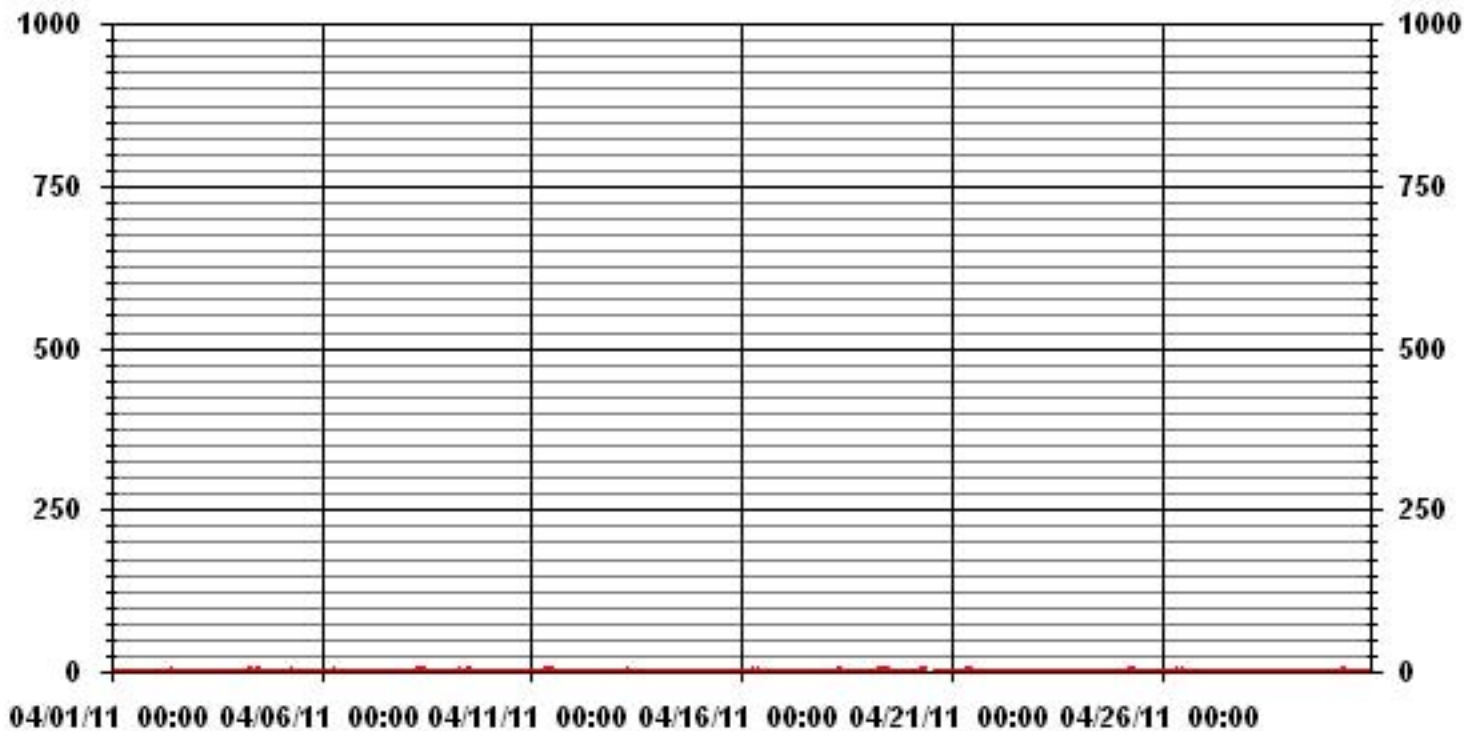
24 HOUR AVERAGES FOR APRIL 2011



### MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	99					
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.4	PPB			ON DAY(S)	4, 11
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	0.37		MONTHLY AVERAGE:	0.15	PPB	

### 01 Hour Averages



— LICA31 NO\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 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	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1	1	1	5	1.2	24	
2	1	1	1	1	1	1	IZS	1	1	1	2	3	3	2	1	1	1	1	1	1	1	1	1	1	1	3	1.3	24	
3	1	1	1	1	1	IZS	2	1	1	1	P	P	5	2	2	9	1	1	1	1	1	1	1	1	1	9	1.7	22	
4	1	1	0	IZS	1	1	1	1	2	2	2	3	2	2	1	1	1	1	1	1	1	1	1	1	1	3	1.3	24	
5	1	1	IZS	2	1	1	1	2	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1.2	24	
6	1	IZS	1	1	1	1	1	2	1	1	1	1	2	1	4	1	1	1	1	1	1	1	1	1	1	4	1.2	24	
7	IZS	1	1	1	1	1	1	P	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	23	
8	2	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2	24	
9	1	1	1	1	1	1	1	2	2	1	1	3	5	9	10	1	1	1	1	1	1	1	1	1	1	10	2.1	24	
10	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	24	
11	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	2	1	1	1	1	IZS	2	1	1	1	2	1.3	24	
12	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	IZS	2	1	1	1	1	2	1.0	24	
13	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	2	1.1	24	
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1.0	24	
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1.0	24	
16	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	IZS	2	1	1	1	1	0	1	1	1	2	1.1	24	
17	1	1	1	1	1	1	1	1	1	P	1	1	1	1	1	IZS	2	1	1	4	1	1	1	1	1	4	1.2	23	
18	1	1	1	1	1	P	1	2	1	2	13	1	1	1	IZS	2	1	1	1	1	1	1	2	23	1	1	23	2.7	23
19	1	1	1	1	1	1	3	22	2	2	2	IZS	2	1	1	1	1	1	1	1	1	1	1	1	1	22	2.2	24	
20	1	1	1	1	1	1	1	2	2	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	2	0.6	24	
21	0	0	0	0	0	0	0	0	1	IZS	2	M	M	1	1	1	1	1	1	1	1	1	1	1	1	2	0.7	22	
22	1	1	1	1	1	2	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
23	1	1	1	1	1	1	1	IZS	2	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.2	24	
24	1	1	1	1	1	1	1	IZS	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
25	1	1	1	1	1	1	IZS	2	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	2	1.0	24	
26	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
27	1	1	1	IZS	2	1	1	1	P	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	23	
28	1	1	IZS	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
29	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	1.0	24	
30	IZS	2	1	1	1	1	2	2	17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	1.9	24	
HOURLY MAX	2	2	1	2	2	2	3	22	17	13	4	5	5	9	10	2	1	4	1	2	5	23	1	2					
HOURLY AVG	1.0	1.0	0.9	1.0	1.0	1.0	1.1	2.0	2.0	1.7	1.4	1.4	1.3	1.4	1.8	1.1	1.0	1.1	0.9	1.0	1.1	1.7	1.0	1.0					

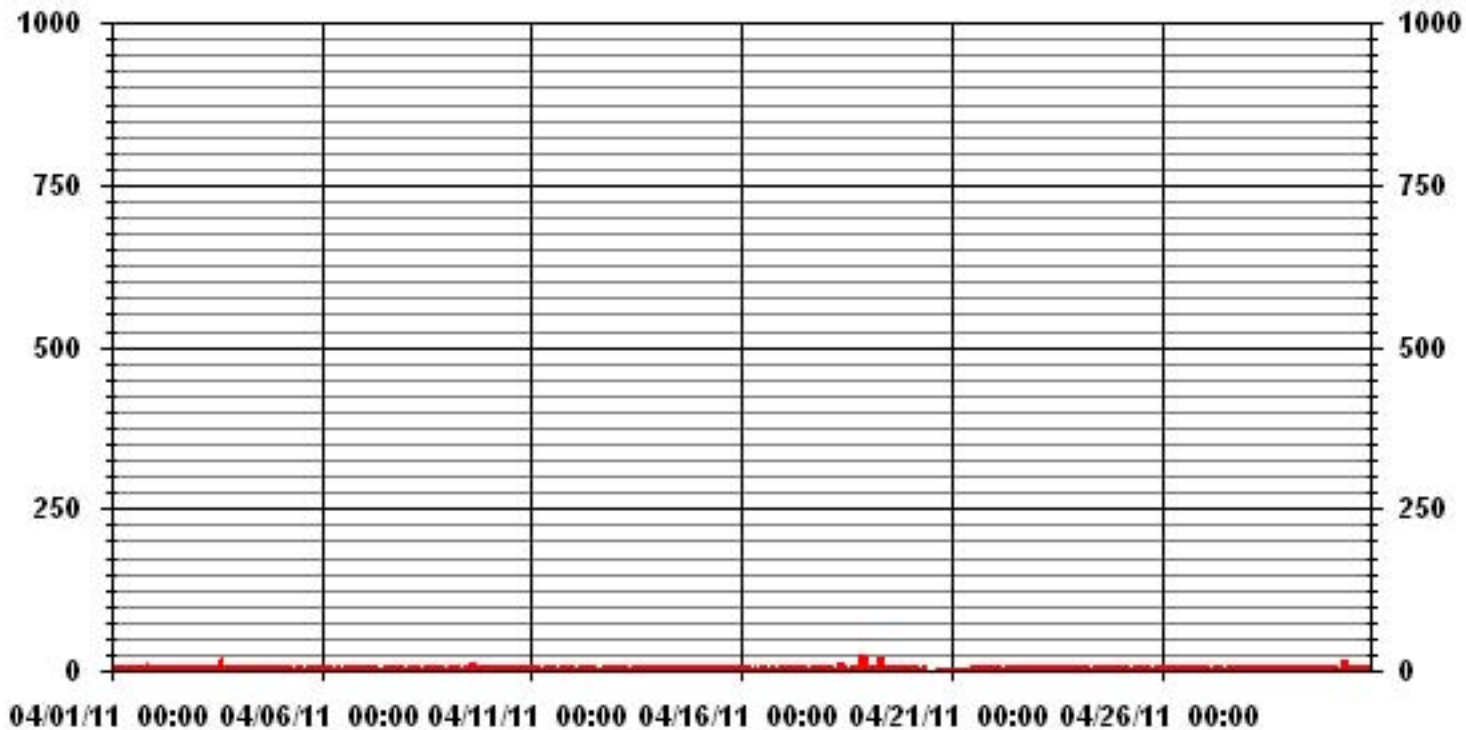
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	653					
MAXIMUM INSTANTANEOUS VALUE:	23	PPB	@ HOUR(S)	21	ON DAY(S)	18
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	712	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	1.57					

### 01 Hour Averages



LICA31  
 NO\_ / WDR Joint Frequency Distribution (Percent)

April 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	4.11	5.72	6.31	5.87	6.75	7.63	4.40	5.58	5.28	5.72	9.25	5.87	4.99	8.07	9.54	4.84	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	4.11	5.72	6.31	5.87	6.75	7.63	4.40	5.58	5.28	5.72	9.25	5.87	4.99	8.07	9.54	4.84	

Calm : .00 %

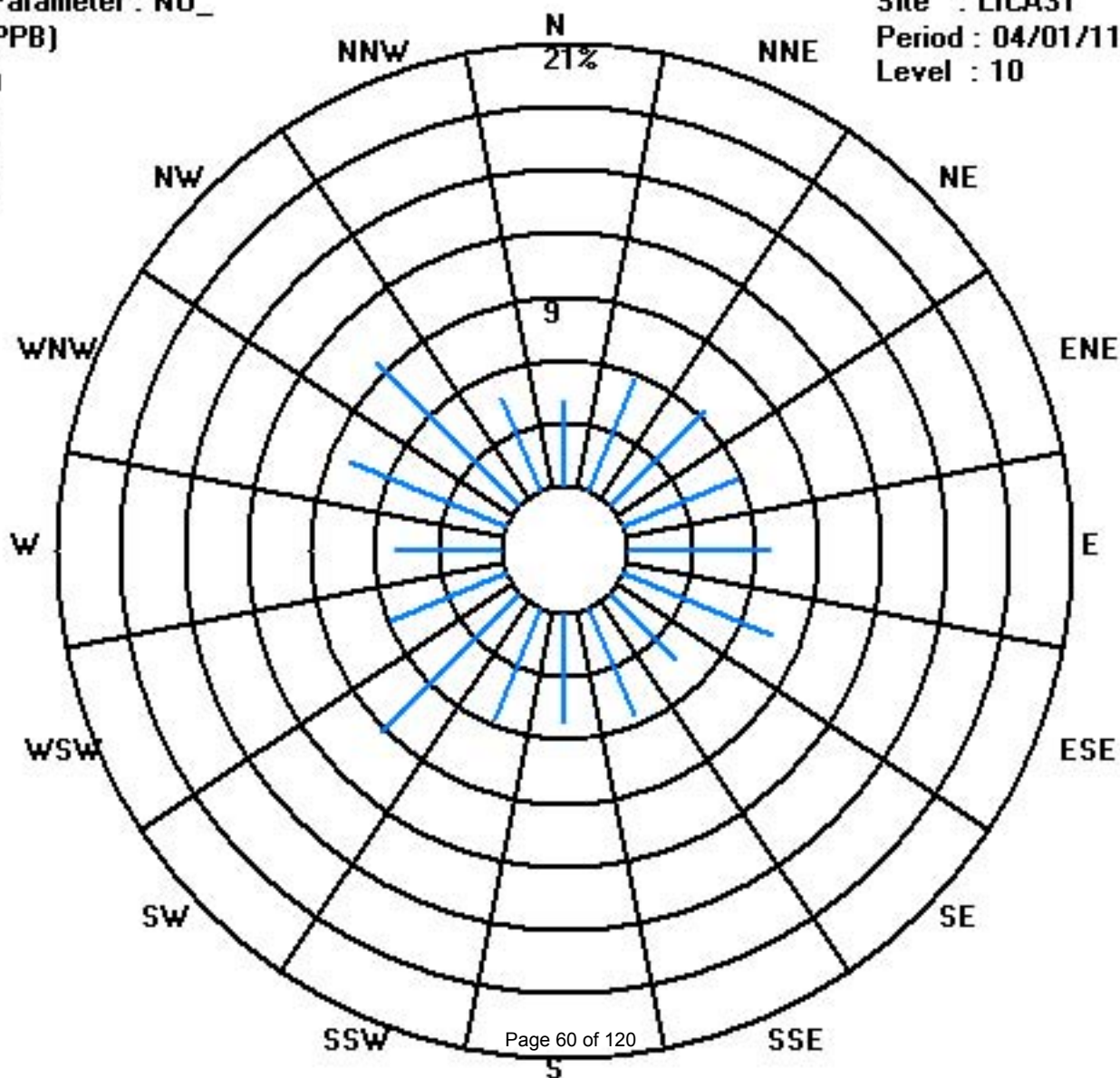
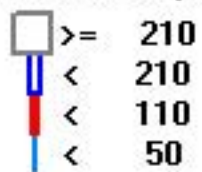
Total # Operational Hours : 681

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	28	39	43	40	46	52	30	38	36	39	63	40	34	55	65	33	681
< 110																	
< 210																	
>= 210																	
Totals	28	39	43	40	46	52	30	38	36	39	63	40	34	55	65	33	

Calm : .00 %

Total # Operational Hours : 681





# Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2011

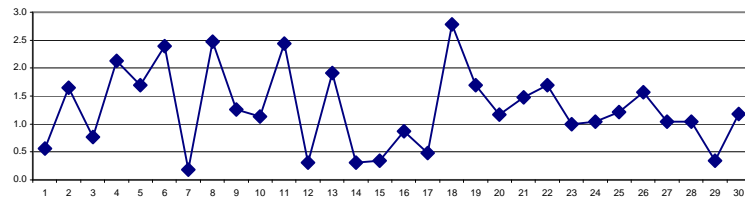
OXIDES OF NITROGEN hourly averages in ppb

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	0	0	0	0	0	0	IZS	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	24
2	1	2	3	3	3	IZS	2	2	2	3	5	5	2	1	0	1	1	0	1	1	0	0	0	0	0	5	1.7	24
3	0	0	0	0	IZS	1	1	1	1	P	P	0	0	1	1	0	0	0	1	1	1	2	2	3	3	0.8	22	
4	3	4	4	IZS	2	3	3	4	5	6	6	4	2	2	1	0	0	0	0	0	0	0	0	0	0	6	2.1	24
5	0	0	IZS	2	2	2	1	3	3	1	1	0	1	1	1	2	2	3	2	2	2	2	3	3	3	1.7	24	
6	2	IZS	3	3	3	3	4	4	3	3	2	1	1	1	1	1	1	1	3	3	3	3	3	3	4	2.4	24	
7	IZS	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	2	0.2	24
8	1	1	1	2	3	4	4	5	4	4	3	2	2	2	2	2	2	3	2	3	2	2	IZS	1	5	2.5	24	
9	1	1	2	2	2	2	2	3	2	1	0	1	1	1	0	0	0	1	1	1	1	IZS	2	2	3	1.3	24	
10	2	2	3	3	3	2	2	1	1	0	0	0	0	0	1	1	0	1	1	1	IZS	1	1	0	3	1.1	24	
11	1	1	2	2	2	2	3	4	6	6	5	4	3	3	3	3	3	1	1	IZS	1	0	0	0	6	2.4	24	
12	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	0.3	24
13	2	3	3	3	3	3	4	3	3	2	2	2	2	2	1	1	1	IZS	1	0	1	1	1	0	4	1.9	24	
14	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	1	1	0.3	24	
15	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	IZS	1	0	0	1	1	1	1	1	1	0.3	24
16	2	2	1	1	1	1	2	3	4	2	1	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	4	0.9	24
17	0	0	0	1	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	0.5	24
18	2	2	2	2	2	3	4	4	3	4	2	2	IZS	1	1	1	2	2	3	5	4	6	4	3	6	2.8	24	
19	2	2	2	2	2	3	4	6	6	4	3	IZS	1	0	0	0	0	0	0	0	0	0	1	1	6	1.7	24	
20	1	2	2	2	2	3	3	3	3	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	3	1.2	24
21	1	1	0	0	0	1	1	2	1	IZS	2	2	2	2	2	2	2	1	1	1	2	2	2	3	3	3	1.5	24
22	3	3	3	3	3	4	3	2	IZS	1	1	1	1	1	1	0	1	1	1	1	1	1	1	2	4	1.7	24	
23	1	1	1	1	1	1	1	IZS	2	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	2	1.0	24
24	1	1	1	1	1	1	IZS	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
25	2	2	1	1	1	IZS	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1.2	24	
26	2	1	1	2	IZS	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	1	1	1	2	2	1.6	24	
27	1	2	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
28	1	1	IZS	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
29	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	0.3	24	
30	IZS	2	2	1	2	2	4	5	3	1	1	1	1	0	0	0	0	0	0	0	0	1	0	IZS	5	1.2	24	
HOURLY MAX	3	4	4	3	3	4	4	6	6	6	6	5	3	3	3	3	3	3	3	5	4	6	4	3				
HOURLY AVG	1.1	1.4	1.5	1.5	1.5	1.6	2.0	2.2	2.1	1.7	1.5	1.1	0.9	1.0	0.8	0.7	0.8	0.8	0.9	1.1	1.0	1.1	1.1	1.2				

STATUS FLAG CODES

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

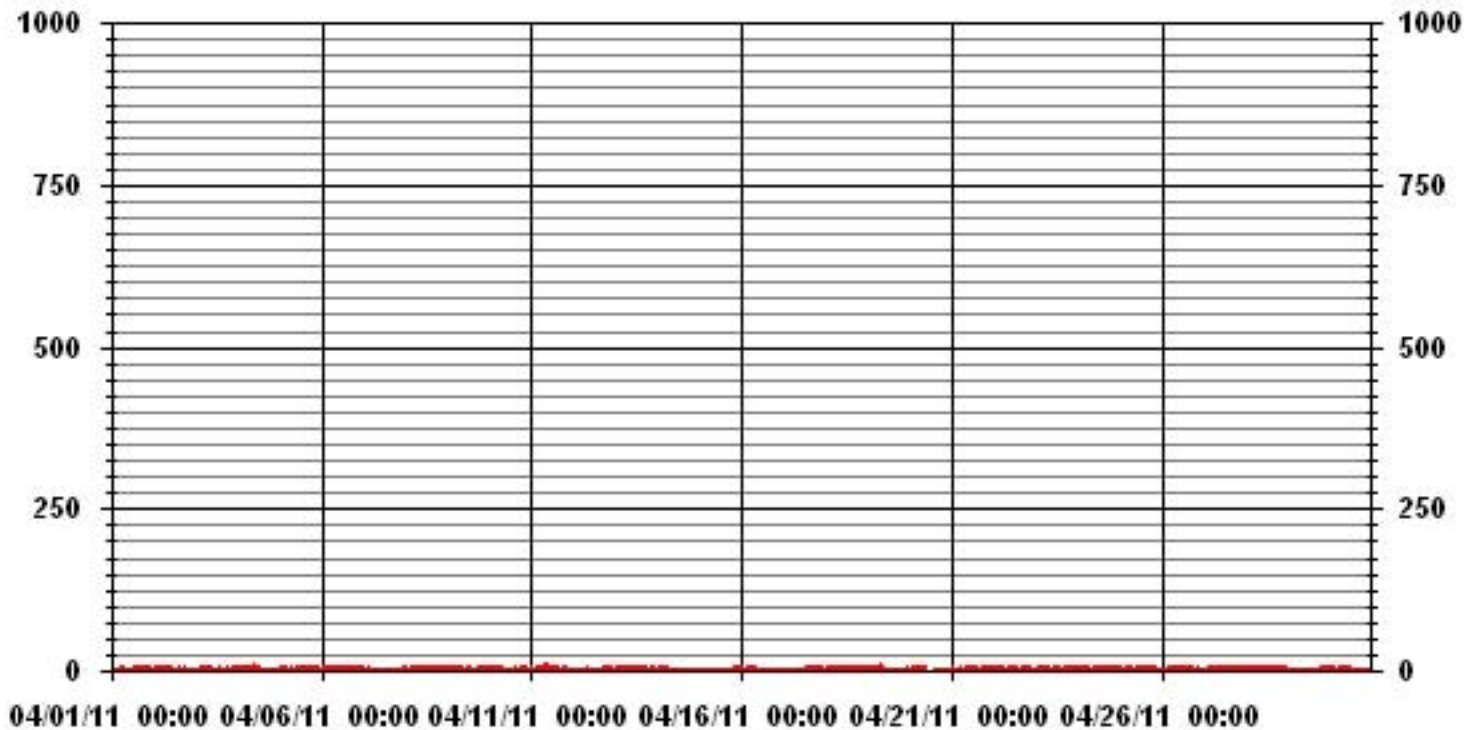
24 HOUR AVERAGES FOR APRIL 2011



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	491					
MAXIMUM 1-HR AVERAGE:	6	PPB	@ HOUR(S)	VAR	ON DAY(S)	18, 19
MAXIMUM 24-HR AVERAGE:	2.8	PPB			ON DAY(S)	18
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	718 HRS		
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME	99.7 %		
STANDARD DEVIATION	1.22		MONTHLY AVERAGE	1.28 PPB		

### 01 Hour Averages



— LICA31 NOX\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 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	1	1	1	1	1	1	IZS	1	1	1	1	1	1	2	2	2	2	2	2	2	15	2	2	2	15	2.0	24	
2	3	3	4	4	4	IZS	3	2	3	4	6	6	3	2	1	1	1	1	3	3	1	1	1	1	6	2.7	24	
3	1	1	1	1	IZS	1	2	2	2	P	P	6	2	2	11	1	2	1	3	2	3	2	3	4	11	2.5	22	
4	4	4	5	IZS	3	3	3	5	6	7	7	7	5	3	3	1	0	0	0	0	0	0	0	0	7	2.9	24	
5	1	1	IZS	3	3	3	2	5	5	2	2	1	2	2	2	3	2	4	3	3	3	3	3	4	5	2.7	24	
6	3	IZS	4	4	4	4	5	5	4	4	3	2	3	2	9	1	2	3	4	4	3	4	4	3	9	3.7	24	
7	IZS	2	2	1	1	2	P	1	1	1	2	0	0	1	0	0	0	0	2	0	0	0	0	IZS	2	0.8	23	
8	2	2	2	2	5	5	5	7	5	4	3	3	3	2	3	3	3	4	3	4	3	3	IZS	2	7	3.4	24	
9	2	2	2	2	2	3	3	4	4	2	1	4	12	17	16	0	0	3	2	3	2	IZS	3	3	17	4.0	24	
10	3	3	4	4	4	3	3	2	2	1	1	1	1	1	2	1	1	3	2	1	IZS	2	2	1	4	2.1	24	
11	1	2	3	3	3	4	5	6	6	7	6	5	5	3	4	5	4	2	1	IZS	1	1	1	1	7	3.4	24	
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	IZS	2	2	2	2	2	3	1.3	24	
13	2	4	4	4	3	4	4	4	4	3	3	3	3	2	2	2	2	IZS	1	1	1	1	1	1	4	2.6	24	
14	1	1	1	1	1	2	1	1	1	1	1	1	0	1	1	0	IZS	1	1	1	1	1	1	1	2	1.0	24	
15	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	2	2	2	1.2	24	
16	2	2	2	2	1	2	3	4	4	3	2	1	0	0	IZS	1	1	1	1	0	0	1	1	1	4	1.5	24	
17	1	1	1	6	1	1	1	1	P	1	1	1	0	IZS	3	2	2	2	5	2	2	2	2	2	6	1.8	23	
18	3	3	3	3	P	4	5	4	4	24	4	2	IZS	3	2	2	2	3	6	6	6	42	6	4	42	6.4	23	
19	3	3	3	3	3	4	11	47	6	6	5	IZS	2	1	1	1	1	1	0	0	1	2	2	1	47	4.7	24	
20	2	2	3	2	4	4	4	4	C	C	C	C	C	C	C	C	0	0	0	0	2	0	0	1	4	1.9	24	
21	1	1	1	1	1	1	2	3	3	IZS	3	M	M	3	2	3	2	2	3	4	3	3	4	4	4	2.4	22	
22	4	3	4	3	4	5	5	3	IZS	2	2	3	3	2	1	1	2	1	2	1	2	1	1	4	5	2.6	24	
23	2	2	2	2	2	2	2	IZS	3	3	9	2	2	2	1	1	1	2	2	2	2	2	2	2	9	2.3	24	
24	2	2	2	2	2	2	IZS	3	2	1	2	2	1	2	2	2	1	2	2	2	3	2	2	2	3	2.0	24	
25	2	2	2	2	2	IZS	3	2	2	2	2	2	2	1	1	1	1	1	1	2	2	2	2	3	1.8	24		
26	2	2	2	2	IZS	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	3	2.4	24	
27	2	3	2	IZS	2	3	2	2	P	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2.1	23	
28	2	2	IZS	3	2	2	2	2	4	3	2	2	2	2	2	2	2	2	2	2	2	1	1	1	4	2.0	24	
29	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	4	2	2	2	2	1	4	1.3	24	
30	IZS	3	3	2	3	3	7	7	30	2	2	1	1	1	1	1	1	1	1	1	1	1	1	IZS	30	3.4	24	
HOURLY MAX	4	4	5	6	5	5	11	47	30	24	9	7	12	17	16	5	4	5	6	6	15	42	6	4				
HOURLY AVG	2.0	2.1	2.4	2.4	2.4	2.6	3.3	4.6	4.1	3.4	2.8	2.4	2.3	2.4	2.8	1.6	1.5	1.8	2.0	1.9	2.3	3.1	1.9	2.0				

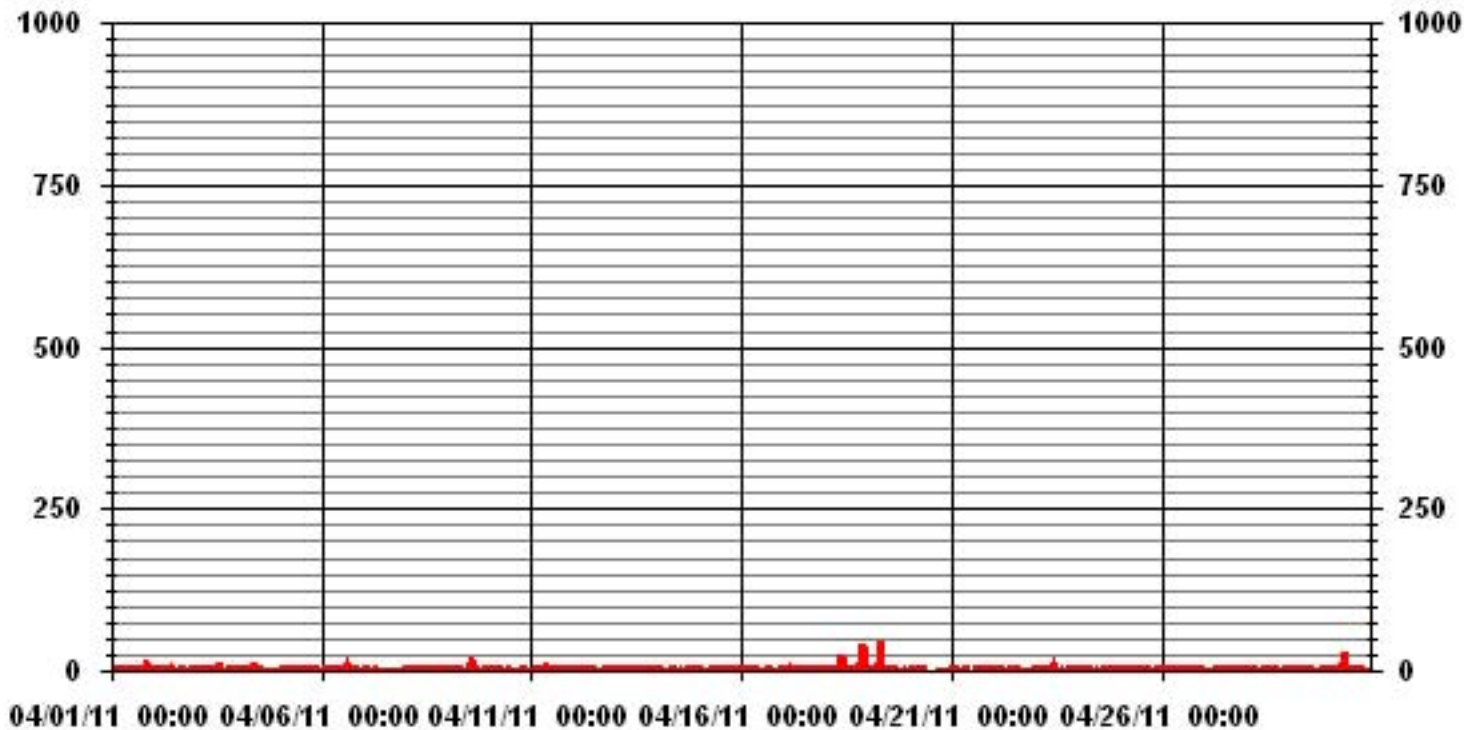
**STATUS FLAG CODES**

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:	639				
MAXIMUM INSTANTANEOUS VALUE:	47	PPB	@ HOUR(S)	7	ON DAY(S) 19
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	712	HRS
MONTHLY CALIBRATION TIME:	7	HRS			
STANDARD DEVIATION:	3.21				

### 01 Hour Averages



— LICA31 NOXMAX PPB

LICA31  
 NOX\_ / WDR Joint Frequency Distribution (Percent)

April 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	4.11	5.72	6.31	5.87	6.75	7.63	4.40	5.58	5.28	5.72	9.25	5.87	4.99	8.07	9.54	4.84	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	4.11	5.72	6.31	5.87	6.75	7.63	4.40	5.58	5.28	5.72	9.25	5.87	4.99	8.07	9.54	4.84	

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	28	39	43	40	46	52	30	38	36	39	63	40	34	55	65	33	681
< 110																	
< 210																	
>= 210																	
Totals	28	39	43	40	46	52	30	38	36	39	63	40	34	55	65	33	

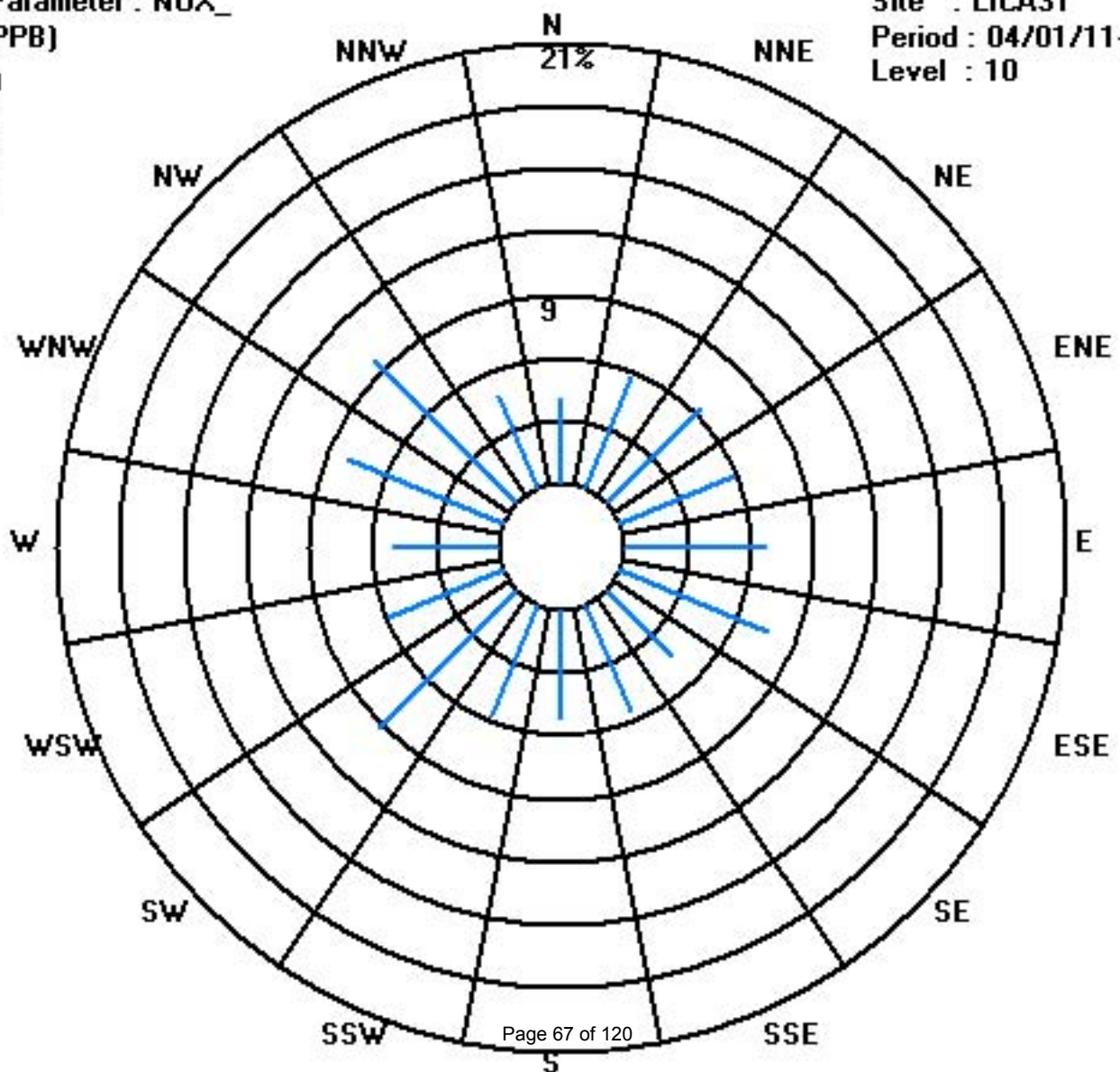
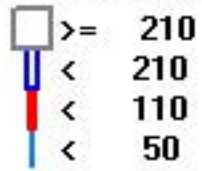
Calm : .00 %

Total # Operational Hours : 681

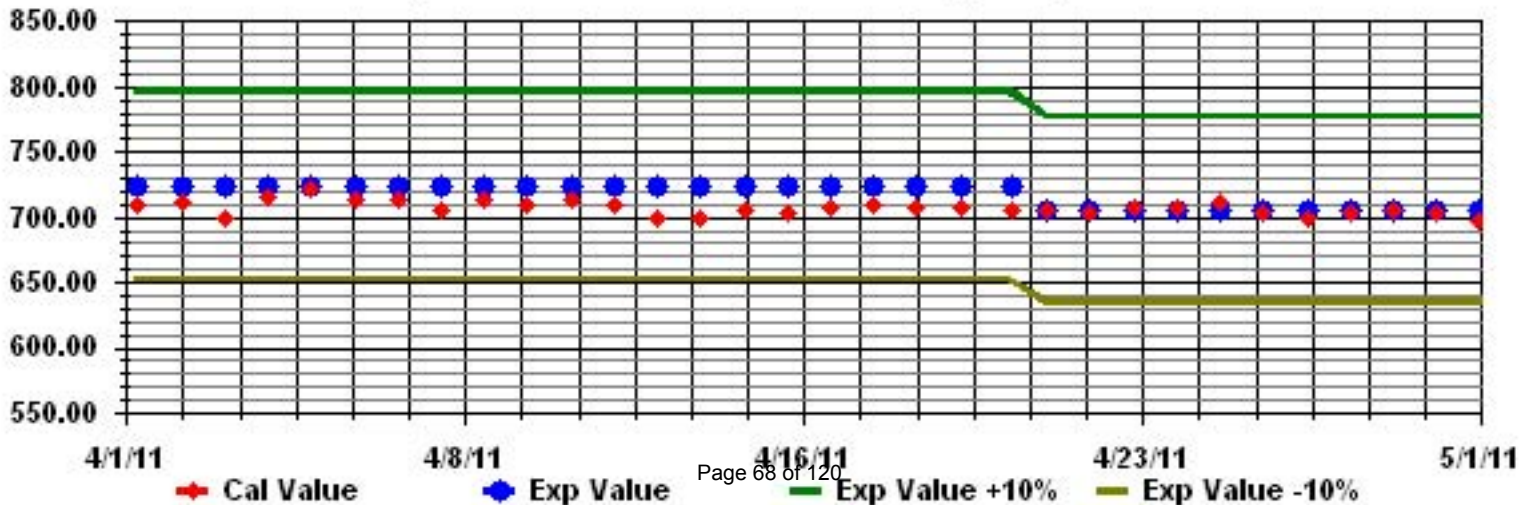
Class Limits (PPB)

Period : 04/01/11-04/30/11

Level : 10



Calibration Graph for Site: LICA31 Parameter: NOX\_ Sequence: NO2 Phase: SPAN





# Particulate Matter 2.5

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2011

## PARTICULATE MATTER 2.5 (PM2.5) hourly averages in ug/m<sup>3</sup>

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	2.6	0	0	0	0	0.7	2.6	2.1	2.9	0.7	3.7	1.6	0.1	3	6.2	0.4	3.7	3.3	5.7	2.7	2.7	4.2	4.1	4.7	6.2	2.4	24
2	2.7	5.1	3.1	6	3.4	3.6	1.4	4.7	5.2	6.2	4.8	3.3	4.2	6.3	3.5	1.5	0	0.5	4.9	5.5	4.6	1.9	0	2.2	6.3	3.5	24
3	0.7	3	0.1	3.2	4.1	1.7	2.1	3.7	4.3	<b>P</b>	<b>P</b>	1	1.9	3.8	2.6	3.3	2.5	2.7	4.1	4.8	4.4	7.1	7.9	8.9	8.9	3.5	22
4	12.5	16	16.8	17.4	20.2	19.7	21.3	17.9	17.8	20.8	<b>23.3</b>	17	4	5.4	10.9	4	0	8.5	6.4	0.2	2.9	3.4	2.7	0.2	<b>23.3</b>	<b>11.2</b>	24
5	3.7	5.1	3	4.3	3	4.1	4.5	2.1	6.6	3.6	0.9	2.2	2	2.1	4	4.8	6.1	6.7	7.5	6.8	7.1	9.2	13.6	8.8	13.6	5.1	24
6	7.1	6.4	7.9	7.7	11.2	13.2	13.7	13.2	10.9	9.1	6.5	4.2	5.4	2.8	0.5	5	1.9	5.9	10.8	13.1	10.9	10.1	11.8	11.3	13.7	0.0	24
7	10.8	8.6	6.8	7.7	3.3	2.9	0	1.8	2.8	3.5	3.9	2.9	0.3	6.9	7	3	1.2	0.6	1.2	0	1.5	1	4.7	3.4	10.8	3.6	24
8	5	0.8	2.7	3.1	6.4	8.9	10.6	9.1	9.3	9	9.5	7.7	8.7	4.6	4.9	7.6	10	10.6	10.1	10.8	9.8	7.5	7.8	7.6	10.8	7.6	24
9	6	10.6	10.7	10.6	12.2	11.3	11.5	10.6	14.5	10.3	2.1	3.5	6.9	2.7	1.3	2.4	1.4	3.6	9	6.4	6.9	6.8	8	8.5	14.5	7.4	24
10	9.8	10.6	10.7	10.4	8.9	8.8	5.7	4.9	2.1	0	0.1	0	1.2	2.5	0	0.9	2.6	2.9	3.1	2.7	2.1	4	3.6	3.4	10.7	4.2	24
11	3.4	2	5.7	7.5	8.2	12.2	13.4	14.6	15.5	14.9	11.6	6.5	4.6	2.6	4.3	7.4	7.5	8.2	2.2	5.6	0.5	0	2.9	3.6	15.5	6.9	24
12	2.4	0.5	3.6	3.3	3.5	1.7	0.3	0	2.4	2.5	1.8	3.8	2.9	3.6	2.6	3.3	2.1	0.7	3.7	0.5	2.3	0.6	2.1	1.9	3.8	2.2	24
13	2.2	2	3	2.7	2	2.1	4.1	5.5	5.6	4.9	5.7	6.6	5.4	0	0.5	8.2	6.7	1.9	0.2	3	0	1.2	1.1	1.1	8.2	3.2	24
14	2.8	2.5	3	4.3	3.6	1.8	3.5	2	1	2.6	2.6	1.1	2.3	0	0	1.5	4.7	6.4	6.3	4.2	4	0.5	2.5	6.2	6.4	2.9	24
15	6.8	4.3	4.9	6.7	4.3	5.9	2.7	1.8	0.4	1.4	1.6	0.4	0.7	0.3	3.1	5.2	2.9	0	2.4	1.9	0	0.7	2.4	4.1	6.8	2.7	24
16	3.3	2.9	2	0.8	3.1	3.5	1.5	3.7	3.5	4.6	2.2	4.5	4	0	1.7	1.6	2.3	3.5	3.1	3.8	2.9	1.6	1.5	2.2	4.6	2.7	24
17	1.4	1.7	4.1	3.3	1.8	3.3	0.8	2.2	0.3	0.2	1.6	2.1	4.6	6.1	4	2.6	2.3	2.4	2.8	4.5	4.5	3.5	6.4	6.1	6.4	3.0	24
18	5.1	5.1	5.5	3.1	1.2	0.5	5.5	8.1	9.9	7.3	7.2	7.5	6.8	5.9	7	5.1	4.4	10.5	5.8	7.9	10.6	10.1	11.9	9.9	11.9	6.7	24
19	8.2	7	6	7.2	6.7	8.4	9.1	10.6	12.6	13.4	9.7	11.5	6.2	2.8	2.5	4.1	4.5	7.3	1.9	3.3	4.9	5.3	4.3	5.1	13.4	6.8	24
20	7.5	6.6	10.2	9.3	13.1	14.4	13.1	10.4	9.5	6.5	4.1	5	3.8	2.1	4.2	1.1	1.7	2.1	1.9	3.8	0.5	2.6	3	2.2	14.4	5.8	24
21	3.3	2.8	1.9	4.7	2	0.9	3.2	5.3	<b>C</b>	<b>C</b>	<b>C</b>	4.4	0	0	3.3	4.1	5	3.9	2.1	1.8	5.2	4.1	6	4.2	6.0	3.2	24
22	5.9	6.6	4.9	5.1	5.4	6.3	5.1	3.9	4.5	2.7	3.8	4.3	5.1	5.3	3.4	2.7	4.8	2.5	3.4	3	3.3	5.5	7.2	6.9	7.2	4.7	24
23	3.8	4.1	2.5	3.2	3.6	3.4	3.2	3.8	4.3	6.7	3.6	3.7	1.7	4.9	3.5	4.2	3.8	6.1	4.4	4.5	3.7	6.9	7.5	3.8	7.5	4.2	24
24	4.8	3.6	3.5	3	3.6	4.6	1.7	2	2.3	2.1	2.2	1.1	0.7	2	3.8	2.7	4	5.4	3	4	2.5	2.1	2.7	5.1	5.4	3.0	24
25	5.8	3.1	4.3	2.3	1.2	2	3.2	1.9	0.5	1.3	3.3	2.9	4	8.4	6.7	8.1	8.3	7.9	8.9	9.5	7.5	7.6	5.7	7.5	9.5	5.1	24
26	5.9	7.2	5.7	5.5	4.6	4.6	6.9	5.8	6.3	7.6	7.3	7	9.3	10.2	7.4	4.5	5.8	5.5	5.6	6.9	7.4	0	0	6	10.2	6.0	24
27	7.9	2.2	3.6	4.1	3.6	2.5	2.8	4	1.3	0.1	4.5	6.8	6.7	4.7	4.2	7.9	6.1	7.9	7.2	7.8	10.5	7.2	9	5.8	10.5	5.4	24
28	9	8	6.7	8	2.9	4.8	5.7	4.7	2	3.3	2.2	4.8	3.4	2	1	5	6.6	7.7	5.8	5.9	6.1	4.1	4.8	5.9	9.0	5.0	24
29	3.7	3.2	2.8	2.6	3.3	1.8	1.9	4.6	2.6	0	2.6	2.3	4.8	4.7	1	2.9	2.3	2.3	3.6	2.9	3	8.5	4.7	3.7	8.5	3.2	24
30	3.3	1.1	5.3	4.1	3.6	2.8	2.7	1.3	3.1	4.1	5.3	3.4	2.7	2.2	2.1	3.4	0.5	1.8	0	2	3.4	1.9	1.7	1.5	5.3	2.6	24
HOURLY MAX	13	16	17	17	20	20	21	18	18	21	23	17	9	10	11	8	10	11	11	13	11	10	14	11			
HOURLY AVG	5.2	4.8	5.0	5.4	5.1	5.4	5.5	5.5	5.7	5.3	4.9	4.4	3.8	3.6	3.6	4.0	3.9	4.6	4.6	4.7	4.5	4.3	5.1	5.1			

### STATUS FLAG CODES

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

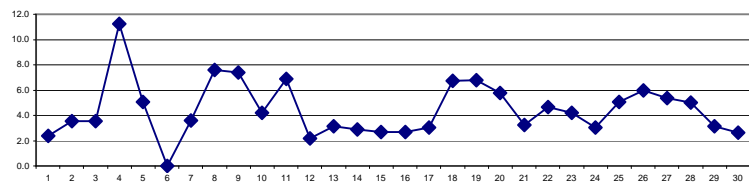
### OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	-	ug/m <sup>3</sup>	24-HR	30	ug/m <sup>3</sup>
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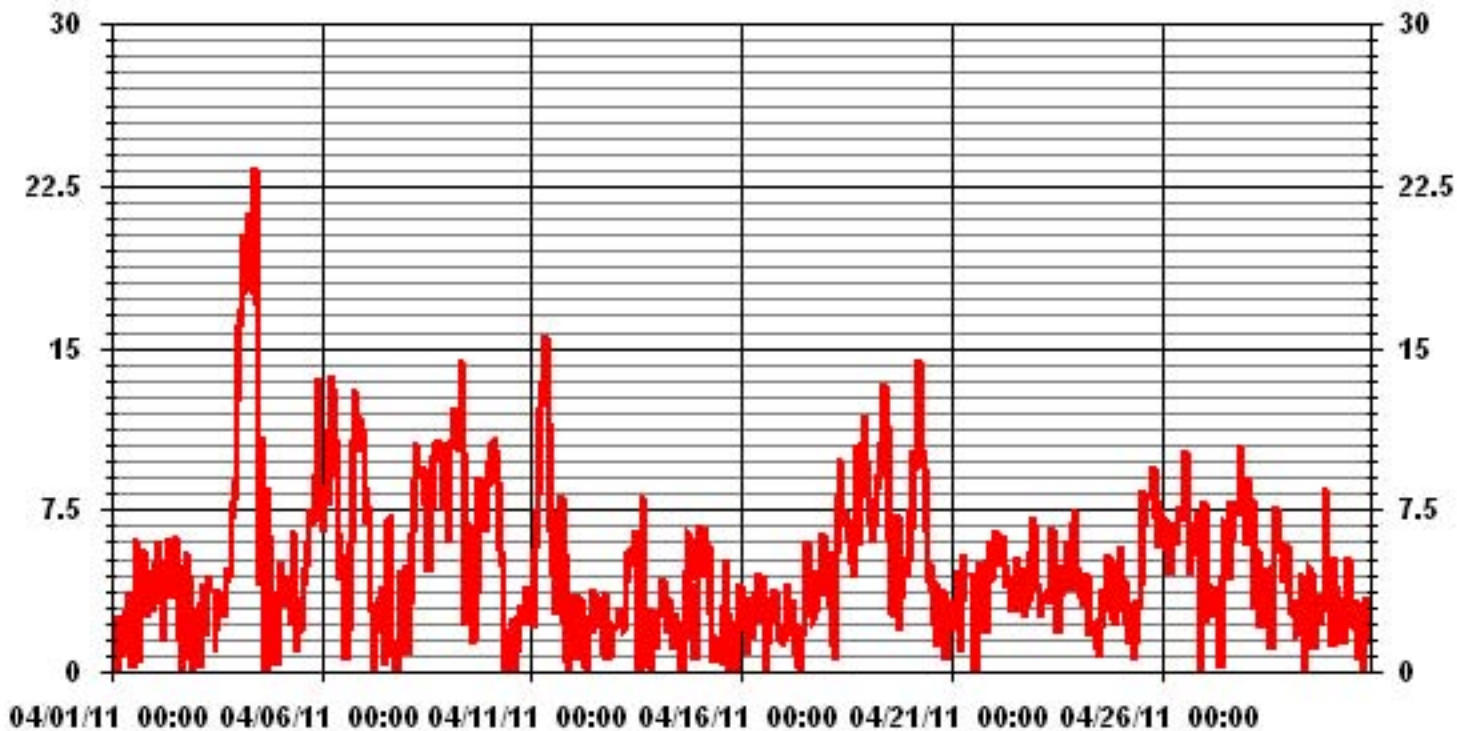
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-	PROPOSED CANADA WIDE GUIDELINE
NUMBER OF 24-HR EXCEEDENCES:	0	
NUMBER OF NON-ZERO READINGS:	688	
MAXIMUM 1-HR AVERAGE:	23.3	UG/M <sup>3</sup> @ HOUR(S) 10 ON DAY(S) 4
MAXIMUM 24-HR AVERAGE:	11.2	UG/M <sup>3</sup> ON DAY(S) 4
IZS CALIBRATION TIME:	0	HRS OPERATIONAL TIME: 718 HRS
MONTHLY CALIBRATION TIME:	3	HRS AMD OPERATION UPTIME: 99.7 %
STANDARD DEVIATION:	3.56	MONTHLY AVERAGE: 4.74 UG/M <sup>3</sup>

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA31 PM2 UG/M3

LICA31  
 PM2 / WDR Joint Frequency Distribution (Percent)

April 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	4.19	5.59	6.01	5.73	6.99	7.69	4.47	5.59	5.31	5.73	8.81	6.01	4.89	8.53	9.65	4.75	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	4.19	5.59	6.01	5.73	6.99	7.69	4.47	5.59	5.31	5.73	8.81	6.01	4.89	8.53	9.65	4.75	

Calm : .00 %

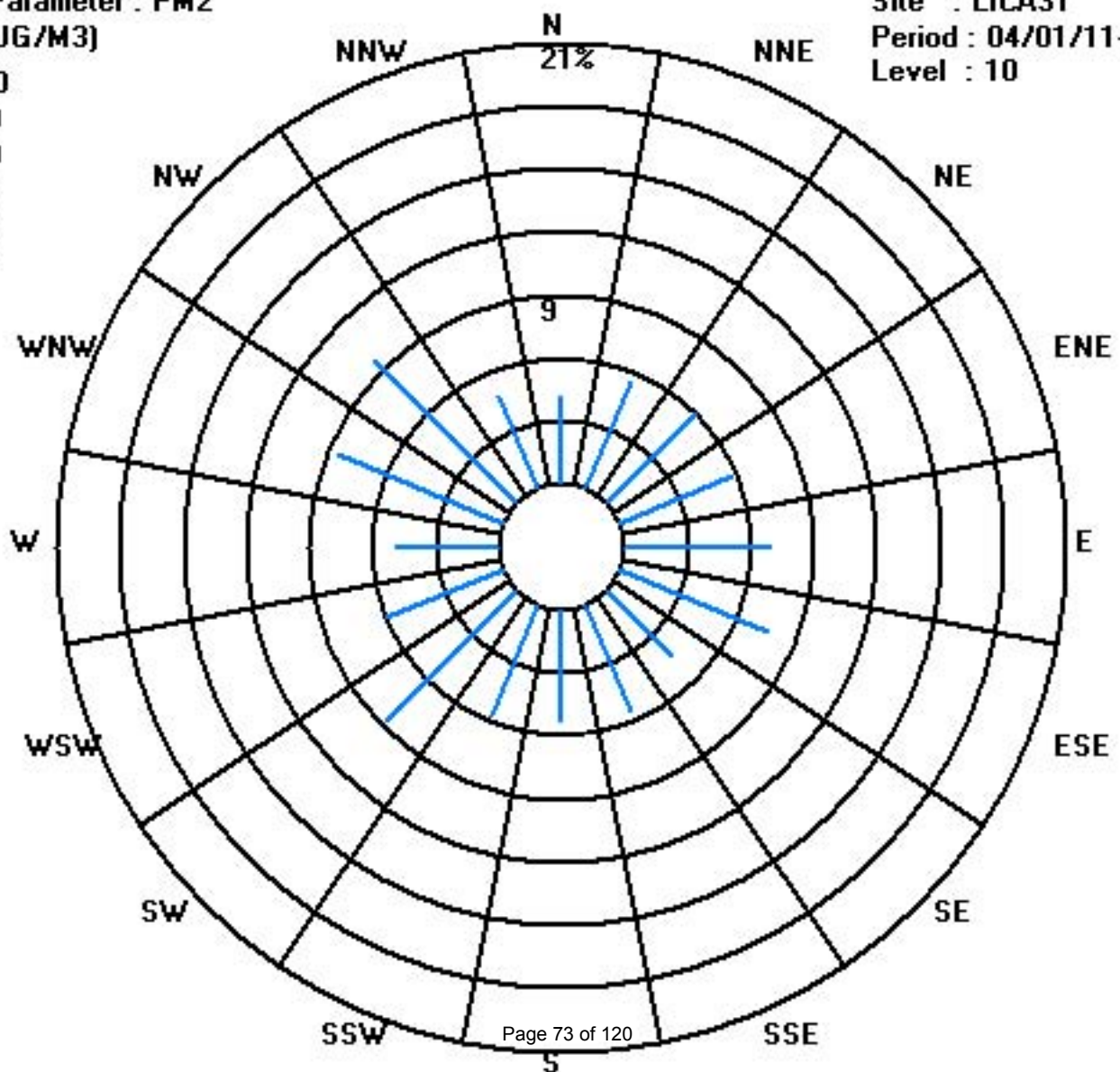
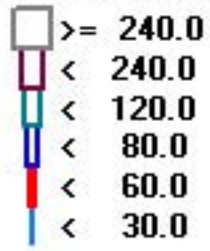
Total # Operational Hours : 715

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	30	40	43	41	50	55	32	40	38	41	63	43	35	61	69	34	715
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	30	40	43	41	50	55	32	40	38	41	63	43	35	61	69	34	

Calm : .00 %

Total # Operational Hours : 715



# Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2011

AMBIENT TEMPERATURE hourly averages (Degrees C)

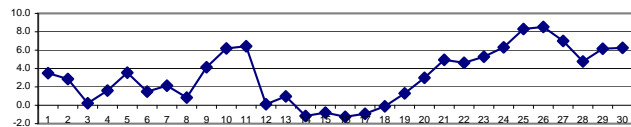
MST

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	24:00	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	1.4	1.2	0.7	0	-0.4	-1	-0.5	1.2	4.3	6.1	7.6	8.6	7.4	7.5	7.1	6.5	6.8	6	4.7	3	2.3	1.7	1.1	0.6	8.6	3.5	24	
2	-0.6	-1.6	-1.3	-2.3	-0.5	-0.2	0.6	1.6	3.5	4.5	5.6	6.6	7.2	8.1	8.7	6.6	7.1	6	4.2	3	1.8	0.8	0.1	-0.9	8.7	2.9	24	
3	-1.4	-1.4	-1	-0.7	-0.8	-2	-2.3	-1.2	0.5	P	P	5.1	4.7	3.4	3.1	2.7	2.6	2.4	1.1	-0.9	-1.7	-2.3	-2.5	-2.6	5.1	0.2	22	
4	-2.9	-3.2	-3.3	-3.8	-4.1	-4.2	-4.1	-2.9	-1.4	0.4	2.4	7	7.5	7.1	6.6	6.6	6.4	6.5	5.3	3.9	3.1	2.5	1.9	1.1	7.5	1.6	24	
5	0.3	-0.6	-0.7	-1	-1	-0.9	1.3	0.1	2.5	6.5	8.2	9.7	8.9	7.9	7.7	7.6	7.2	6.3	5	3.9	2.7	1.8	0.9	0.9	9.7	3.6	24	
6	1.2	-0.9	-1.5	-2.1	-2	-2.2	-2.4	1.6	1.4	0.7	2.1	3.1	4.2	5.3	5.4	5.6	5.4	4.6	3.5	2	1	0.3	-0.2	-0.5	5.6	1.5	24	
7	-0.1	-0.2	-0.5	-1.1	-1.4	-2.2	-1.2	0.4	1.5	3.1	4.9	5.3	6.1	5.6	6	6.1	6	5.7	4	2.6	1.5	0.8	-0.4	-1.3	6.1	2.1	24	
8	-1.7	-2.1	-2.3	-2.5	-3.3	-4.2	-4.3	-1.9	0.6	2.7	3.6	4.5	4.6	4.7	4.3	4	3.7	2.8	2.2	1.7	1.2	0.7	0.6	0.5	4.7	0.8	24	
9	0.3	0	-0.3	-0.3	-0.3	-0.4	-0.1	2.1	5	6.5	7.3	7.6	7.7	8.1	8.4	8.9	8.6	7.7	6.3	4.6	3.5	2.6	2.7	2.8	8.9	4.1	24	
10	2.8	1.6	1.5	1.1	1.5	2	2.3	5.6	7.8	9	9.9	10.7	10.8	11.1	10.2	9.7	9.2	8.6	7.1	6	5.4	4.9	4.9	4.8	11.1	6.2	24	
11	4.4	3.9	2.8	1.6	0.8	0.2	0.3	2.9	5.8	9	10.6	11.7	12.6	13.3	13.1	12.2	10.7	9.2	7.9	5.8	5.1	4.4	3.4	2.6	13.3	6.4	24	
12	1.9	1.1	0.3	0	-0.2	-0.5	-1.3	-2.1	-2.6	-3.4	-3.4	-1	0.8	2.1	2.9	3.5	3.6	3	1.7	0.4	-0.3	-0.8	-1.2	-1.9	3.6	0.1	24	
13	-2.4	-3.3	-3.7	-4	-4.5	-4.8	-3	-0.6	1	2.5	3.4	4.3	4.9	5	5.5	5.2	5.4	4.7	3.6	2.3	1.5	0.7	0.1	-0.6	5.5	1.0	24	
14	-1.3	-1.7	-2.4	-3	-3	-3.1	-3.3	-3	-1.8	0.1	1.1	0.8	-0.2	-1.7	-0.6	1.2	1.3	0.5	-0.3	-1	-1.4	-1.6	-1.7	-1.9	1.3	-1.2	24	
15	-2	-2.1	-2.4	-2.8	-3	-3.1	-2.9	-2.2	-1.3	0.3	1.1	1.6	1.7	1.9	2.5	1.7	1.3	-0.1	-0.7	-1.1	-1.4	-1.6	-2.1	-2.4	2.5	-0.8	24	
16	-3	-3.7	-4.4	-5	-5.4	-5.5	-4	-1.3	0.1	1.4	2.3	2.1	2	2.2	1.4	0.8	0.9	0.3	-0.3	-1.1	-1.7	-2.2	-2.8	-3.2	2.3	-1.3	24	
17	-3.6	-4.2	-4.5	-4	-5.1	-3.9	-0.9	2	2.4	1.8	2.7	2.4	2.5	2.2	0.7	1.4	-0.3	0	-0.8	-2	-2.6	-2.6	-2.8	-3	2.7	-0.9	24	
18	-4.1	-4.6	-4.6	-4.9	-5.3	-5.8	-4.4	-2	0.5	2.7	4	5.1	5.4	4.3	2.2	2	3.1	3.1	2.9	1.1	0.1	-0.4	-1.3	-1.8	5.4	-0.1	24	
19	-2.3	-2.9	-3.3	-3.8	-4.4	-4.6	-3.4	-1.8	-0.2	3.8	4.8	4	5.2	6.5	6.2	5	5.1	5.7	5	3	2	1.6	0.6	-0.7	6.5	1.3	24	
20	-1.2	-1.8	-2.1	-2.8	-3.3	-3.4	-1	1	3.7	5.6	6.4	7.3	6.8	7.5	7.1	7.9	8	7.1	5.9	4.1	2.8	2.5	2.2	1.4	8.0	3.0	24	
21	0.5	-0.4	0.4	1	0.7	-0.3	1	4	6.5	7.8	8.5	9.4	10	8.3	9.2	8.7	8.6	8.1	6.8	5.4	5.3	4.6	2.9	1.7	10.0	4.9	24	
22	1.2	0.7	0.1	-0.7	-0.9	-0.3	1.8	3.4	5.6	7.5	8.4	7.8	8.5	8.6	8.2	9.1	8.6	7.9	7.2	5.5	4.4	3.5	2.8	2.1	9.1	4.6	24	
23	1.8	0.7	0.4	-0.1	-0.3	0.5	2.3	2.9	6	8.3	9	9.5	8.9	10.2	9.9	9.7	9	8.6	7.8	6.1	4.7	4.1	3.4	3.4	10.2	5.3	24	
24	4	3.5	2.6	1.9	1.7	2.4	4.1	5.2	6.2	8.4	9.3	10.3	11.5	11.9	11.5	11.2	10.9	9	7.8	5.9	4.6	3.5	2.3	1.6	11.9	6.3	24	
25	0.6	-0.3	-0.9	-1.4	-1.6	-1.7	1	4.1	6.2	8.5	10.7	12.5	14.2	15.2	16	<b>16.3</b>	<b>16.3</b>	15.6	14.4	12.7	11.1	11.2	10	8.6	<b>16.3</b>	8.3	24	
26	7.6	6.5	5.7	5.4	5.4	5.3	6	6.7	8.5	10.2	10.9	11.2	13.5	14.6	13.5	12.8	12.5	11	8.3	6.4	6.1	5.7	5.4	14.6	<b>8.5</b>	24		
27	4	2.7	2.1	2.2	1.1	1	2.6	4.9	7.7	10.7	12.5	13.8	14.8	11.5	10.9	8.3	7.3	7.7	7.9	8.2	7.3	6.8	6.2	5.8	14.8	7.0	24	
28	5.1	4.9	4.9	4.7	4.5	4.5	4.3	4.7	5.3	5.7	6.1	5.7	5.4	4.8	4.5	4.7	4.7	4.4	4.5	4.7	4.6	4	3.8	3.9	6.1	4.8	24	
29	4.3	4	2.7	2.3	1.5	1.2	2.1	3.2	4.8	6.2	7.4	8.5	9.1	10.1	10.5	10	10.8	10	9.1	7.9	6.8	6.2	5.1	3.9	10.8	6.2	24	
30	3.1	2.6	2.7	2.9	1.6	1.4	2.4	3.3	3.6	7.6	8.3	9.8	11.2	12.2	11.2	10.3	11.5	9.6	8.8	6.7	5.6	5.2	4.5	3.9	12.2	6.3	24	
HOURLY MAX	7.6	6.5	5.7	5.4	5.4	5.4	5.3	6.0	7.8	10.7	12.5	13.8	14.8	15.2	16.0	16.3	16.3	15.6	14.4	12.7	11.1	11.2	10.0	8.6				
HOURLY AVG	0.6	-0.1	-0.4	-0.8	-1.1	-1.2	-0.3	1.4	3.1	4.9	6.0	6.8	7.2	7.3	7.2	6.9	6.8	6.1	5.1	3.8	2.9	2.3	1.7	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

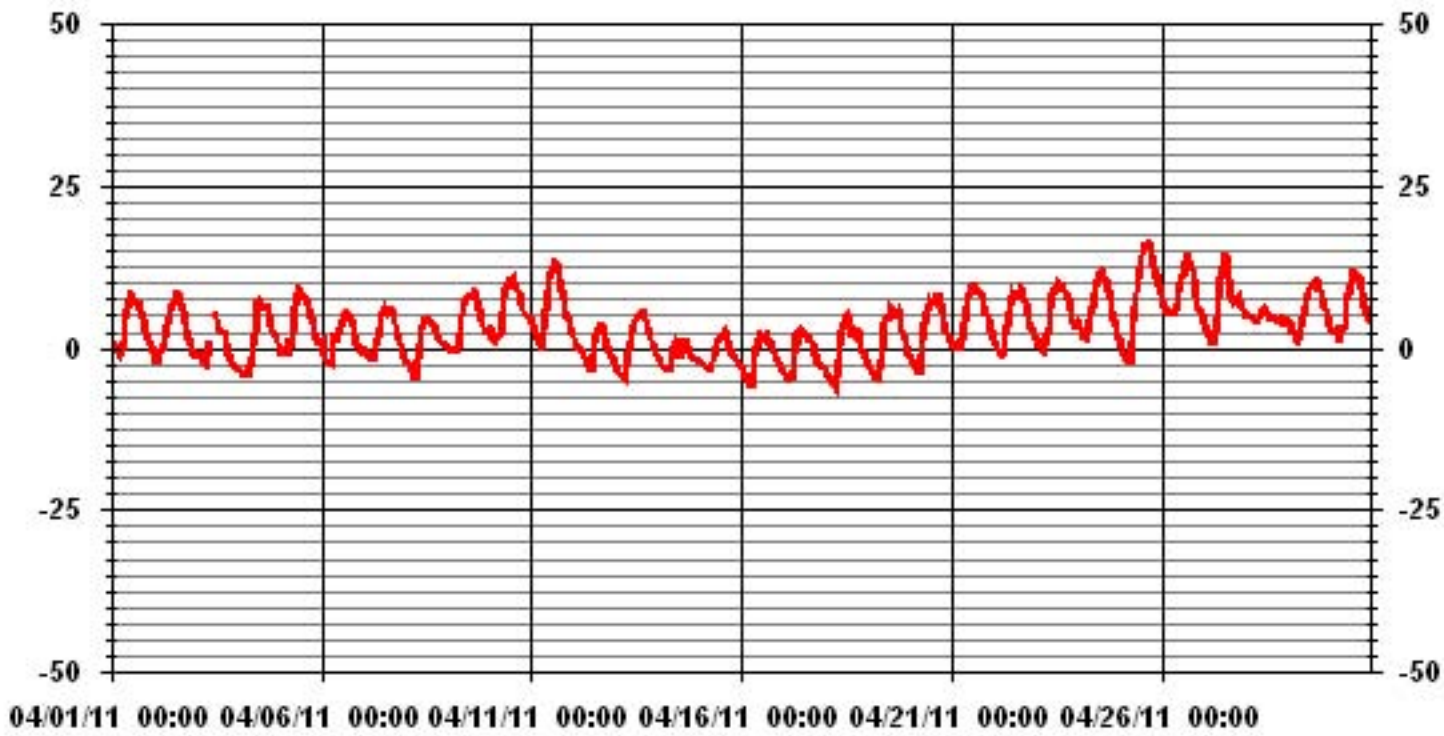
24 HOUR AVERAGES FOR APRIL 2011



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-5.8 °C	@ HOUR(S)	5	ON DAY(S)	18
MAXIMUM 1-HR AVERAGE:	16.3 °C	@ HOUR(S)	15, 16	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	8.5 °C			ON DAY(S)	26
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	718 HRS		
STANDARD DEVIATION:	4.44	AMD OPERATION UPTIME:	99.7 %		
		MONTHLY AVERAGE:	3.21 °C		

### 01 Hour Averages



— LICA31 TPX DGC



# Barometric Pressure

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

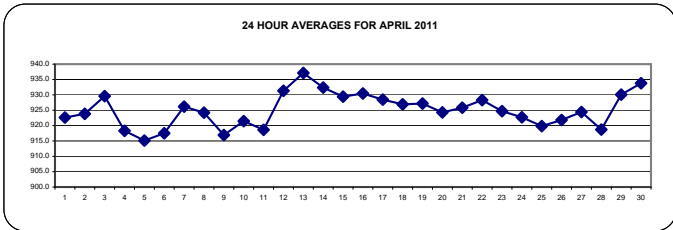
APRIL 2011

## 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		920	920	921	921	921	921	922	922	923	923	924	924	925	924	925	924	924	924	924	923	922	922	922	922	922	925	922.6	24	
2		922	921	920	920	920	921	921	921	922	923	924	924	924	925	926	925	926	927	927	926	926	926	927	927	927	927	927	923.8	24
3		928	928	929	929	930	930	931	931	932	P	P	934	933	932	932	931	931	931	929	928	927	926	925	924	934	929.6	22		
4		923	922	921	920	919	919	918	918	918	918	918	919	919	919	919	918	918	918	917	916	916	916	915	915	915	923	918.3	24	
5		914	914	913	913	913	913	913	914	914	915	916	916	917	917	917	917	917	917	916	916	916	915	915	915	917	915.1	24		
6		915	915	915	915	915	915	915	916	917	918	918	918	918	919	919	919	919	920	919	919	919	919	919	919	919	920	917.5	24	
7		920	920	920	921	921	922	922	923	924	925	926	927	928	929	929	930	930	931	931	930	930	930	930	930	929	931	926.2	24	
8		929	929	929	928	928	927	926	927	927	927	927	926	926	925	924	923	922	921	920	919	919	918	918	917	929	924.2	24		
9		917	916	916	916	916	916	916	916	917	918	918	918	918	918	918	918	918	918	917	916	916	916	916	917	918	916.9	24		
10		917	917	917	918	918	919	920	921	922	923	923	924	924	924	924	924	924	924	923	923	922	922	921	921	924	921.5	24		
11		920	919	918	918	918	917	917	917	917	918	918	918	918	918	918	918	918	919	920	920	921	922	922	922	922	918.6	24		
12		923	924	924	925	925	926	927	928	929	930	931	932	933	934	935	936	936	937	937	936	936	936	936	936	936	937	931.3	24	
13		936	936	937	936	936	936	937	937	938	939	939	939	939	938	938	937	937	937	937	937	936	936	936	936	936	939	937.1	24	
14		936	935	935	934	934	934	933	933	933	933	933	932	932	932	931	931	931	931	931	931	931	931	931	931	931	936	932.4	24	
15		930	929	929	928	928	927	928	928	928	928	929	929	930	930	930	930	930	930	930	931	931	931	931	931	931	931	929.4	24	
16		931	931	931	930	930	930	930	931	931	932	932	932	931	931	930	930	930	930	930	930	930	930	929	929	931	932	930.5	24	
17		929	929	928	928	928	928	929	929	930	930	930	930	929	930	929	929	928	928	928	927	927	927	927	926	930	928.5	24		
18		926	926	926	926	926	925	925	926	927	927	928	928	928	928	927	928	928	928	928	927	927	927	927	927	928	926.9	24		
19		927	926	926	926	926	926	926	927	927	928	929	929	929	929	928	928	928	928	928	927	926	926	926	925	929	927.2	24		
20		925	925	924	924	924	924	924	924	925	925	925	925	925	925	924	925	925	925	924	924	923	923	923	923	925	924.3	24		
21		923	923	923	923	923	923	924	925	926	927	927	927	927	928	928	928	928	928	928	927	928	928	927	927	928	925.8	24		
22		927	927	927	927	927	928	928	929	930	930	930	930	930	930	930	929	929	929	929	928	927	927	927	926	930	928.3	24		
23		926	926	926	925	925	925	926	926	926	926	926	926	925	925	925	925	924	924	924	923	923	922	922	922	926	924.7	24		
24		922	922	921	921	921	921	921	922	923	923	924	924	924	924	924	924	924	924	924	923	923	922	922	922	924	922.7	24		
25		922	921	921	920	920	919	919	920	920	920	920	920	920	921	920	920	920	920	919	919	918	919	919	919	922	919.8	24		
26		919	918	918	918	918	918	919	920	920	921	922	923	923	924	924	924	924	925	925	925	924	924	924	924	925	921.8	24		
27		924	924	924	924	924	924	924	925	926	926	927	927	927	926	925	925	924	924	924	923	923	923	922	922	927	924.4	24		
28		921	921	920	920	919	919	919	918	918	918	918	918	917	917	917	917	918	918	918	919	919	920	920	920	921	918.7	24		
29		921	922	922	923	924	925	927	928	929	930	931	932	933	934	934	935	935	935	935	935	935	934	933	933	935	930.1	24		
30		932	932	932	932	932	932	932	933	934	934	935	935	935	935	935	935	935	935	935	935	934	934	934	934	935	933.8	24		
HOURLY MAX		936	936	937	936	936	936	937	937	938	939	939	939	939	938	938	938	937	937	937	937	936	936	936	936					
HOURLY AVG		924	924	924	924	924	924	924	924	925	925	926	926	926	926	926	926	926	926	926	925	925	925	925	925					

### STATUS FLAG CODES

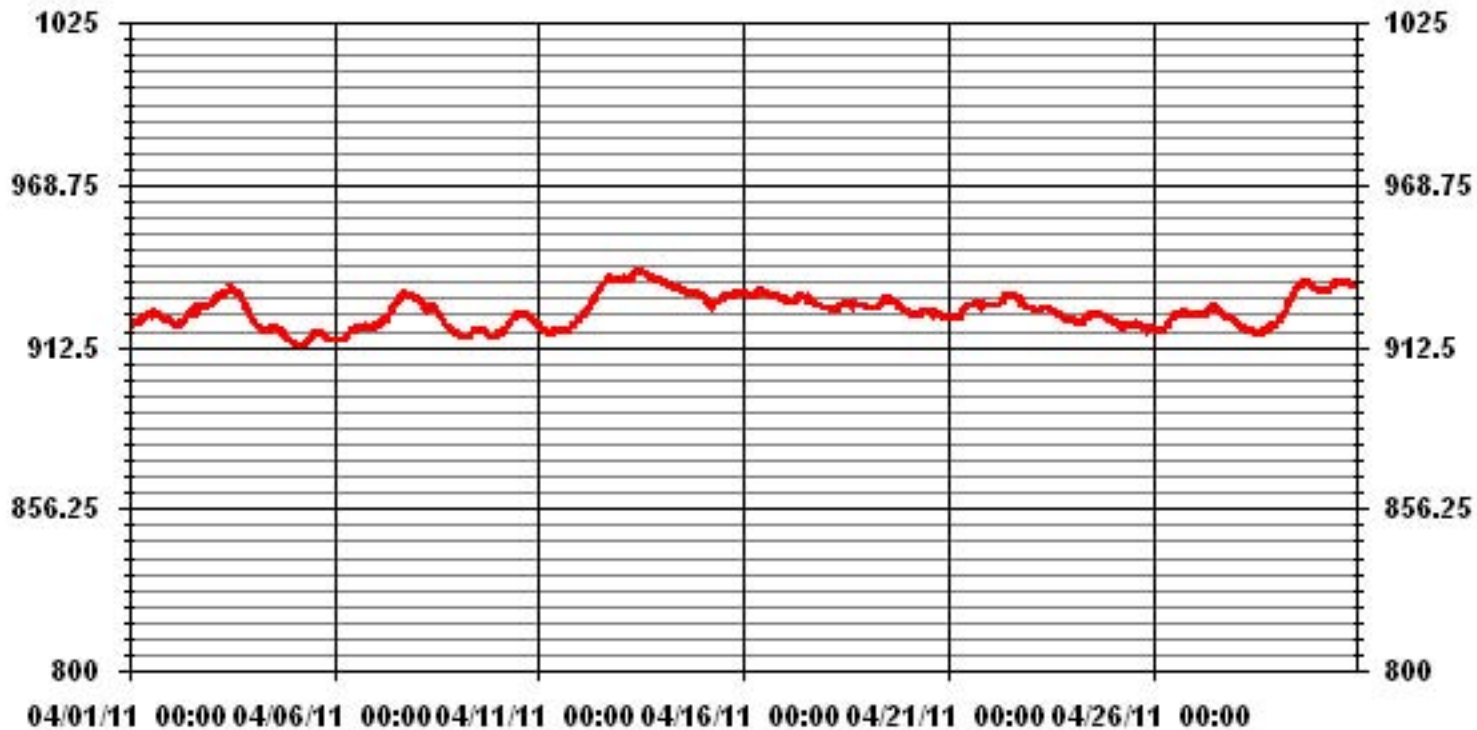
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	939	MB	@ HOUR(S)	VAR	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	937.1	MB			ON DAY(S)	13
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	718	HRS	
			AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	5.77		MONTHLY AVERAGE:	925	MB	

### 01 Hour Averages



# Relative Humidity

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

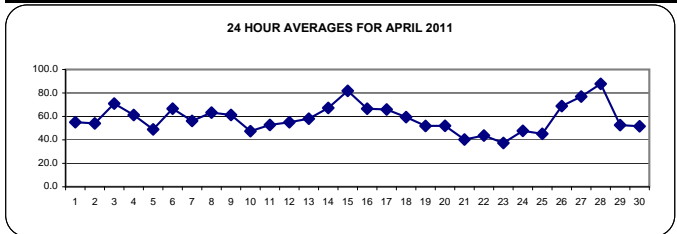
APRIL 2011

## 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		68	68	69	71	72	72	68	61	50	44	39	36	44	45	46	48	47	47	49	53	54	56	57	58	72	55.1	24	
2		63	67	63	67	57	55	54	52	48	47	47	44	41	37	35	44	41	45	50	58	64	68	71	79	79	79	54.0	24
3		83	84	83	82	82	83	84	80	72	P	P	44	42	52	54	57	57	57	65	74	80	83	82	81	84	84	71.0	22
4		80	79	78	79	79	79	78	73	67	62	57	43	43	44	46	47	48	48	51	54	56	58	59	61	80	61.2	24	
5		63	66	66	65	62	60	51	57	49	37	33	30	33	36	37	37	38	40	44	46	50	54	59	61	66	48.9	24	
6		65	71	75	76	77	78	78	67	69	74	72	69	65	58	53	50	49	53	57	63	68	71	72	69	78	66.6	24	
7		65	64	64	67	71	75	75	67	64	59	53	52	50	51	46	37	38	38	40	43	47	53	61	68	75	56.2	24	
8		73	75	76	76	77	77	73	64	57	51	49	45	45	45	48	52	54	58	62	65	69	73	76	78	78	63.3	24	
9		79	81	81	81	81	82	80	71	57	50	46	47	46	44	43	41	44	46	51	57	63	67	66	66	82	61.3	24	
10		66	71	71	72	67	59	60	47	41	30	29	26	25	29	35	37	39	42	45	47	48	50	50	52	72	47.4	24	
11		54	57	62	68	73	76	76	68	60	48	42	39	38	36	39	36	40	49	56	51	48	54	58	76	78	52.8	24	
12		60	62	63	62	60	61	60	66	66	67	73	64	56	52	48	45	41	40	41	43	44	46	48	53	73	55.0	24	
13		58	63	66	68	71	74	71	66	63	55	53	50	48	47	46	47	46	47	51	57	60	62	63	61	74	58.0	24	
14		63	65	69	71	69	70	70	67	58	43	36	44	58	81	72	56	52	62	72	85	88	88	87	87	88	67.2	24	
15		87	87	87	87	87	87	86	85	84	79	75	71	71	72	71	73	74	82	84	86	87	87	87	87	87	87	81.8	24
16		87	87	87	87	87	85	80	70	65	59	56	54	53	52	55	54	54	55	58	60	61	62	64	66	87	66.6	24	
17		68	71	73	71	75	72	62	56	52	49	44	41	44	53	70	62	78	74	75	81	81	78	76	76	81	65.9	24	
18		80	80	77	76	77	76	71	69	65	55	43	35	33	38	53	65	53	50	46	52	56	59	61	80	59.4	24		
19		63	65	65	66	67	68	66	64	62	49	44	48	43	33	33	35	34	35	32	40	44	51	65	73	73	51.9	24	
20		75	77	79	81	82	81	72	66	57	44	41	38	36	29	30	27	25	28	33	45	48	50	51	53	82	52.0	24	
21		54	54	48	44	44	50	52	46	43	35	32	28	24	32	30	31	30	31	33	40	41	40	50	55	55	40.3	24	
22		57	59	62	64	64	61	53	50	45	39	34	33	30	31	32	29	32	33	34	37	40	42	43	45	64	43.7	24	
23		44	47	48	49	50	49	47	48	38	33	30	28	29	26	28	26	27	30	31	33	36	38	40	42	50	37.4	24	
24		43	45	48	51	53	48	44	45	49	44	41	39	35	34	36	39	41	46	51	58	62	63	65	65	65	47.7	24	
25		68	71	72	71	71	72	66	59	54	48	44	37	29	23	19	17	17	21	24	29	33	36	48	55	72	45.2	24	
26		59	68	73	76	77	77	79	78	75	71	66	62	62	51	44	47	53	53	61	73	83	87	88	89	89	68.8	24	
27		90	90	90	91	91	91	91	91	87	77	62	52	40	50	56	74	81	80	77	71	75	77	81	81	91	76.9	24	
28		86	89	90	90	90	90	90	89	87	84	84	85	87	88	89	87	88	89	89	88	88	88	86	85	90	87.8	24	
29		83	83	82	79	79	78	71	66	61	54	46	44	39	36	34	34	31	31	32	35	37	39	42	47	83	52.6	24	
30		50	53	53	53	59	60	58	58	59	54	58	50	39	29	34	42	32	46	46	53	59	63	64	66	66	51.6	24	
HOURLY MAX		90	90	90	91	91	91	91	91	87	84	84	85	87	88	89	87	88	89	89	88	88	88	88	88	89			
HOURLY AVG		67.8	70.0	70.7	71.4	71.7	71.5	68.9	64.9	60.1	53.1	49.3	45.9	44.3	44.5	45.3	46.0	46.0	48.2	51.1	56.1	59.1	61.1	63.8	65.9				

### STATUS FLAG CODES

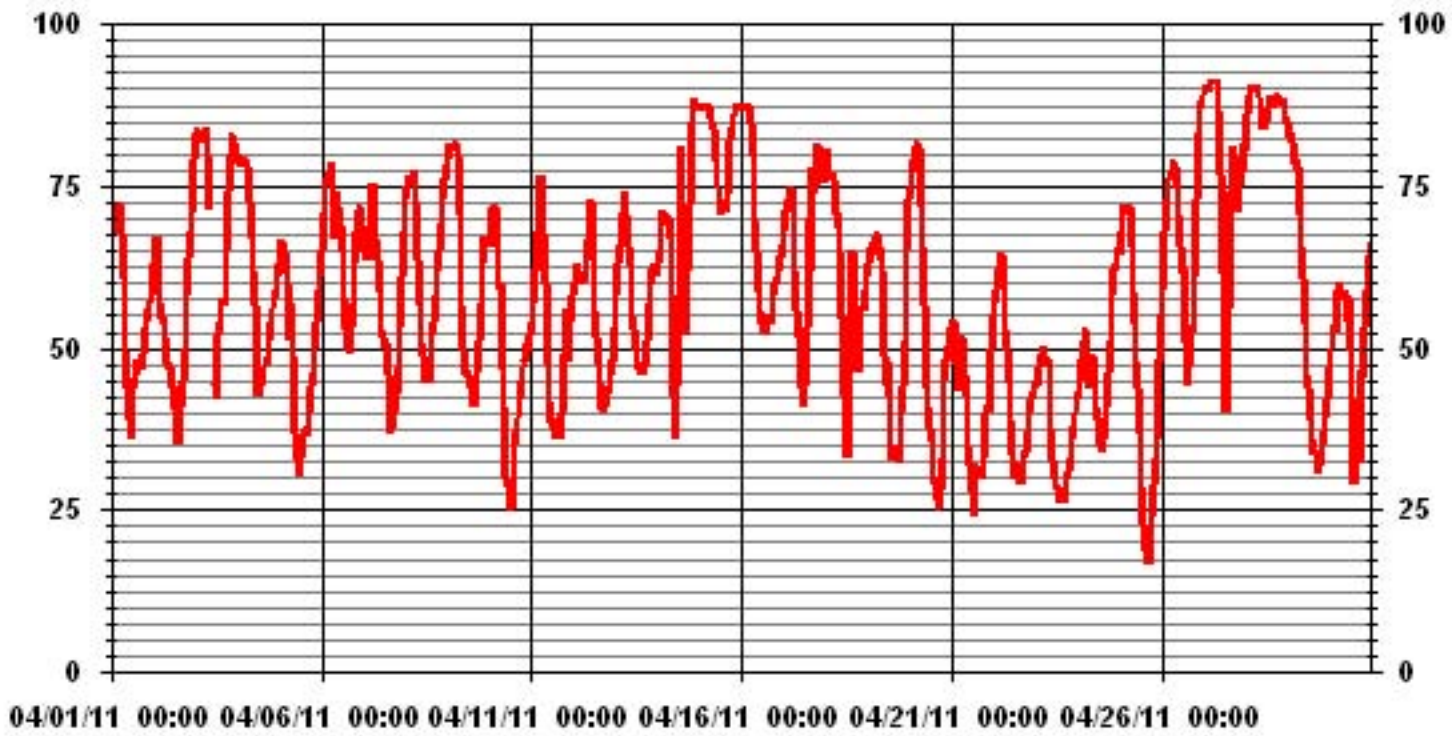
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	91	%	@ HOUR(S)	VAR	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	87.8	%			ON DAY(S)	28
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	718	HRS	
STANDARD DEVIATION:	17.23		AMD OPERATION UPTIME:	99.7	%	
			MONTHLY AVERAGE:	58.21	%	

### 01 Hour Averages



— LICA31 RH %FS

# Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	24	
14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0.1	0.1	0.5	0.3	0.2	0.1	0	0.5	1.4	24
15	15	0.1	0.3	0.5	0.2	0.3	0.1	0.1	0	0.4	0.2	0	0.2	0.1	0.2	0.1	0.1	0	0.2	0.1	0.4	0.2	0.2	0.1	0	0.5	4.1	24	
16	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	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.2	0	0	0	0	0	0	0	0	0.2	0.3	24
18	18	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	0.1	0.1	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	24
27	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.2	1.4	0.1	0.1	0	0	0	0.3	0	0	0	1.4	2.6	24
28	28	0.1	0.1	0.3	0.2	0.7	0.5	1.2	0.5	0.1	0.2	0.1	0.1	0.7	0.3	0.5	0.1	0.1	0.6	0.2	0	0	0	0	0	1.2	6.6	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		0.1	0.3	0.5	0.2	0.7	0.5	1.2	0.5	0.4	0.2	0.1	0.2	0.7	0.5	0.5	1.4	0.2	0.6	0.2	0.4	0.5	0.3	0.2	0.1				

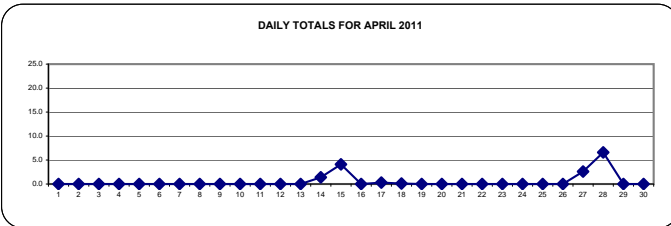
STATUS FLAG CODES

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

MONTHLY SUMMARY

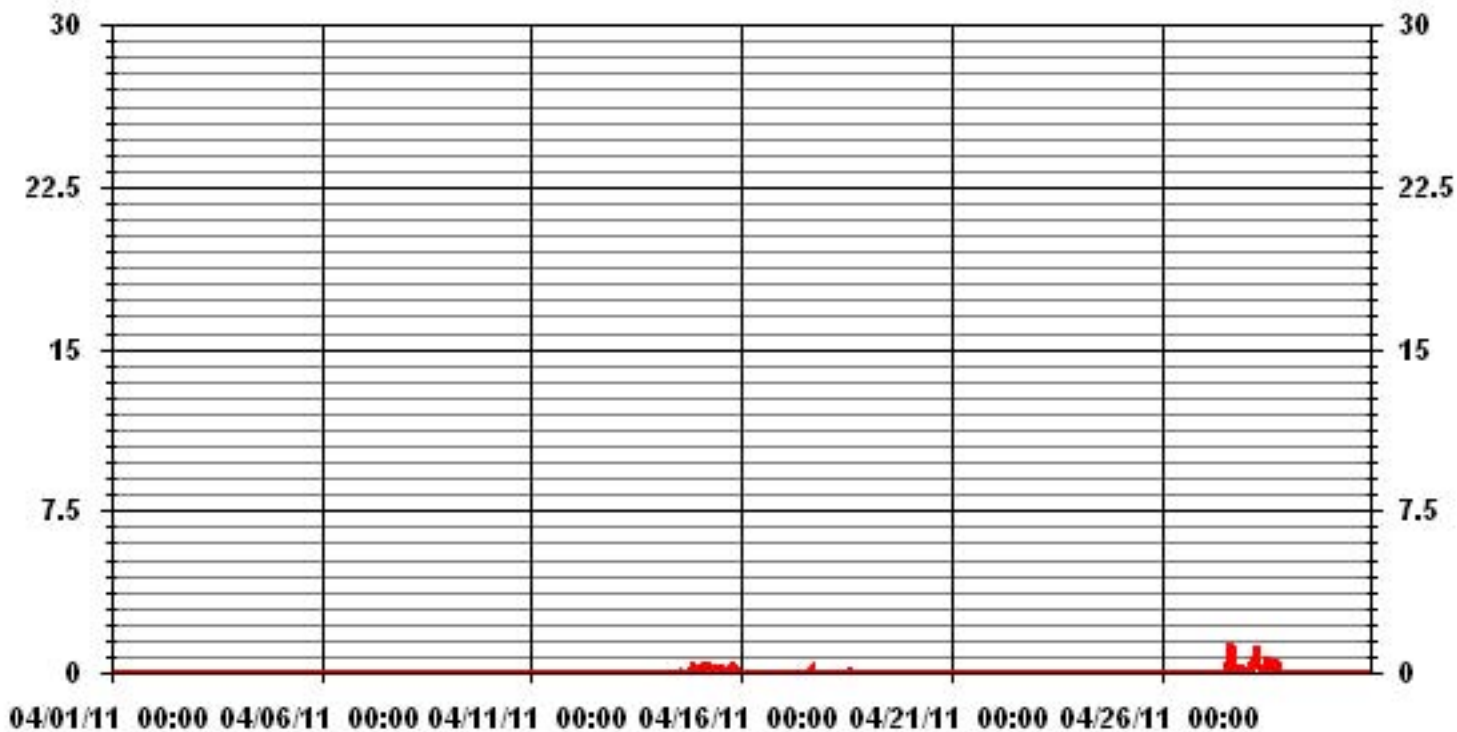
MAXIMUM 1-HR AVERAGE:	1.4	MM	HOUR(S)	15	ON DAY(S)	27
MAXIMUM DAILY TOTAL	6.6	MM			ON DAY(S)	28
MONTHLY TOTAL	15.1	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
STANDARD DEVIATION:	0.10		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.02	MM	

DAILY TOTALS FOR APRIL 2011





### 01 Hour Averages



# Vector Wind Speed

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 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	5.5	4.2	3.8	3.8	3.2	3.2	3.5	3.3	2.4	5.4	4.6	4.6	10.2	10.7	12.8	12.8	12	6.3	7.5	8.6	6.8	7.6	8.1	7.4	12.8	5.4	24
2	10.4	11	7.5	6	5.4	11.3	9.8	11.3	14.5	15	13.4	9.9	9.9	11.6	12.7	11.6	13	12.2	3.3	7.5	10.8	10.8	7.4	7.7	15	3.8	24
3	7.7	10.7	10.2	12.9	12.1	13.3	14.1	5.1	15.9	<b>P</b>	<b>P</b>	1.8	8.3	15.7	17.8	20.4	19.8	17.8	12.3	13.5	13.7	11.3	3.8	4.1	20.4	10.4	22
4	6	5.6	4.6	6.5	6.5	7.4	8	10.1	12	13.9	12.3	11.4	10.3	10.8	12.6	21.7	15	13.5	16	15.3	15.6	15.8	16.3	12.1	21.7	<b>11.1</b>	24
5	7.5	10.1	15.2	15.6	11.1	10.4	9.8	7.6	8.6	9.3	8.8	6.8	7.2	12.9	14.2	14.9	15	13.8	12	15.6	14.4	12.1	8	8.8	15.6	2.5	24
6	11.6	11.9	13.4	12.9	11.4	8.5	13.3	15.2	13.3	10.4	1.9	6.4	5.1	12.8	13.3	12	12.9	13.3	12.2	11.2	9.8	12.5	9.9	8	15.2	9.5	24
7	7.4	8.1	8.6	12.7	11.1	10.3	10.4	11.1	11.7	11.7	12.4	10.8	10	13.4	12.1	11.8	13	13.1	13	14.3	5.5	6.2	8.6	9.1	14.3	7.9	24
8	9.7	8.5	10.6	8.3	9.1	3.4	8.8	8.6	7.7	7.2	5.9	4.9	7.6	6.5	6.9	6.6	7.1	6.9	5.5	6	4.8	4.3	6.1	5.7	10.6	5.4	24
9	7.4	9.8	13.7	12.8	12.4	11.6	11.2	13	10.7	12.2	12.7	15.3	19	21.5	21.2	<b>22.8</b>	18.9	18.3	13.1	9.7	10	8.8	9.1	9	<b>22.8</b>	9.7	24
10	9.1	8.6	8.6	8.6	8.5	8.4	9.2	9.6	11.6	15.8	8.2	2.3	2.5	3.9	7.1	12	9.5	12.6	13.2	15.8	8.8	10.1	12.2	12.3	15.8	4.6	24
11	11.8	13.2	15.2	11.6	11.2	11	9.8	10.2	8.5	8.8	12.1	15.3	13.2	11	12.6	7.1	9.1	10.6	12.1	12.3	13.7	18.9	12.1	8	18.9	3.3	24
12	9.2	8.8	9.4	7.4	10.9	8.3	12.9	15.8	20.1	20.3	17.8	14.5	13.1	12.8	13.7	13.3	11.9	9.7	5.2	13.9	14.4	13.6	7	12.4	20.3	8.2	24
13	8.1	3.7	10.6	12.3	13.6	13.9	12.1	9.3	11.2	13.5	12.2	11.9	12.9	11.9	12.1	12.4	11.6	12.3	10.1	7	6.6	7.4	7.7	7.6	13.9	4.3	24
14	4.4	3.2	2	1.5	2.8	5.6	7	7.5	8.9	9.9	12.7	21.9	22.2	16.1	13.2	12.9	18.2	13.1	13.4	10.2	7.7	7.7	7.3	6.1	22.2	8.5	24
15	3.6	3.1	6.2	6.7	8.2	9	9.4	8.6	10.2	12.3	12.4	14.2	14.5	11.4	10.3	13	12.9	11.7	11.5	12	11.6	13.8	13.2	13.5	14.5	9.7	24
16	13.9	14.5	16.3	15.6	17.2	15.3	13.3	9.7	6.3	7.2	4.4	5.3	4	3.3	2.6	2.1	4	5.7	8	11.1	11.7	10.7	12.2	13.4	17.2	8.6	24
17	14.3	15.1	16	8.6	0.5	7.7	14.5	2.1	2.8	5.8	3	3.6	8.8	5.6	10.8	3.4	5.7	6.4	6.9	7	7.1	6.4	7.2	9.2	16	0.9	24
18	11.9	11.9	8.8	7.2	7.6	8.4	8.5	8.8	10.2	12.8	9.1	9.7	12.8	6	6.4	8.3	5.6	0.4	9.9	10.5	7.1	3.5	15.5	12	15.5	3.1	24
19	12.1	11.6	13.2	11.3	11.3	11.5	10.7	11.8	11.7	6.8	9.4	4.7	8.8	3.1	5.8	6.6	11.3	5	15.4	10.5	7.8	13.4	17.2	11.9	17.2	5.9	24
20	11.1	7.9	7.7	7.8	7.1	8.1	8.4	7.9	7.1	9.6	12.6	16.4	22.5	21.2	18.3	19.6	17.9	20.5	16.7	13	7	3.5	3.5	6.7	22.5	9.9	24
21	4	13.1	12.8	7.2	3.6	1.2	4.8	2.8	3.6	8.5	1.2	9.2	13.2	8.8	6.2	6.5	6.8	7.2	13.2	8	8.3	5.9	6.6	8.8	13.2	0.4	24
22	9.6	8.8	9.1	8.6	10.2	10.5	8.8	9.6	10.5	12.8	12.3	12.9	10.7	10.5	2.2	3.3	6.7	6.7	8.8	13.9	14	11.8	10.5	9.3	14	2.1	24
23	8.7	7.6	6.7	6.7	6.3	7.8	10.3	9	8.4	8.2	6.4	4.7	3.6	5.3	7.3	13.2	11	7.9	9.5	11.6	12.4	11.9	11.7	9.1	13.2	7	24
24	7.9	9.1	9.7	9.7	9.2	13.5	7.6	7.9	8.2	10.2	11.7	7	5.2	4.4	5.9	11.4	10.7	8.5	6.5	7.4	4.8	2.4	4.3	5.5	13.5	3	24
25	5.6	3.3	2.5	3.2	2.4	3.3	7.8	14.3	14.8	13	11.4	9.6	14.4	8.8	12.2	11.9	11	15.2	17.7	17.6	12.9	10.7	14.1	10.7	17.7	3	24
26	11	8.9	10.5	10.5	12.2	14.9	11.8	6.7	6.2	10.2	3	7.5	10.3	12.4	9.2	8.1	12.7	9.8	8.4	11.1	13.5	12	12.3	12.1	14.9	3.5	24
27	11.8	9.6	8.1	7.6	8.5	11.4	13.4	13.9	12.6	1.3	3	7.4	5.8	7.3	6.1	10.4	11.1	2.4	8.4	10.3	15.2	14.8	8.6	4.4	15.2	4	24
28	6.8	10.1	6.1	1.7	3.7	3.4	7.1	7.9	6.9	6.1	4.5	5.5	6.7	13	14.7	16.7	15.1	15.9	9.7	14.2	18.5	17.1	17.4	15	18.5	8.2	24
29	8.7	6.4	5.3	5.6	1.9	4.6	5.4	4.7	3.4	3.5	15.6	2.8	1.6	4.2	5.9	5.9	7.3	10.2	9.3	14.5	5.2	6.3	8.6	8.5	15.6	2.2	24
30	9.7	9	8.2	7.7	6.8	9	8.3	5.7	7.3	8	11.5	8	10.3	9.7	17	1.6	7.8	15.8	7.6	3.8	8.3	10.8	10.8	11.3	17	4.5	24
HOURLY MAX	14.3	15.1	16.3	15.6	17.2	15.3	14.5	15.8	20.1	20.3	17.8	21.9	22.5	21.5	21.2	22.8	19.8	20.5	17.7	17.6	18.5	18.9	17.4	15.0			
HOURLY AVG	8.9	8.9	9.4	8.6	8.2	8.9	9.7	9.0	9.6	10.0	9.2	8.9	10.2	10.2	10.8	11.1	11.5	10.8	10.5	11.2	10.3	10.1	9.9	9.3			

### STATUS FLAG CODES

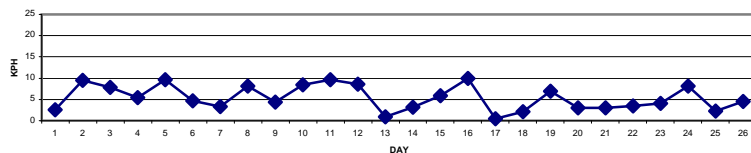
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: June 17, 2010

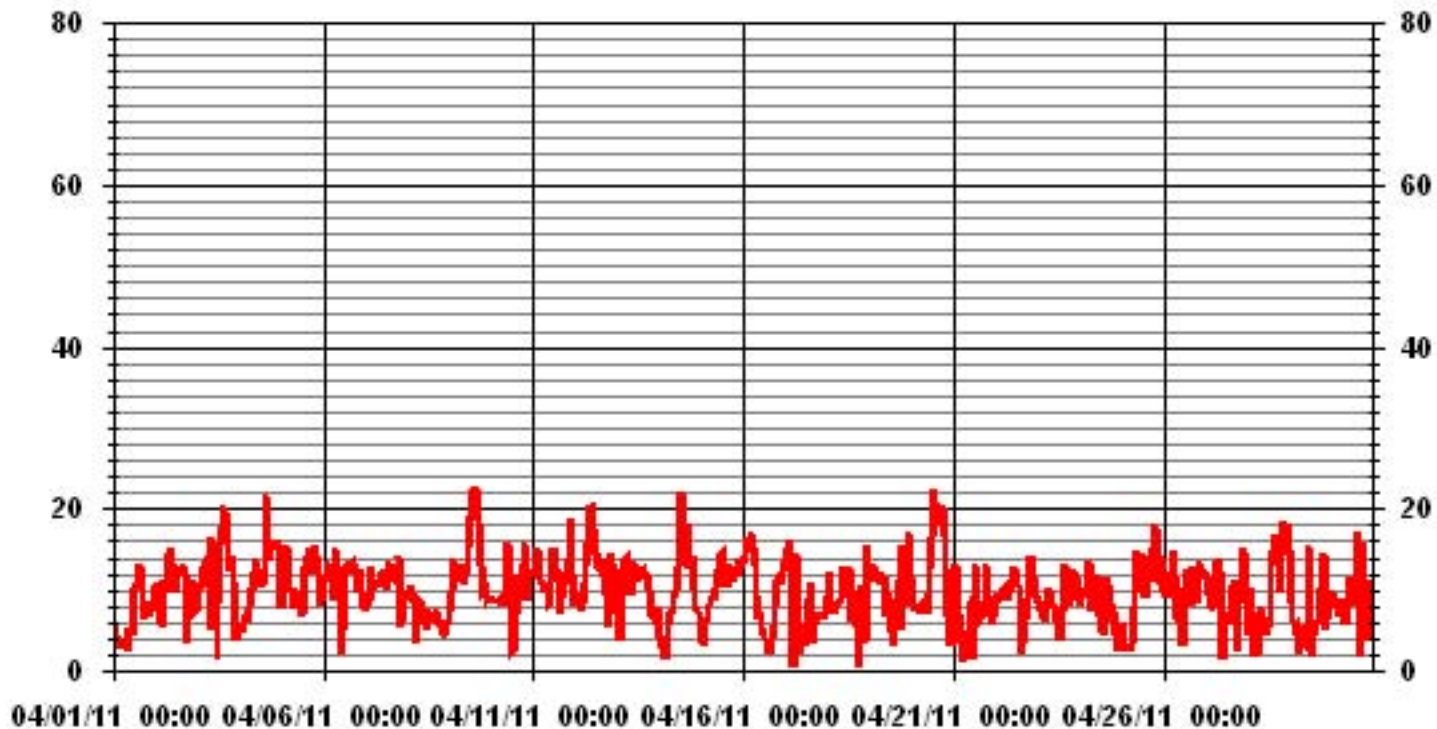
### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	22.8	KPH	@ HOUR(S)	15	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	11.1	KPH			ON DAY(S)	4
CALMS (≤ 0 KPH)	0.27	%	OPERATIONAL TIME:		718	HRS
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME		99.7	%
STANDARD DEVIATION	4.06		MONTHLY AVERAGE		9.79	KPH

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA31 WSP KPH

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 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	15.2	14.9	14.5	13.8	11.6	10.3	29	11.4	30.7	22.6	18	32.2	18.7	18.8	20.8	24.5	22.1	18.8	14	13.6	12.5	12.5	13.4	14.2	32.2
	2	19.3	21.9	24.7	10.8	14.5	20	12.7	16.2	18.9	20.4	20.6	17.5	18.4	20.2	27.1	29.6	21.2	20.2	19.7	20.2	21.9	18.8	18.8	17.1	29.6
	3	14.9	20.4	20.2	20.4	20.6	19.9	21.9	22.3	25	P	P	14.5	23	26.9	28.5	30.3	32.5	27.6	23.9	26.7	26.7	30.5	16.4	16.4	32.5
	4	16	15.1	18	15.3	14.3	15.8	17.3	14.9	18.6	20.4	19.3	25.2	23.9	18.8	25.6	45.5	35.7	22.3	22.2	20.4	19.5	19.3	19.1	19.3	45.5
	5	12.3	19.7	19.5	19.5	19.7	15.6	21.5	14.7	14.9	18.4	18.4	19.7	22.8	28.3	29.1	23.4	25	24.1	19.6	19.5	19.1	17.5	13.4	17.8	29.1
	6	18.2	20.2	16.2	16.2	13.6	12.7	21.7	20.6	18.6	20.6	20.6	19.3	22.8	21.7	22.5	25.4	22.1	20.6	18.6	16.9	14.5	15.2	14	12.1	25.4
	7	14.9	14.2	18.5	23.6	25.2	16.2	P	18	19.3	19.9	21.7	29	28.9	29.1	26.5	22.8	22.3	21	18.7	20.4	12.9	10.3	13.4	15.2	29.1
	8	13.1	13.1	18.8	12.1	12.3	21.5	18.6	17.3	20.4	34.2	37.9	44.7	45.5	49.2	51.2	43.2	47.7	40.5	28.9	27.8	19.1	17.3	19.9	22.3	51.2
	9	16.2	15.8	19.1	16.2	15.6	16.4	16	17.6	21.2	23.9	25.2	26	28.7	36.2	37.4	45.5	33.7	30.9	25.4	16.2	21.2	17.1	16.4	11.8	45.5
	10	14.7	11.8	10.3	11.6	12.7	12.3	12.5	18.5	29.8	35.7	35.7	37.2	28.7	25.6	34	26.9	22.5	22.5	18.2	19.1	19.5	15.8	20.4	21	37.2
	11	23.9	29.6	29	25	22.5	17.5	17.5	19.3	15.2	22.1	28.2	32.2	32.9	28.7	26.6	24.7	42	26.5	43.8	46	47.9	48	34.8	32	48
	12	39.2	33.1	38.1	30	38.3	36.3	49.9	41.2	53.2	48.4	37.2	35.9	32.6	25.4	29.1	28.5	29.1	25.2	20.6	22.3	21	15.1	21.2	19.3	53.2
	13	18.9	19.1	17.3	17.5	18.2	17.8	17.8	19.1	23.4	31.2	36.1	30	33.3	36.1	35.9	36	34.8	33.9	28.9	18.6	31.2	32	26.3	26.7	36.1
	14	27.6	30.9	12.1	30.9	24.1	31.3	35.1	34.7	45.1	42.3	54.3	60	58.2	52.1	48.4	44.9	60.7	53.7	46.2	47.5	49.9	42.3	37.7	38.8	60.7
	15	29.8	35	21.2	23	25	22.4	22.3	21.7	19.9	24.1	21.2	28.9	28.7	28.8	28.3	26.5	26.7	21.3	20.2	19.6	23.9	23.6	25.2	22.6	35
	16	20.6	19.1	22.8	23	24.1	21.7	19.3	16.9	17.1	18.2	30.5	39.4	33.3	34	25.8	31.4	31.6	16	17.5	16.4	16	14	14.9	16	39.4
	17	16.9	17.5	17.5	15.8	21.3	23.2	25.2	23.2	P	22.6	21.5	23.2	23.2	35.5	21.3	31.6	27.2	16.4	14.3	13.8	15.3	12.5	9.9	12.7	35.5
	18	14.2	14.5	12.3	15	P	10.3	11.8	14.5	19.1	20.8	27.4	29.4	30.2	28.3	27.1	26.1	30.7	29.4	23.9	19.1	10.8	22.3	25	17.3	30.7
	19	18.4	14.5	15	13.6	14.2	16	16.2	16.2	17.8	21	28	21.9	32.7	33.5	39	25	31.6	26.3	28.3	23.5	14.7	26.5	28	21.7	39
	20	18.2	13.4	12.3	10.3	9.6	13.2	12.9	12.1	14	24.5	36.8	38.1	45.3	43.3	37	39.6	39	40.3	30.7	20.8	18	4.8	4.4	11.4	45.3
	21	15.6	17.1	19.7	10.7	22.3	25.2	15.8	11.8	21.2	27.6	26.7	26.9	36.8	33.7	27.4	21.7	17.6	21	19.1	19.9	44.2	16.2	12.5	11.8	44.2
	22	12.5	13.1	13.2	13	16.2	18	17.8	21.2	22.6	29.6	36.8	47.7	28.3	37.9	35.2	39.2	29.4	19.1	17.5	18.6	18	17.1	16	13.6	47.7
	23	16.2	14	13.8	14.5	13.6	14.7	16.4	14.7	17.5	19.7	27.6	25.6	39.2	28	27.4	38.8	30	29.1	23	20.4	16.2	17.1	18	12.5	39.2
	24	16	16.2	13.8	15.1	15.8	19.5	24.3	21.7	19.1	24.1	21.2	21.7	23.2	23	21.4	24.7	26.3	28.7	18.8	16.4	13.1	28.7	12.3	12.9	28.7
	25	12.1	12.9	12.7	11.8	12.3	12.1	25.2	32.4	29.6	29.8	28.9	28	35.9	41.8	42.7	39.2	37.7	33.7	32.6	29.6	27.6	37.6	29.6	23.2	42.7
	26	21.4	19.1	26.5	16.6	24.3	28.7	21.4	17.3	14.7	21.4	16.6	25.2	21.5	26	23.4	23.4	35.7	23.6	21.9	20.8	19.3	18	16.9	17.5	35.7
	27	18.4	20.6	24.5	15.6	15.8	18.4	19.9	19.7	P	15.3	22.1	21.2	22.1	37.7	39.9	31.1	20.6	9.9	19.1	27.4	36.4	32	23.9	11.8	39.9
	28	15.6	21.5	11.8	8.1	7	10.5	20.2	16.7	14.9	15.3	14	12.1	26.9	28.7	30.4	35.5	29.8	32.4	30.7	35.7	43.6	39.2	41.6	41.6	43.6
	29	59.1	37.3	33.9	25.6	37	27.6	39.7	36.4	37.7	38.5	46.6	41.6	43.3	42.5	36.8	35.7	32.8	31.8	25.8	19.1	19.8	8.8	11.8	13.1	59.1
	30	16	14.9	18	13.4	15.1	23.4	19.3	16.7	14.2	21.5	31.3	29.4	28.7	32	52.1	47.7	39.2	37	32.2	20.2	16.9	19.3	18.2	21.9	52.1
PEAK		59.1	37.3	38.1	30.9	38.3	36.3	49.9	41.2	53.2	48.4	54.3	60.0	58.2	52.1	52.1	47.7	60.7	53.7	46.2	47.5	49.9	48.0	41.6	41.6	

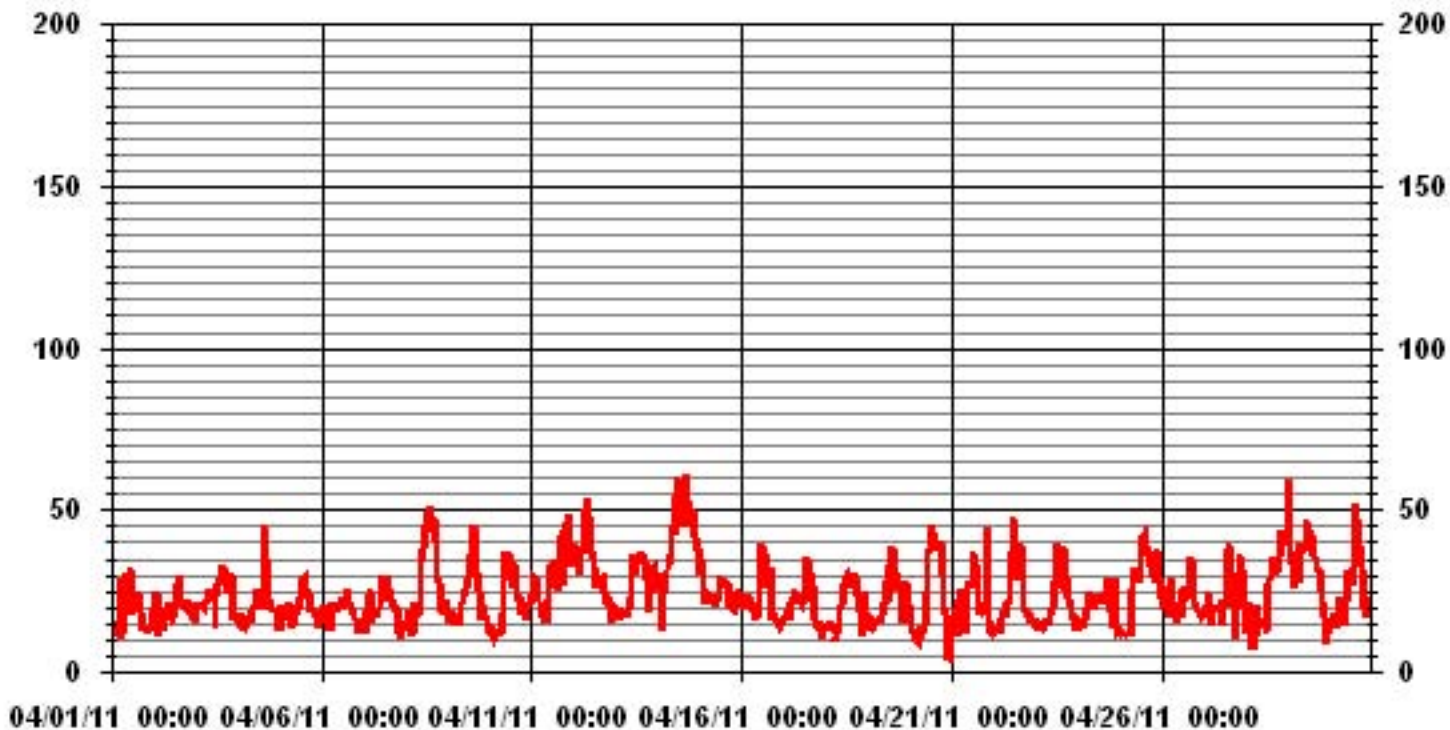
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

MAXIMUM INSTANTANEOUS READING	60.7	KPH	@ HOUR(S)	16
			ON DAY(S)	14

### 01 Hour Averages



— LICA31 WSMAX KPH

LICA31  
WSP / WDR Joint Frequency Distribution (Percent)

April 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	.55	1.53	1.11	.97	.41	.83	.83	.69	.83	1.39	1.11	.55	1.94	2.22	.83	16.85
< 12.0	1.94	2.22	2.50	2.92	4.59	5.29	2.36	1.67	2.78	2.92	5.29	3.34	4.17	3.20	3.76	2.92	51.94
< 20.0	1.25	2.64	1.94	1.67	1.39	1.67	1.25	3.06	1.94	1.94	1.94	.97	.13	2.78	3.62	.97	29.24
< 29.0	.00	.27	.00	.00	.00	.27	.00	.00	.00	.00	.13	.41	.00	.55	.00	.00	1.67
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.17	5.71	5.98	5.71	6.96	7.66	4.45	5.57	5.43	5.71	8.77	5.84	4.87	8.49	9.61	4.73	

Calm : .27 %

Total # Operational Hours : 718

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	4	11	8	7	3	6	6	5	6	10	8	4	14	16	6	121
< 12.0	14	16	18	21	33	38	17	12	20	21	38	24	30	23	27	21	373
< 20.0	9	19	14	12	10	12	9	22	14	14	14	7	1	20	26	7	210
< 29.0		2				2					1	3		4			12
< 39.0																	
>= 39.0																	
Totals	30	41	43	41	50	55	32	40	39	41	63	42	35	61	69	34	

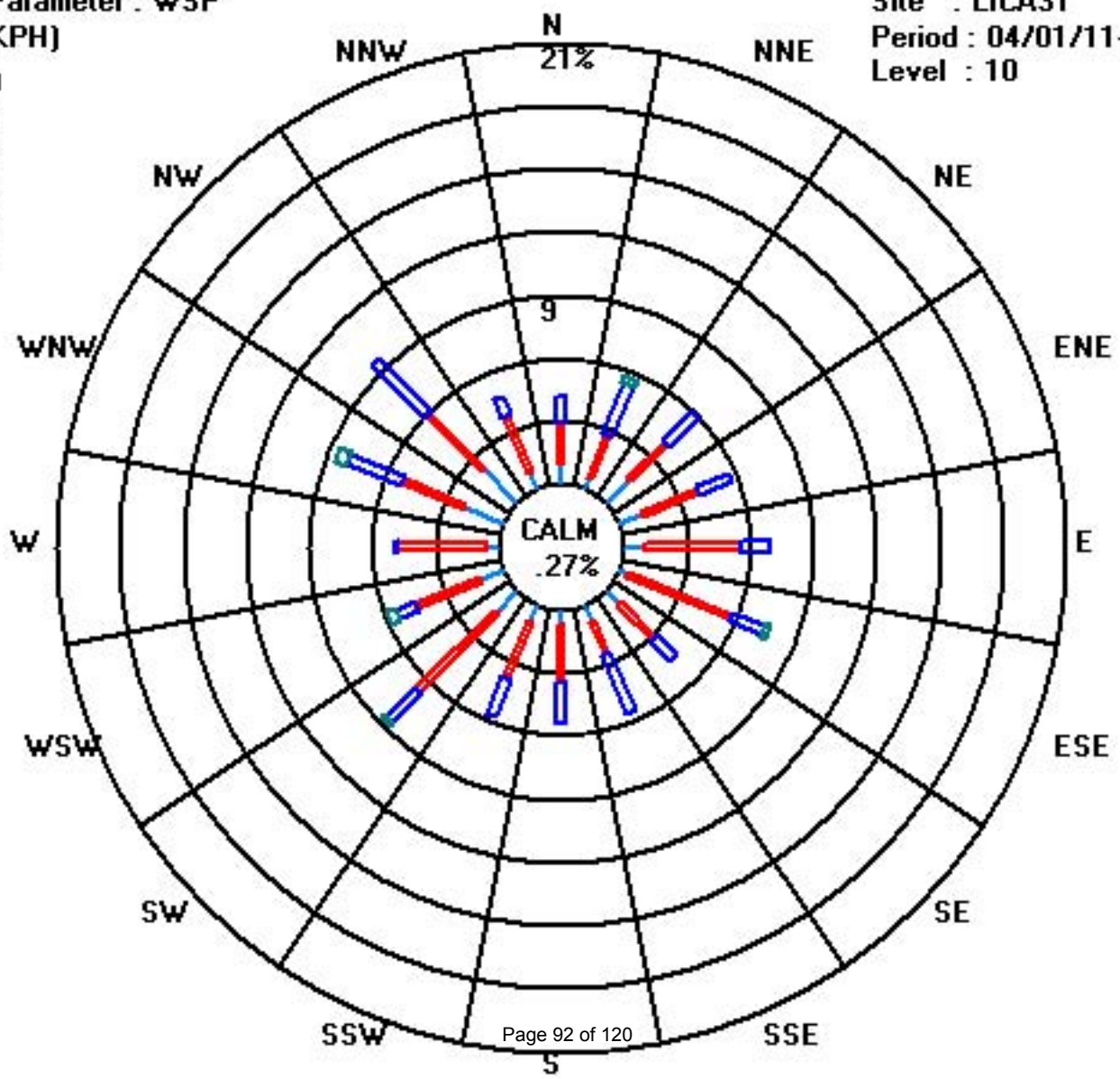
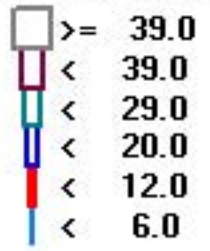
Calm : .27 %

Total # Operational Hours : 718

Class Limits (KPH)

Period : 04/01/11-04/30/11

Level : 10





# Vector Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2011

## WIND DIRECTION 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	77	74	73	100	105	138	140	160	49	17	41	62	148	133	150	154	147	156	135	116	103	106	104	103	120	ESE	24	
2	122	118	228	248	305	170	156	152	152	149	143	292	287	270	283	299	289	291	310	9	184	193	176	141	206	SSW	24	
3	138	175	162	187	189	193	193	202	182	P	P	248	268	229	224	223	224	225	197	189	195	189	312	318	204	SSW	22	
4	351	341	312	327	324	322	320	313	301	306	316	268	297	315	295	290	285	319	318	315	326	328	326	312	311	NW	24	
5	228	311	325	324	268	273	292	233	253	279	315	315	138	150	154	150	161	164	145	118	118	113	114	50	185	S	24	
6	57	118	120	121	106	99	113	102	114	130	151	266	203	130	155	153	154	156	137	125	118	117	114	104	125	SE	24	
7	84	76	49	45	48	69	74	59	56	48	48	25	27	41	36	43	50	60	67	76	228	240	259	244	52	NE	24	
8	251	248	259	239	221	333	354	342	337	289	266	262	236	227	223	242	250	250	257	276	311	321	271	271	267	WNW	24	
9	318	312	313	330	335	345	339	327	298	257	255	227	234	239	245	250	234	226	222	211	190	198	230	244	259	WSW	24	
10	258	230	235	230	251	267	247	270	271	299	295	359	14	25	163	175	177	147	126	119	167	167	156	159	205	SSW	24	
11	150	154	171	191	201	206	207	203	207	177	197	146	146	172	162	181	14	47	19	5	354	350	5	3	165	SSE	24	
12	342	352	4	1	359	13	354	14	15	20	23	24	34	36	40	42	42	36	356	186	178	162	137	21	25	NNE	24	
13	133	49	27	32	28	24	23	59	123	198	211	206	194	183	181	183	177	184	205	210	190	177	186	179	166	SSE	24	
14	193	148	282	317	57	46	53	59	60	87	101	115	105	89	73	115	116	135	134	121	114	110	100	98	102	E	24	
15	94	39	25	13	5	356	345	329	316	324	314	313	317	324	344	318	319	317	310	305	315	318	321	315	326	NW	24	
16	310	303	300	301	304	309	308	297	303	308	315	40	8	9	254	293	302	293	282	260	257	260	279	288	296	WNW	24	
17	290	291	296	282	172	128	184	6	204	211	239	295	123	71	92	296	343	118	120	113	91	96	104	114	149	SSE	24	
18	124	118	118	115	231	216	229	227	220	220	201	130	150	49	312	125	3	238	215	227	222	226	355	347	188	S	24	
19	350	335	329	333	346	348	336	331	336	316	261	171	135	139	48	226	270	320	258	251	238	233	242	251	296	WNW	24	
20	251	260	229	229	217	218	248	226	220	318	293	287	286	282	287	285	294	302	204	216	229	220	205	268	268	W	24	
21	256	335	321	274	329	284	202	175	184	30	173	138	157	15	55	114	92	57	80	120	249	241	219	221	125	SE	24	
22	230	225	222	237	275	276	284	303	319	235	250	245	233	276	168	22	57	75	83	92	94	95	97	95	237	SW	24	
23	78	89	83	85	85	83	95	112	99	109	150	159	36	34	22	21	19	26	48	69	86	92	108	108	78	ENE	24	
24	88	102	115	105	79	56	27	312	297	289	299	268	301	129	304	320	340	342	320	309	294	303	271	253	339	NNW	24	
25	283	291	308	312	299	247	211	206	206	209	210	190	202	167	89	84	78	71	64	55	49	64	62	43	110	ESE	24	
26	51	94	92	83	80	72	84	111	136	103	125	214	243	224	211	225	209	229	346	302	59	58	65	56	95	E	24	
27	68	69	97	89	56	67	69	81	83	228	58	103	104	269	57	357	79	228	152	183	180	226	272	334	91	E	24	
28	65	85	133	188	290	304	312	304	316	327	329	326	11	28	26	35	28	27	10	2	15	14	12	20	14	NNE	24	
29	66	86	84	86	132	86	75	88	93	34	356	113	48	219	226	228	227	237	193	182	165	182	193	198	158	SSE	24	
30	208	216	274	269	286	353	16	314	296	329	49	17	37	27	22	1	268	248	206	235	267	295	297	296	308	NW	24	
HOURLY AVG	351	352	329	333	359	356	354	342	337	329	356	359	317	324	344	357	343	342	356	315	354	350	355	347				

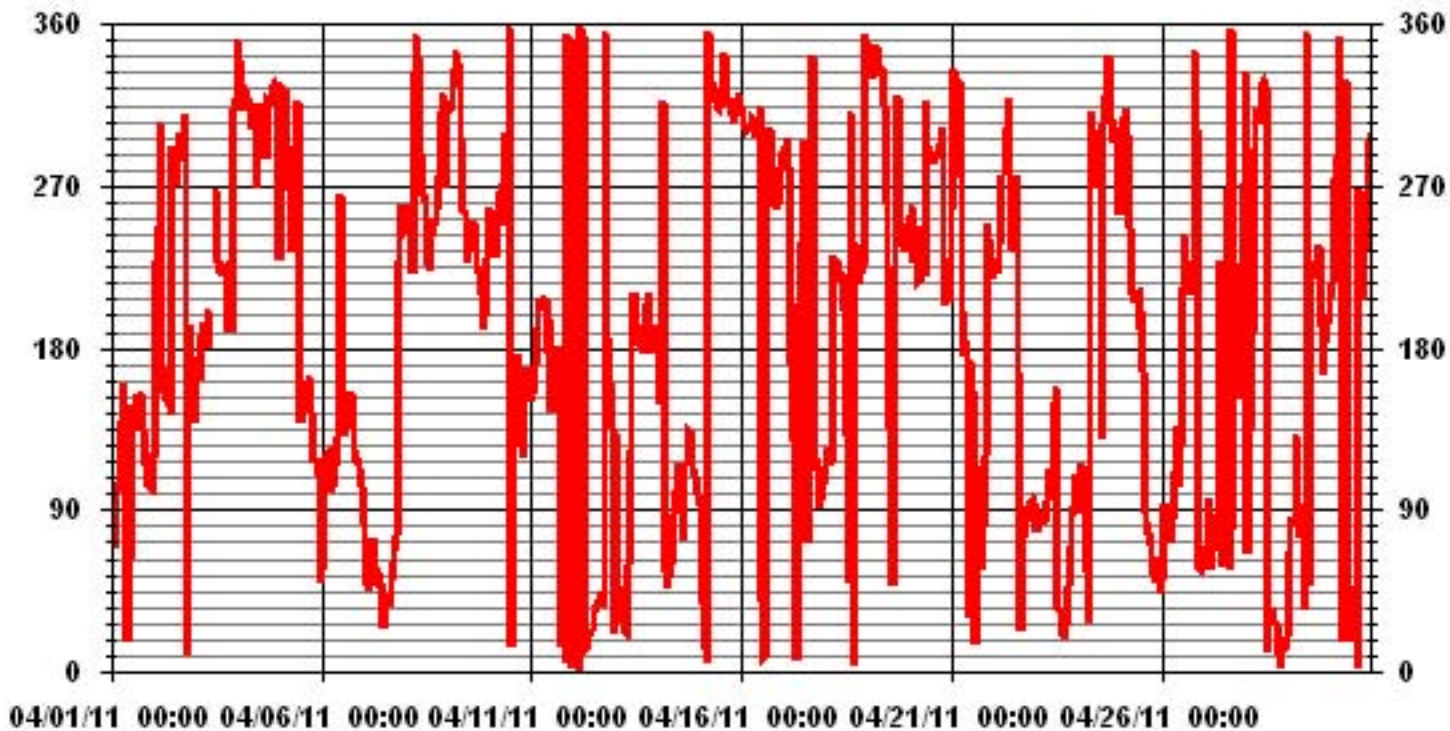
### STATUS FLAG CODES

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:	718 HRS
STANDARD DEVIATION	102.24	AMD OPERATION UPTIME	99.7 %
		MONTHLY AVERAGE	279 DEG

### 01 Hour Averages



— LICA31 WDR DEG

# Standard Deviation Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

APRIL 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	35	46	51	37	46	36	35	39	71	53	62	53	19	11	11	11	13	24	15	9	15	7	8	13	
2	4	32	20	20	38	8	5	6	9	12	33	10	12	13	29	14	15	15	46	28	49	10	23	19	
3	18	19	13	9	9	6	9	51	14	P	P	62	29	10	11	7	8	8	11	9	9	45	47	45	
4	35	35	42	29	24	19	17	10	8	7	8	50	37	14	12	16	33	32	8	7	4	4	3	20	
5	9	17	4	3	15	7	11	16	9	17	19	31	37	17	25	13	12	11	9	15	8	4	10	19	
6	9	6	3	3	4	9	38	23	4	17	48	19	30	20	16	16	13	11	8	8	6	3	5	6	
7	14	12	17	12	44	9	10	11	11	14	21	50	40	35	18	17	21	16	9	20	16	6	7	7	
8	4	6	6	8	4	45	23	17	21	33	47	57	52	60	58	52	47	47	52	44	46	48	35	41	
9	22	12	5	5	3	6	5	4	18	15	20	13	11	10	11	12	10	8	8	7	7	8	6	6	
10	8	6	5	7	5	6	5	13	16	17	62	86	78	72	51	18	20	12	7	9	22	5	7	8	
11	12	10	9	13	8	7	7	10	10	28	38	29	39	48	35	52	43	22	24	30	30	24	29	42	
12	45	42	41	46	34	39	30	23	21	23	34	41	30	20	26	24	35	56	51	23	3	2	39	5	
13	17	43	10	8	7	6	8	26	15	19	29	28	27	29	31	29	34	28	23	27	31	31	31	33	
14	45	63	70	78	70	48	47	40	37	42	34	22	21	26	32	35	25	31	28	35	44	46	44	52	
15	68	69	45	39	32	29	25	24	18	17	15	23	35	50	57	38	42	15	14	14	14	12	14	12	
16	10	7	6	6	9	7	9	12	35	29	63	65	74	75	71	78	57	42	23	9	7	3	3	2	
17	2	2	1	51	26	38	20	65	60	60	52	40	37	52	26	77	67	30	17	11	14	13	6	4	
18	3	3	4	28	6	3	4	7	9	12	26	33	36	54	50	28	55	38	20	6	6	43	4	3	
19	5	4	2	4	3	3	8	8	13	24	22	46	43	81	53	48	28	39	10	6	16	7	7	6	
20	6	8	9	6	9	7	8	9	18	28	25	25	16	28	34	26	33	22	30	9	15	10	6	6	
21	11	5	11	8	53	25	13	18	52	53	66	51	38	64	61	39	34	40	9	25	59	11	6	5	
22	4	5	5	6	8	9	13	15	17	37	45	42	39	53	59	71	56	49	25	5	6	4	6	7	
23	12	8	15	14	16	14	10	11	16	31	53	68	64	59	55	33	28	42	26	10	4	3	4	6	
24	18	9	6	6	10	9	46	50	22	24	23	55	67	59	36	24	30	30	32	19	34	60	32	27	
25	17	42	54	48	60	37	25	18	19	21	25	35	27	33	39	33	33	21	17	13	18	26	17	16	
26	32	12	9	7	9	9	10	29	25	15	45	37	19	25	31	40	27	45	30	12	18	8	7	9	
27	9	21	11	17	18	11	20	10	30	59	58	51	61	35	30	23	11	45	32	10	11	13	11	18	
28	12	22	14	19	11	23	17	16	16	19	24	20	34	13	11	12	11	11	60	45	12	11	12	25	
29	36	43	49	51	73	50	51	57	67	70	48	61	81	69	52	50	47	31	22	4	19	3	4	6	
30	7	6	12	8	11	10	13	17	15	31	27	58	53	51	31	66	53	24	36	41	9	12	11	11	

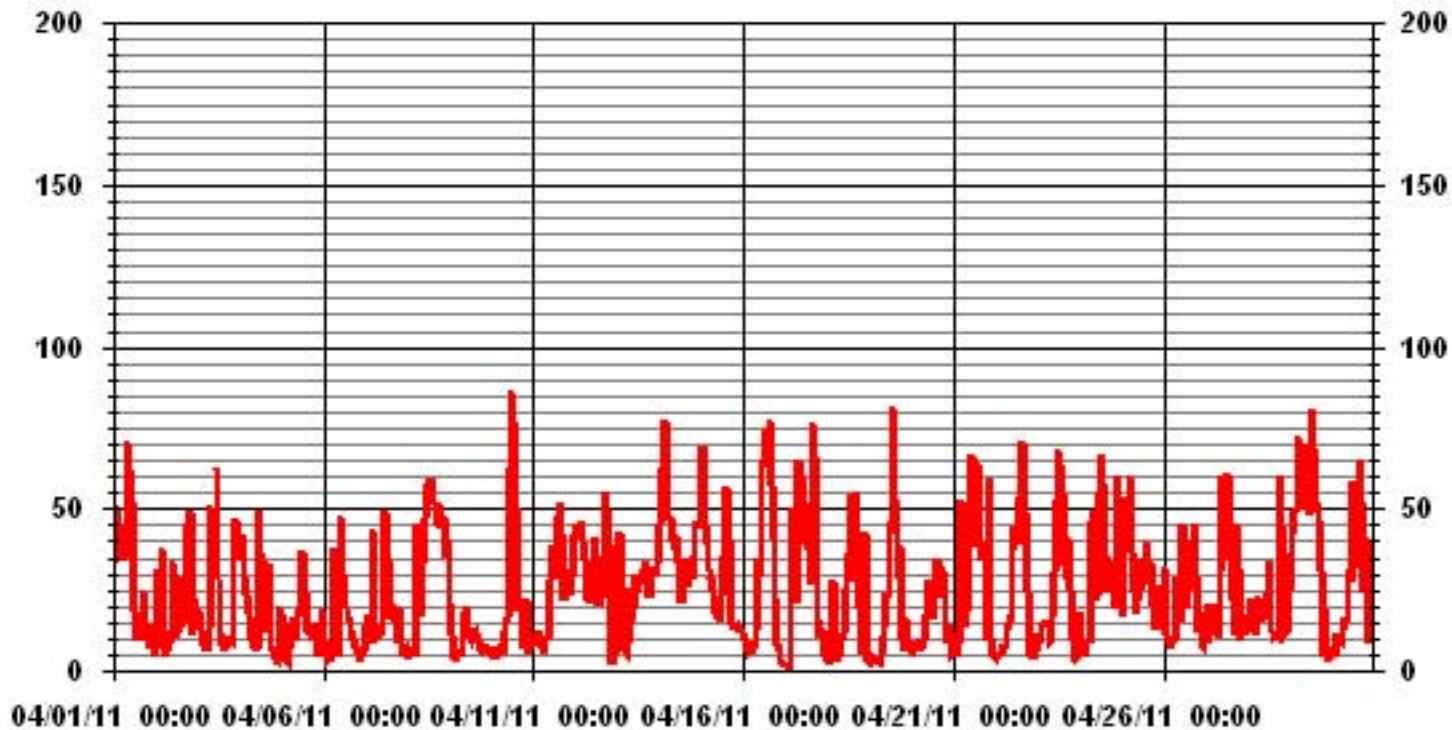
### STATUS FLAG CODES

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: 718 HRS

### 01 Hour Averages



— LICA31 STDWDIR DEG

# Calibration Reports

# Sulphur Dioxide



### SO<sub>2</sub> Calibration Report

#### Station Information

Calibration Date	April 21, 2011	Previous Calibration	March 17, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	8:18	End Time (MST)	12:11
Reason:	Monthly Calibration		
Barometric Pressure	918 mmHg	Station Temperature	24 Deg C
Cal Gas	49 ppm	Cal Gas Expiry date	February 4, 2013
DAS Output Voltage	0 - 1 Volts		

#### Equipment Information

Analyzer Make / Model:	API 100E	S/N :	468	Method:	Fluorescent
Converter Make / Model:	-	S/N :	-		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Flow Meter:	API 700	S/N :	831		

#### Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 1000	ppb	
Sample Flow / Box Temp	521 ccm	33.7 Deg C	519 ccm
HVPS / Lamp Setting	529	2443	529
PMT / RxCell Temp	7.8 Deg C	50 Deg C	7.8 Deg C
Converter / IZS Temp	NA Deg C	40 Deg C	NA Deg C
Offset / Slope	64.4	1.127	65.7

#### 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
4922	76.5	750	749	1.0012
4959	40.8	400	398	1.0047
4979	17.3	170	170	0.9980
4998	0	0	0	N/A
Sum of Least Squares				1.0018
New Correction Factor				1.0012

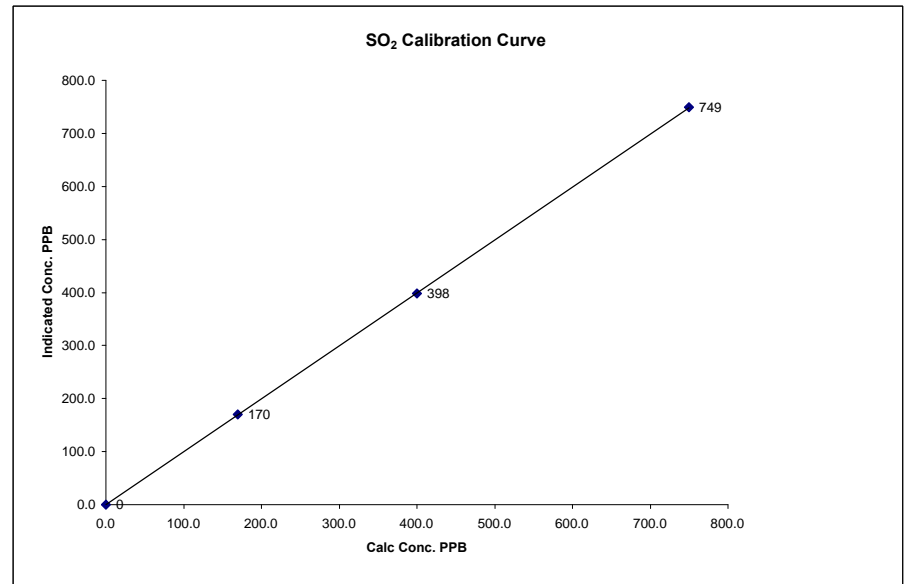
	Before Calibration	After Calibration
Auto Zero	1.0	0.4
Auto Span	369	372
Sample Lines Connected		YES
Percent Change from Previous Calibration		-0.1%

Calibration Performed by: Ting Xu

### SO<sub>2</sub> Calibration Curve

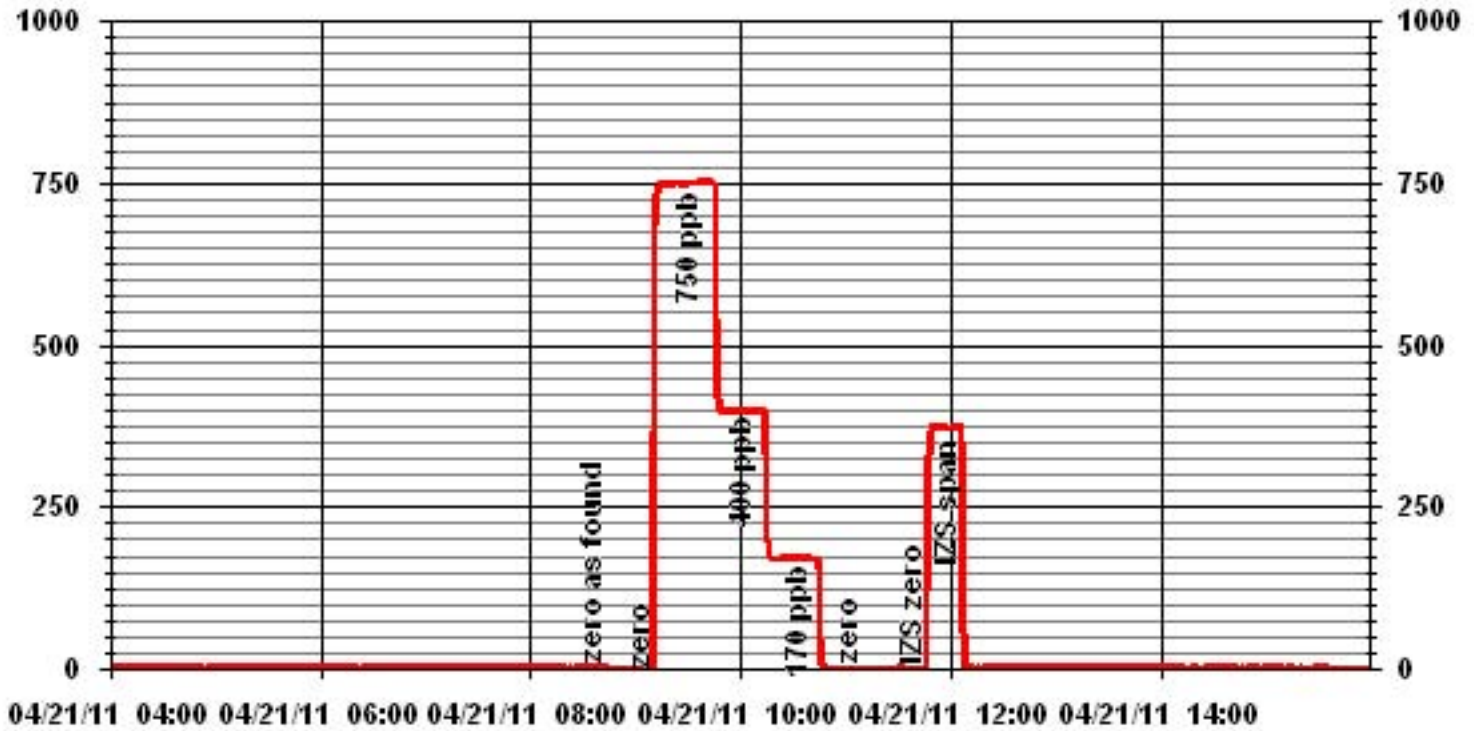
Calibration Date	April 21, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST. LINA
Start Time (MST)	8:18
End Time (MST)	12:11

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999994
0	0	n/a	Intercept	(± 3% F.S.)	-0.014170
170	170	0.9980			
400	398	1.0047			
750	749	1.0012			



Notes:

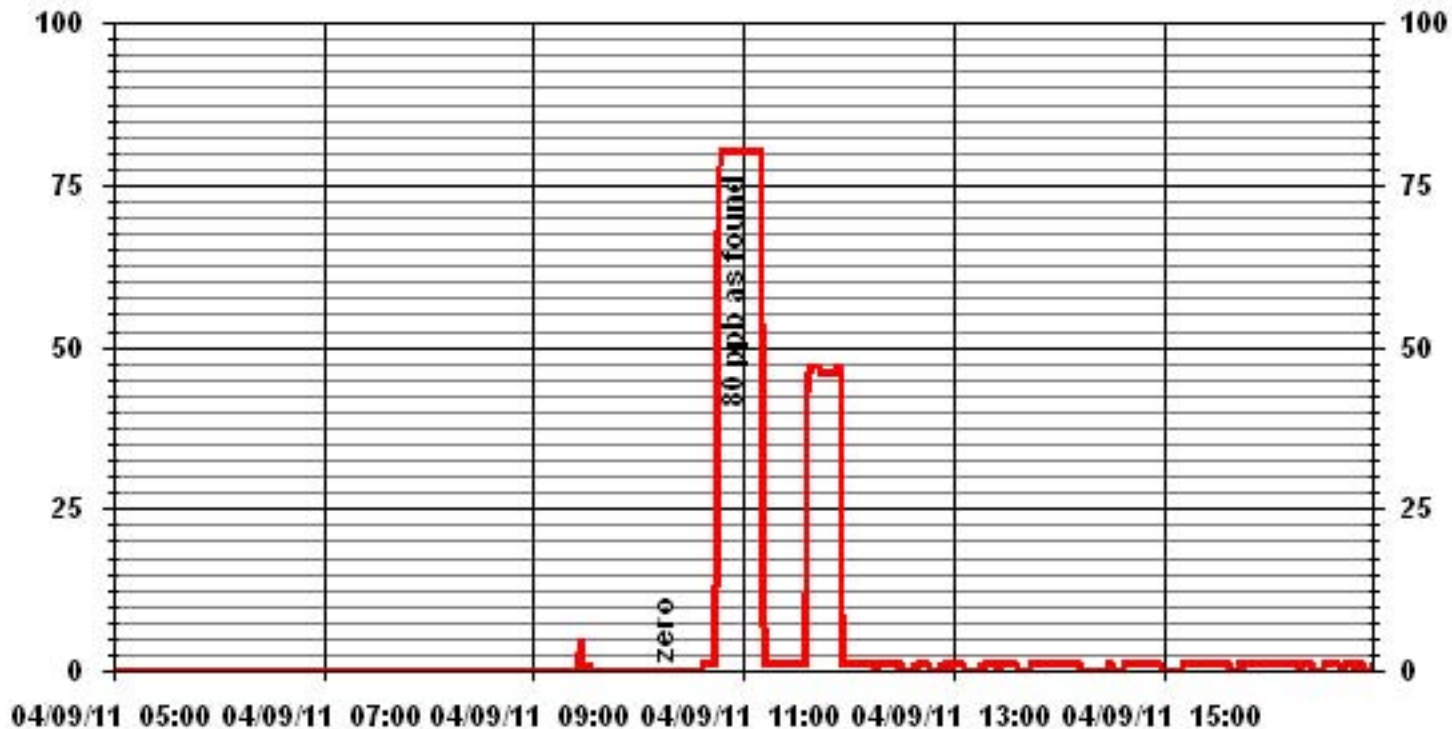
### 01 Minute Averages



# Hydrogen Sulphide



### 01 Minute Averages



### H<sub>2</sub>S Calibration Report

#### Station Information

Calibration Date	April 10, 2011	Previous Calibration	April 9, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST.LINA		
Start Time (MST)	13:55	End Time (MST)	17:17
Reason:	Post Repair Calibration		
Barometric Pressure	912 mmHg	Station Temperature	24 Deg C
Cal Gas	10.2 ppm	Cal Gas Expiry date	02/02/2012
DAS Output Voltage	0 - 1 Volts		

#### Equipment Information

Analyzer Make / Model:	API 101E	S/N :	510	Method:	Fluorescent
Converter Make / Model:	Internal	S/N :	N/A		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Flow Meter:	API 700	S/N :	831		

#### Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 100 ppb		
Sample Flow / Box Temp	542 ccm, 35.1 Deg C	538 ccm, 34.7 Deg C	
HVPS / Lamp Setting	518, 2546	518, 2538	
PMT / RxCell Temp	8.4 Deg C, 50 Deg C	8.4 Deg C, 50 Deg C	
Converter / IZS Temp	314.4 Deg C, 45 Deg C	314.6 Deg C, 45 Deg C	
Offset / Slope	59.8, 1.026	60.6, 1.031	

#### Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	1	N/A
4995	0	0	0	N/A
4959	39.2	80	80	1.0000
4979	19.6	40	40	0.9999
4985	11.2	23	23	0.9941
4994	0	0	0	N/A
Sum of Least Squares				0.9996
New Correction Factor				1.0000

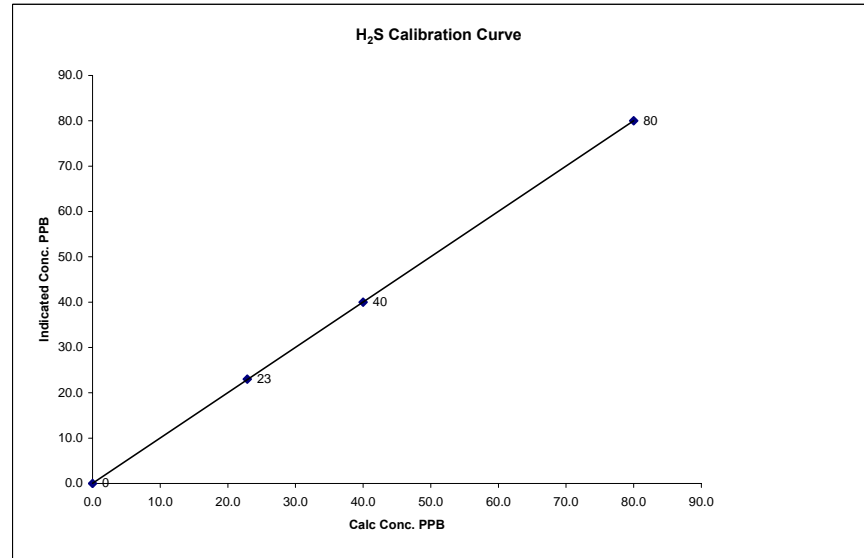
Before Calibration		After Calibration	
Auto Zero	0.4		0.4
Auto Span	46		46
Sample Lines Connected			YES
Percent Change from Previous Calibration			-

Calibration Performed by: Ting Xu

### H<sub>2</sub>S Calibration Curve

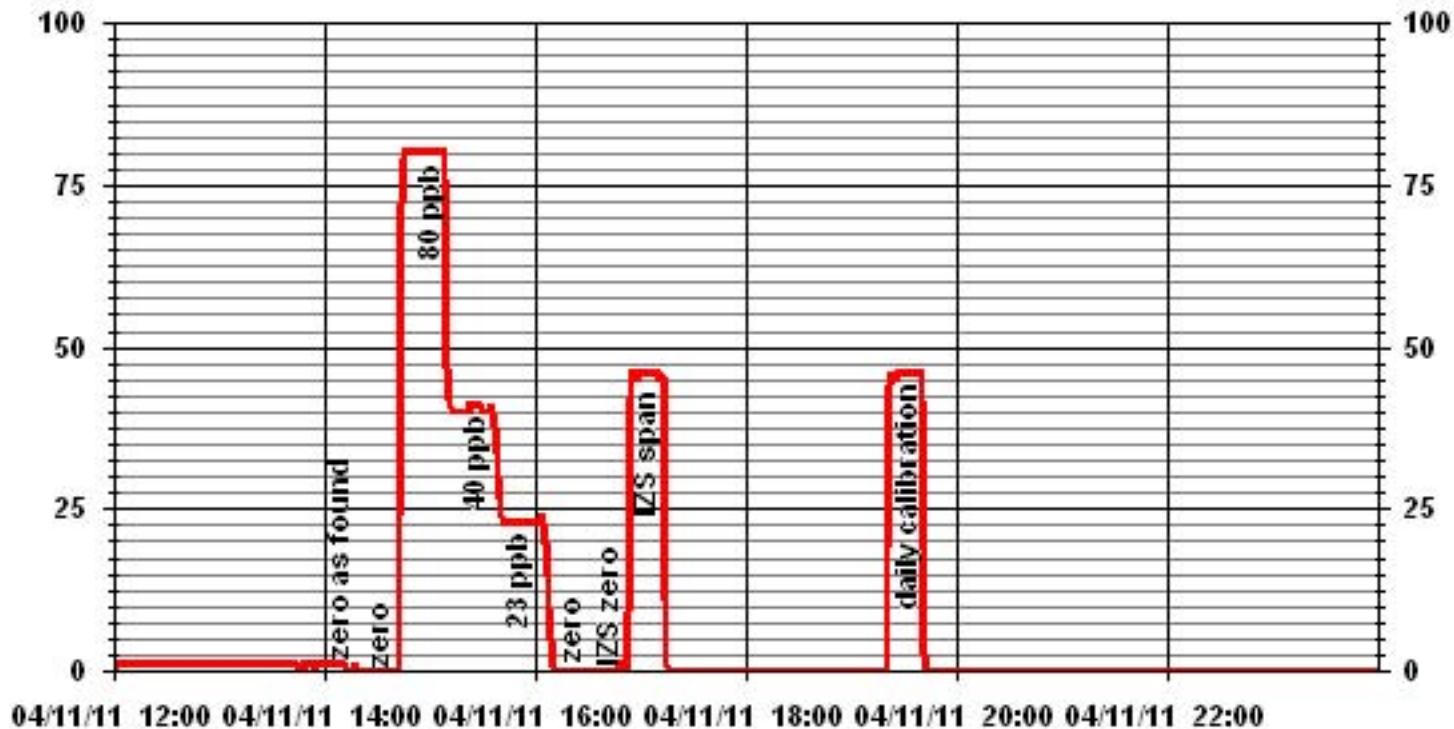
Calibration Date	April 10, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST.LINA
Start Time (MST)	13:55
End Time (MST)	17:17

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999996
0	0	n/a	Intercept	(± 3% F.S.)	0.052025
23	23	0.9941			
40	40	0.9999			
80	80	1.0000			



Notes:

### 01 Minute Averages



# Total Hydrocarbons



### THC Calibration Report

Station Information			
Calibration Date:	April 20, 2011	Previous Calibration	March 16, 2011
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	ST. LINA		
:	(MST) 9:28	End Time	(MST) 13:18
Reason:	Monthly Calibration		
Barometric Pressure:	919 mmHg	Station Temperature:	24 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	207 Prop/ 602 Meth/1171.25 THC	ppm	Cal Gas Expiry Date: June 11, 2012
DAS make & Model:	ESC 8832	S/N :	AO717
Output Voltage Range:	0 - 10	VDC	

### Analyzer Information

Make / Model	TECO 51C	S/N :	77021-384	Method	Flame Ionization
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### 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
1998	0.0	0.0	0.0	N/A
1999	70.0	39.6	40.3	0.9833
1999	70.0	39.6	40.0	0.9907
1999	34.9	20.1	20.0	1.0050
1999	20.0	11.6	11.5	1.0087
1999	0	0.0	0.0	N/A
Correction Factor:				0.9907

Previous Calibration Correction Factor:	0.9907
Current Correction Factor Before Span Adjust:	0.9833
Percent Change:	0.75%

### IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	36.2	35.9
Sample Lines Connected		YES

### Cylinder Pressures

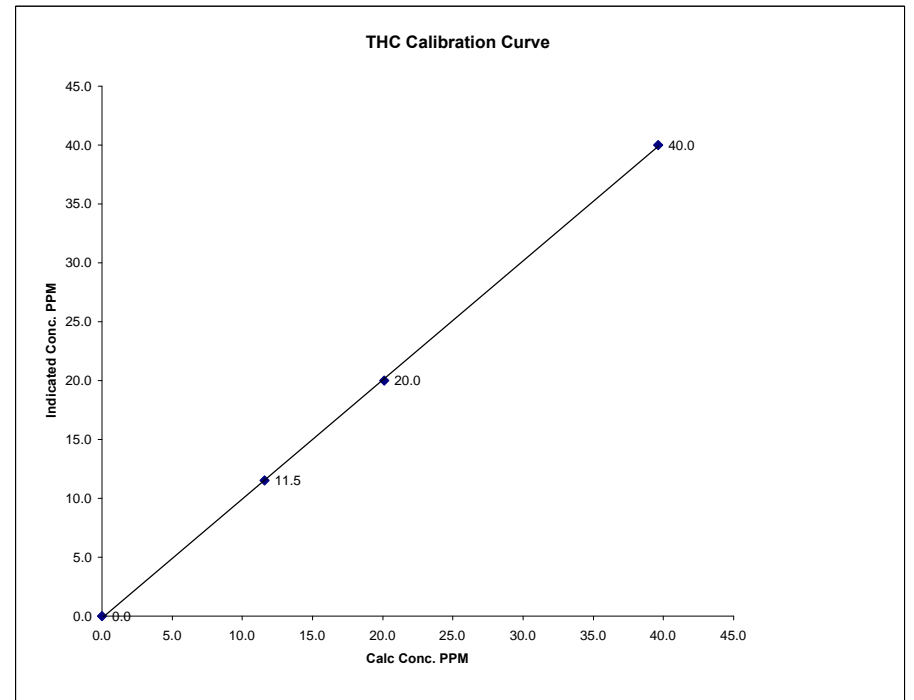
Span	2000	psi	
Hydrogen	1150	psi	
Zero Air	34	psi	Unlimited API 701

Calibration Performed by: Ting Xu

### THC Calibration Curve

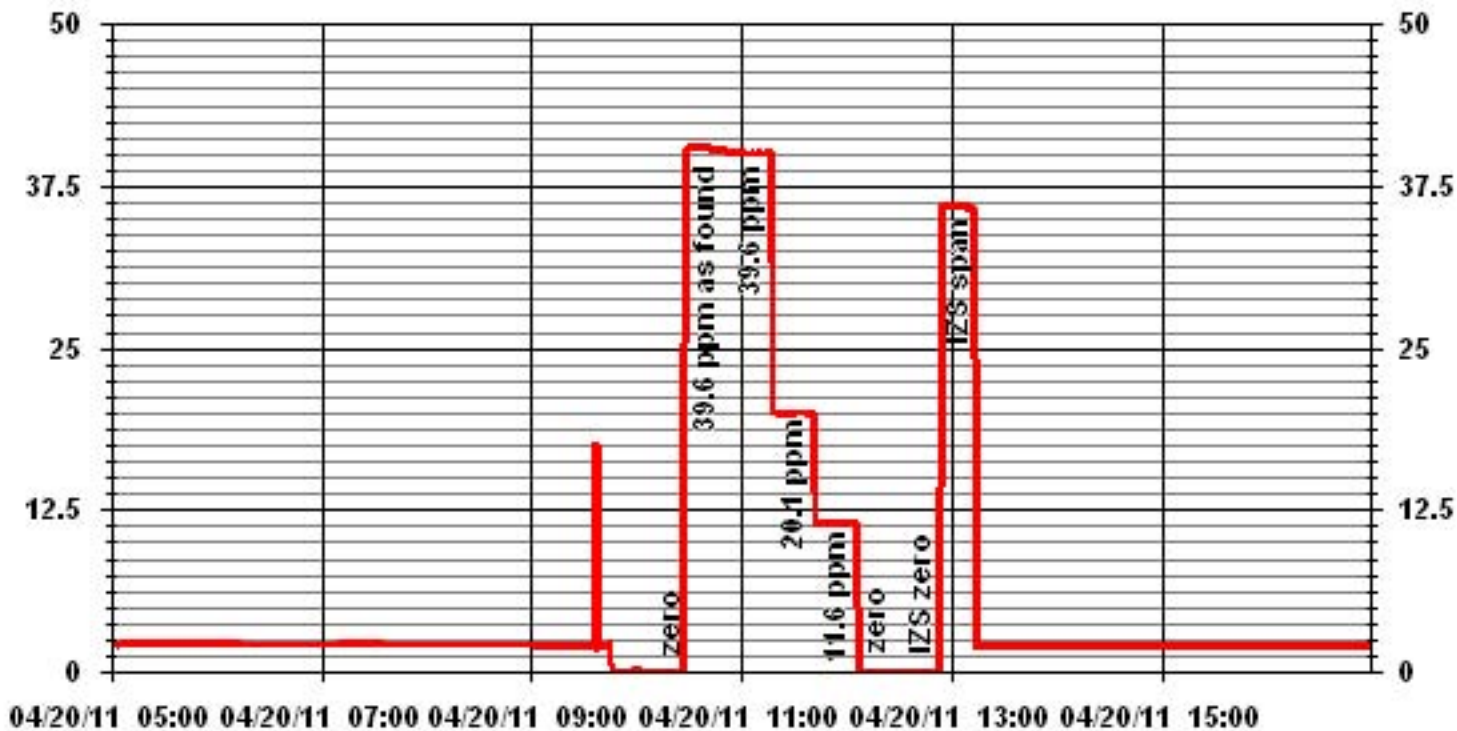
Calibration Date	April 20, 2011		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	9:28	End Time (MST)	13:18

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient (≥ 0.995)	Slope (0.85 to 1.15)	Intercept (± 3% F.S.)
0.0	0.0		0.999924	1.010196	-0.138473
11.6	11.5	1.0087			
20.1	20.0	1.0050			
39.6	40.0	0.9907			



Notes:

### 01 Minute Averages



# Nitrogen Dioxide

## NOx - NO- NO<sub>2</sub> Calibration Report

### Station Information

Calibration Date	April 20, 2011		Previous Calibration	March 16, 2011	
Company	LICA		Plant/Location	St. Lina	
Start Time (MST)	9:20		End Time (MST)	15:13	
Reason:	Monthly Calibration		Other		
Barometric Pressure	919 mmHg	Station Temperature	24 Deg C	MFCF	1
Cal Gas Concentration	NOx 51.7 ppm	NO	50.4 ppm	Cal Gas Expiry date	04-Feb-13
DAS Output Voltage	0 - 1 Volts		Chart Rec. Output	NA Volts	

### Equipment Information

Analyzer Make / Model:	API 100E	S/N :	593	Method:	Chemiluminescent
Calibrator Make / Model:	EnviroNics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO 717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	EnviroNics 6100	S/N :	4760		

### Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0-1000			ppb			
Sample Flow/Conv. Temp	475 ccm	314.2 Deg C		465 ccm	316.4 Deg C		
Ozone Flow / Vacuum	73 ccm	4.6 "Hg-A		72 ccm	4.6 "Hg-A		
HVPS / A ZERO	662 Volts	19.0 MV		662 Volts	19.5 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	31.9 Deg C	45.3 Deg C		32.8 Deg C	45 Deg C		
Offset	2.5 NOx	0.5 NO		3 NOx	0.4 NO		
Slope	1.092 NOx	1.019 NO		1.092 NOx	1.059 NO		
NO <sub>2</sub> COEF / Conv Efficiency	NA NO <sub>2</sub>	0.993		NA NO <sub>2</sub>	0.993		

### Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO <sub>2</sub>	NOx	NO	NO <sub>2</sub>	NOx	NO
4995	0.0	----	0	0	0	1	0	1	----	----
4995	0.0	----	0	0	----	0	0	0	----	----
4921	74.2	----	768	749	----	767	747	20	1.0013	1.0022
4960	34.6	----	358	349	----	358	349	9	1.0004	1.0004
4978	16.8	----	174	170	----	175	171	4	0.9937	0.9913
4996	0.0	----	0	0	0	0	1	-1	----	----

### Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO <sub>2</sub> Correction Factor	NO <sub>2</sub> Conv Efficiency
			NOx	NO	NO <sub>2</sub>	NOx	NO	NO <sub>2</sub>		
4921	74.2	----	768	749	----	770	749	21	----	----
4921	74.2	550	768	----	532	772	238	534	0.9981	100.39%
4921	74.2	300	768	----	298	772	472	300	0.9967	100.72%
4921	74.2	100	768	----	129	773	641	132	0.9847	102.78%

Linearity	Sum of Least Squares	NOx= 1.001	NO= 1.001	NO <sub>2</sub> = 0.995
OK? <b>Yes</b>	Correction Factors:	NOx= 1.0013	NO= 1.0022	NO <sub>2</sub> = 0.9981
Average Converter Efficiency= 101.30%				

Before Calibration				After Calibration			
Auto Zero	0.6 NOx	0.6 NO <sub>2</sub>		-0.5 NOx	-1.7 NO <sub>2</sub>		
Auto Span	707 NOx	690 NO <sub>2</sub>		706 NOx	690 NO <sub>2</sub>		
Sample Lines Connected				YES			
Percent Change from Previous Calibration		NOx 0.0%	NO -0.1%	NO <sub>2</sub> -0.2%			

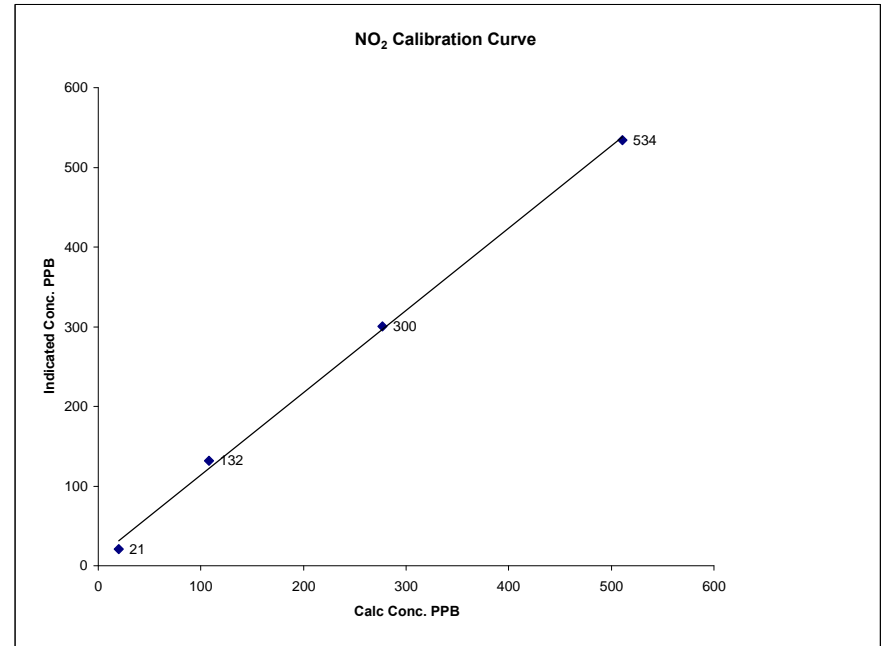
Notes Additional GPT point done for ozone calibration. O3 set point 450, NO=333, NO<sub>2</sub>=439

Calibration Performed by: Ting Xu

## NO<sub>2</sub> Calibration Curve

Calibration Date	April 20, 2011		<b>LICA</b>	
Company	<b>St. Lina</b>			
Plant / Location	<b>St. Lina</b>			
Start Time (MST)	9:20	End Time (MST)	15:13	

Calculated Conc.	Indicated Response	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.998450
ppb	ppb		Slope	(0.85 to 1.15)	1.031944
20	21	N/A	Intercept	(± 3% F.S.)	10.43474
108	132	0.8182			
277	300	0.9233			
511	534	0.9569			

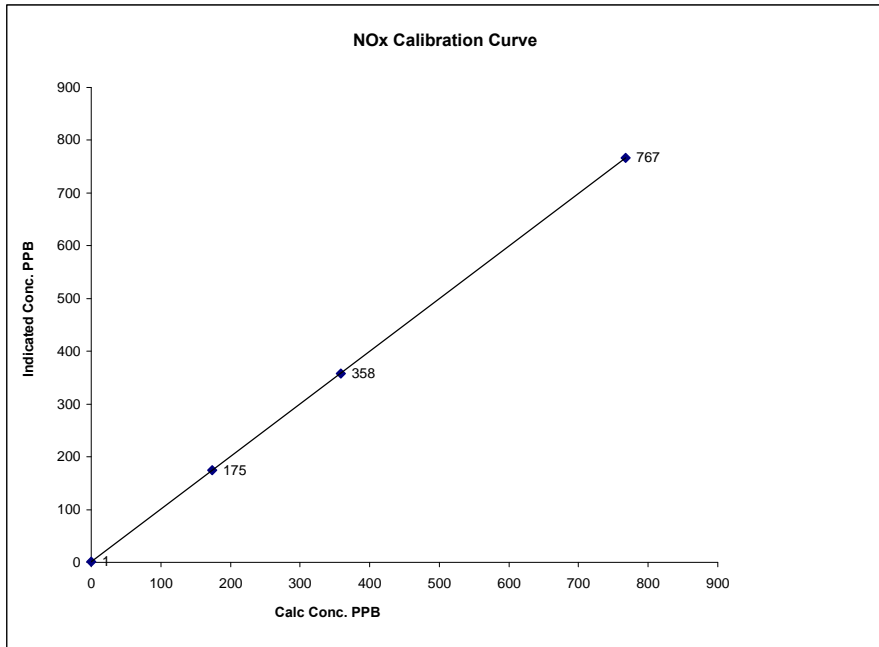


Notes:

### NOx Calibration Curve

Calibration Date April 20, 2011  
 Company LICA  
 Plant / Location St. Lina  
 Start Time (MST) 9:20 End Time (MST) 15:13

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999999
0	1	N/A	Slope (0.85 to 1.15)	0.997161
174	175	0.9937	Intercept (± 3% F.S.)	1.17045
358	358	1.0004		
768	767	1.0013		

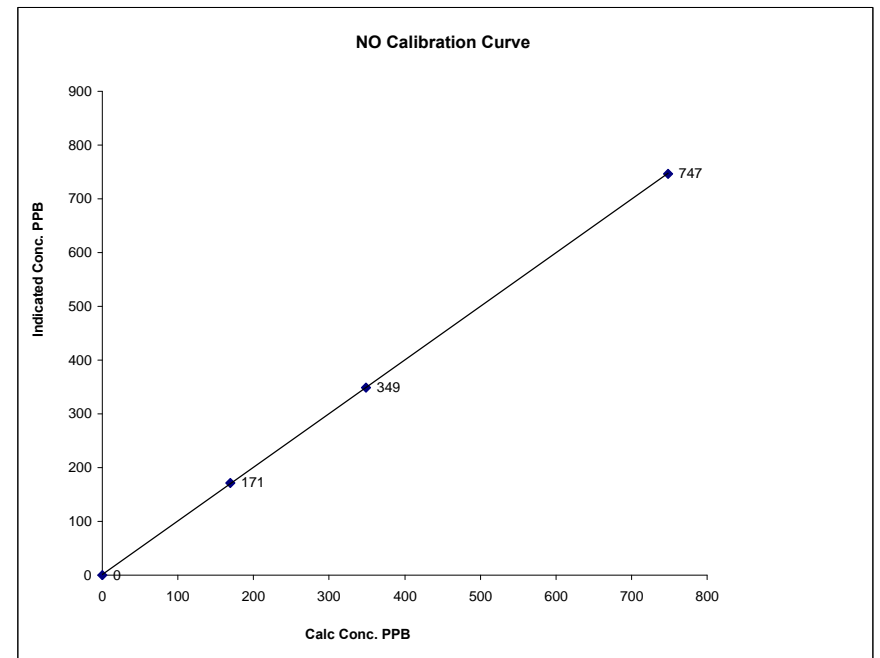


Notes:

### NO Calibration Curve

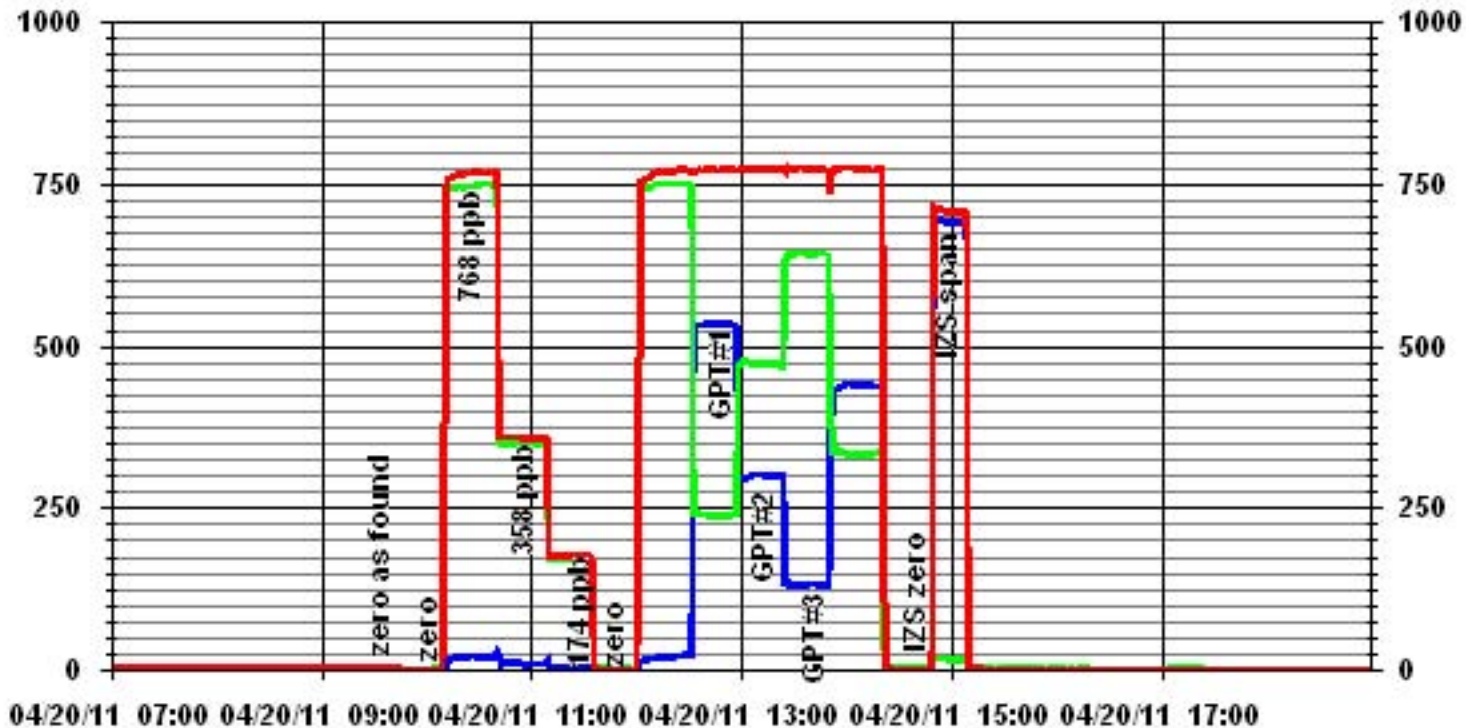
Calibration Date April 20, 2011  
 Company LICA  
 Plant / Location St. Lina  
 Start Time (MST) 9:20 End Time (MST) 15:13

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999993
0	0	N/A	Slope (0.85 to 1.15)	0.994860
170	171	0.9913	Intercept (± 3% F.S.)	1.1742
349	349	1.0004		
749	747	1.0022		



Notes:

### 01 Minute Averages



# Ozone

### O<sub>3</sub> Calibration Report

#### Station Information

Calibration Date	April 21, 2011	Previous Calibration	March 17, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	8:18	End Time (MST)	12:11
Reason:	Monthly Calibration		
Barometric Pressure	918 mm Hg	Station Temperature	24 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:	Enviroincs 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	713 ccm	731 ccm	721 ccm	739 ccm
Pressure	690 mmHg		700 mmHg	
Bench Temp	55.6 Deg C		55.5 Deg C	
O3 Lamp / Box Temp	80 Deg C	32.6 Deg C	80 Deg C	32.1 Deg C
Offset / Slope	0.2	1.002	0.2	0.988

#### Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	N/A
4995	450	416	423	0.9835
4995	450	416	416	1.0000
4995	300	277	278	0.9964
4995	120	108	111	0.9730
4995	0	0	0	N/A
Sum of Least Squares				N/A
New Correction Factor				1.0000

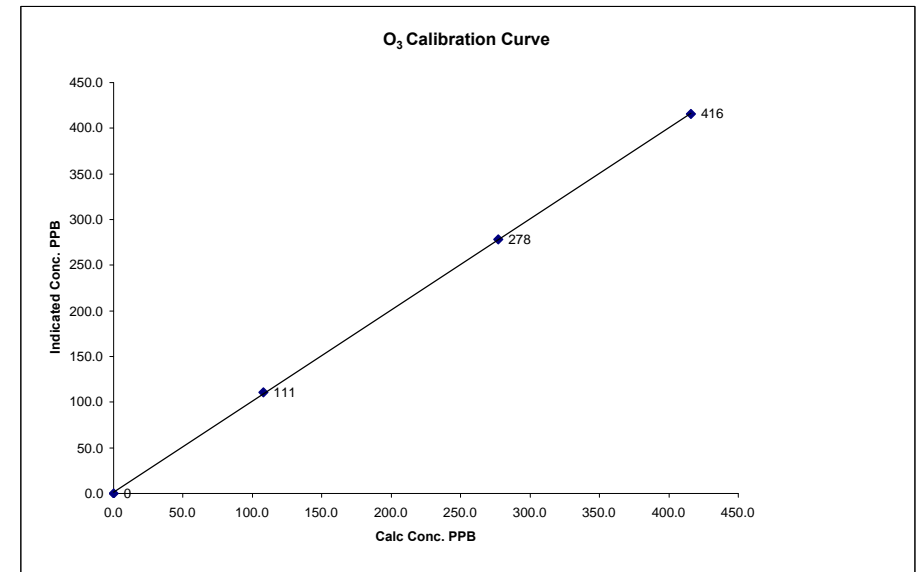
	Before Calibration	After Calibration
Auto Zero	1.1	1.1
Auto Span	357	352
Sample Lines Connected		YES
Percent Change from Previous Calibration		1.4%

Calibration Performed by: Ting Xu

### O<sub>3</sub> Calibration Curve

Calibration Date	April 21, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	8:18	End Time (MST)	12:11

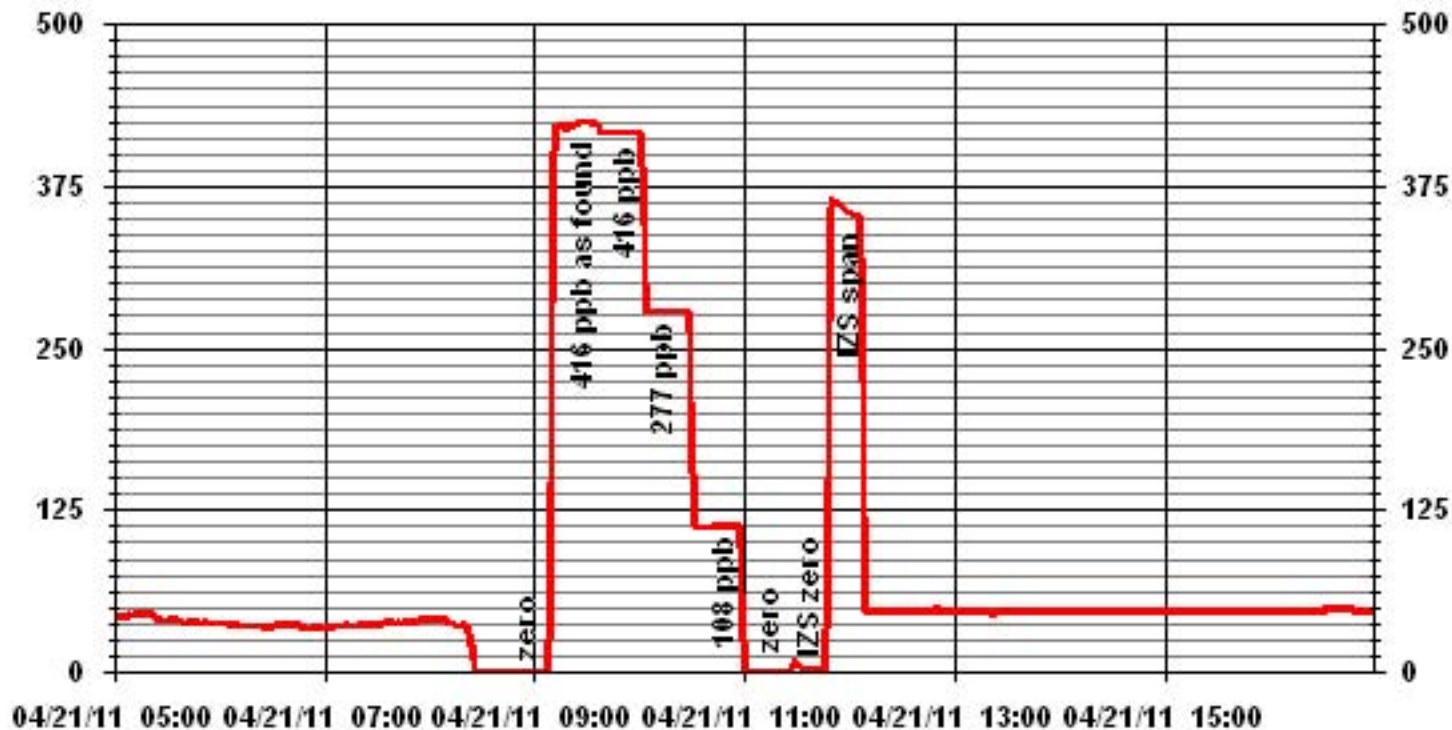
Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope (≥ 0.995)	0.999944
0	0	n/a	Intercept (± 3% F.S.)	0.998021
108	111	0.9730		
277	278	0.9964		
416	416	1.0000		1.396343



Notes:



### 01 Minute Averages



# Particulate Matter 2.5

**TEOMÒ 1405F Audit**

	<b><u>Station</u></b>		<b><u>Audit Transfer Standard</u></b>
Date:	<u>April 21, 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>

	<b><u>Sampler</u></b>		<b><u>Set-up and current Sampler readings</u></b>
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>30.2%</u>
Firmware Ver.	<u>1.52</u>	K <sub>o</sub> Factor	<u>13125.0</u>
Parameter	<u>PM 2.5 (with FDMS)</u>	Temp (°C)	<u>5.7</u>
		Press (ATM)	<u>0.918</u>

**Conversion from mmHg or "Hg to ATM (Atmospheres)**

ATM = (mmHg) X (1.316 X 10<sup>-3</sup>)    or    ATM = ("Hg) X (3.34207 X 10<sup>-2</sup>)

Note: Tolerances are noted as **BOLD** in Brackets

**Audit**

<b>Status</b>			
Noise <b>&lt;0.10ug</b>	<u>0.004</u>	Warnings	<u>None</u>
Pump Vacuum <b>&lt;0.4atm</b>	<u>0.29</u>	Pump Gauge (inHg)	<u>-20</u>
<b>Temperature/Pressure</b>			
Measured Temp ( <b>± 2 °C</b> )	<u>5.8</u>	<b>D °C</b>	<u>-0.1</u>
Measured Press ( <b>± 0.01atm</b> )	<u>0.923</u>	<b>DATM</b>	<u>-0.005</u>
<b>Flow Audit</b>			
Indicated Main Flow (l/min)	<u>3.00</u>	Main Flow Drift ( <b>±10.0%</b> )	<u>1.60%</u>
Measured Main Flow (l/min)	<u>3.00</u>	Flow Adjusted to Measured?	<u>Yes</u>
Indicated Bypass Flow (l/min)	<u>13.67</u>	Bypass Flow Drift ( <b>±10.0%</b> )	<u>0.38%</u>
Measured Bypass Flow (l/min)	<u>13.38</u>	Flow Adjusted to Measured?	<u>No</u>
<b>Leak Check</b>		<b>Instrument Setup</b>	
Main ( <b>&lt; 0.15 l/min</b> )	<u>NA</u>	Flow Control = Active	
Aux ( <b>&lt; 0.6 l/min</b> )	<u>NA</u>	Report Conditions = Standard (25.0 C and 1atm)	
<b>K<sub>o</sub> Factor</b>			
Measured	<u>NA</u>		
K <sub>o</sub> Difference ( <b>± 2.5%</b> )	<u>NA</u>		

**Start Time:** 8:18      **Finish Time:** 10:14

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

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Auditor/s:**    Ting Xu

# Lakeland Industry & Community Association

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

Ambient Air Monitoring Data Report

For

April 2011

Prepared By:



May 16, 2011

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

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# Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Portable / Devon Wellsite 13-16-62-5 W4M  
Data Period: April 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 – April 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 <sub>2</sub> (PPB)	172	48	0	0	0.06	3	8	14	12.9	188(S)	0.4	8	100.0
H <sub>2</sub> S (PPB)	10	3	-	-	0.04	1	VAR	VAR	VAR	VAR	0.3	16, 26	100.0
THC (PPM)	-	-	-	-	2.27	9.2	2	5	0.7	26(NNE)	3.3	2	100.0
NO <sub>2</sub> (PPB)	212	106	0	0	2.75	18	16	4	7.2	350(N)	4.4	2	100.0
NO (PPB)	-	-	-	-	0.33	6	17, 21	1, 7	2.9, 0.9	9(N), 46(NE)	1.0	17	100.0
NO <sub>x</sub> (PPB)	-	-	-	-	2.75	18	16	4	7.2	350(N)	4.4	2	100.0
O <sub>3</sub> (PPB)	82	-	0	-	38.93	58	4	15	9.2	215(SSW)	47.7	4	99.9
PM 2.5 (UG/M <sup>3</sup> )	-	30	-	0	4.83	24.3	4	5	4	167(SSE)	10.9	4	96.4
VECTOR WS (KPH)	-	-	-	-	10.34	35.5	14	15	-	99(E)	26.7	14	100.0
VECTOR WD (DEGREES)	-	-	-	-	255(WSW)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS



# Volatile Organics Data Summary

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE

### Xontech Model 910A – April 3, 2011

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

### Xontech Model 910A – April 9, 2011

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

### Xontech Model 910A – April 15, 2011

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

### Xontech Model 910A – April 21, 2011

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

### Xontech Model 910A – April 27, 2011

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

# Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

### PUF cartridge – April 3, 2011

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

### PUF cartridge – April 9, 2011

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

### PUF cartridge – April 15, 2011

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

### PUF cartridge – April 21, 2011

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

### PUF cartridge – April 27, 2011

<b>Maximum reading (ng/m3)</b>	<b>Semi-Volatile Organic</b>
<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 April 13<sup>th</sup>. 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 April 12<sup>th</sup>. 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 April 13<sup>th</sup>. Data was corrected using daily zero information.

# General Monthly Summary

## AQM STATION – LICA – PORTABLE

### Ozone (PPB)

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

The analyzer spanned high on April 11<sup>th</sup>. It was noticed that the zero/span pump was failed. The pump was replaced on April 11<sup>th</sup>, and a post-repair calibration was performed on April 13<sup>th</sup>. The inlet filter was replaced before the monthly calibration was started on April 13<sup>th</sup>. Data was corrected using daily zero information.

### THC (PPM)

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

No operational issues observed during the month. The inlet filter was replaced before the monthly calibration was performed on April 12<sup>th</sup>. Data was corrected using daily zero information.

### Particulate Matter 2.5 (ug/m<sup>3</sup>)

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

A routine Teom audit was performed on April 18<sup>th</sup>. 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. 26 hours of data were invalidated as they were below –3.0 ug/m<sup>3</sup>. The Teom 1405F unit output provides hourly average, but no instantaneous output. As a result, no hourly maximum value is recorded. The Teom flow was changed from “Standard” to “Actual” as per an AE requirement on April 4<sup>th</sup>.

# General Monthly Summary

## AQM STATION – LICA – PORTABLE

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

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

No operational issues observed during the month. The wind system is reported as vector wind speed and vector wind direction.

### 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 April 13<sup>th</sup>.

### Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. Sixty-three hours of AQI values recorded in April 2011 were in the Fair range, and they were all due to ozone. Others were within the Good range. The highest hourly concentration of PM2.5 was 24.3ug/m<sup>3</sup> and an AQI value of 20, hour 5 on April 4<sup>th</sup>. The highest hourly concentration of Ozone was 58 ppb and an AQI value of 32 on April 4<sup>th</sup> hour of 15.

# General Monthly Summary

## AQM STATION – LICA – PORTABLE

### **Volatile Organics (VOCs)**

The volatile organics were sampled from April 3<sup>rd</sup> to April 27<sup>th</sup>. 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 were sampled from April 3<sup>rd</sup> to April 27<sup>th</sup>. 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 - PORTABLE SITE

APRIL 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	23	-	23	24	23	22	21	22	24	24	25	25	26	25	26	26	28	28	28	26	-	24	21	22	28	
1	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	
2	21	20	-	18	14	13	14	14	18	20	22	25	26	28	25	25	25	25	23	-	22	20	17	17	28	
3	O3	O3	NA	O3	O3	O3	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	
4	15	15	16	15	11	11	9	12	18	18	20	22	23	23	24	24	24	24	24	-	23	22	23	23	24	
5	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	
6	23	23	23	21	21	20	19	21	21	22	24	25	25	28	29	32	31	-	25	23	23	24	22	22	32	
7	O3	O3	O3	O3	O3	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	
8	21	21	20	17	-	16	-	18	20	21	22	23	25	25	26	27	-	28	26	25	25	24	24	22	28	
9	O3	O3	O3	O3	NA	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	
10	24	20	22	20	22	20	17	20	21	23	25	25	26	27	28	-	28	27	28	24	22	24	23	23	28	
11	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	
12	22	23	20	20	18	16	16	17	19	21	22	24	25	24	-	24	24	22	22	21	18	16	17	19	25	
13	O3	O3	O3	O3	O3	O3	PM2	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
14	18	18	-	-	18	17	18	19	21	22	24	25	28	-	27	28	28	29	29	28	27	25	24	24	29	
15	O3	O3	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
16	23	21	20	18	18	18	18	18	17	19	21	23	25	-	27	27	26	27	25	25	25	24	23	23	27	
17	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
18	21	20	21	22	20	18	20	22	24	27	29	-	31	31	29	28	27	26	25	23	23	22	18	18	31	
19	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	
20	16	16	15	16	14	13	12	-	19	-	-	-	24	25	26	25	28	26	25	24	23	22	23	28		
21	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
22	-	21	18	17	16	15	15	14	-	-	-	-	17	19	19	-	17	17	19	-	17	16	16	16	22	
23	NA	O3	O3	O3	O3	O3	O3	O3	NA	NA	NA	NA	NA	NA	NA	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	
24	-	14	13	13	-	11	12	13	-	-	-	-	20	21	21	21	21	21	20	18	19	18	18	17	21	
25	NA	O3	PM2	O3	NA	O3	O3	O3	NA	NA	NA	NA	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
26	-	18	18	17	17	17	17	-	19	20	22	22	23	24	24	24	23	23	22	22	21	20	19	18	24	
27	NA	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
28	-	18	18	18	18	18	-	18	18	17	17	17	17	17	-	17	17	17	17	18	18	18	16	18		
29	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
30	14	15	-	10	10	-	13	17	19	20	20	21	22	22	22	22	21	21	21	20	17	15	-	13	22	
PEAK	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3

STATUS FLAG CODES NA - NOT APPLICABLE

AQI CLASS	OZONE (O <sub>3</sub> )				PARTICULATE MATTER 2.5 (PM <sub>2.5</sub> )				NITROGEN DIOXIDE (NO <sub>2</sub> )				SULPHUR DIOXIDE (SO <sub>2</sub> )				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)	63	8.8%	32	15	4	0	0.0%	-	-	-	0	0.0%	-	-	-	63	8.8%	
GOOD (1-25)	580	80.6%	-	-	-	8	1.1%	20	5	4	0	0.0%	-	-	-	588	81.7%	
OVERALL	643	89.3%	-	-	-	8	1.1%	-	-	-	0	0.0%	-	-	-	651	90.4%	
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	69	9.6%	

# Sulphur Dioxide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 2011

SULPHUR DIOXIDE (SO<sub>2</sub>) 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	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	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	1	1	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
9	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
11	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	1	0.1	24
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	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	1	0.1	24
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	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	0.1	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
HOURLY MAX	0	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	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

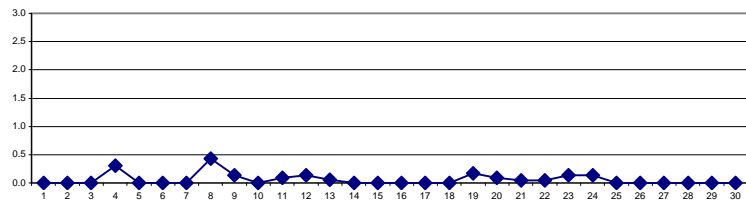
OBJECTIVE LIMIT:

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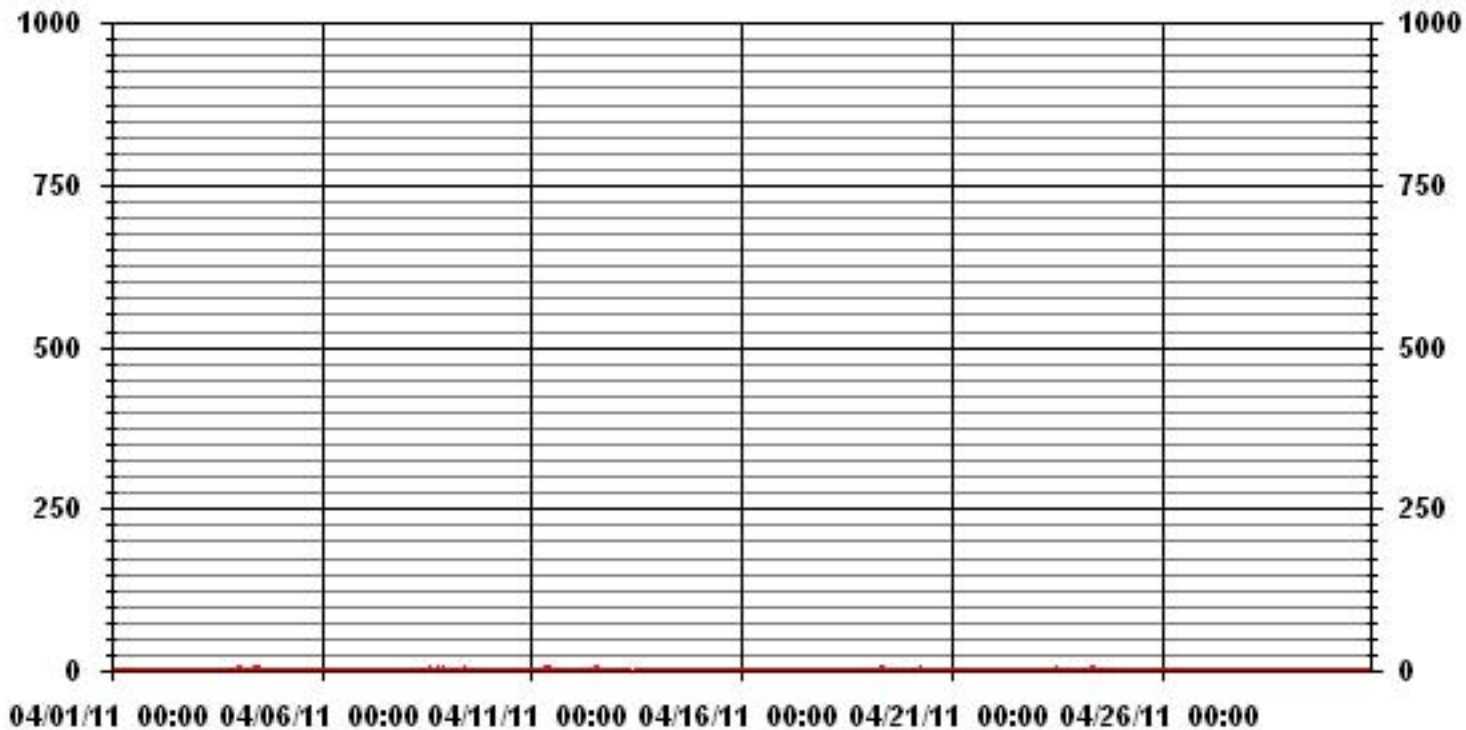
**MONTHLY SUMMARY**

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	36		
MAXIMUM 1-HR AVERAGE:	3 PPB @ HOUR(S) 14 ON DAY(S) 8		
MAXIMUM 24-HR AVERAGE:	0.4 PPB ON DAY(S) 8		
IZS CALIBRATION TIME:	31 HRS	OPERATIONAL TIME:	720 HRS
MONTHLY CALIBRATION TIME:	4 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.26	MONTHLY AVERAGE:	0.06 PPB

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -PORTABLE SITE

APRIL 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	1	1	1	1	1	1	1	1	1	1	1	1	1	0	IZS	0	1	1	1	1	1	0.9	24
2		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	1	1	1	1	1	1.0	24
3		1	1	0	1	1	0	1	1	1	1	0	0	1	0	1	1	1	1	IZS	0	0	0	1	1	1	1	0.7	24
4		1	2	2	1	1	1	1	2	2	2	2	2	2	2	2	1	IZS	1	1	1	1	1	1	1	2	1.5	24	
5		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	2	1	1	1	1	1	1	2	1.0	24	
6		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1.0	24	
7		1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	0	0	0	0	1	0.8	24	
8		0	1	1	1	1	0	1	1	1	3	1	1	1	IZS	6	2	1	1	2	3	3	2	2	2	6	1.6	24	
9		1	1	1	1	1	1	1	2	1	2	2	1	IZS	1	1	1	1	1	3	2	1	1	1	1	3	1.3	24	
10		1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
11		1	1	1	1	1	1	1	2	2	2	2	IZS	1	1	1	1	1	0	0	0	0	0	0	0	2	0.8	24	
12		0	0	0	0	0	0	0	1	2	IZS	2	1	2	2	2	1	1	1	1	1	0	1	0	0	2	0.8	24	
13		0	0	0	0	0	0	0	0	IZS	C	C	C	C	1	1	2	2	1	1	1	1	1	1	1	2	0.7	24	
14		1	2	1	1	1	1	1	IZS	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
15		1	1	1	1	1	1	IZS	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
16		1	1	1	1	1	IZS	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24	
17		1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
18		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	
19		1	1	IZS	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1.2	24	
20		1	IZS	1	1	1	1	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
21		IZS	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	IZS	2	1.1	24
22		1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	IZS	1	2	1.1	24	
23		1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	1	1	2	IZS	0	1	2	1.2	24	
24		0	0	0	1	1	0	0	1	2	2	2	1	1	1	1	1	1	1	1	1	IZS	0	0	0	2	0.8	24	
25		0	0	0	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	0.8	24	
26		1	1	1	1	1	1	0	1	1	1	1	1	1	2	2	1	1	1	1	IZS	1	1	1	1	2	1.0	24	
27		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1.0	24	
28		1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	2	1.0	24	
29		1	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	IZS	0	0	0	0	1	0	0	1	0.4	24	
30		0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	IZS	0	0	0	0	0	0	0	0	1	0.1	24	
HOURLY MAX		1	2	2	1	1	1	2	2	2	3	2	2	2	2	6	2	2	2	3	3	3	3	2	2	2			
HOURLY AVG		0.8	0.9	0.8	0.9	0.9	0.8	0.9	1.0	1.1	1.2	1.1	1.0	1.0	1.1	1.3	1.1	1.0	0.9	1.0	1.0	0.9	0.8	0.8	0.8				

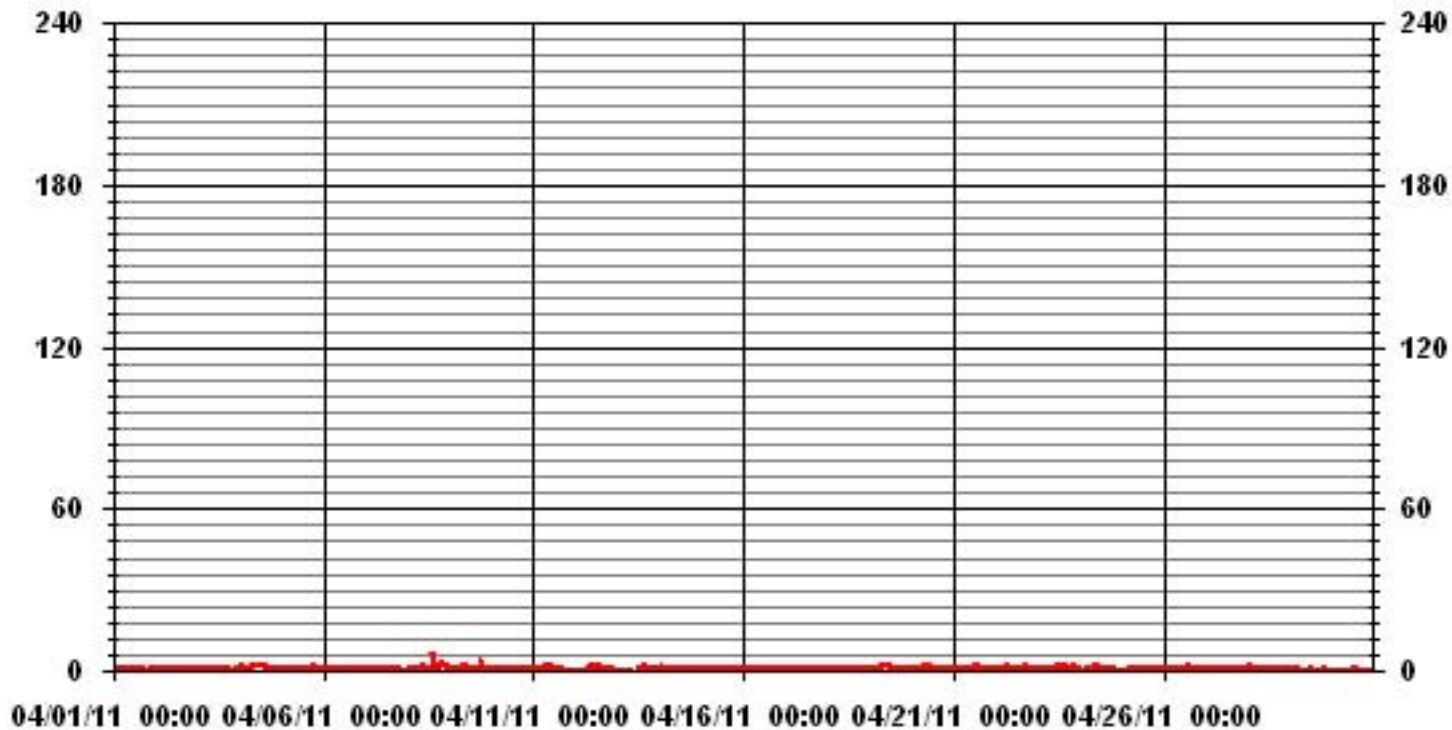
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	589					
MAXIMUM INSTANTANEOUS VALUE:	6	PPB	@ HOUR(S)	14	ON DAY(S)	8
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.53					

### 01 Hour Averages



— LICA33 SO2MAX PPB

LICA33  
 SO2\_ / WDR Joint Frequency Distribution (Percent)

April 2011

Distribution By % Of Samples

Logger Id : 33  
 Site Name : LICA33  
 Parameter : SO2\_  
 Units : PPB

Wind Parameter : WDR  
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	4.67	4.08	4.52	3.64	11.09	2.91	2.62	2.62	4.08	4.67	17.08	12.11	9.19	10.21	3.79	2.62	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.67	4.08	4.52	3.64	11.09	2.91	2.62	2.62	4.08	4.67	17.08	12.11	9.19	10.21	3.79	2.62	

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	32	28	31	25	76	20	18	18	28	32	117	83	63	70	26	18	685
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	32	28	31	25	76	20	18	18	28	32	117	83	63	70	26	18	

Calm : .00 %

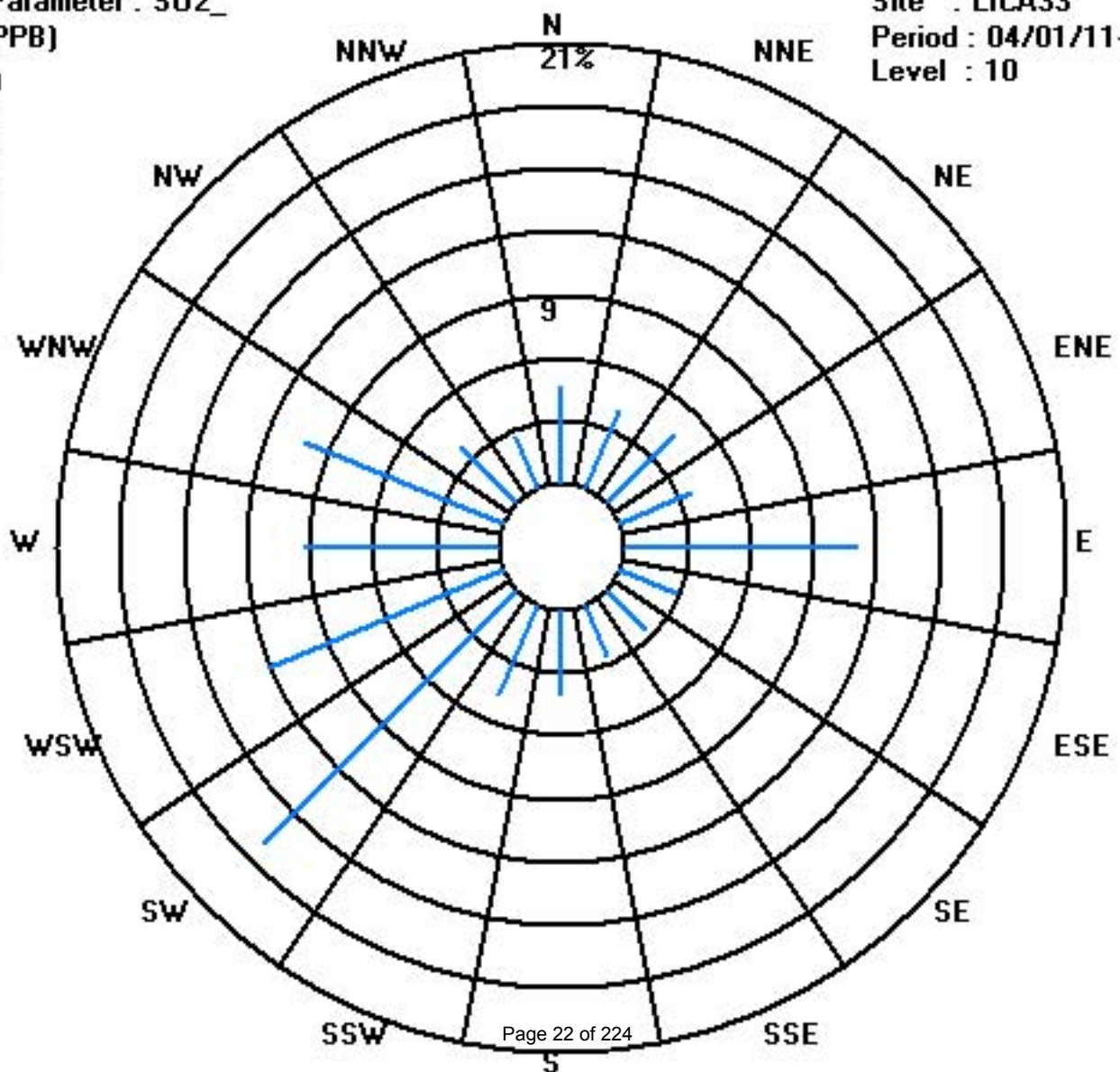
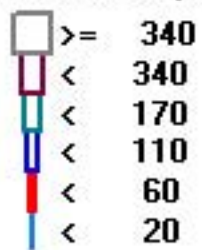
Total # Operational Hours : 685



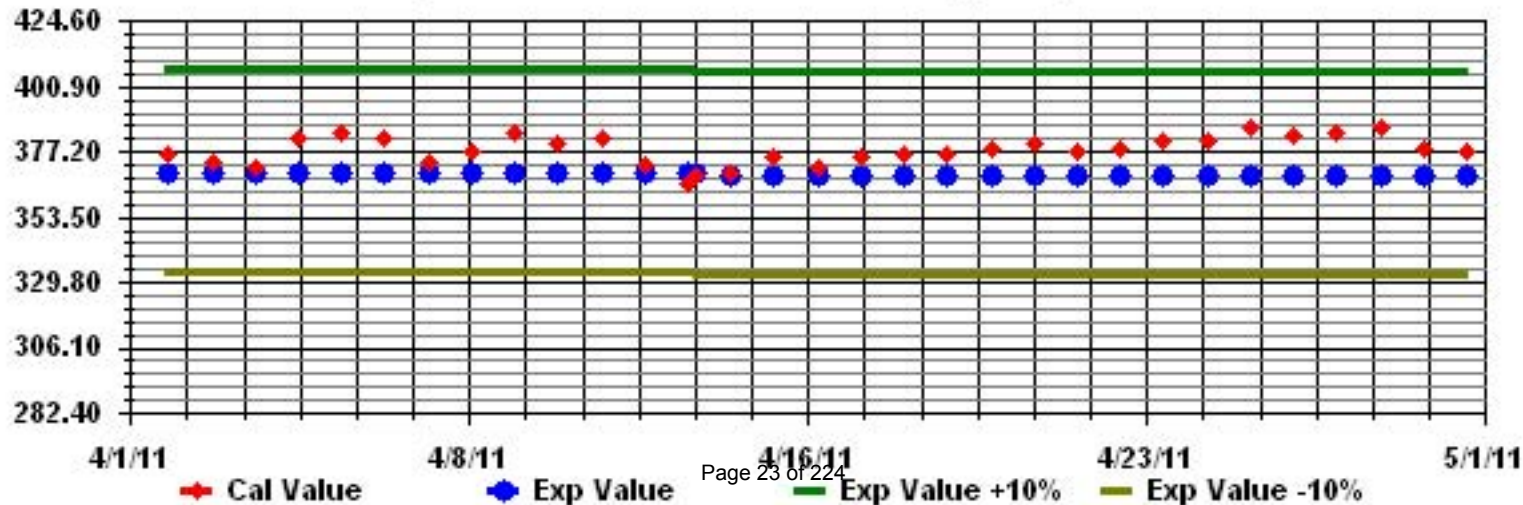
Class Limits (PPB)

Period : 04/01/11-04/30/11

Level : 10



Calibration Graph for Site: LICA33 Parameter: S02\_ Sequence: S02 Phase: SPAll



# Hydrogen Sulphide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE

APRIL 2011

## HYDROGEN SULPHIDE (H<sub>2</sub>S) 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	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	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.1	24
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
12	0	0	0	0	0	0	0	0	0	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
17	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
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	1	1	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	24	
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
HOURLY MAX		1	1	1	1	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1			
HOURLY AVG		0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1				

### STATUS FLAG CODES

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

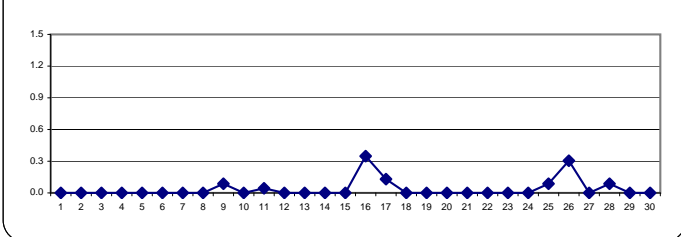
### OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	10	PPB	24-HR	3	PPB
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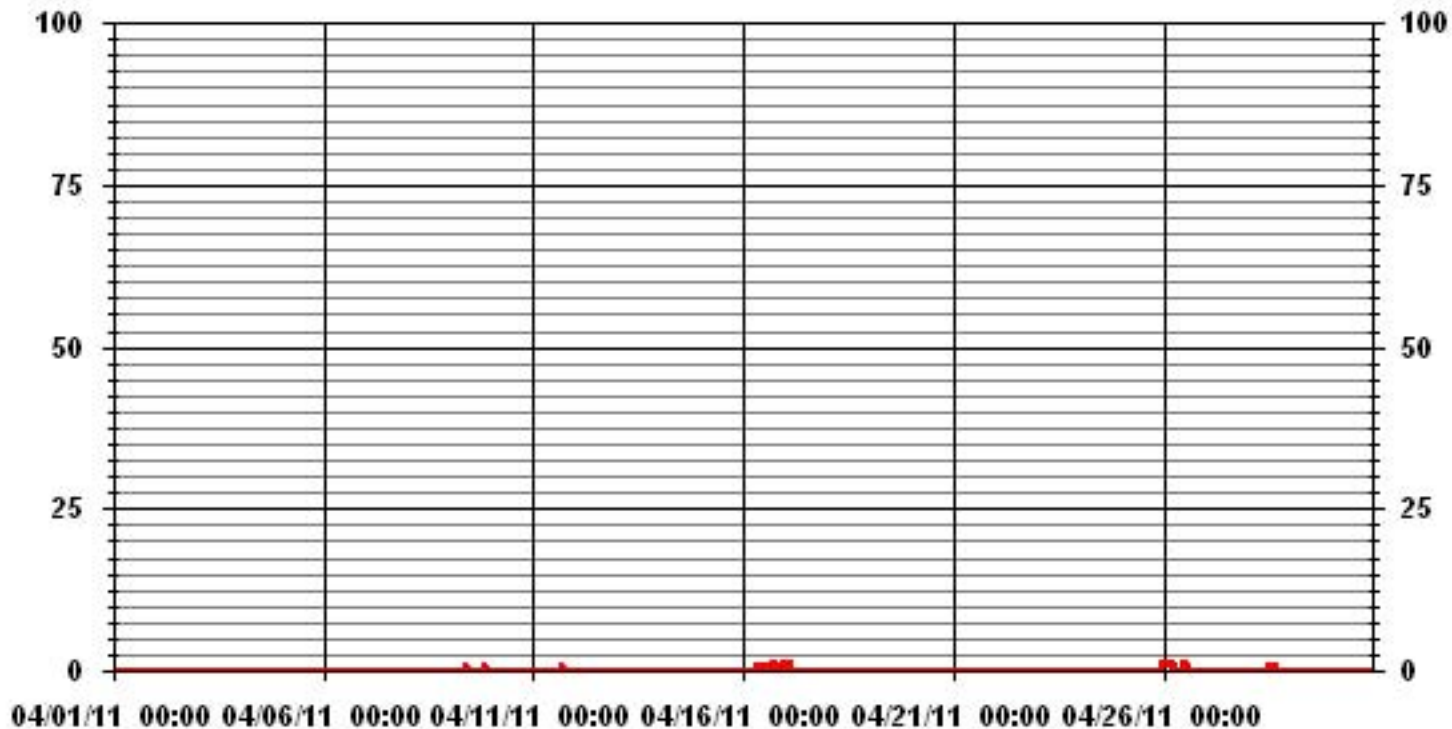
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	25					
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.3	PPB			ON DAY(S)	16, 26
					VAR-VARIOUS	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	3	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.19		MONTHLY AVERAGE:	0.04	PPB	

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA33 H2S\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 2011

## HYDROGEN SULPHIDE MAX    instantaneous maximum in ppb

MST

DAY	MST																								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	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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	1	1	0.2	24	
7	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
8	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0.3	24
9	1	1	1	1	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0.7	24	
10	1	1	1	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0.4	24	
11	0	0	1	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.7	24	
12	0	0	0	0	0	1	0	C	C	C	C	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	22	
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	2	0.1	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	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24	
18	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
19	0	0	0	0	1	0	1	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	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0.1	24	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	24	
24	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0	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	1	0.5	24	
26	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	0.9	24	
27	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
28	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	24	
29	1	0	0	1	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	
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	2	1	1	1	1	2	1	1	19	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1			
HOURLY AVG	0.2	0.2	0.4	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.9	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3				

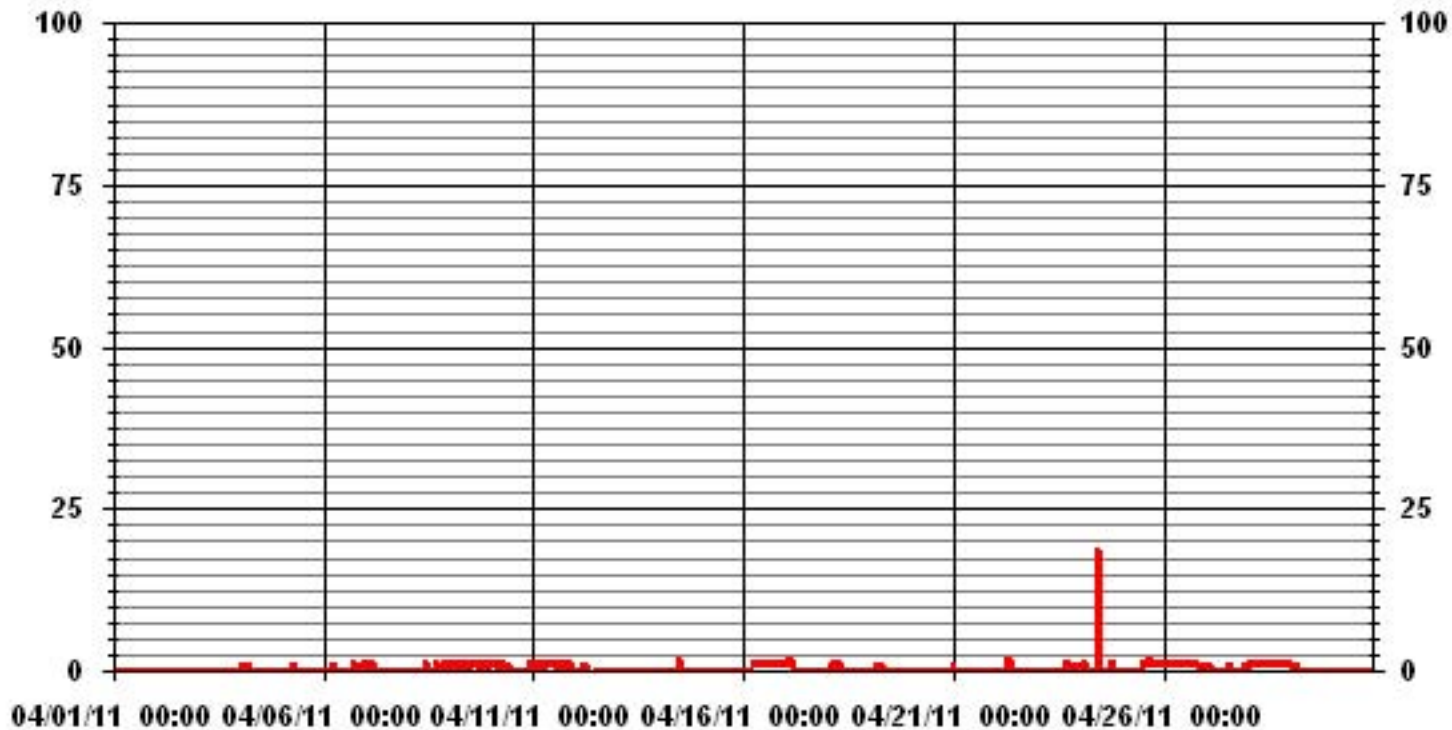
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	158					
MAXIMUM INSTANTANEOUS VALUE:	19	PPB	@ HOUR(S)	10	ON DAY(S)	24
	VAR - VARIOUS					
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.84					

### 01 Hour Averages



LICA33  
H2S\_ / WDR Joint Frequency Distribution (Percent)

April 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	4.65	4.07	4.51	3.63	11.20	2.91	2.91	2.76	4.07	4.65	17.03	12.08	9.17	10.18	3.78	2.32	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.65	4.07	4.51	3.63	11.20	2.91	2.91	2.76	4.07	4.65	17.03	12.08	9.17	10.18	3.78	2.32	

Calm : .00 %

Total # Operational Hours : 687

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	32	28	31	25	77	20	20	19	28	32	117	83	63	70	26	16	687
< 10																	
< 50																	
>= 50																	
Totals	32	28	31	25	77	20	20	19	28	32	117	83	63	70	26	16	

Calm : .00 %

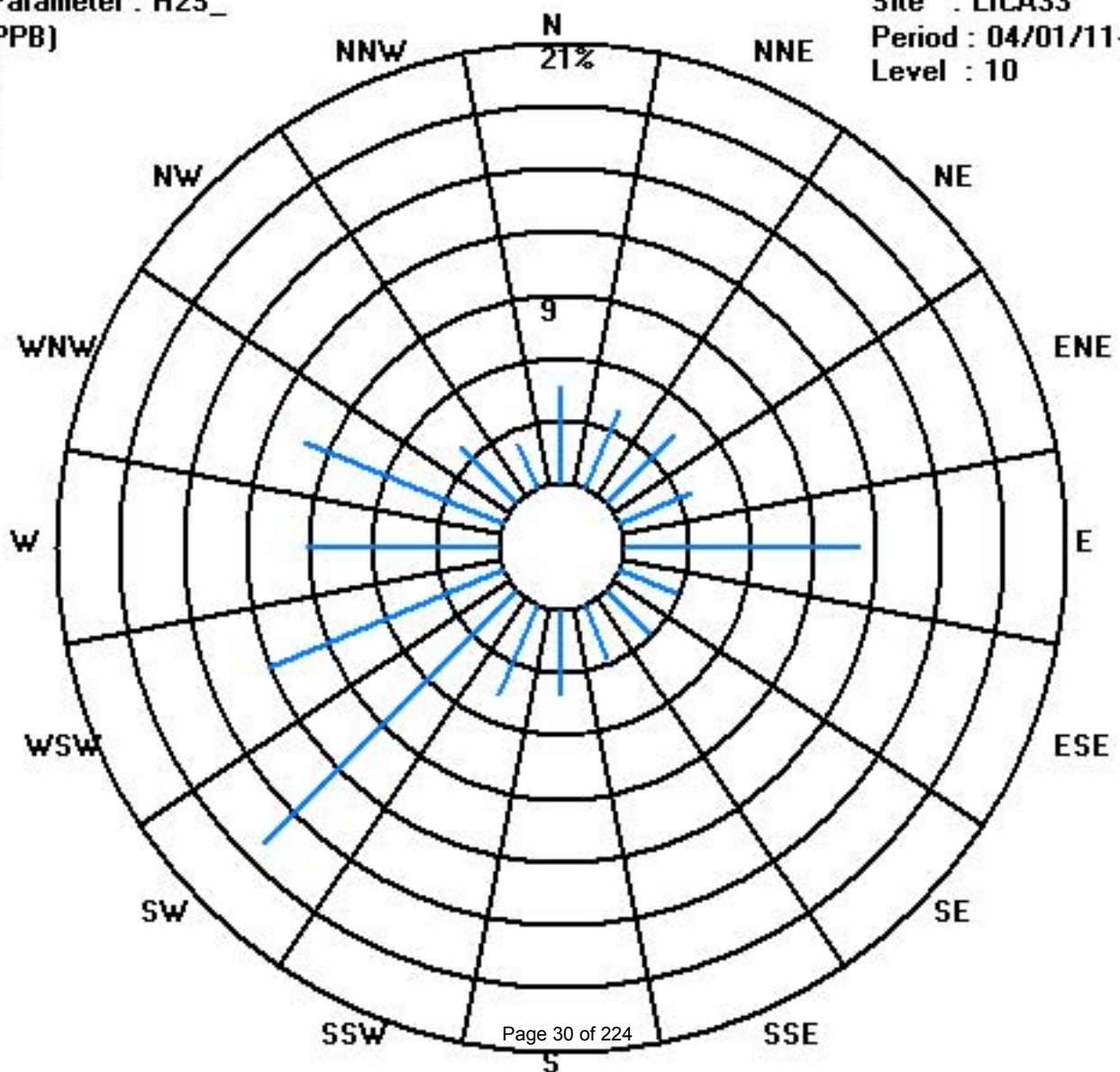
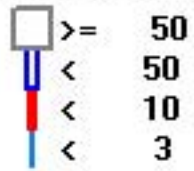
Total # Operational Hours : 687



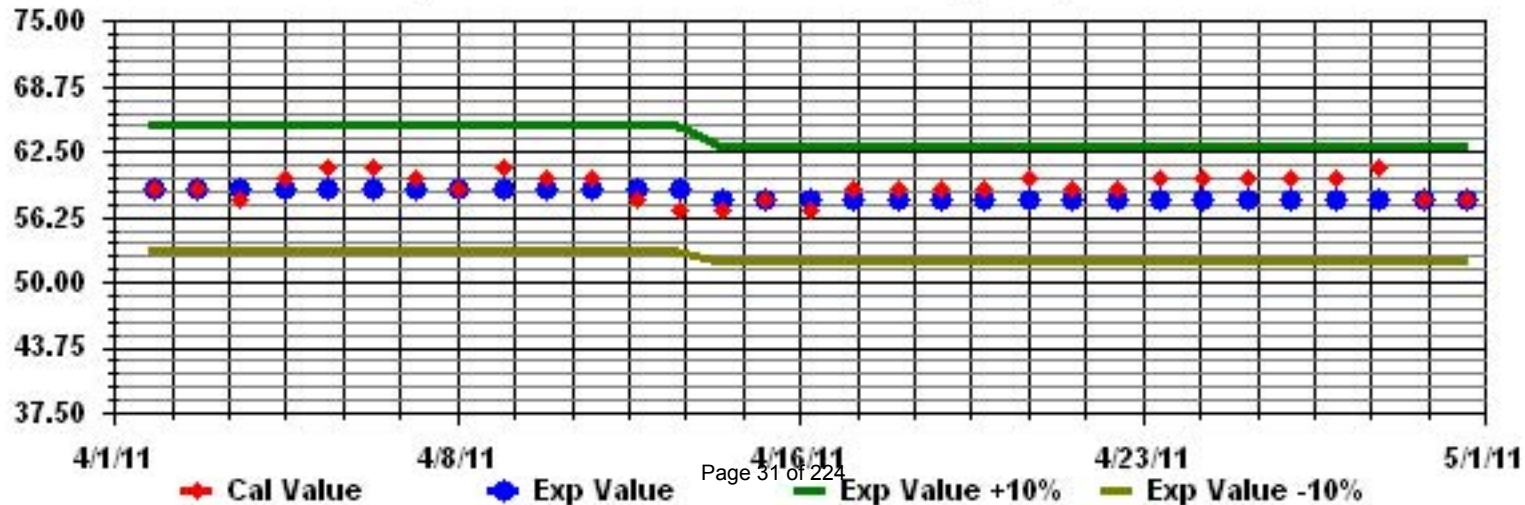
Class Limits (PPB)

Period : 04/01/11-04/30/11

Level : 10



Calibration Graph for Site: LICA33 Parameter: H2S\_ Sequence: H2S Phase: SPAll



# Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 2011

PARTICULATE MATTER 2.5 (PM2.5) hourly averages in ug/m<sup>3</sup>

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	
1	4.3	N	4.8	0	4.8	0	3.7	0.7	3.7	0	4.7	2.3	2.7	5.7	4.8	2.3	1.8	7.7	2.7	0.7	1.2	3.2	4.8	2.3	7.7	3.0	23
2	2.3	8.7	N	0	1.7	11.2	16.8	5.2	6.8	4.7	6.7	1.8	0	3.2	4.8	5.7	4.2	1.7	3.2	1.8	1.8	2.3	1.7	0	16.8	4.2	23
3	5.7	3.2	1.2	2.2	5.2	4.8	1.2	4.8	1.8	1.2	0	1.2	2.7	3.7	0	1.8	6.8	5.2	3.2	2.7	3.7	0.2	4.3	14.7	14.7	3.4	24
4	0	15.7	14.7	10.2	21.7	24.3	16.2	14.2	16.2	16.8	13.8	17.2	14.2	15.7	14.2	12.7	5.7	5.2	0.2	7.7	0.8	1.7	0	2.3	24.3	10.9	24
5	0	2.3	0	6.2	N	7.7	N	7.2	0	3.2	2.7	4.8	0.2	5.8	1.8	2.3	0.2	8.3	4.8	11.2	4.8	3.7	6.8	11.7	11.7	4.4	22
6	12.7	8.7	17.2	0.2	17.2	13.7	4.2	18.2	12.2	9.7	5.7	3.7	3.7	2.7	2.7	2.7	4.3	2.7	3.7	6.2	1.8	2.3	9.2	10.7	18.2	7.3	24
7	15.7	11.7	22.7	6.2	1.8	10.7	19.7	0	0	0.2	3.7	0	2.7	1.2	3.7	3.7	4.2	5.2	1.7	2.7	1.2	6.3	5.8	0	22.7	5.5	24
8	8.7	2.3	N	N	14.7	4.8	0	6.7	6.7	5.2	5.7	6.2	6.7	9.3	8.7	8.3	6.2	6.8	9.8	6.2	6.3	4.8	9.7	9.7	14.7	7.0	22
9	9.2	10.2	11.7	5.2	13.3	10.2	14.7	11.2	15.2	13.2	11.7	0.8	N	3.7	1.2	0.8	6.8	0	1.8	5.7	5.2	1.8	7.7	8.7	15.2	7.4	23
10	6.2	8.3	11.7	10.2	14.7	7.3	8.7	4.8	1.8	1.7	2.3	1.7	0	0.8	2.3	0	0.2	0	4.2	5.7	6.3	5.7	7.7	3.7	14.7	4.8	24
11	4.2	5.2	4.3	3.2	0	0	2.3	6.3	11.7	12.7	12.8	15.7	7.7	6.7	1.2	0	4.3	5.2	3.7	0	0.8	3.7	0	3.2	15.7	4.8	24
12	N	0.8	0.8	2.3	0.7	0.8	1.2	0.8	9.2	3.7	8.7	5.2	5.2	8.3	4.3	6.2	0.2	2.7	N	3.7	4.7	1.2	1.8	6.8	9.2	3.6	22
13	N	0.7	15.7	0.8	N	2.7	11.7	0	6.2	3.2	6.3	3.2	0.2	3.7	3.7	3.3	0	5.2	0	0.8	4.8	6.8	3.7	4.8	15.7	4.0	22
14	N	5.2	7.3	0	6.3	3.7	3.3	1.2	2.7	0	7.3	4.3	5.2	10.7	0.8	0.8	0	3.7	1.2	3.7	2.7	0.2	2.3	2.7	10.7	3.3	23
15	1.8	2.3	0.8	1.2	4.3	0.8	4.3	5.2	5.8	0	2.7	0.2	0.8	0	7.3	N	1.2	0.8	0	1.8	2.3	0.8	1.8	0	7.3	2.0	23
16	0	8.7	N	3.7	12.2	N	5.8	0	4.8	0	3.2	5.8	3.7	1.2	5.8	6.3	10.2	1.2	5.2	0	1.2	0	N	6.8	12.2	4.1	21
17	0	0	14.2	6.8	N	N	2.7	3.7	4.2	2.3	2.3	1.8	N	4.8	3.7	0.8	N	0.2	3.3	0.8	0	3.3	N	11.3	14.2	3.5	19
18	0	5.2	N	7.8	13.8	0	2.3	5.2	N	3.7	6.3	4.8	C	5.2	2.3	3.2	9.2	5.2	3.7	6.3	4.2	6.8	4.8	2.3	13.8	4.9	22
19	13.8	2.3	10.7	6.8	0	21.2	4.8	13.3	15.3	7.7	11.3	6.2	3.3	8.3	1.8	4.8	4.8	4.8	4.3	0.8	2.7	4.3	3.3	3.3	21.2	6.7	24
20	7.7	7.3	5.8	15.8	4.3	3.7	10.7	15.2	5.2	6.2	3.7	2.7	1.8	3.2	0.8	0.8	1.2	5.8	1.2	5.2	0.8	4.3	1.8	0.8	15.8	4.8	24
21	3.7	11.7	0	0	7.7	2.7	0.8	4.2	1.7	3.7	2.3	0.8	0.8	6.3	0.8	2.3	5.2	5.8	0	2.7	10.8	6.3	1.2	4.3	11.7	3.6	24
22	4.8	6.8	1.2	14.2	4.2	0.2	6.2	8.7	0.8	3.2	0.2	2.7	0.2	4.3	0.8	4.3	1.8	2.7	4.8	3.7	2.7	8.7	5.7	7.3	14.2	4.2	24
23	6.8	2.3	10.2	N	10.7	0	8.7	6.2	5.7	2.3	6.8	2.3	1.8	5.2	6.8	2.3	2.7	3.7	5.7	5.2	7.3	2.3	5.2	3.3	10.7	4.9	23
24	1.8	3.2	7.3	2.3	9.7	N	9.2	3.7	5.2	1.7	0.2	2.3	5.8	5.2	3.7	1.2	7.3	5.8	6.3	4.8	2.3	1.8	1.8	0	9.7	4.0	23
25	3.7	0.2	7.3	9.3	N	11.7	1.2	0.8	6.3	0	7.3	4.3	6.8	1.8	7.3	4.8	2.7	6.3	9.2	1.2	5.7	6.8	7.7	5.2	11.7	5.1	23
26	7.3	0	3.7	4.3	4.2	3.2	6.2	4.2	8.3	0.8	5.2	0.2	8.7	1.8	3.2	5.2	9.8	4.8	8.3	4.3	6.2	6.2	12.7	2.7	12.7	5.1	24
27	9.2	6.2	10.7	5.2	3.2	4.3	5.2	2.7	6.3	4.8	7.7	2.7	8.3	7.7	6.8	6.3	7.3	3.7	7.3	5.2	13.8	5.2	9.2	6.3	13.8	6.5	24
28	9.7	9.3	9.7	4.8	7.3	5.2	5.2	6.3	5.8	6.3	7.3	3.7	4.3	7.2	12.2	4.2	7.7	11.2	5.2	5.2	6.3	6.8	6.8	1.8	12.2	6.6	24
29	1.8	12.7	3.7	9.2	2.2	6.8	0	0	4.2	1.7	0	0	0	0.2	0	1.2	1.2	2.7	1.2	3.7	0	7.7	0.2	6.8	12.7	2.8	24
30	1.2	2.3	1.8	3.7	0	0.8	0	3.2	1.7	6.2	2.7	4.8	1.2	6.8	0	1.2	0	0.2	0	3.3	0	2.3	2.2	6.3	6.8	2.2	24
HOURLY MAX	16	16	23	16	22	24	20	18	16	17	14	17	14	16	14	13	10	11	10	11	14	9	13	15			
HOURLY AVG	5.3	5.6	7.7	5.1	7.2	6.0	6.1	5.5	6.1	4.2	5.4	3.8	3.7	5.0	3.9	3.4	4.0	4.2	3.7	3.8	3.7	3.9	4.6	5.0			

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

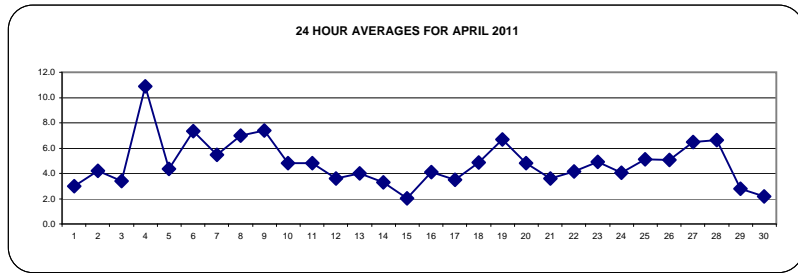
OBJECTIVE LIMIT:

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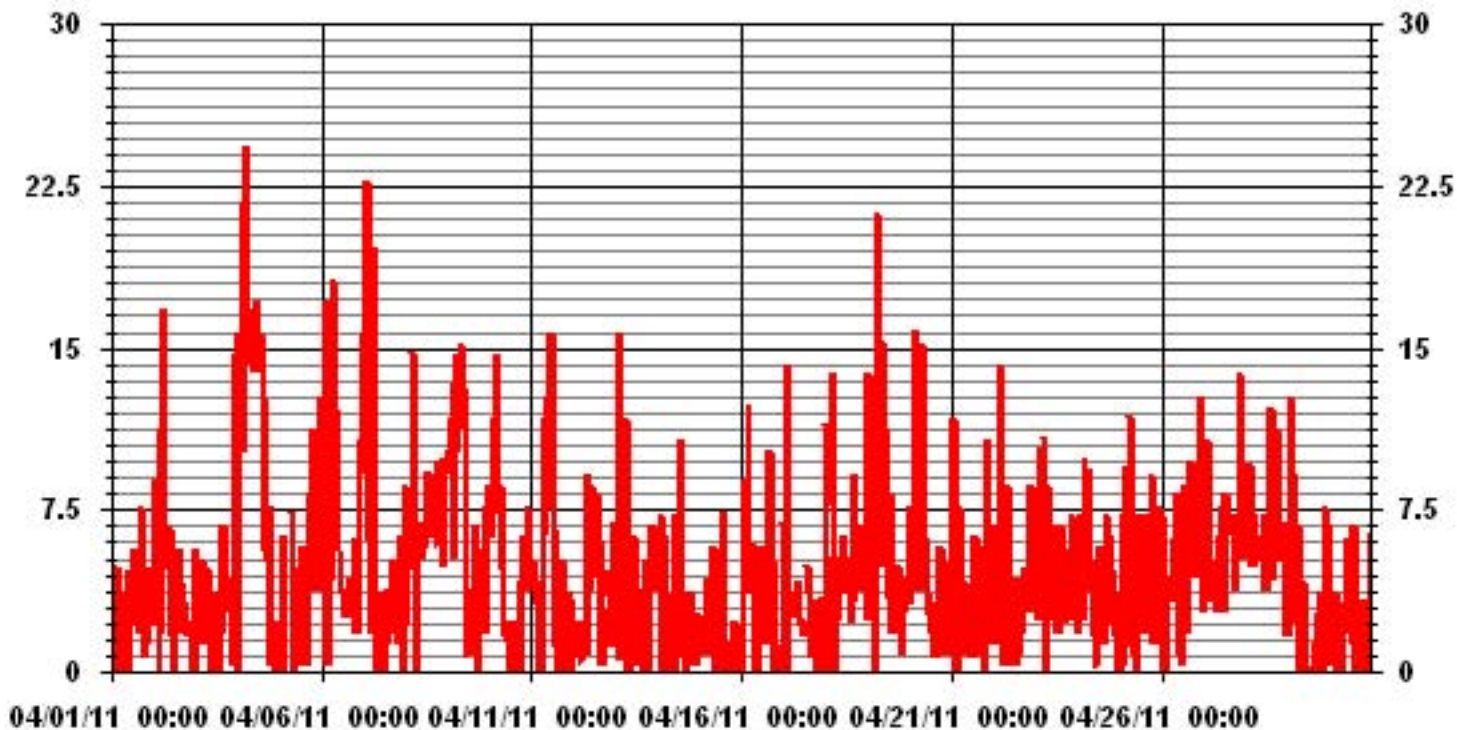
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-	PROPOSED CANADA WIDE GUIDELINE	
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	625		
MAXIMUM 1-HR AVERAGE:	24.3 UG/M <sup>3</sup>	@ HOUR(S)	5 ON DAY(S)
MAXIMUM 24-HR AVERAGE:	10.9 UG/M <sup>3</sup>		4 ON DAY(S)
IZS CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	694 HRS
MONTHLY CALIBRATION TIME:	1 HRS	AMD OPERATION UPTIME:	96.4 %
STANDARD DEVIATION:	4.16	MONTHLY AVERAGE:	4.83 UG/M <sup>3</sup>

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA33 PM2 UG/M3

LICA33  
 PM2 / WDR Joint Frequency Distribution (Percent)

April 2011

Distribution By % Of Samples

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

Wind Parameter : WDR  
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	4.47	4.18	4.18	3.75	11.11	2.88	2.88	2.88	4.18	4.76	17.46	11.54	8.80	9.81	4.04	3.03	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	4.47	4.18	4.18	3.75	11.11	2.88	2.88	2.88	4.18	4.76	17.46	11.54	8.80	9.81	4.04	3.03	

Calm : .00 %

Total # Operational Hours : 693

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	31	29	29	26	77	20	20	20	29	33	121	80	61	68	28	21	693
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	31	29	29	26	77	20	20	20	29	33	121	80	61	68	28	21	

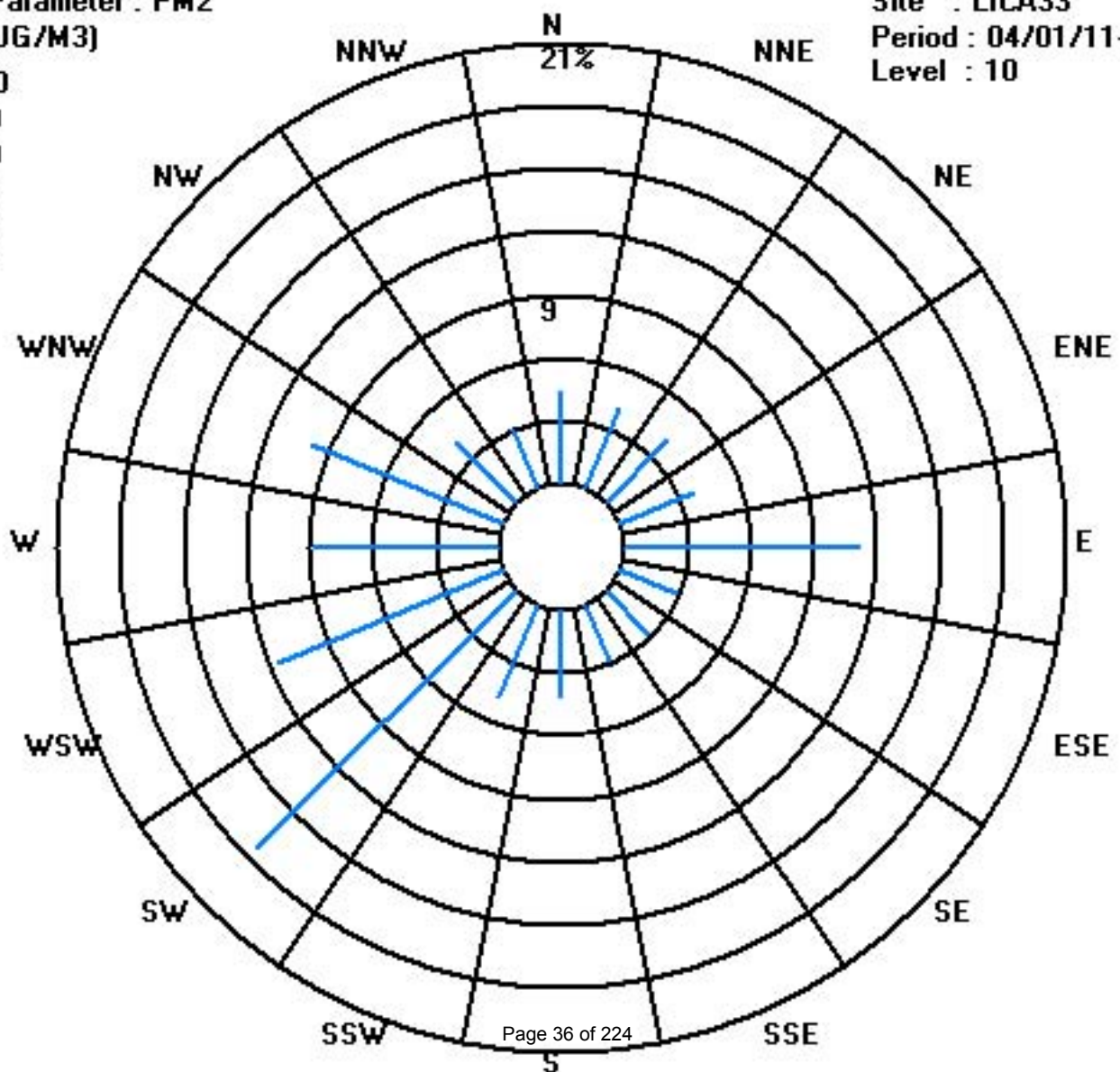
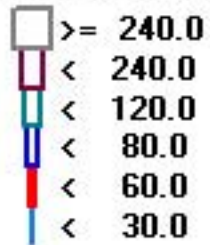
Calm : .00 %

Total # Operational Hours : 693

Class Limits (UG/M3)

Period : 04/01/11-04/30/11

Level : 10



# Nitrogen Dioxide



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 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	4	8	3	2	3	3	5	4	2	2	1	1	2	1	2	3	3	3	3	3	3	6	4	8	3.0	24		
2	4	7	3	5	8	8	7	8	6	4	4	3	2	2	1	2	2	2	4	<b>IZS</b>	3	5	7	5	8	<b>4.4</b>	24	
3	6	5	3	3	9	11	14	9	3	3	2	1	1	1	0	0	0	0	<b>IZS</b>	0	1	1	1	1	14	3.3	24	
4	2	3	4	4	4	5	5	6	6	6	4	4	4	4	4	2	<b>IZS</b>	2	2	2	3	4	2	6	3.7	24		
5	3	3	3	8	4	8	8	6	4	3	2	2	1	0	0	1	<b>IZS</b>	1	2	1	1	3	3	3	8	3.0	24	
6	3	3	3	6	4	4	11	6	5	3	2	2	2	1	1	<b>IZS</b>	1	1	1	3	6	3	4	4	11	3.4	24	
7	4	5	8	6	6	7	9	6	4	3	2	1	1	0	<b>IZS</b>	0	0	1	1	1	4	10	3	2	10	3.7	24	
8	1	1	2	1	1	3	6	6	3	2	1	1	1	<b>IZS</b>	2	1	1	1	1	2	2	2	2	2	6	2.0	24	
9	2	2	2	2	2	3	3	5	3	3	3	2	<b>IZS</b>	1	1	1	1	1	1	1	1	1	2	2	5	2.0	24	
10	3	3	3	2	4	5	3	2	2	1	0	<b>IZS</b>	0	0	0	0	0	1	0	0	0	1	2	2	5	1.5	24	
11	3	3	6	6	7	5	7	5	4	4	<b>IZS</b>	3	3	3	1	1	2	0	1	1	0	0	1	0	7	2.9	24	
12	0	0	0	0	0	0	0	0	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	1	1	1	1	1	4	2	3	1	1	4	0.9	24	
13	1	1	1	2	2	3	3	2	<b>IZS</b>	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.3	24
14	1	2	2	1	2	1	1	<b>IZS</b>	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
15	1	1	1	1	1	1	<b>IZS</b>	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	4	6	6	1.6	24	
16	9	6	13	13	<b>18</b>	<b>IZS</b>	7	2	1	1	1	0	0	0	1	1	1	1	1	1	1	4	7	4	<b>18</b>	4.0	24	
17	4	11	16	11	<b>IZS</b>	10	10	8	4	2	2	1	1	1	1	1	1	1	1	2	2	4	3	3	16	4.3	24	
18	3	3	3	<b>IZS</b>	4	10	7	4	4	3	2	2	1	1	1	1	2	2	5	5	3	2	3	10	3.1	24		
19	4	3	<b>IZS</b>	2	2	4	6	6	4	3	2	2	1	1	1	0	1	1	3	5	3	2	1	6	2.5	24		
20	9	<b>IZS</b>	4	4	3	3	4	5	4	3	2	1	1	2	2	1	2	4	3	3	4	3	3	9	3.1	24		
21	<b>IZS</b>	4	5	4	6	4	6	10	3	2	1	1	2	1	1	1	1	2	7	3	5	5	<b>IZS</b>	10	3.4	24		
22	2	2	3	4	7	7	8	5	4	2	1	1	1	1	1	1	1	1	2	3	4	<b>IZS</b>	7	8	3.0	24		
23	2	6	9	2	4	4	3	4	4	3	1	1	1	1	1	1	1	1	2	2	<b>IZS</b>	4	4	9	2.7	24		
24	2	2	9	12	6	7	10	9	5	3	3	2	1	1	1	1	1	2	1	<b>IZS</b>	1	1	2	12	3.6	24		
25	2	2	2	2	1	3	2	1	1	1	1	1	1	1	1	1	1	1	<b>IZS</b>	2	2	1	1	3	1.4	24		
26	1	2	2	2	2	2	3	2	2	2	2	2	1	3	5	4	3	4	<b>IZS</b>	3	4	5	4	4	5	2.8	24	
27	4	5	7	7	7	5	4	4	3	3	1	0	0	0	0	0	0	<b>IZS</b>	2	2	5	4	6	6	7	3.3	24	
28	4	5	3	3	3	3	4	4	4	5	2	3	3	3	3	2	<b>IZS</b>	0	0	1	2	2	1	1	5	2.7	24	
29	2	2	1	1	2	1	1	0	0	0	0	0	0	0	0	<b>IZS</b>	0	1	1	3	2	4	3	3	4	1.2	24	
30	6	8	6	9	3	5	3	3	2	3	1	1	2	1	<b>IZS</b>	0	1	1	2	5	3	3	4	4	9	3.3	24	
HOURLY MAX	NA	11	16	13	18	11	14	10	6	6	4	4	4	4	5	4	3	4	4	7	6	10	7	7				
HOURLY AVG	NA	3.7	4.4	4.3	4.3	4.7	5.5	4.6	3.2	2.5	1.6	1.5	1.3	1.2	1.2	1.1	1.0	1.2	1.5	2.2	2.5	3.0	3.0	2.8				

### 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

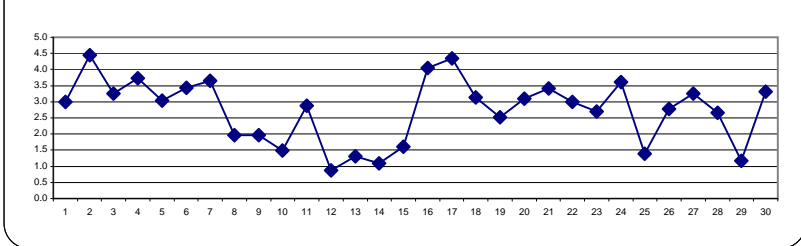
### OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	212	PPB	24-HR	106	PPB
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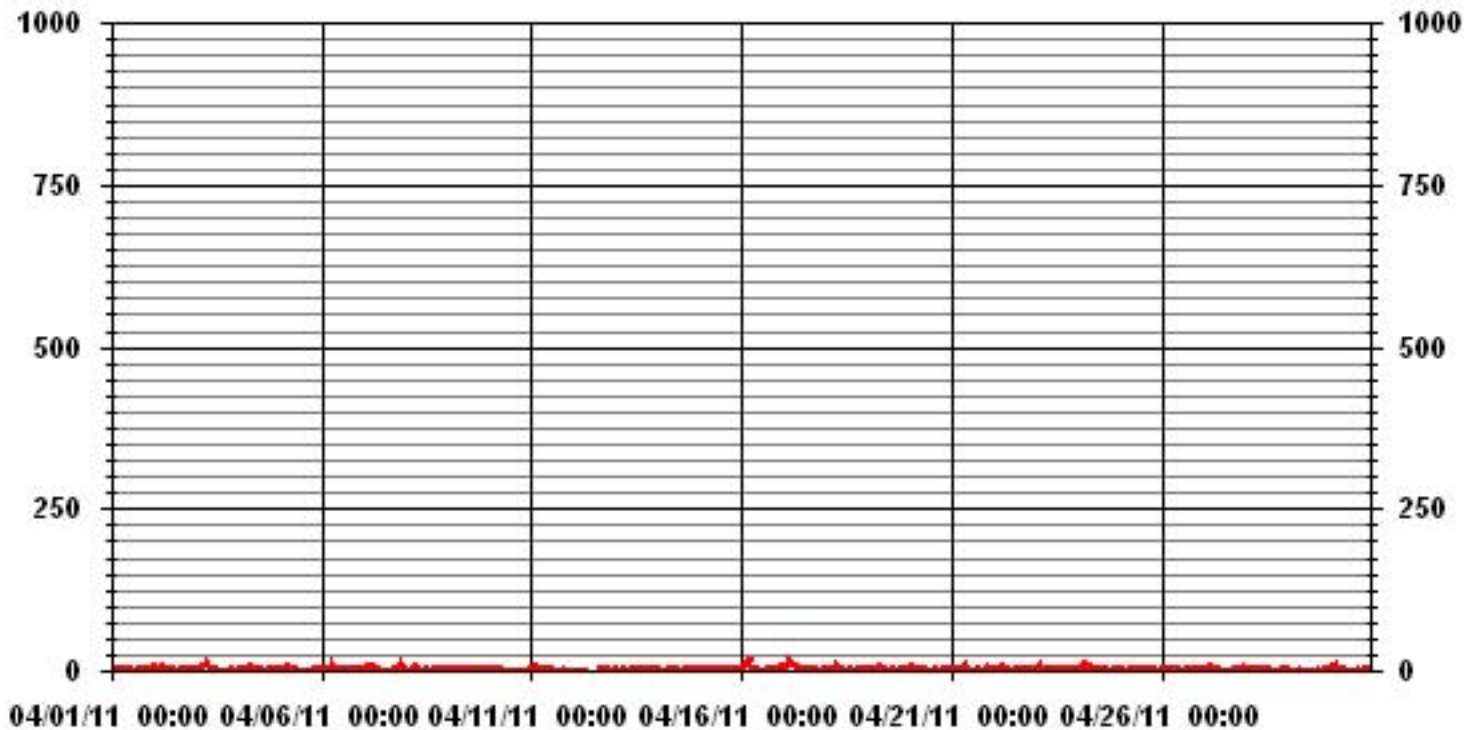
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	629					
MAXIMUM 1-HR AVERAGE:	18	PPB	@ HOUR(S)	4	ON DAY(S)	16
MAXIMUM 24-HR AVERAGE:	4.4	PPB			ON DAY(S)	2
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	2.45		MONTHLY AVERAGE:	2.75	PPB	

24 HOUR AVERAGES FOR APRIL 2011



### 01 Hour Averages



— LICA33 HO2\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 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	8	13	9	3	7	6	12	10	2	2	3	3	2	5	3	5	6	7	6	5	<b>IZS</b>	4	19	7	19	6.4	24	
2	6	18	4	14	11	9	9	10	9	5	5	4	3	3	2	2	3	3	7	<b>IZS</b>	11	11	11	9	18	7.3	24	
3	11	7	5	5	14	25	24	14	7	4	3	2	2	3	1	11	1	1	<b>IZS</b>	1	2	2	2	2	25	6.5	24	
4	3	4	4	5	5	9	7	9	6	6	5	5	5	5	5	5	3	<b>IZS</b>	4	4	4	4	7	3	9	5.1	24	
5	6	6	4	20	7	19	11	19	5	5	3	3	2	1	4	4	<b>IZS</b>	3	3	2	1	11	6	6	20	6.6	24	
6	6	4	5	10	11	6	18	8	6	5	3	3	3	2	1	<b>IZS</b>	2	2	2	7	25	8	12	9	25	6.9	24	
7	7	7	12	12	8	9	12	13	7	4	3	1	1	1	<b>IZS</b>	1	1	3	3	2	13	30	6	3	30	6.9	24	
8	6	2	3	2	2	7	7	8	4	3	2	2	2	<b>IZS</b>	3	2	2	2	2	2	2	3	3	3	8	3.2	24	
9	3	6	3	3	3	3	4	7	13	4	4	3	<b>IZS</b>	1	1	1	2	2	2	2	2	2	3	3	13	3.3	24	
10	10	3	3	3	9	8	4	3	3	1	1	<b>IZS</b>	1	1	1	1	1	2	2	1	1	2	3	3	10	2.9	24	
11	4	5	9	9	14	7	10	7	5	7	<b>IZS</b>	4	4	4	3	2	3	2	2	2	1	1	1	1	14	4.7	24	
12	1	1	1	1	1	1	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	2	1	2	3	6	4	5	2	2	6	2.1	24		
13	2	2	2	3	3	6	4	2	<b>IZS</b>	2	2	<b>M</b>	<b>M</b>	1	1	1	1	1	2	2	2	2	2	6	2.1	22		
14	3	4	3	3	3	2	2	<b>IZS</b>	1	1	1	1	2	1	1	1	2	1	1	1	1	1	2	2	4	1.7	24	
15	2	2	1	1	1	1	<b>IZS</b>	2	2	1	2	1	1	2	2	2	2	3	4	4	4	5	6	8	8	2.6	24	
16	14	14	29	20	21	<b>IZS</b>	10	3	2	1	1	1	1	1	1	1	1	1	1	1	2	12	13	9	29	7.0	24	
17	8	29	27	23	<b>IZS</b>	16	13	12	5	4	2	3	2	2	2	2	2	3	2	2	4	12	6	4	29	8.0	24	
18	5	4	9	<b>IZS</b>	6	19	16	6	5	13	2	16	3	2	2	2	2	2	4	9	14	6	3	4	19	6.7	24	
19	5	4	<b>IZS</b>	3	2	6	10	7	6	4	4	3	15	2	2	2	2	2	4	11	14	8	4	3	15	5.3	24	
20	12	<b>IZS</b>	8	5	4	5	5	15	5	4	9	2	2	3	3	2	2	5	9	14	6	8	4	4	15	5.9	24	
21	<b>IZS</b>	14	13	6	12	6	9	12	7	3	2	2	3	3	2	2	2	2	3	18	8	8	7	<b>IZS</b>	18	6.5	24	
22	3	3	8	10	12	12	13	6	6	2	2	2	1	2	2	1	4	1	4	5	6	<b>IZS</b>	17	17	5.3	24		
23	5	21	<b>32</b>	4	5	7	5	6	5	4	2	2	2	1	2	2	1	2	3	3	3	<b>IZS</b>	6	5	<b>32</b>	5.6	24	
24	2	2	21	26	9	10	12	15	7	4	3	3	2	2	2	2	2	2	4	3	<b>IZS</b>	2	2	4	26	6.1	24	
25	3	2	3	3	3	4	4	1	2	1	1	1	1	1	2	2	2	1	2	<b>IZS</b>	2	2	2	2	4	2.0	24	
26	2	5	5	3	3	6	5	4	4	3	3	3	3	5	7	6	6	8	<b>IZS</b>	9	13	9	9	6	13	5.5	24	
27	6	6	10	9	13	6	7	6	5	11	3	1	1	1	1	1	5	<b>IZS</b>	5	5	8	8	10	11	13	6.0	24	
28	6	9	7	6	7	4	5	5	5	16	3	4	4	4	4	5	<b>IZS</b>	1	1	2	3	4	3	2	16	4.8	24	
29	3	3	3	2	3	3	3	1	1	1	1	0	0	0	1	<b>IZS</b>	1	1	2	5	4	8	3	5	8	2.3	24	
30	13	14	11	13	5	8	8	4	3	4	2	3	3	2	<b>IZS</b>	1	1	3	5	17	6	6	7	5	17	6.3	24	
HOURLY MAX	14	29	32	26	21	25	24	19	13	16	9	16	15	5	7	11	6	8	9	18	25	30	19	17				
HOURLY AVG	5.7	7.4	8.8	7.8	7.0	7.9	8.6	7.7	4.9	4.3	2.8	2.9	2.6	2.2	2.3	2.5	2.1	2.5	3.1	5.1	5.9	6.6	5.7	5.0				

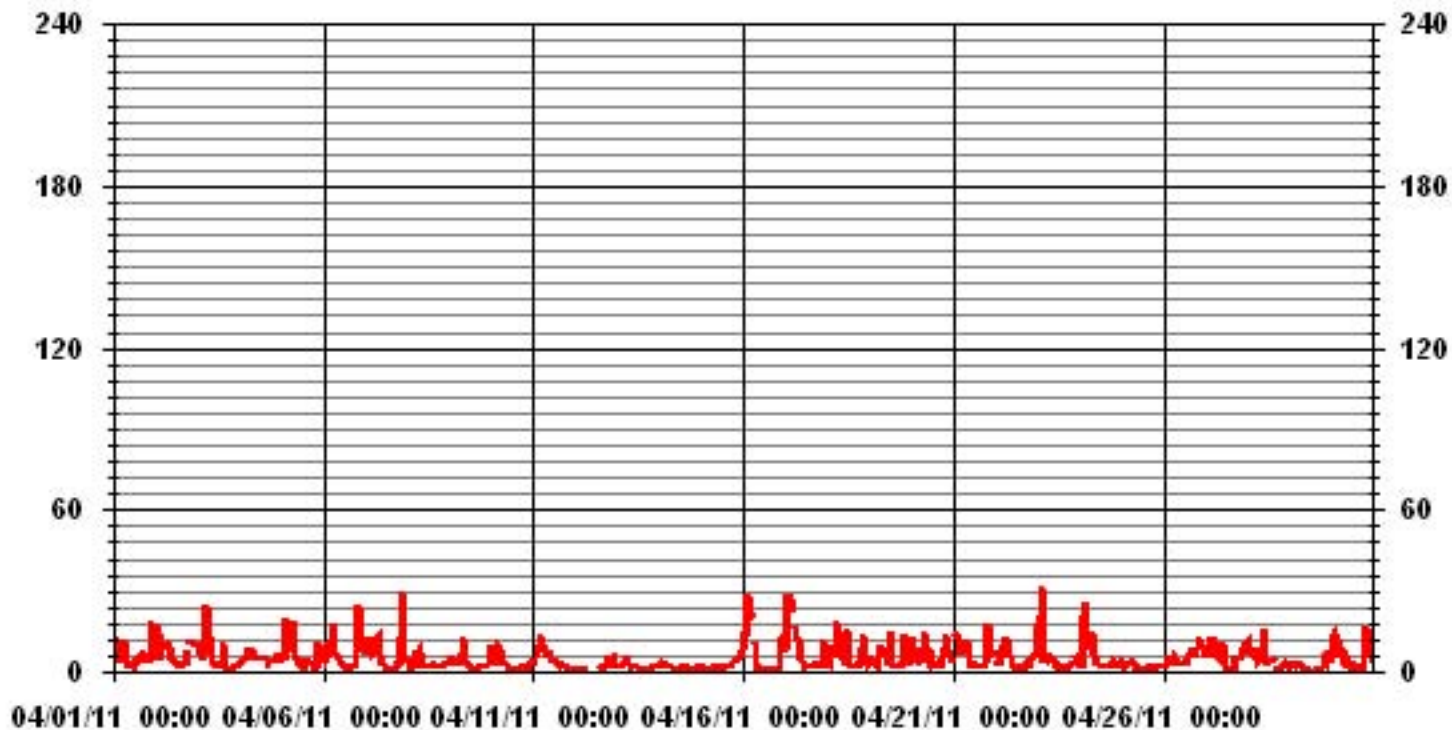
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	677					
MAXIMUM INSTANTANEOUS VALUE:	32	PPB	@ HOUR(S)	2	ON DAY(S)	23
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	4.82					

### 01 Hour Averages



— LICA33 NO2MAX PPB

LICA33  
 NO2\_ / WDR Joint Frequency Distribution (Percent)

April 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	4.68	4.09	4.53	3.66	11.27	2.92	2.92	2.78	4.09	4.68	17.13	12.15	9.22	10.24	3.66	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	4.68	4.09	4.53	3.66	11.27	2.92	2.92	2.78	4.09	4.68	17.13	12.15	9.22	10.24	3.66	1.90	

Calm : .00 %

Total # Operational Hours : 683

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	32	28	31	25	77	20	20	19	28	32	117	83	63	70	25	13	683
< 110																	
< 210																	
>= 210																	
Totals	32	28	31	25	77	20	20	19	28	32	117	83	63	70	25	13	

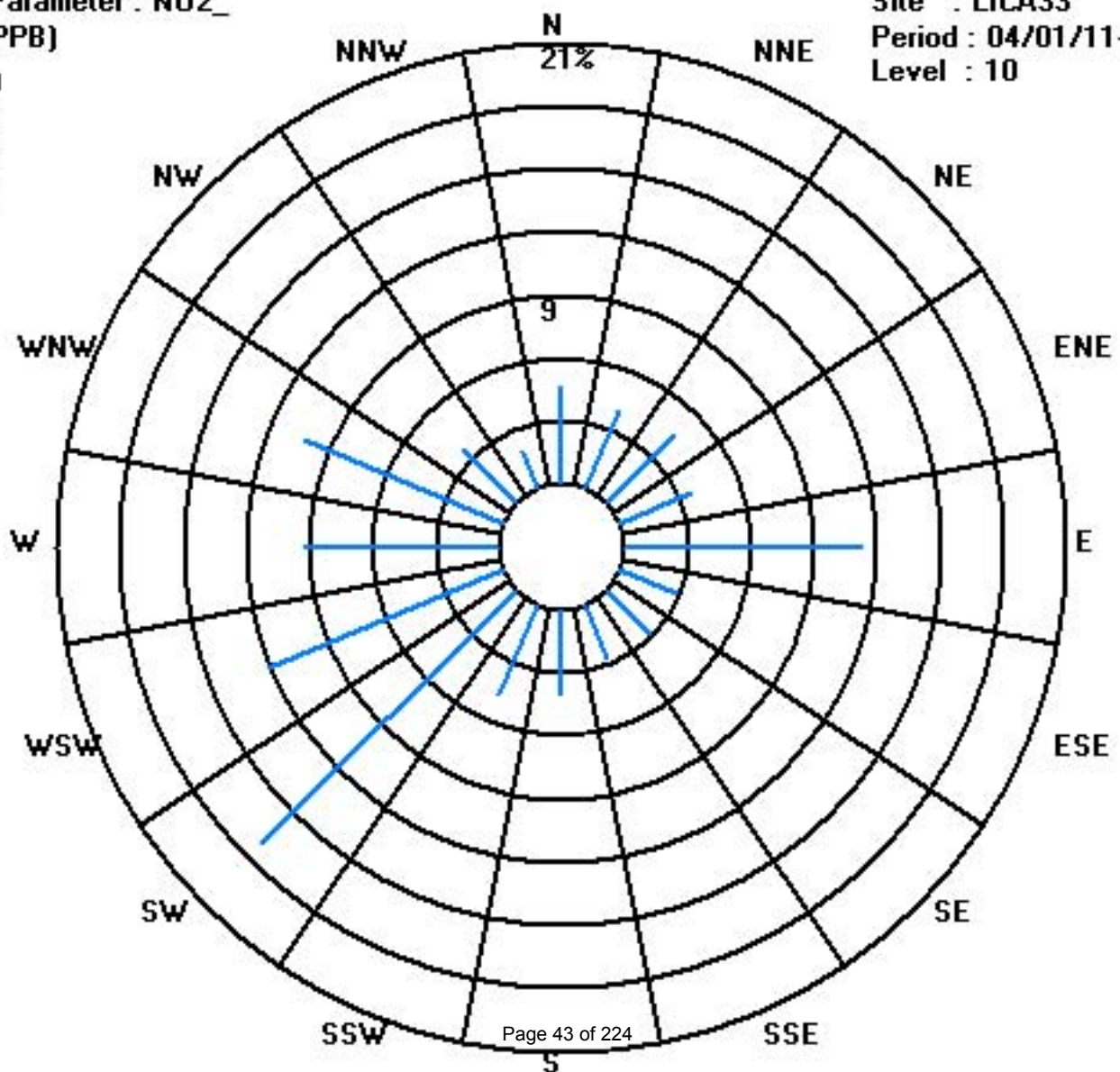
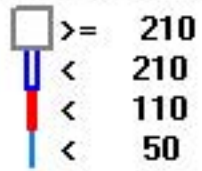
Calm : .00 %

Total # Operational Hours : 683

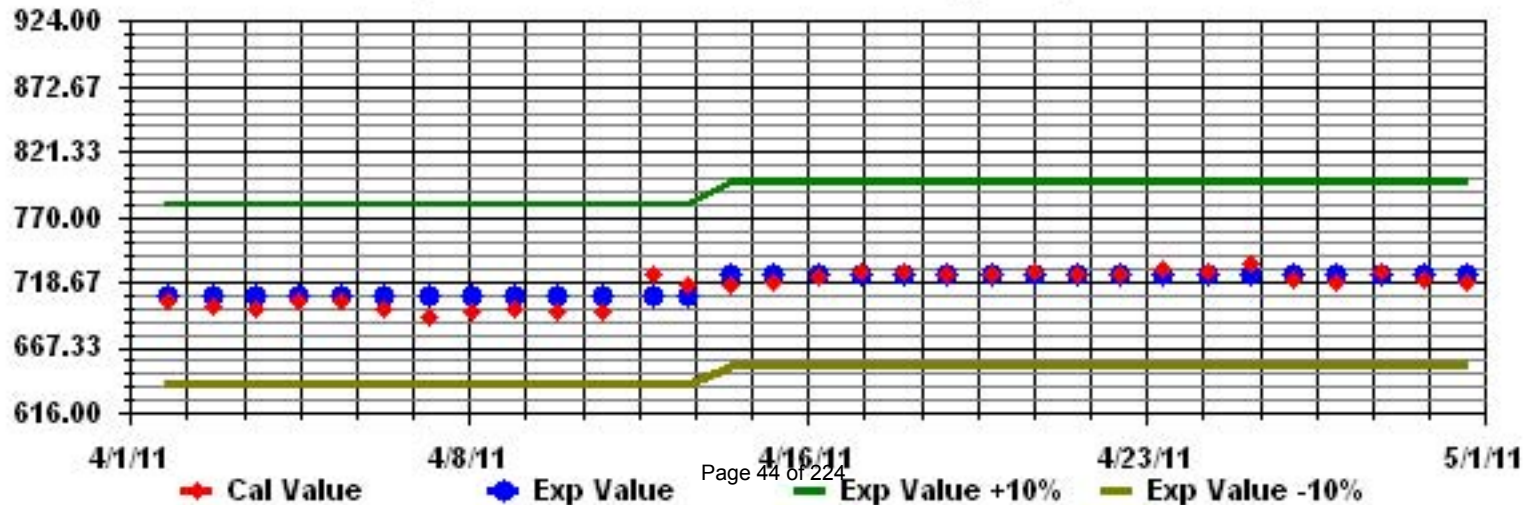
Class Limits (PPB)

Period : 04/01/11-04/30/11

Level : 10



Calibration Graph for Site: LICA33 Parameter: NO2\_ Sequence: NO2 Phase: SPAN



# Nitric Oxide



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 2011

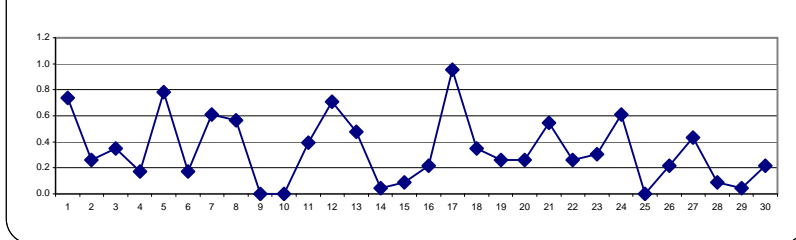
NITRIC OXIDE hourly averages in ppb

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	0.1	1	1	1	0	1	0	1	2	1	1	1	1	0	1	1	1	1	1	1	0	IZS	0	0	0	2	0.7	24	
2	0	0.1	0	0	0	0	0	0	0	2	2	1	1	0	0	0	0	0	0	0	0	IZS	0	0	0	2	0.3	24		
3	0	0.1	0	0	0	0	0	2	3	1	1	1	0	0	0	0	0	0	0	IZS	0	0	0	0	0	3	0.3	24		
4	0	0.1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	IZS	1	1	0	1	0	1	0.2	24		
5	0	0.1	0	0	1	0	1	2	3	2	2	2	2	1	0	1	1	IZS	0	0	0	0	0	0	0	3	0.8	24		
6	0	0.1	0	0	0	0	0	1	1	1	1	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	1	0.2	24		
7	0	0.1	0	0	0	0	0	1	2	1	1	0	0	0	0	IZS	1	1	1	1	1	1	1	2	1	0	2	0.6	24	
8	1	0.1	1	1	0	0	1	1	2	2	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	2	0.6	24		
9	0	0.1	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	24	
10	0	0.1	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	24	
11	0	0.1	0	0	0	0	0	0	1	1	1	IZS	2	1	1	1	1	0	0	0	0	0	0	0	0	2	0.4	24		
12	0	0.1	0	0	0	0	1	0	1	C	C	C	C	C	C	C	2	1	1	1	1	1	1	1	1	2	0.7	24		
13	1	0.1	1	1	1	1	1	1	2	IZS	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.5	24		
14	0	0.1	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24		
15	0	0.1	0	0	0	0	0	IZS	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.1	24		
16	0	0.1	0	1	0	1	IZS	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24		
17	0	0.4	6	3	1	IZS	1	4	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1.0	24		
18	0	0.1	0	0	IZS	1	1	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24		
19	0	0.1	0	IZS	0	0	0	1	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24		
20	0	0.1	IZS	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.3	24		
21	IZS	0.1	1	0	0	0	0	2	6	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	IZS	6	0.5	24	
22	0	0.1	0	0	0	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	2	0.3	24	
23	0	0.1	1	2	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	2	0.3	24
24	0	0.1	0	1	1	0	1	2	3	2	1	1	1	0	0	0	0	0	0	0	0	0	IZS	1	0	0	3	0.6	24	
25	0	0.1	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	
26	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	IZS	1	1	0	0	0	1	0.2	24		
27	0	0.1	0	0	0	0	1	2	3	2	1	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	3	0.4	24	
28	0	0.1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	1	0.1	24	
29	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	1	0.0	24	
30	0	0.1	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	IZS	1	0	0	1	0	0	1	0.2	24	
HOURLY MAX	1	6	3	1	1	1	4	6	2	2	2	2	2	1	1	1	2	1	1	1	1	1	1	2	1	1				
HOURLY AVG	0.1	0.4	0.3	0.1	0.1	0.3	0.9	1.6	0.9	0.7	0.4	0.3	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.1					

**STATUS FLAG CODES**

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

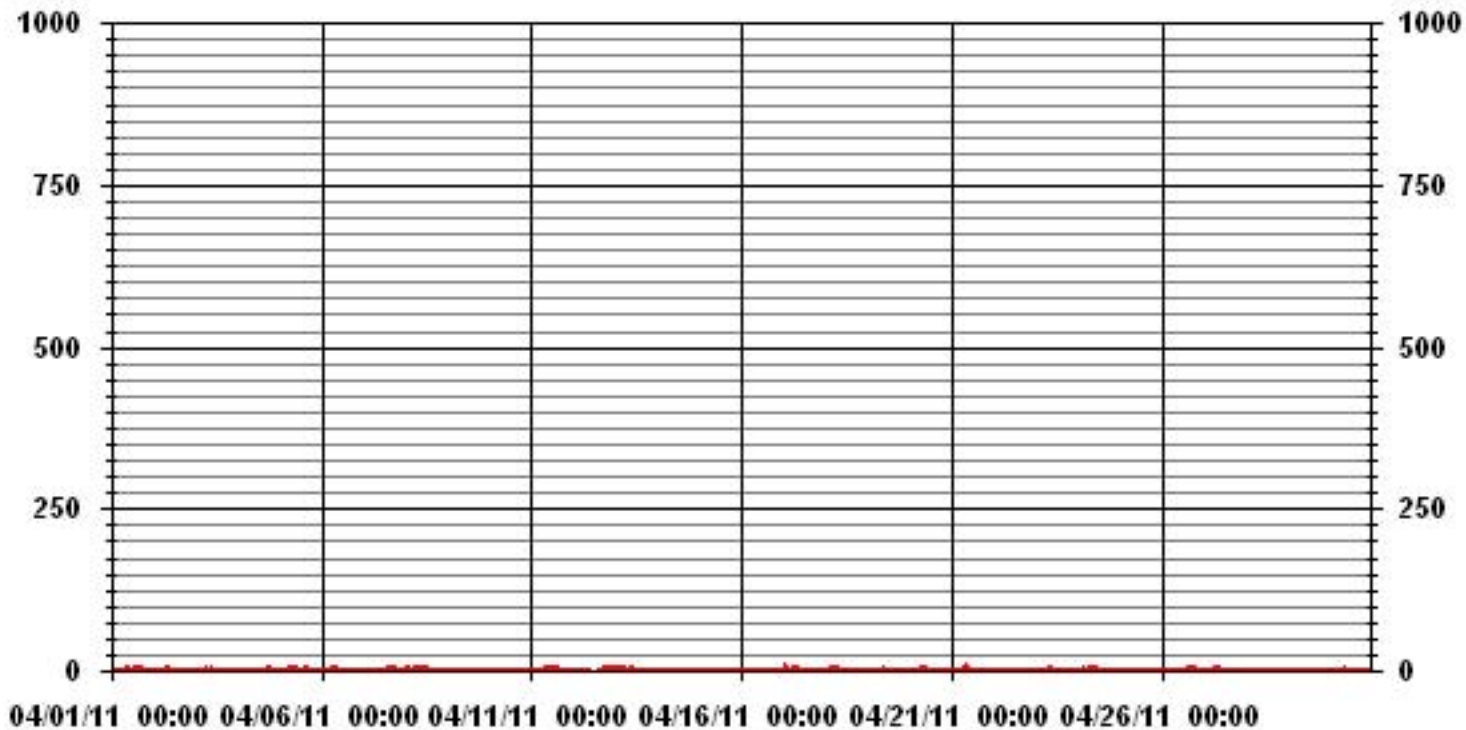
24 HOUR AVERAGES FOR APRIL 2011



**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	173		
MAXIMUM 1-HR AVERAGE:	6	PPB @ HOUR(S)	1, 7 ON DAY(S) 17, 21
MAXIMUM 24-HR AVERAGE:	1.0	PPB	ON DAY(S) 17
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME: 720 HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME: 100.0 %
STANDARD DEVIATION:	0.69		MONTHLY AVERAGE: 0.33 PPB

### 01 Hour Averages



— LICA33 NO\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 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	3	2	1	1	1	4	3	1	2	2	2	1	4	2	3	3	3	2	1	<b>IZS</b>	0	6	0	6	2.1	24	
2	0	3	0	0	0	0	2	4	3	2	2	1	0	0	0	0	0	0	0	<b>IZS</b>	1	0	0	0	4	0.8	24	
3	0	0	0	0	0	4	9	5	2	2	1	1	1	2	0	10	1	0	<b>IZS</b>	1	0	0	0	10	1.7	24		
4	0	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	0	<b>IZS</b>	2	1	1	1	1	1	2	0.7	24	
5	1	1	1	5	1	4	3	15	3	3	3	2	2	1	3	3	<b>IZS</b>	1	0	0	0	0	0	0	15	2.3	24	
6	0	0	0	0	0	0	2	2	2	1	1	1	1	0	0	<b>IZS</b>	1	1	0	0	7	0	1	0	7	0.9	24	
7	0	0	0	0	0	1	3	3	3	2	1	0	0	1	<b>IZS</b>	2	1	2	2	1	4	16	1	1	16	1.9	24	
8	1	1	1	1	1	1	2	4	2	2	1	1	1	<b>IZS</b>	1	0	0	0	0	0	0	0	0	0	4	0.9	24	
9	0	0	0	0	0	0	0	1	6	1	1	1	<b>IZS</b>	1	0	0	0	1	0	0	0	0	0	0	6	0.5	24	
10	0	0	0	0	0	0	0	0	0	0	0	<b>IZS</b>	1	0	0	0	0	1	0	0	0	0	0	0	1	0.1	24	
11	0	0	0	0	0	0	1	2	2	2	<b>IZS</b>	3	2	2	1	1	1	1	1	1	1	1	1	1	3	1.0	24	
12	1	1	1	1	1	1	1	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	2	2	2	2	2	2	2	2	1	1	2	1.4	24
13	1	2	1	2	2	2	2	2	<b>IZS</b>	3	1	<b>M</b>	<b>M</b>	1	1	1	0	1	0	0	0	0	1	1	3	1.1	22	
14	0	0	0	0	0	1	1	<b>IZS</b>	2	1	1	1	1	1	0	1	0	0	0	0	0	0	0	1	0	2	0.5	24
15	1	0	0	0	0	0	<b>IZS</b>	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	0.8	24	
16	1	1	4	2	2	<b>IZS</b>	4	2	1	1	1	1	1	1	0	0	0	0	0	1	0	0	1	0	4	1.0	24	
17	2	<b>28</b>	15	4	<b>IZS</b>	3	7	10	3	2	1	1	1	1	1	1	1	1	1	1	1	0	2	1	0	<b>28</b>	3.8	24
18	0	0	1	<b>IZS</b>	1	4	3	2	2	12	1	6	1	1	1	1	1	0	1	1	0	1	1	1	12	1.8	24	
19	0	0	<b>IZS</b>	1	1	1	2	3	2	2	1	1	9	1	1	1	1	1	1	1	1	2	0	1	0	9	1.4	24
20	1	<b>IZS</b>	1	1	1	1	2	11	2	1	8	2	1	1	1	1	1	1	2	2	0	0	0	1	11	1.8	24	
21	<b>IZS</b>	4	2	1	2	1	4	14	3	1	1	1	1	0	1	1	1	0	3	1	0	0	<b>IZS</b>	14	2.0	24		
22	1	1	1	1	1	3	5	2	2	1	1	1	1	1	2	0	0	1	0	0	1	1	<b>IZS</b>	2	5	1.3	24	
23	1	5	11	1	0	1	1	2	2	2	1	1	0	0	1	0	0	0	0	0	0	0	<b>IZS</b>	2	1	11	1.4	24
24	1	1	4	5	1	2	5	6	3	1	1	1	1	1	1	1	1	1	1	0	<b>IZS</b>	1	1	1	6	1.8	24	
25	1	0	1	1	1	1	1	1	1	1	1	0	1	1	0	0	0	0	0	<b>IZS</b>	1	1	1	1	1	0.7	24	
26	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	2	2	1	<b>IZS</b>	2	1	1	1	1	2	1.1	24	
27	1	1	1	1	1	2	5	4	4	9	1	1	0	1	1	1	3	<b>IZS</b>	2	1	1	1	1	1	9	1.9	24	
28	1	1	1	1	0	1	1	1	1	13	1	1	1	1	1	1	<b>IZS</b>	2	1	1	1	0	1	1	13	1.5	24	
29	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	<b>IZS</b>	1	1	1	1	1	2	1	2	1.0	24	
30	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	<b>IZS</b>	1	1	1	1	5	1	1	2	0	5	1.2	24
HOURLY MAX	2	28	15	5	2	4	9	15	6	13	8	6	9	4	3	10	3	3	2	5	7	16	6	2				
HOURLY AVG	0.7	1.9	1.7	1.1	0.7	1.3	2.5	3.8	2.0	2.5	1.4	1.3	1.2	1.0	0.9	1.3	0.8	0.9	0.8	1.0	1.0	1.1	1.0	0.6				

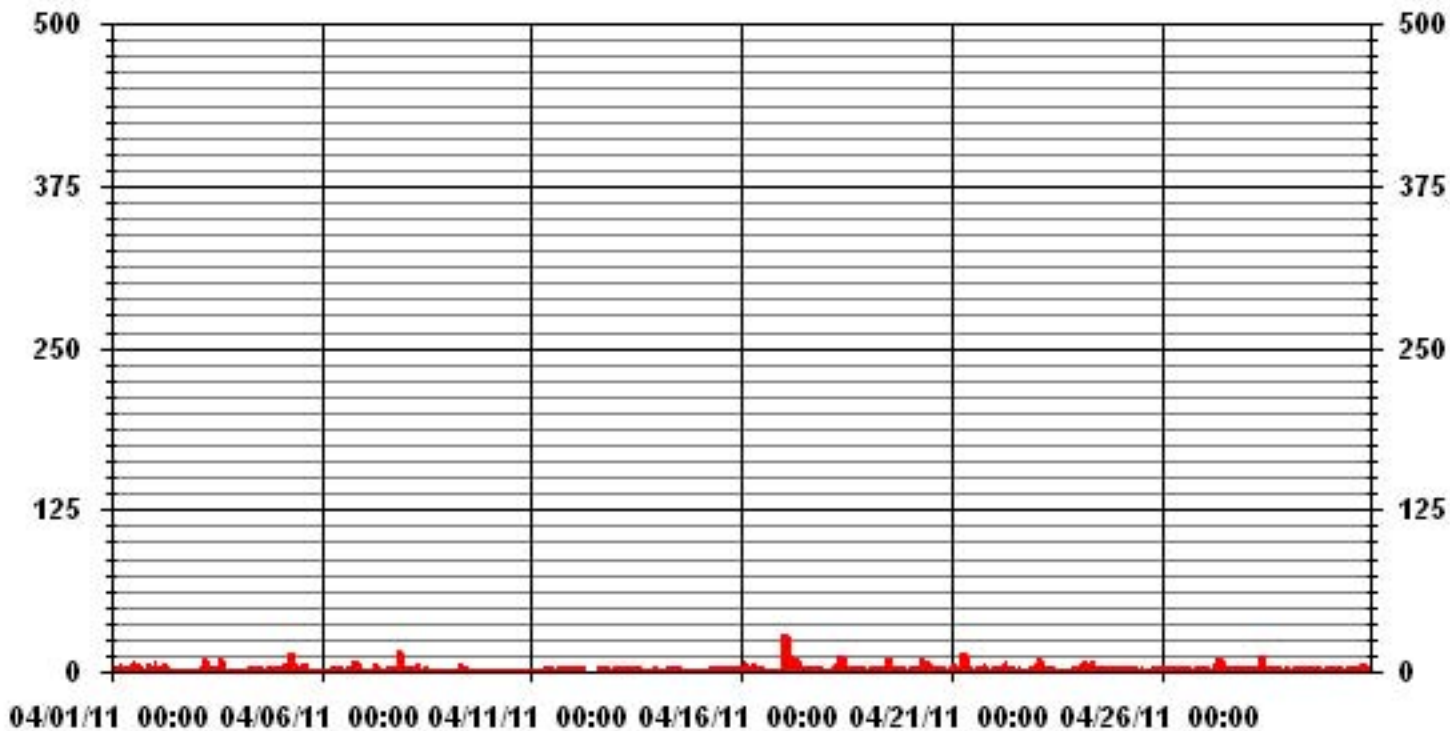
**STATUS FLAG CODES**

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:	491				
MAXIMUM INSTANTANEOUS VALUE:	28	PPB	@ HOUR(S)	1	ON DAY(S) 17
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	718	HRS
MONTHLY CALIBRATION TIME:	8	HRS			
STANDARD DEVIATION:	2.14				

### 01 Hour Averages



— LICA33 NOMAX PPB

LICA33  
 NO\_ / WDR Joint Frequency Distribution (Percent)

April 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	4.68	4.09	4.53	3.66	11.27	2.92	2.92	2.78	4.09	4.68	17.13	12.15	9.22	10.24	3.66	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	4.68	4.09	4.53	3.66	11.27	2.92	2.92	2.78	4.09	4.68	17.13	12.15	9.22	10.24	3.66	1.90	

Calm : .00 %

Total # Operational Hours : 683

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	32	28	31	25	77	20	20	19	28	32	117	83	63	70	25	13	683
< 110																	
< 210																	
>= 210																	
Totals	32	28	31	25	77	20	20	19	28	32	117	83	63	70	25	13	

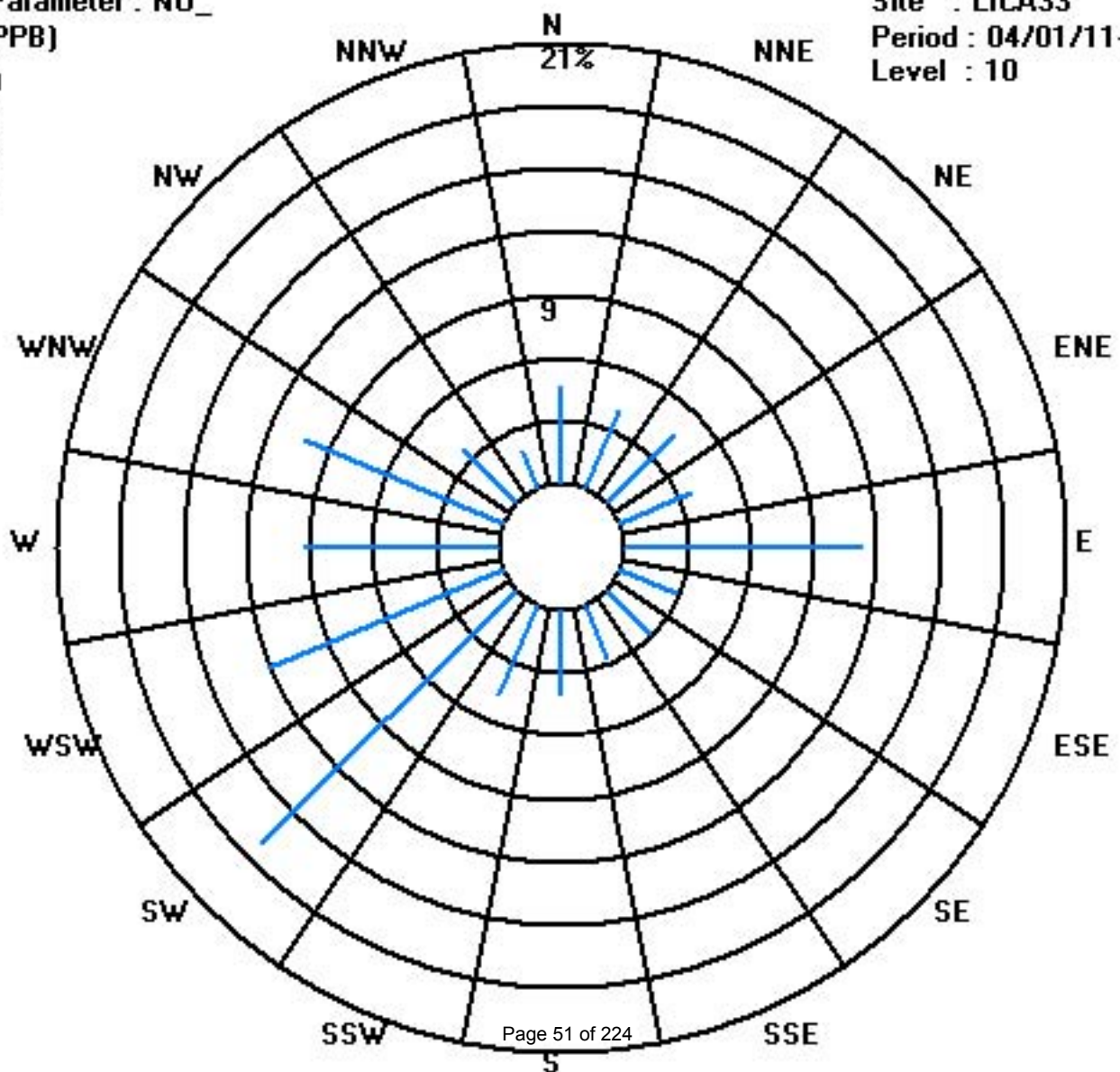
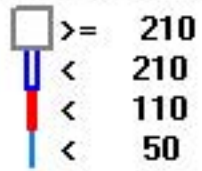
Calm : .00 %

Total # Operational Hours : 683

Class Limits (PPB)

Period : 04/01/11-04/30/11

Level : 10



# Oxides of Nitrogen

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 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	2	7	2	0	2	2	4	4	1	0	0	0	0	1	0	1	1	2	1	1	<b>IZS</b>	2	6	4	7	1.9	24	
2	4	7	3	5	8	7	7	10	9	6	5	3	2	2	1	1	2	2	3	<b>IZS</b>	3	5	7	6	10	4.7	24	
3	6	6	3	4	10	12	18	13	5	5	4	2	2	2	1	1	1	<b>IZS</b>	1	2	1	2	2	2	18	4.5	24	
4	3	4	4	4	4	6	6	7	7	7	6	6	6	5	5	3	<b>IZS</b>	3	3	3	3	4	3	7	4.7	24		
5	3	3	3	9	4	9	10	9	6	5	4	4	1	1	1	2	<b>IZS</b>	3	3	2	1	3	3	3	10	4.0	24	
6	4	4	4	6	5	5	13	7	7	5	3	3	2	1	1	<b>IZS</b>	2	2	1	4	7	3	5	5	13	4.3	24	
7	5	5	8	7	7	8	11	9	6	5	3	1	1	1	<b>IZS</b>	1	1	2	1	1	5	12	4	2	12	4.6	24	
8	2	1	2	2	1	4	8	8	5	3	2	2	2	<b>IZS</b>	3	2	2	2	2	2	2	2	2	2	2	8	2.7	24
9	2	3	2	3	3	3	4	6	5	4	3	3	<b>IZS</b>	2	2	1	2	1	1	2	2	2	2	2	2	6	2.6	24
10	4	3	3	3	4	5	4	3	2	1	1	<b>IZS</b>	1	1	1	1	1	1	1	1	1	1	1	3	3	5	2.1	24
11	4	4	7	6	8	6	8	7	6	6	<b>IZS</b>	5	4	4	2	2	2	2	0	1	1	1	1	1	1	8	3.8	24
12	1	1	1	1	1	1	1	1	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	1	0	0	0	3	2	2	1	1	3	1.1	24	
13	0	0	0	1	1	2	2	1	<b>IZS</b>	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.1	24
14	1	2	2	2	2	1	1	<b>IZS</b>	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2	24
15	1	1	1	1	1	1	<b>IZS</b>	1	1	1	1	1	1	2	1	1	1	1	1	2	2	3	3	4	6	6	1.7	24
16	9	6	14	14	<b>19</b>	<b>IZS</b>	10	3	1	1	1	0	0	1	1	1	1	0	0	1	1	4	8	3	<b>19</b>	4.3	24	
17	4	18	<b>19</b>	12	<b>IZS</b>	12	14	13	6	2	2	2	1	1	1	1	1	2	1	2	2	4	3	3	<b>19</b>	<b>5.5</b>	24	
18	3	3	3	<b>IZS</b>	5	11	9	6	6	4	2	2	1	2	1	1	2	2	2	6	5	3	2	3	11	3.7	24	
19	4	3	<b>IZS</b>	3	2	4	7	8	6	4	3	2	2	1	1	1	1	1	1	3	5	3	2	1	8	3.0	24	
20	9	<b>IZS</b>	4	4	3	4	5	6	5	3	3	2	1	2	2	1	1	2	5	4	3	4	3	3	9	3.4	24	
21	<b>IZS</b>	5	5	4	7	4	8	16	5	3	1	1	2	1	1	1	1	1	2	7	3	5	5	<b>IZS</b>	16	4.0	24	
22	2	2	4	4	8	8	10	6	5	2	1	1	1	1	1	1	1	1	1	2	4	4	<b>IZS</b>	8	10	3.4	24	
23	3	7	11	2	4	4	4	5	5	3	2	1	1	1	1	1	1	1	1	2	2	<b>IZS</b>	5	4	11	3.1	24	
24	2	2	10	13	7	7	12	12	7	4	4	3	2	1	1	2	2	2	2	1	<b>IZS</b>	2	2	2	13	4.4	24	
25	2	2	2	2	1	3	2	1	1	1	1	1	1	1	1	1	1	1	1	<b>IZS</b>	2	2	2	1	3	1.4	24	
26	1	2	2	2	2	2	3	2	2	2	2	2	2	3	5	5	3	5	<b>IZS</b>	5	6	7	5	5	7	3.3	24	
27	6	6	9	8	8	7	8	8	6	5	3	1	1	1	1	1	<b>IZS</b>	3	3	5	4	6	6	9	4.7	24		
28	4	5	3	3	3	3	4	4	5	6	2	3	4	3	3	2	<b>IZS</b>	2	2	2	3	3	2	2	6	3.2	24	
29	3	3	3	2	3	2	3	1	1	1	1	1	1	1	1	<b>IZS</b>	1	1	1	3	2	5	3	3	5	2.0	24	
30	6	9	6	9	4	5	4	3	3	4	2	2	3	1	<b>IZS</b>	1	1	1	2	6	3	3	4	4	9	3.7	24	
HOURLY MAX	9	18	19	14	19	12	18	16	9	7	6	6	6	6	5	5	3	5	5	7	7	12	8	8				
HOURLY AVG	3.4	4.3	4.8	4.7	4.7	5.1	6.9	6.2	4.5	3.3	2.3	2.0	1.7	1.6	1.5	1.5	1.4	1.5	1.6	2.6	2.9	3.3	3.4	3.1				

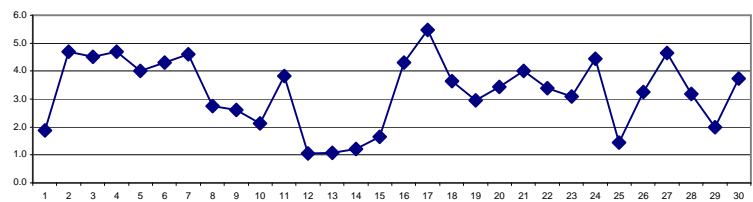
### STATUS FLAG CODES

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

### MONTHLY SUMMARY

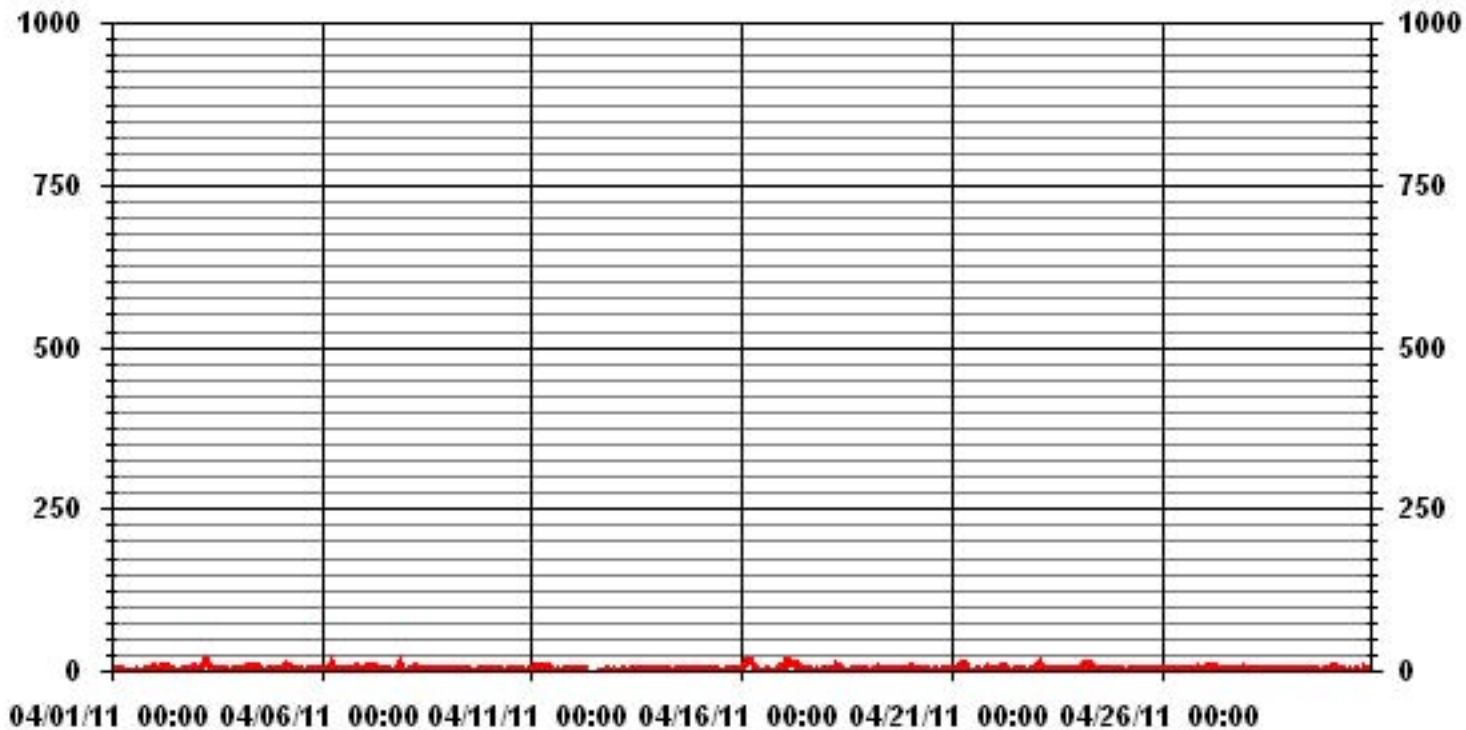
NUMBER OF NON-ZERO READINGS:	667					
MAXIMUM 1-HR AVERAGE:	19	PPB	@ HOUR(S)	4, 2	ON DAY(S)	16, 17
MAXIMUM 24-HR AVERAGE:	5.5	PPB			ON DAY(S)	17
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	2.89		MONTHLY AVERAGE	3.29	PPB	

24 HOUR AVERAGES FOR APRIL 2011





### 01 Hour Averages



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 2011

## OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	7	14	9	1	5	4	14	11	1	2	2	3	1	6	3	5	6	8	5	3	<b>IZS</b>	4	24	7	24	6.3	24	
2	5	21	3	14	11	9	9	13	12	7	6	5	3	3	2	2	3	4	7	<b>IZS</b>	12	12	12	10	21	8.0	24	
3	12	8	6	5	15	30	33	20	10	7	5	4	3	5	2	19	3	2	<b>IZS</b>	2	2	2	2	3	33	8.7	24	
4	4	5	5	5	5	10	8	10	8	8	6	7	7	6	7	7	4	<b>IZS</b>	6	4	5	5	8	3	10	6.2	24	
5	6	7	5	25	8	22	14	33	8	7	5	4	4	1	6	7	<b>IZS</b>	5	3	3	2	11	7	7	33	8.7	24	
6	7	5	6	11	12	7	20	10	8	7	4	4	4	3	2	<b>IZS</b>	3	3	3	8	33	9	13	10	33	8.3	24	
7	8	7	13	13	8	10	16	17	10	6	5	2	2	2	<b>IZS</b>	2	2	4	4	3	16	45	7	3	45	8.9	24	
8	7	2	4	2	2	8	8	11	6	5	3	3	3	<b>IZS</b>	5	3	3	2	2	3	3	3	3	3	11	4.1	24	
9	3	6	3	3	3	4	5	9	19	5	5	5	<b>IZS</b>	2	2	2	3	3	3	2	2	2	4	4	19	4.3	24	
10	11	4	4	4	10	9	5	4	4	2	2	<b>IZS</b>	2	2	1	2	1	3	4	1	1	3	4	4	11	3.8	24	
11	5	5	10	10	15	8	11	10	7	9	<b>IZS</b>	6	5	5	4	3	4	2	3	2	2	1	2	1	15	5.7	24	
12	2	1	1	1	1	2	1	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	2	1	1	1	2	5	3	4	1	1	5	1.8	24	
13	1	1	1	2	2	5	4	2	<b>IZS</b>	4	3	<b>M</b>	<b>M</b>	2	2	2	1	1	1	2	2	2	2	2	5	2.1	22	
14	2	4	2	2	3	2	2	<b>IZS</b>	2	2	1	1	2	1	1	1	2	1	1	1	1	1	1	2	2	4	1.7	24
15	2	1	1	1	1	1	<b>IZS</b>	3	2	1	2	1	2	3	2	2	2	3	4	4	4	5	6	8	8	2.7	24	
16	15	14	33	21	22	<b>IZS</b>	13	5	3	1	2	1	1	1	1	1	1	1	1	2	3	12	13	9	33	7.7	24	
17	9	<b>56</b>	41	27	<b>IZS</b>	17	20	21	7	5	3	3	2	3	2	2	2	3	2	2	4	14	6	4	<b>56</b>	11.1	24	
18	5	4	9	<b>IZS</b>	6	22	18	7	7	25	3	22	3	3	2	2	2	2	4	9	14	6	3	4	25	7.9	24	
19	5	4	<b>IZS</b>	4	2	7	11	9	8	6	5	3	24	2	2	2	2	2	4	12	15	7	4	3	24	6.2	24	
20	12	<b>IZS</b>	8	5	4	5	6	22	7	4	16	4	2	3	3	2	3	6	10	16	6	8	4	4	22	7.0	24	
21	<b>IZS</b>	18	15	6	14	6	12	27	11	4	2	2	3	3	2	2	2	2	3	21	8	8	7	<b>IZS</b>	27	8.1	24	
22	3	3	8	10	12	15	17	8	8	3	2	3	2	3	4	1	1	5	1	4	6	6	<b>IZS</b>	18	18	6.2	24	
23	5	26	43	4	5	8	6	7	6	5	3	2	2	1	2	2	1	2	3	4	3	<b>IZS</b>	6	6	43	6.6	24	
24	2	3	24	30	9	11	16	21	10	5	4	4	3	2	2	3	2	2	4	3	<b>IZS</b>	3	2	4	30	7.3	24	
25	3	2	3	3	3	4	4	1	2	1	1	1	2	1	1	1	1	1	2	<b>IZS</b>	3	2	2	2	4	2.0	24	
26	2	5	5	3	3	6	6	4	4	3	4	3	4	5	8	7	7	8	<b>IZS</b>	11	15	10	11	7	15	6.1	24	
27	7	7	12	11	14	9	12	11	9	19	5	2	2	2	2	2	8	<b>IZS</b>	6	5	9	8	11	11	19	8.0	24	
28	6	9	7	7	7	4	5	6	6	25	4	4	5	4	5	5	<b>IZS</b>	3	2	3	5	5	4	3	25	5.8	24	
29	4	4	4	3	4	3	4	2	2	2	2	1	2	2	2	<b>IZS</b>	2	1	2	6	4	10	3	5	10	3.2	24	
30	14	15	11	14	5	9	9	5	4	4	3	3	4	3	<b>IZS</b>	2	1	3	5	22	6	7	8	5	22	7.0	24	
HOURLY MAX	15	56	43	30	22	30	33	33	19	25	16	22	24	6	8	19	8	8	10	22	33	45	24	18				
HOURLY AVG	6.0	9.0	10.2	8.5	7.3	8.9	10.7	11.0	6.8	6.3	3.9	3.8	3.7	2.8	2.9	3.3	2.6	3.0	3.5	5.8	6.8	7.4	6.2	5.3				

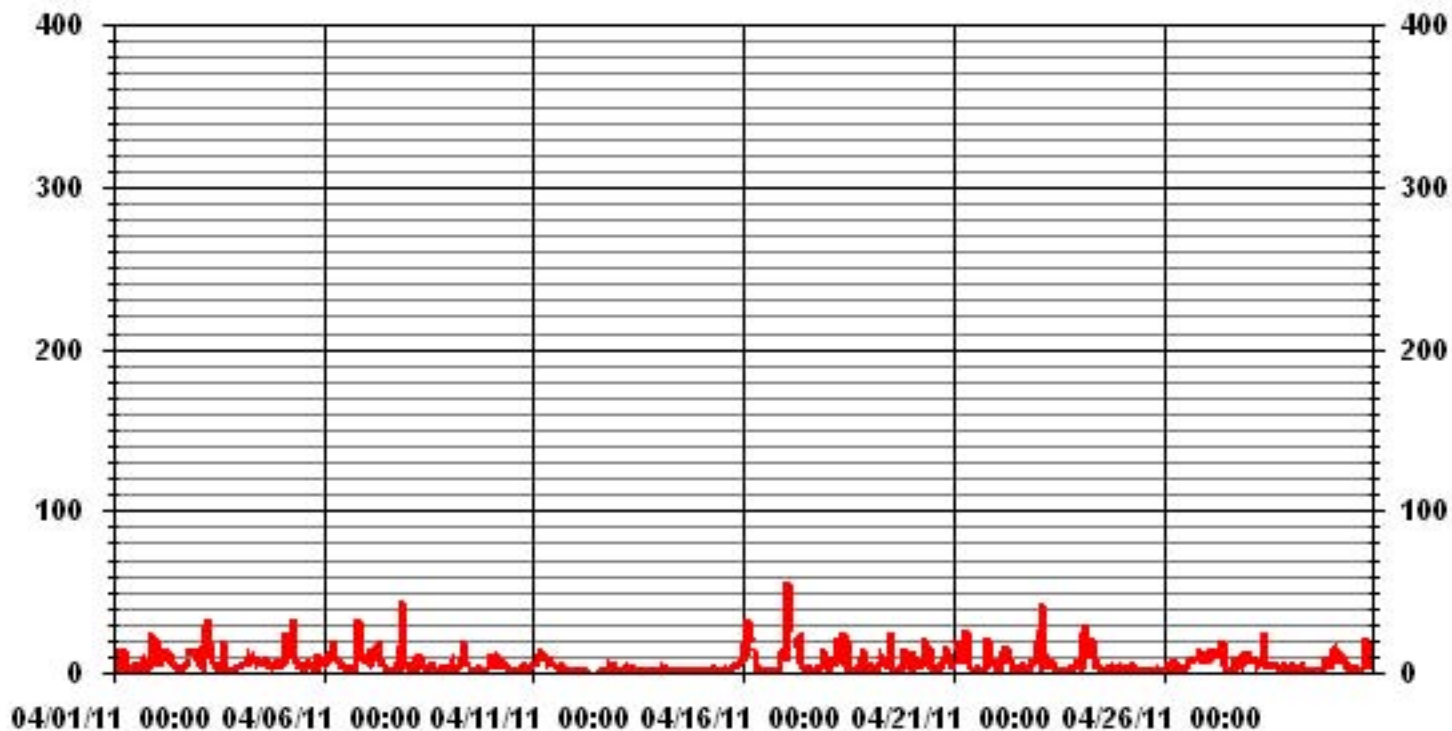
**STATUS FLAG CODES**

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:	680				
MAXIMUM INSTANTANEOUS VALUE:	56	PPB	@ HOUR(S)	1	ON DAY(S) 17
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	718	HRS
MONTHLY CALIBRATION TIME:	8	HRS			
STANDARD DEVIATION:	6.33				

### 01 Hour Averages



— LICA33 NOxMAX PPB

LICA33  
 NOX\_ / WDR Joint Frequency Distribution (Percent)

April 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	4.68	4.09	4.53	3.66	11.27	2.92	2.92	2.78	4.09	4.68	17.13	12.15	9.22	10.24	3.66	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	4.68	4.09	4.53	3.66	11.27	2.92	2.92	2.78	4.09	4.68	17.13	12.15	9.22	10.24	3.66	1.90	

Calm : .00 %

Total # Operational Hours : 683

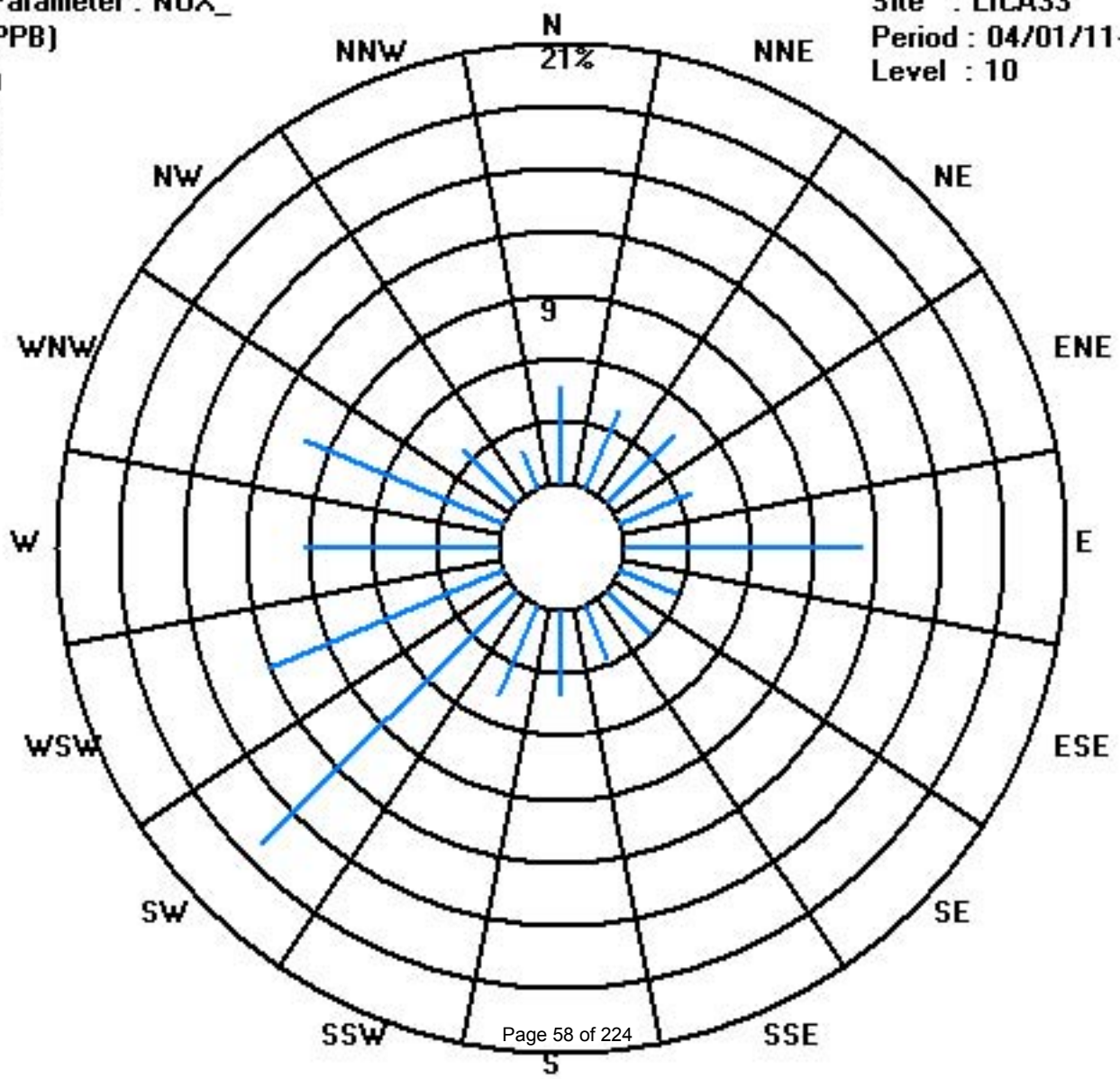
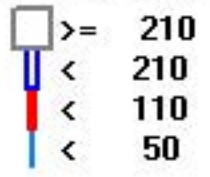
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	32	28	31	25	77	20	20	19	28	32	117	83	63	70	25	13	683
< 110																	
< 210																	
>= 210																	
Totals	32	28	31	25	77	20	20	19	28	32	117	83	63	70	25	13	

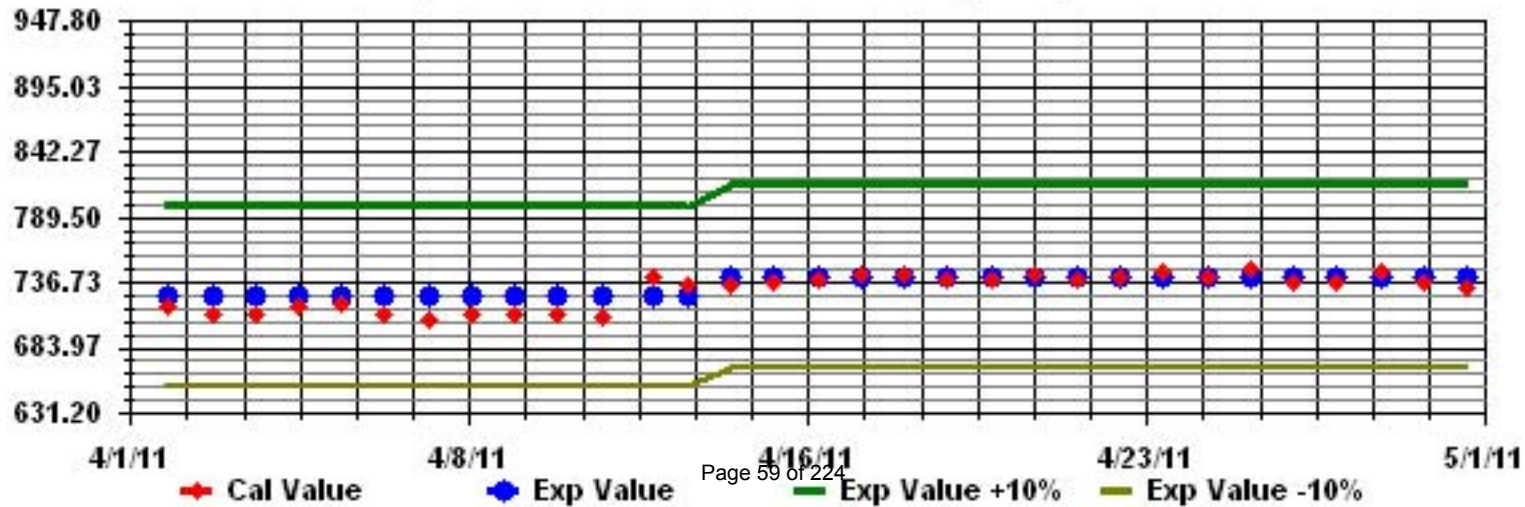
Calm : .00 %

Total # Operational Hours : 683

Class Limits (PPB)



Calibration Graph for Site: LICA33 Parameter: NOX\_ Sequence: NO2 Phase: SPAll



# Ozone

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 2011

### OZONE (O<sub>3</sub>) hourly averages in ppb

MST

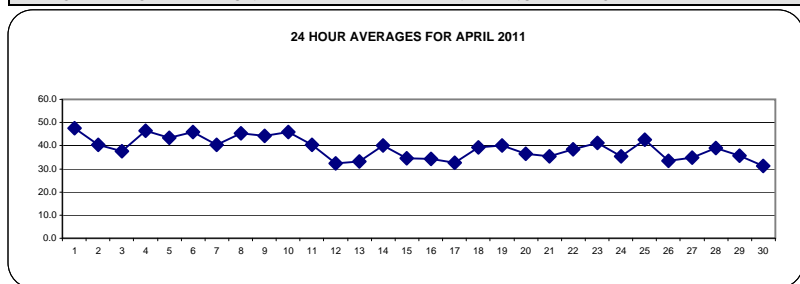
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	46	42	46	47	45	44	42	44	47	48	49	50	51	50	51	51	54	53	53	51	<b>IZS</b>	48	42	43	54	<b>47.7</b>	24	
2	42	39	41	35	28	26	26	27	35	39	44	49	51	53	50	50	49	49	46	<b>IZS</b>	43	40	34	33	53	40.4	24	
3	29	30	32	30	22	21	18	24	35	36	39	44	45	46	47	47	47	47	<b>IZS</b>	45	44	46	46	47	47	37.7	24	
4	46	45	46	42	41	38	38	41	42	44	47	49	50	53	55	<b>58</b>	<b>57</b>	<b>IZS</b>	49	46	45	47	43	44	<b>58</b>	46.3	24	
5	42	41	40	34	36	31	30	36	39	42	43	45	49	50	51	52	<b>IZS</b>	53	51	49	49	47	47	44	53	43.5	24	
6	47	40	43	40	43	40	34	40	42	46	49	50	51	52	53	<b>IZS</b>	54	52	53	48	44	47	45	45	54	46.0	24	
7	44	45	40	39	36	32	29	33	38	41	44	48	49	48	<b>IZS</b>	48	47	44	44	41	36	32	34	37	49	40.4	24	
8	36	36	35	36	36	34	35	37	41	44	47	50	53	<b>IZS</b>	52	54	54	55	55	53	52	50	48	47	55	45.2	24	
9	46	42	39	35	36	35	35	33	37	41	45	49	50	<b>IZS</b>	52	52	52	51	52	50	49	47	46	46	52	44.3	24	
10	41	40	41	43	39	36	39	43	48	52	55	<b>IZS</b>	57	57	55	54	52	51	49	46	46	43	35	36	57	46.0	24	
11	32	32	30	31	27	26	24	<b>C</b>	<b>C</b>	37	<b>IZS</b>	<b>M</b>	<b>C</b>	47	49	51	49	53	51	49	47	45	43	45	53	40.4	23	
12	44	41	36	33	31	29	30	28	25	<b>IZS</b>	23	25	26	30	32	34	37	38	38	33	34	32	31	31	44	32.2	24	
13	29	28	26	25	24	22	23	25	<b>IZS</b>	<b>C</b>	<b>C</b>	<b>C</b>	38	40	41	42	41	41	39	36	37	36	35	34	42	33.1	24	
14	35	35	35	34	33	33	34	<b>IZS</b>	38	40	44	44	45	47	47	48	46	46	44	44	42	39	37	35	48	40.2	24	
15	36	36	35	36	36	36	<b>IZS</b>	35	35	34	34	34	33	33	33	33	34	34	34	34	34	35	36	35	32	36	34.5	24
16	28	30	22	20	15	<b>IZS</b>	26	34	37	39	40	42	43	43	44	43	42	42	41	39	34	30	27	25	44	34.2	24	
17	22	16	11	12	<b>IZS</b>	11	16	22	32	39	41	42	43	43	45	45	45	44	39	38	36	35	30	45	32.7	24		
18	31	28	26	<b>IZS</b>	26	22	25	27	32	38	42	47	49	50	50	50	50	50	49	44	43	43	43	36	50	39.2	24	
19	34	34	<b>IZS</b>	32	32	29	28	33	39	43	46	49	49	50	50	50	49	48	46	41	34	33	35	38	50	40.1	24	
20	29	<b>IZS</b>	33	31	32	30	30	32	36	38	42	44	44	44	43	43	42	40	38	37	35	31	32	33	44	36.5	24	
21	<b>IZS</b>	25	22	24	16	18	19	19	35	42	46	48	47	47	47	47	47	47	47	43	35	36	33	33	<b>IZS</b>	48	35.3	24
22	28	31	28	29	25	27	29	34	39	45	47	47	47	48	48	48	48	47	47	43	36	34	<b>IZS</b>	30	48	38.5	24	
23	31	33	31	36	36	34	33	36	38	44	48	50	52	51	50	51	51	49	44	41	39	<b>IZS</b>	32	35	52	41.1	24	
24	36	34	20	19	21	15	22	30	36	40	41	42	43	44	46	46	47	46	44	38	<b>IZS</b>	34	35	34	47	35.3	24	
25	33	32	31	32	31	30	33	34	37	43	44	47	50	52	55	58	58	56	54	<b>IZS</b>	38	45	43	41	58	42.5	24	
26	38	34	32	32	31	27	27	27	28	28	27	32	37	34	35	39	45	44	<b>IZS</b>	43	41	32	29	27	45	33.4	24	
27	22	20	15	16	12	14	14	17	25	33	46	54	56	57	57	56	54	<b>IZS</b>	50	48	37	39	29	31	57	34.9	24	
28	39	35	30	34	36	38	38	37	34	32	36	39	42	44	44	46	<b>IZS</b>	48	45	42	40	39	38	39	48	38.9	24	
29	37	36	34	32	32	31	31	32	34	36	37	39	40	41	41	<b>IZS</b>	43	43	43	40	35	27	31	23	43	35.6	24	
30	19	15	19	15	24	25	29	32	35	36	42	43	44	45	<b>IZS</b>	43	42	43	37	29	28	26	24	24	45	31.3	24	
HOURLY MAX	47	45	46	47	45	44	42	44	48	52	55	54	57	57	57	58	58	56	55	53	52	50	48	47				
HOURLY AVG	35.2	33.6	31.7	31.2	30.4	28.8	28.9	31.9	36.4	40.0	42.4	44.5	45.9	46.6	47.3	47.8	47.7	47.0	45.8	42.3	39.9	38.5	36.8	36.0				

#### 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

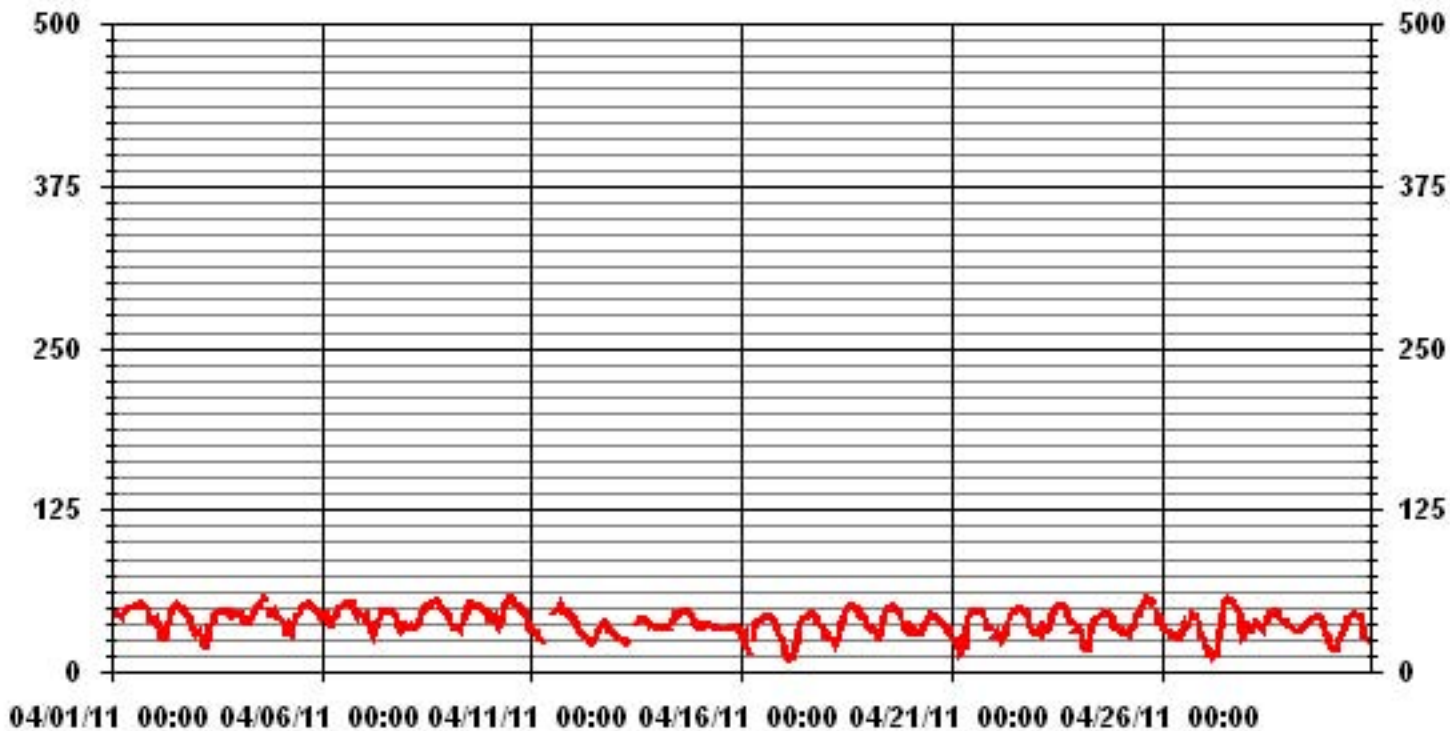


#### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	682					
MAXIMUM 1-HR AVERAGE:	58	PPB	@ HOUR(S)	15	ON DAY(S)	4
MAXIMUM 24-HR AVERAGE:	47.7	PPB			ON DAY(S)	4
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME	99.9	%	
STANDARD DEVIATION	9.29		MONTHLY AVERAGE	38.93	PPB	



### 01 Hour Averages



— LICA33\_03\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 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	48	48	48	47	47	46	46	47	48	49	50	51	51	51	52	53	56	55	55	53	<b>IZS</b>	49	47	47	56	49.7	24	
2	44	44	43	41	32	34	28	33	38	41	46	50	53	53	53	51	50	51	49	<b>IZS</b>	45	43	39	38	53	43.4	24	
3	32	32	33	32	28	26	25	30	38	39	42	46	46	47	47	48	48	48	<b>IZS</b>	46	45	46	47	47	48	39.9	24	
4	46	46	47	45	43	42	40	43	43	46	48	51	51	55	56	59	59	<b>IZS</b>	51	50	48	48	46	45	<b>59</b>	48.2	24	
5	44	42	42	40	39	36	35	40	42	44	45	47	50	51	52	54	<b>IZS</b>	54	52	51	54	51	50	48	54	46.2	24	
6	50	47	45	44	45	44	40	42	45	49	51	52	53	53	54	<b>IZS</b>	55	53	54	52	50	50	49	49	55	49.0	24	
7	48	48	45	44	41	36	31	36	42	42	47	49	50	<b>IZS</b>	49	48	46	46	43	41	38	38	38	50	43.3	24		
8	38	37	37	38	38	39	37	40	43	47	49	52	54	<b>IZS</b>	54	55	55	56	56	55	53	51	49	48	56	47.0	24	
9	47	44	43	37	39	36	36	34	40	44	47	51	<b>IZS</b>	53	53	52	52	53	52	51	50	49	47	48	53	46.0	24	
10	45	42	43	44	44	41	43	47	51	54	56	<b>IZS</b>	58	58	56	55	53	52	51	48	47	48	38	38	58	48.3	24	
11	36	34	32	33	33	30	30	<b>C</b>	<b>C</b>	<b>C</b>	<b>IZS</b>	<b>M</b>	<b>C</b>	50	50	52	52	54	53	51	48	46	44	46	54	43.0	23	
12	45	42	38	34	32	30	31	30	28	<b>IZS</b>	24	27	28	32	34	36	39	39	39	36	34	34	32	45	33.9	24		
13	30	29	28	26	25	24	25	26	<b>IZS</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	41	42	43	42	42	41	37	39	37	37	36	43	34.2	24	
14	36	36	35	34	34	33	35	<b>IZS</b>	39	43	45	45	47	48	48	50	48	47	45	45	43	41	38	36	50	41.3	24	
15	37	37	36	36	36	36	<b>IZS</b>	36	35	35	34	34	34	34	34	34	35	35	35	36	37	37	37	36	37	35.5	24	
16	33	33	31	26	18	<b>IZS</b>	31	36	39	40	42	43	44	44	44	44	43	43	41	41	38	35	32	30	44	37.0	24	
17	24	26	23	15	<b>IZS</b>	13	20	28	36	41	43	43	44	44	45	46	46	46	46	43	40	41	38	35	46	35.9	24	
18	34	31	29	<b>IZS</b>	28	27	30	33	35	40	47	49	51	51	51	51	51	51	51	51	47	47	46	46	43	51	42.1	24
19	36	36	<b>IZS</b>	34	34	32	34	38	42	47	49	51	51	51	51	52	51	49	48	47	43	43	38	41	52	43.4	24	
20	36	<b>IZS</b>	39	33	34	32	31	35	37	39	44	46	45	46	45	44	43	42	42	40	40	36	35	35	46	39.1	24	
21	<b>IZS</b>	32	28	29	21	23	26	32	41	46	47	48	48	57	48	48	48	48	46	41	41	38	40	<b>IZS</b>	57	39.8	24	
22	34	33	32	33	29	31	33	36	43	47	47	48	48	48	49	49	49	48	49	49	41	39	<b>IZS</b>	36	49	41.3	24	
23	36	38	38	39	38	38	36	38	40	47	49	52	53	52	52	52	52	51	48	45	43	<b>IZS</b>	36	38	53	44.0	24	
24	38	36	32	28	26	23	25	34	39	41	43	44	44	46	47	47	48	47	47	42	<b>IZS</b>	35	36	36	48	38.4	24	
25	33	33	32	33	32	31	34	35	42	44	46	49	51	54	57	59	59	57	<b>IZS</b>	48	47	45	44	<b>59</b>	44.4	24		
26	39	37	34	34	32	30	29	29	30	31	28	39	41	37	38	42	50	49	<b>IZS</b>	46	45	42	32	29	50	36.7	24	
27	28	24	19	18	17	16	16	21	30	39	52	56	57	58	58	58	55	<b>IZS</b>	53	52	46	45	35	39	58	38.8	24	
28	42	39	34	41	42	42	41	40	36	35	38	43	38	47	46	50	<b>IZS</b>	50	48	43	42	42	43	41	50	41.9	24	
29	39	37	35	33	33	32	32	34	36	37	39	40	41	42	43	<b>IZS</b>	44	44	44	42	41	34	36	25	44	37.5	24	
30	23	22	23	24	28	27	33	35	36	40	45	44	46	47	<b>IZS</b>	44	44	44	42	35	32	33	30	26	47	34.9	24	
HOURLY MAX	50	48	48	47	47	46	46	47	51	54	56	56	58	58	58	59	59	57	57	55	54	51	50	49				
HOURLY AVG	38.0	36.7	35.3	34.3	33.4	32.1	32.2	35.3	39.1	42.5	44.4	46.3	47.3	48.2	48.5	49.2	49.1	48.4	47.9	45.3	43.7	42.2	40.1	39.0				

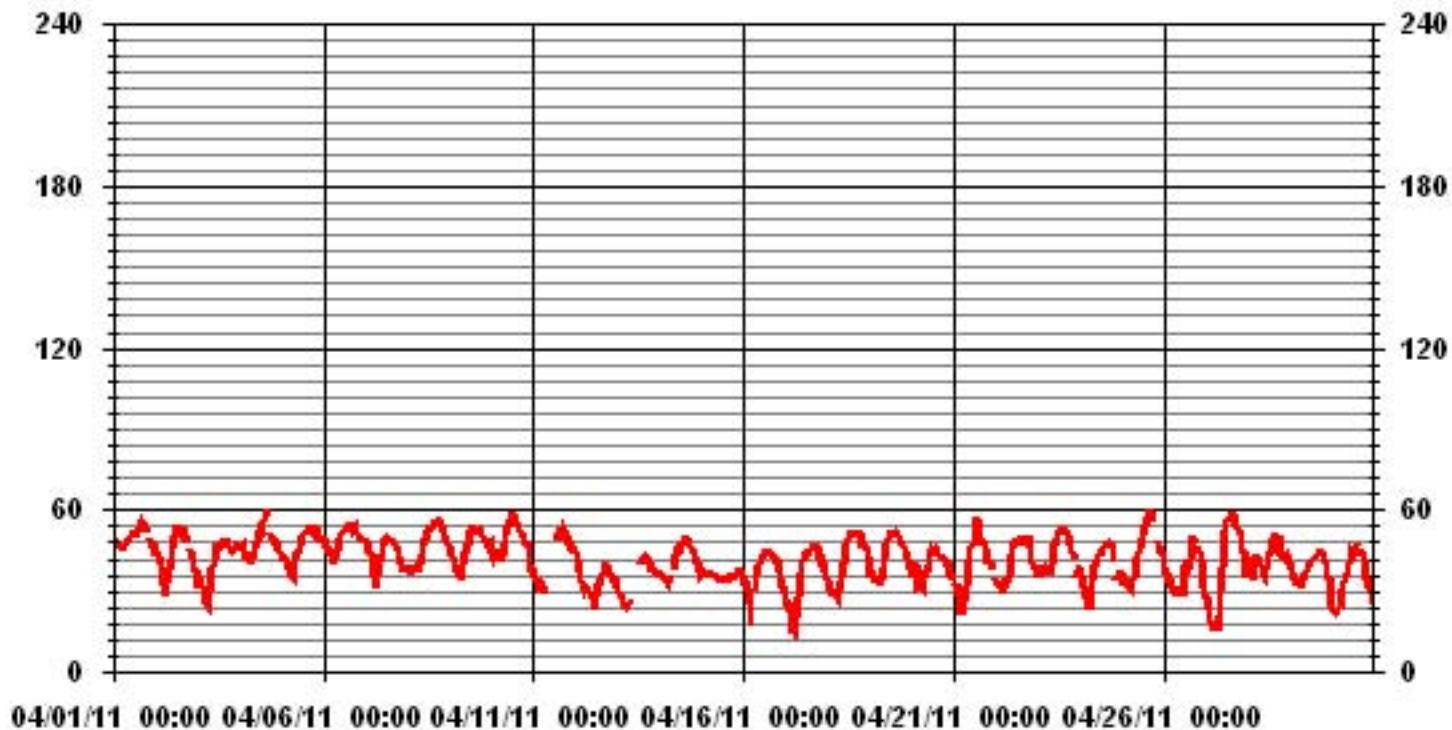
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	680				
MAXIMUM INSTANTANEOUS VALUE:	59	PPB	@ HOUR(S)	VAR	ON DAY(S) 4, 25
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS
MONTHLY CALIBRATION TIME:	8	HRS			
STANDARD DEVIATION:	8.54				

### 01 Hour Averages



— LICA33 O3MAX PPB

LICA33  
 O3\_ / WDR Joint Frequency Distribution (Percent)

April 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	4.69	4.10	4.25	3.66	10.99	2.78	2.05	1.90	2.63	3.51	13.92	10.55	7.77	8.21	3.66	2.63	87.39
< 110	.00	.00	.29	.00	.00	.00	.43	.87	1.31	1.17	3.22	1.61	1.46	2.05	.14	.00	12.60
< 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	4.69	4.10	4.54	3.66	10.99	2.78	2.49	2.78	3.95	4.69	17.15	12.17	9.23	10.26	3.81	2.63	

Calm : .00 %

Total # Operational Hours : 682

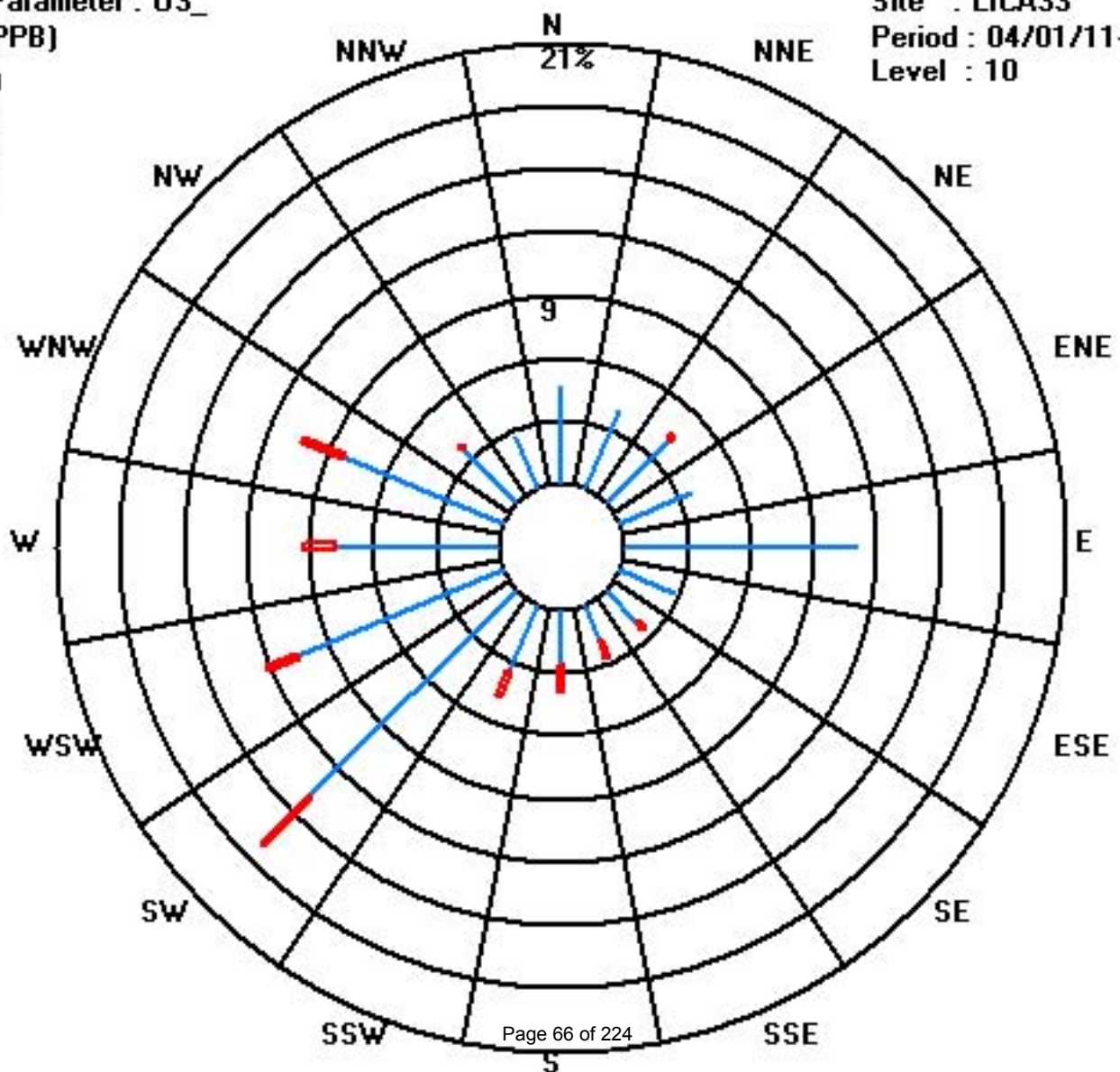
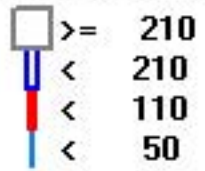
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	32	28	29	25	75	19	14	13	18	24	95	72	53	56	25	18	596
< 110			2				3	6	9	8	22	11	10	14	1		86
< 210																	
>= 210																	
Totals	32	28	31	25	75	19	17	19	27	32	117	83	63	70	26	18	

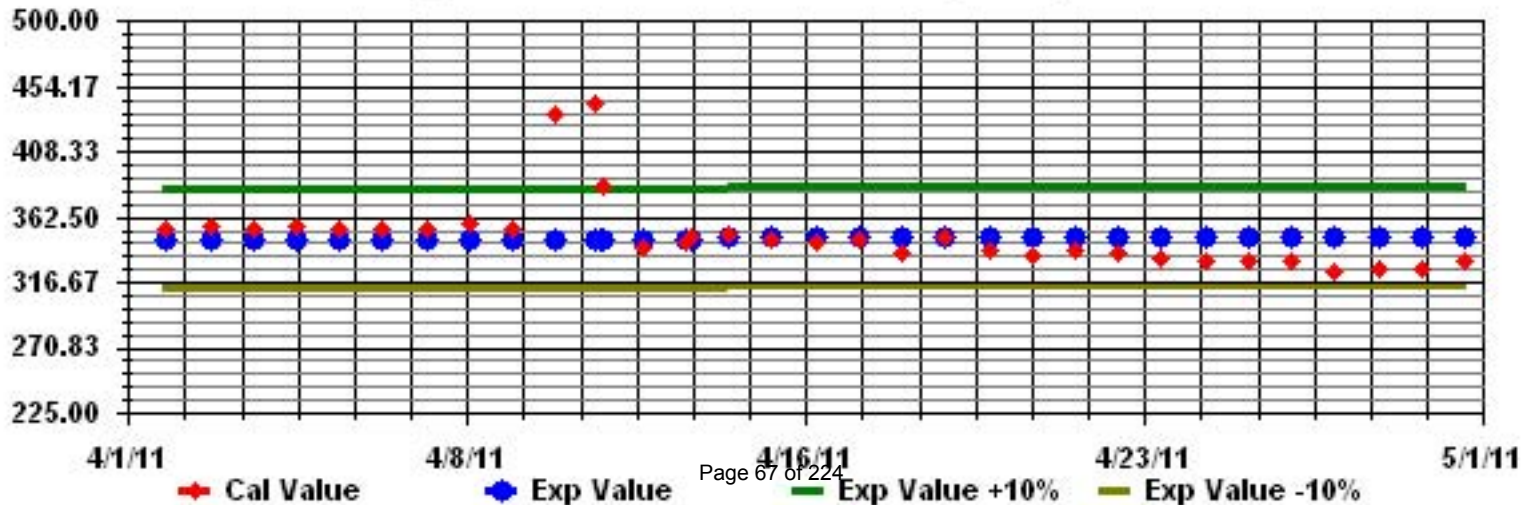
Calm : .00 %

Total # Operational Hours : 682

Class Limits (PPB)



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



# Total Hydrocarbons

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 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		2.1	2.5	2.1	2	2.1	2.1	2.2	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	IZS	2	3	2.3	3.0	2.1	24	
2		2.1	3	2.5	3.2	4.9	<b>9.2</b>	8.5	5.1	4.1	2.8	2.6	2.2	2.1	2	2.1	2.1	2.3	2.1	2.3	<b>IZS</b>	2.3	2.5	3.7	3.2	<b>9.2</b>	<b>3.3</b>	24	
3		3.1	2.6	2.1	2.2	3.3	3.9	9	5.5	3.9	2.3	2.1	2	2	2	2	2	2	2	<b>IZS</b>	1.9	2	2	2	2	9.0	2.8	24	
4		2.1	2.1	2.1	2.3	2.5	2.8	2.6	2.3	2.3	2.2	2	2	2	2	1.9	1.9	1.8	<b>IZS</b>	2.2	2.1	2	2	2	2	2.8	2.1	24	
5		2	2	2	2.4	2.3	2.4	2.5	2.2	2.2	2.2	2.1	2	2	1.9	1.9	1.9	<b>IZS</b>	1.9	1.9	1.9	1.9	1.9	2.2	2	2.1	2.5	2.1	24
6		2.2	2.5	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2	2	2	2	2	1.9	<b>IZS</b>	1.9	1.9	1.9	2	2	2.1	2.1	2.2	2.2	2.5	2.1	24
7		2.2	2.2	2.3	2.4	2.6	2.9	2.9	2.4	2.5	2.3	2.1	2	2.2	2	<b>IZS</b>	1.9	1.9	2	2	2	2.3	2.6	2.1	2.1	2.9	2.3	24	
8		2	2.1	2.1	2	2.1	2.1	2.1	2.1	2.1	2.1	2	2	1.9	<b>IZS</b>	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.0	24
9		2.1	2.1	2.1	2.1	2.1	2	2	2.1	2.1	2	2	1.9	<b>IZS</b>	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2.1	2.1	2.1	2.0	24
10		2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2	2	<b>IZS</b>	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2.1	2.5	2.5	2.0	24	
11		3.6	3.8	3.1	3.1	3.6	3.3	3.8	3.6	3.1	2.8	<b>IZS</b>	2.8	2.6	2.4	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	3.8	2.6	24	
12		2	2	2	2	2.1	2.1	2.1	2.1	2.1	<b>IZS</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	2	2	2	2	2.3	2.6	2.3	2.4	2.3	2.6	2.6	2.2	24
13		2.5	2.4	2.5	2.4	2.4	2.4	2.3	2.3	<b>IZS</b>	2.2	2.1	2	2	2	2	2	1.9	1.9	2	2	2	2	2	2	2	2.5	2.1	24
14		2.1	2.1	2.1	2.1	2	2	<b>IZS</b>	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.0	24
15		2	2	2	2	2.1	2.2	<b>IZS</b>	2.2	2.1	2.1	2.1	2.1	2.2	2	2	2	2	2	2	2.2	2.2	2.2	2.2	2.3	2.7	2.7	2.1	24
16		3	2.5	4.3	4	4.2	<b>IZS</b>	2.9	2	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2.1	2.4	3.1	3.8	2.9	4.3	2.6	24	
17		4.9	5.8	6.2	7.1	<b>IZS</b>	4.2	4.7	3.9	2.4	2.1	2	2	2	1.9	2	2	1.9	1.9	1.9	1.9	2	2.1	2.1	2	7.1	3.0	24	
18		2	2.1	2	<b>IZS</b>	2.1	2.4	2.3	2.1	2.2	2.1	2	2	2	2	1.9	1.9	1.9	2	2	2.7	2.5	2.5	2.1	2.2	2.7	2.1	24	
19		2.1	2	<b>IZS</b>	2.1	2	2.2	2.4	2.3	2.1	2.1	2	2	2	2	1.9	1.9	1.9	2	2	2	2.1	2.1	2	2	2.4	2.1	24	
20		2.1	<b>IZS</b>	2.1	2	2	2	2	2.1	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2.1	2	2	2	2.1	2.0	24	
21		<b>IZS</b>	2.1	2.2	2.2	3.1	2.2	2.3	3.4	2.4	2.2	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.3	2	2.2	2.3	<b>IZS</b>	3.4	2.2	24
22		2	2	2.1	2.2	2.2	2.4	2.3	2.3	2.2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	<b>IZS</b>	2.8	2.8	2.1	24	
23		2.1	2.1	2.2	2	2.1	2	2.1	2.3	2.3	2.1	2	1.9	1.9	1.9	1.9	1.9	1.9	2	2	1.9	2	<b>IZS</b>	2	2	2.3	2.0	24	
24		2	2	3.6	3.5	2.4	2.5	3	3.6	2.3	2.1	2	2	2	1.9	1.9	2	2	2	2	2	2.1	<b>IZS</b>	2.3	2	2.1	3.6	2.3	24
25		2.1	2.1	2.1	2.1	2.3	2.3	2.1	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	<b>IZS</b>	2	2.1	2.1	2	2.3	2.0	24	
26		2	2.3	2.3	2.2	2.2	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.3	2.1	2.3	<b>IZS</b>	2.1	2.4	2.9	2.4	2.4	2.9	2.2	24	
27		2.7	2.9	2.9	2.7	2.5	2.4	2.5	2.4	2.3	2.1	2	2	2	2	2	2	2	<b>IZS</b>	2	2	2.1	2.2	3.1	3.1	3.1	2.3	24	
28		3.2	3	2.3	2.2	2	2.1	2.2	2.1	2.2	2.3	2	2.1	2.3	2.2	2.1	2	<b>IZS</b>	2	2	2	2.1	2.1	2.3	3.1	3.2	2.3	24	
29		2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	<b>IZS</b>	1.9	1.9	2.1	2.7	2.1	2.3	2.3	4	4.0	2.2	24
30		4.7	4.5	3.2	3.2	2.5	2.8	2.5	2.4	2.5	2.4	2.1	2.1	2	2	<b>IZS</b>	1.9	2	2.1	2.2	2.2	2.2	2.2	2.2	2.3	4.7	2.5	24	
HOURLY MAX		4.9	5.8	6.2	7.1	4.9	9.2	9.0	5.5	4.1	2.8	2.6	2.8	2.6	2.4	2.5	2.3	2.3	2.3	2.3	2.7	2.5	3.1	3.8	4.0				
HOURLY AVG		2.5	2.5	2.5	2.6	2.5	2.7	2.9	2.6	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.3	2.4			

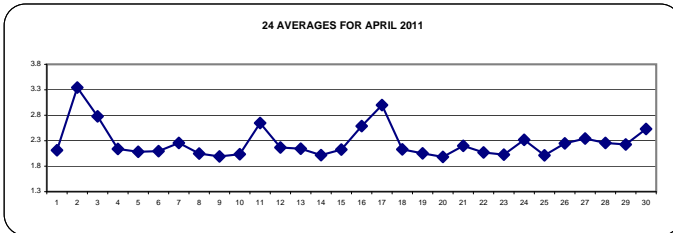
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

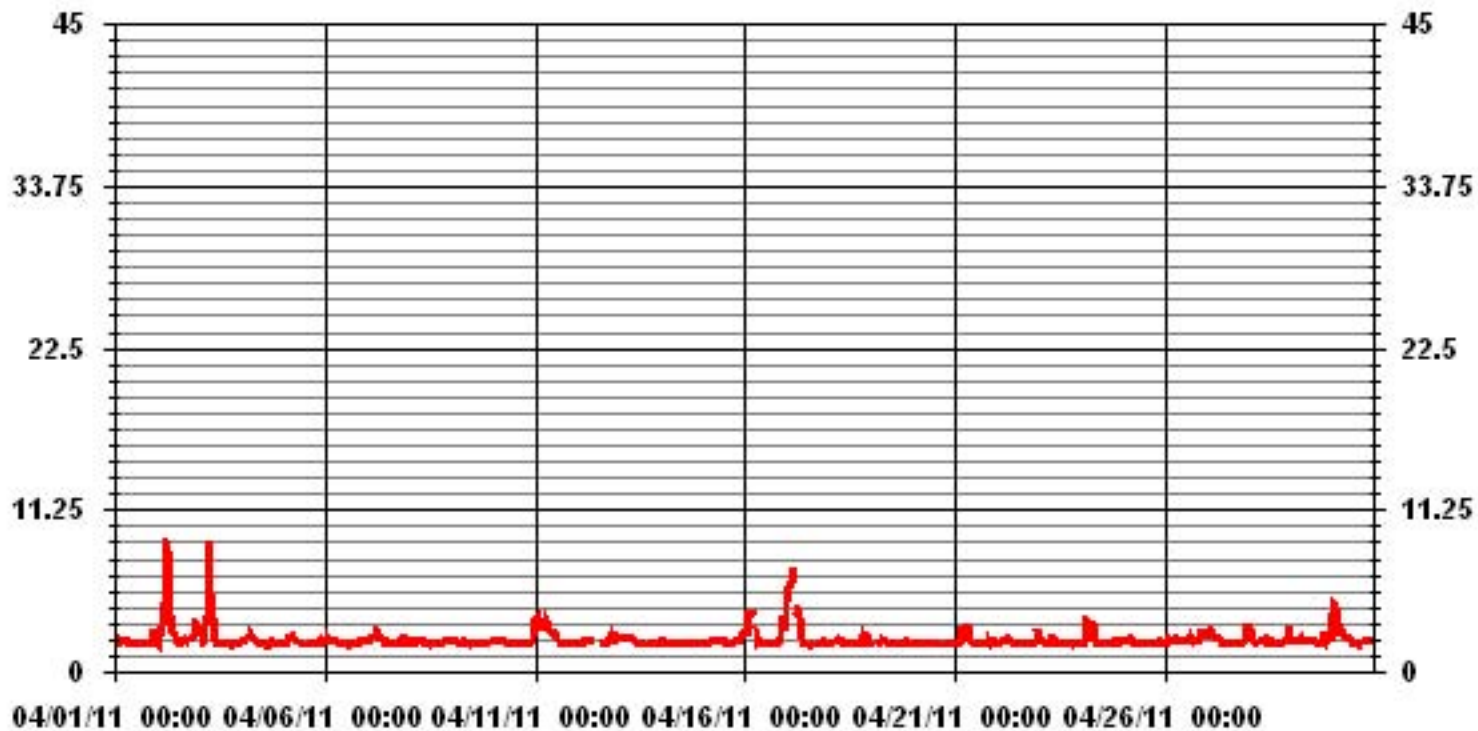
NUMBER OF NON-ZERO READINGS:	684					
MAXIMUM 1-HR AVERAGE:	9.2	PPM	@ HOUR(S)	5	ON DAY(S)	2
MAXIMUM 24-HR AVERAGE:	3.3	PPM			ON DAY(S)	2
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.70		MONTHLY AVERAGE:	2.27	PPM	

24 AVERAGES FOR APRIL 2011





### 01 Hour Averages



— LICA33 THC PPM

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 2011

## TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST																										DAILY	24-HOUR	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	2.5	4.1	2.9	2.1	2.7	2.7	2.8	2.6	2.1	2.1	2.1	2	2.4	2.2	2.5	2.4	2.3	2.1	2	<b>IZS</b>	2.3	4.9	9.8	9.8	2.9	24		
2	2.3	13.9	4.8	17.6	9	<b>54.3</b>	49.6	11.1	9.1	3.5	2.7	2.8	2.2	2.1	3.4	3.4	3.2	2.7	5.3	<b>IZS</b>	5.3	3.9	19.4	12.7	<b>54.3</b>	10.6	24	
3	4.7	4.8	2.2	2.4	5.2	7.1	19.5	24.6	18.9	2.5	2.2	2.5	2.2	2.1	2	2.4	2	2	<b>IZS</b>	2	2	2	2.1	2.1	24.6	5.2	24	
4	2.2	2.2	2.1	2.4	3.6	7.1	8.8	2.6	2.4	2.3	2.1	2	2	1.9	2.3	1.9	<b>IZS</b>	3.8	3.4	2.2	2	2.1	2.1	8.8	2.8	24		
5	2.1	2.2	2.5	4.3	5	3.9	4	2.3	2.4	2.4	2.7	2.3	4	1.9	2.7	2.1	<b>IZS</b>	2	2	1.9	2	4.2	2.3	2.4	5	2.8	24	
6	3.2	23.8	2.3	2.4	2.2	2.3	2.4	2.3	2.2	2.1	2	2.3	2	2.1	2	<b>IZS</b>	2.3	2	2	2	2.1	2.9	3.1	3.4	2.5	23.8	3.3	24
7	2.5	2.5	3.4	4	2.9	3.5	3.4	2.7	2.6	2.5	2.2	2.1	2.7	2	<b>IZS</b>	1.9	1.9	2.1	2.4	2	4.9	3.9	2.3	2.2	4.9	2.7	24	
8	2.4	2.1	2.2	2.1	5.2	2.1	2.1	2.2	2.2	2.1	2.1	2	2	<b>IZS</b>	2	2	2.3	2	2	2.1	2.1	2.1	2.1	2.1	5.2	2.2	24	
9	2.1	2.3	2.2	2.4	2.2	2.1	2.1	2.1	2.5	2.1	2	2.4	<b>IZS</b>	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2.2	2.4	2.5	2.1	24	
10	2.5	2.1	2.1	2.1	2.3	2.3	2.3	2.3	2.1	2	<b>IZS</b>	2	2	2	2	2	2	2	2	2	2	3.2	3.2	3	3.2	2.2	24	
11	3.8	4.9	6.7	4.1	10.4	10.3	9.3	5.2	3.3	2.9	<b>IZS</b>	3.3	3.3	2.5	2.3	2	2.1	2	2	2	2	2	2	2	10.4	3.9	24	
12	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.7	<b>IZS</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	2.4	2.3	2.2	7.4	4.4	3.2	3	2.7	3.2	7.4	2.8	24
13	3	2.9	3.3	2.9	2.7	2.8	2.7	2.6	<b>IZS</b>	2.6	2.4	<b>IZS</b>	<b>IZS</b>	2.1	2.3	2.1	2	2	2.4	2.4	2	2.1	2.1	2.2	3.3	2.5	22	
14	2.4	2.4	2.2	2.1	2.3	2.3	2.2	<b>IZS</b>	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.4	2.2	24	
15	2.1	2.2	2.3	2.6	2.7	2.8	<b>IZS</b>	2.8	2.7	2.6	2.8	2.9	3	2.5	2.6	2.4	2.4	2.5	9.5	3.1	2.6	2.5	2.9	3.3	9.5	2.9	24	
16	4	3.8	6.2	4.9	4.9	<b>IZS</b>	3.6	2.5	2.9	2.7	2.8	2.5	2.7	2.8	2.6	2.2	2.3	2.3	2.5	2.9	3.4	10.9	5.3	4.5	10.9	3.7	24	
17	8.1	15.1	13.3	19.3	<b>IZS</b>	6.9	11.3	10.3	3	2.2	2.1	2.2	2.2	2	2.5	2.3	2.1	2.3	2.2	2.3	2.3	2.6	2.4	2.1	19.3	5.3	24	
18	2.1	2.1	2.2	<b>IZS</b>	2.2	3.1	3	2.3	2.3	2.3	2.1	2.4	3.1	2.3	2	1.9	2	2.9	2.4	4.6	3.9	4.9	2.3	2.4	4.9	2.6	24	
19	2.2	2.1	<b>IZS</b>	2.1	2.1	2.9	3.4	4.8	2.2	2.1	2.1	2.2	2.2	2.2	2.4	2	2.1	2.1	2.4	2.3	2.9	2.5	2.4	2	4.8	2.4	24	
20	2.2	<b>IZS</b>	2.2	2.1	2	2.1	2.1	2.2	2.1	2	2	2.2	2.1	2	2.1	2.1	2.1	2.1	2.3	2.7	2.5	2.1	2	2.1	2.7	2.1	24	
21	<b>IZS</b>	2.8	2.9	3.9	7.8	2.5	5.3	7.3	5.3	3.1	3.4	3.4	2.3	2.3	2	1.9	1.9	2	1.9	3.4	2.5	2.4	7.6	<b>IZS</b>	7.8	3.5	24	
22	2.2	2	2.4	2.7	3.7	3.4	3.2	2.4	2.3	2	2	1.9	2	2	2.1	2	1.9	2.2	2	2.3	2.2	2	<b>IZS</b>	5.2	5.2	2.4	24	
23	2.4	3	3.2	2.1	2.2	2.3	2.3	2.4	2.4	2.3	2	2	1.9	1.9	2	1.9	1.9	3	2.6	2	2.2	<b>IZS</b>	2	2.1	3.2	2.3	24	
24	2.1	3.3	6.8	7.4	2.7	2.8	8	8.9	3.6	3	2.8	2.7	2.7	2.6	2.9	2.6	2.6	3.2	2.8	3.8	<b>IZS</b>	4.1	2.7	2.3	8.9	3.8	24	
25	2.4	2.2	2.6	2.7	3.7	3.4	2.3	2.2	2.3	1.9	2.1	2	1.9	1.9	1.9	1.9	1.9	1.9	<b>IZS</b>	2.7	2.2	2.1	2	3.7	2.3	24		
26	2.1	4	4.5	2.7	2.6	3.3	3.7	3	2.7	2.8	2.9	3.3	3.2	3.1	15.7	2.9	2.4	3.3	<b>IZS</b>	2.9	5.1	3.9	3	2.6	15.7	3.7	24	
27	3.1	3.1	3.1	3	2.7	2.7	2.9	2.7	2.6	2.1	2.5	2.7	2.9	2.4	3.6	3.3	2	<b>IZS</b>	2.2	2.1	3	7	5.5	4.3	7	3.1	24	
28	5.2	4.6	3.1	3.2	2.6	2.2	2.2	2.2	2.2	4.3	2.4	2.5	5.6	5.2	2.5	2.5	<b>IZS</b>	2.3	2.2	2.1	2.2	2.4	5.4	8.3	8.3	3.4	24	
29	2.2	2.2	2.2	2.2	2.2	2.5	3.6	2.3	2.3	2.3	2.4	2.4	3.9	5.3	2.7	<b>IZS</b>	2.1	2	2.9	4.2	3.6	5	4.4	15.8	15.8	3.5	24	
30	8.8	9.7	7.5	6.1	3.3	4.5	3.9	4	3.6	3.2	4.1	3.3	2.8	13.5	<b>IZS</b>	2.2	2.5	3.9	2.6	3.9	4.7	3.2	2.6	2.7	13.5	4.6	24	
HOURLY MAX	9	24	13	19	10	54	50	25	19	4	4	3	6	14	16	3	3	4	10	5	5	11	19	16				
HOURLY AVG	3.1	4.6	3.6	4.1	3.6	5.3	6.0	4.4	3.4	2.5	2.4	2.5	2.6	2.8	2.8	2.3	2.2	2.3	2.9	2.7	2.9	3.3	3.6	3.9				

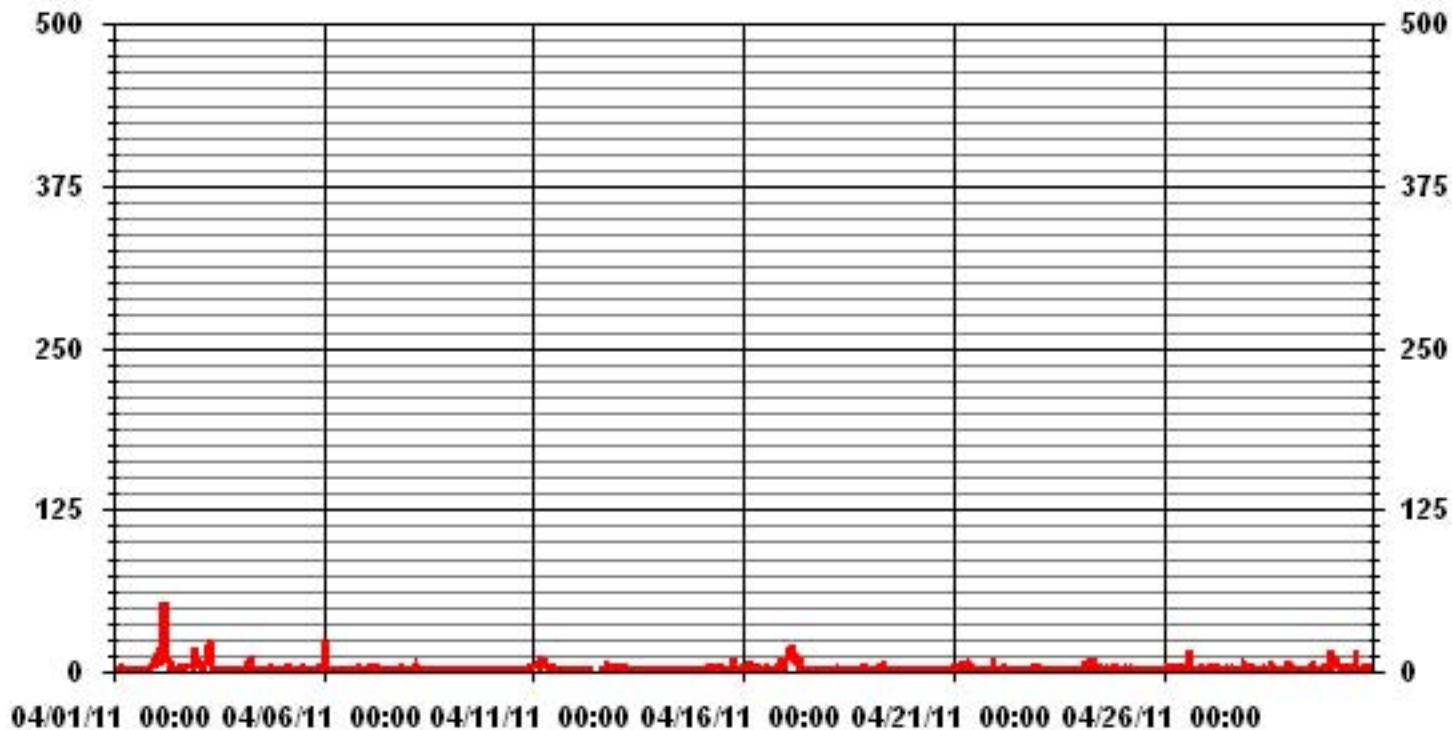
**STATUS FLAG CODES**

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:	682					
MAXIMUM INSTANTANEOUS VALUE:	54.3	PPM	@ HOUR(S)	5	ON DAY(S)	2
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	3.69					

### 01 Hour Averages



— LICA33 THCMAX PPM

LICA33  
 THC / WDR Joint Frequency Distribution (Percent)

April 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	3.21	3.07	3.94	3.36	9.50	2.92	2.77	2.63	3.94	4.53	16.81	11.98	9.21	9.79	2.92	1.46	92.10
< 10.0	1.46	1.02	.58	.29	1.75	.00	.14	.14	.14	.14	.29	.14	.00	.43	.73	.58	7.89
< 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	4.67	4.09	4.53	3.65	11.25	2.92	2.92	2.77	4.09	4.67	17.10	12.13	9.21	10.23	3.65	2.04	

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	22	21	27	23	65	20	19	18	27	31	115	82	63	67	20	10	630
< 10.0	10	7	4	2	12		1	1	1	1	2	1		3	5	4	54
< 50.0																	
>= 50.0																	
Totals	32	28	31	25	77	20	20	19	28	32	117	83	63	70	25	14	

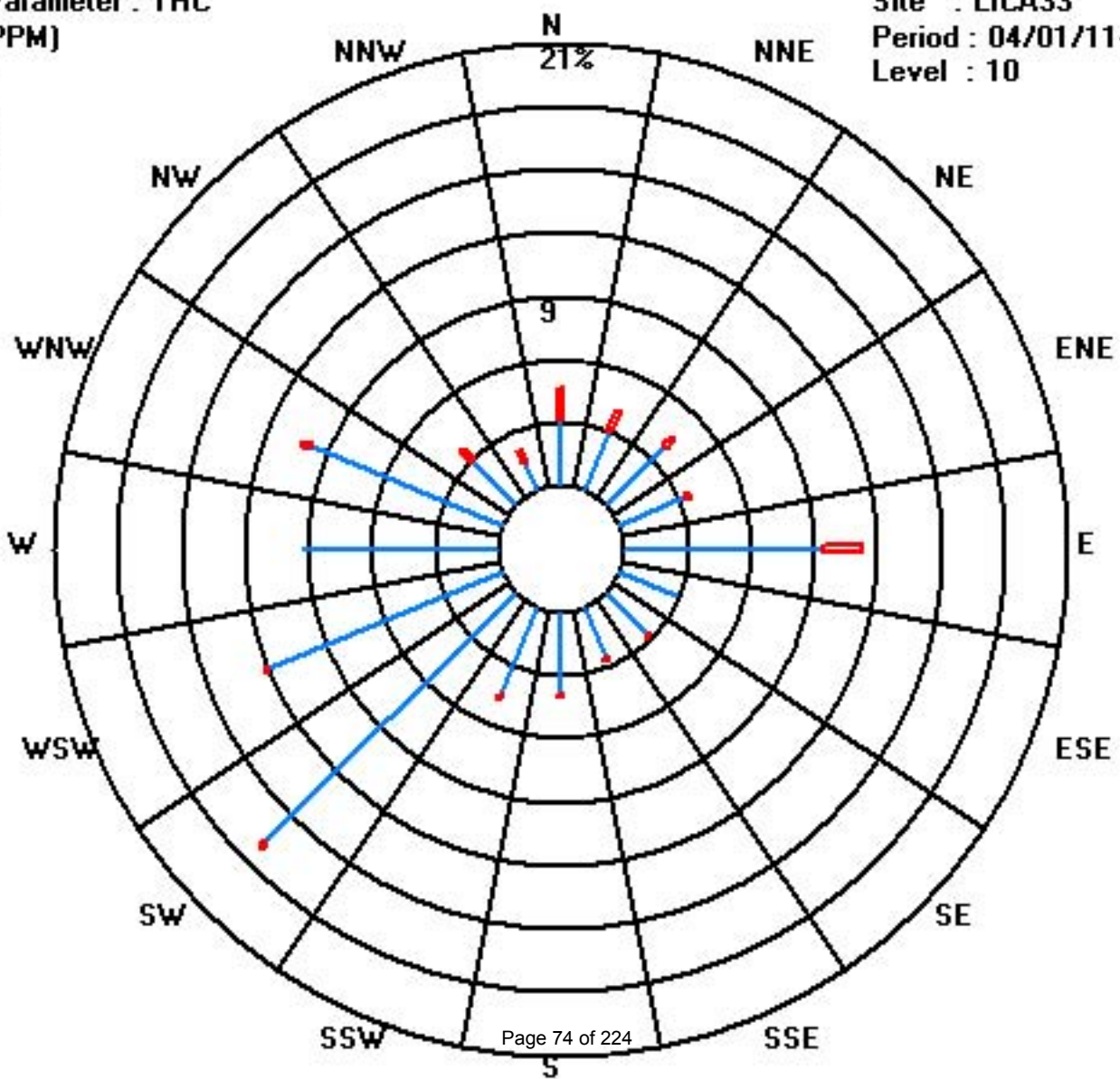
Calm : .00 %

Total # Operational Hours : 684

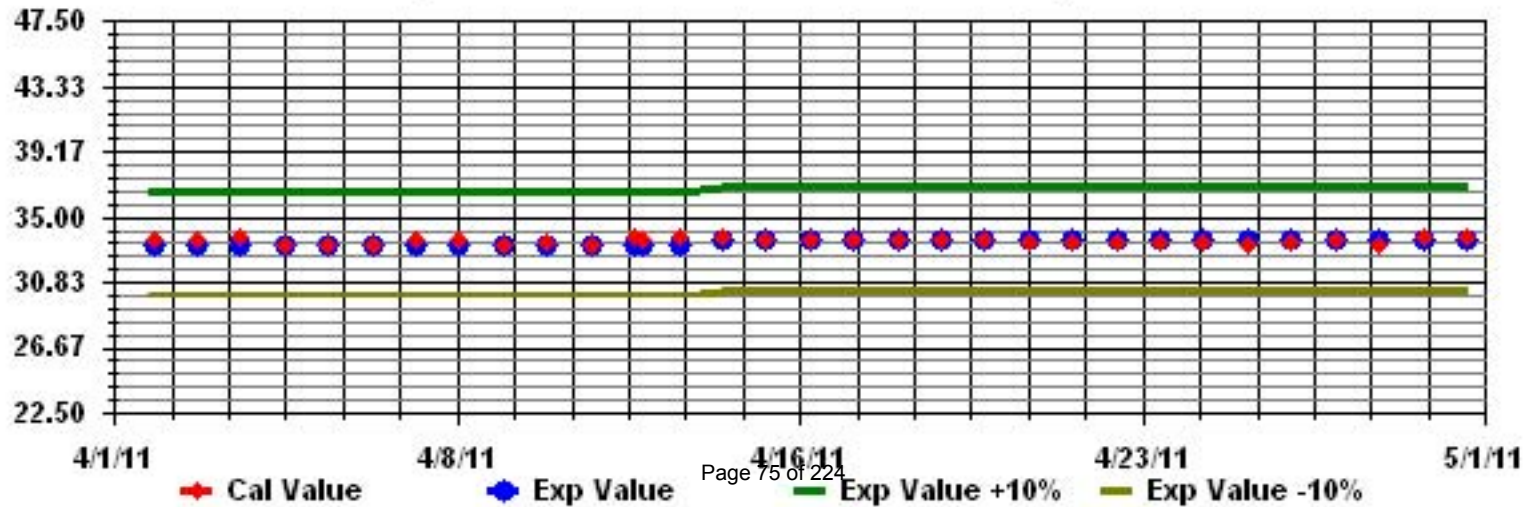
Class Limits (PPM)

Period : 04/01/11-04/30/11

Level : 10



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



# Vector Wind Speed

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 2011

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

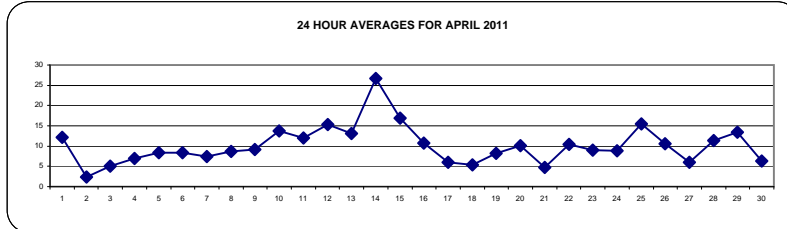
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	
DAY																												
1		11.5	12.9	14.1	17.8	11.5	12	13.7	17	19.1	19.5	14.8	15.2	17.3	16	16.9	14.2	10.1	7.6	12.8	8.4	10.2	5.9	2.9	7.5	19.5	12.1	24
2		7.9	3.4	1.9	2.4	3.1	0.7	2	0.8	2.6	3.2	3.6	7.2	5.2	5.1	12.8	14.8	12.2	9.7	7.9	7.5	5.6	6.1	5.4	5.6	14.8	2.4	24
3		4.3	4.5	4.6	5.5	4.6	5.4	4.7	3.4	3.4	2.8	7.1	10.8	6.4	7.2	5.8	14.3	18.4	17.1	17.4	9.9	5.6	7.5	6.8	5.7	18.4	5.1	24
4		6.6	6.1	6.4	5.7	3.6	4	3.6	5.7	5.1	4.8	9.3	10.4	7	6.4	9.4	9.2	16.9	15	4.7	3.4	7.5	10.7	11.1	12.2	16.9	7	24
5		9.5	9.2	9	4.9	4.3	5	6	5.6	6	4.2	3.5	8	8.4	10.8	11.7	11.8	12.4	12.4	14.1	12.8	14.4	7.1	3.8	5.3	14.4	8.3	24
6		4.9	3.3	8	8.4	8.7	5.6	5.7	5.1	4.5	7.9	5.9	14.7	11.1	13.6	10.2	11.5	13.1	12.8	11.4	8.7	7.8	9.1	4.3	3.6	14.7	8.3	24
7		5.7	6	4.7	3.5	6.9	5.5	5.6	6.5	9.3	9.5	9.5	10.4	10.1	13.2	8.9	10.2	6.4	8.9	7.3	5.4	5.1	4.2	6.6	9.5	13.2	7.5	24
8		8.5	8.2	6.3	6.4	5	6.2	4.9	4.3	5.2	7.1	8.3	9	10.1	11.9	12.9	12.8	11	12.1	11.8	12.1	8.9	10.1	8.2	6.9	12.9	8.7	24
9		4.7	4	3.1	3.4	4.9	7.9	3.7	5	7.3	7.9	5.9	10.1	14.9	16.2	14.9	18.4	16.4	16.3	12.9	12.3	10.9	9.3	6.4	4.7	18.4	9.2	24
10		6.5	7.3	7.9	11.3	10.5	10	10	11.2	18.2	21.1	24.8	27.7	21.8	19.9	18.9	18.3	18.2	15.6	14	11.6	9.5	4.3	5.5	4.7	27.7	13.7	24
11		5.1	7	5.9	7	3.6	2.2	2.7	4.1	4.3	5.4	4	10	10.2	9.8	11.8	15.3	17.1	26.6	14.6	26	25.3	22.3	19.4	28.1	28.1	12.0	24
12		27.8	23.4	25	22.2	20.5	19.9	22.4	18.7	18.7	17.2	15.2	14.7	13.3	13.8	13.1	11.7	11.4	8.4	5.7	9.9	9.1	8.7	7.8	9.6	27.8	15.3	24
13		10.3	10.1	9.6	10.6	11.3	10.2	10.4	9.3	9	9.6	10.8	15.8	16	15.9	16.5	17.3	18.6	17.6	14.9	14.1	16.3	14.4	13.9	13	18.6	13.1	24
14		12	13.7	16.1	18.3	18	21.3	22.7	23.8	28.5	29.5	35.1	35	34.4	32.3	33.7	<b>35.5</b>	30.5	30.1	30.4	31.2	31	25.7	24.8	26.3	<b>35.5</b>	<b>26.7</b>	24
15		24.6	25.5	24.5	23.7	21.5	21	19.8	19.1	19.2	18.1	17.4	15.2	14.6	13.6	14.8	16.5	16	13.9	12.6	11.8	12.1	10.7	8.8	8.8	25.5	17.0	24
16		8.2	8	7.4	8	7.2	8.2	9.1	13.8	13.5	15.5	18.6	19.2	17.2	15.4	14.5	15.5	14.6	13.5	10.7	6.2	5	2.6	2.8	3	19.2	10.7	24
17		3.2	2.9	0.3	3.8	0.9	2.8	0.9	1	3.5	5.8	4.4	4.8	10.5	14.2	12.2	6.2	12.1	13.5	10.2	7.6	8.7	8.3	4.5	2.4	14.2	6.0	24
18		3.1	3	4.4	4.3	5.5	4.5	3.6	3.6	1.4	4.8	5.5	5.1	7.9	5.3	10.4	10.8	11.6	3.7	3.6	4.7	5.7	4.8	5.8	5.7	11.6	5.4	24
19		6.1	6.2	2.1	5.6	7.2	2.3	2.1	2.5	5.4	6.4	6.7	10.7	10.7	16.2	16	14.6	16.4	15.3	14.5	5.1	3.9	4.6	7.6	9.6	16.4	8.2	24
20		7.9	7.1	5.1	5.7	6.1	6.8	8.7	6.8	3.3	7	13	16.8	22.7	18.1	13.6	13.3	18.6	15	12.8	9.5	6.7	6.4	7.8	5	22.7	10.2	24
21		5.8	2.5	2.5	2.2	0.6	1.2	1.5	0.9	3.4	6.3	4.1	1.5	10.2	12.6	8.4	9.6	9.1	4.6	8.2	7.4	6.4	2.6	0.4	2.1	12.6	4.8	24
22		5.8	7.5	3.9	7.2	7.1	8.3	9.6	12.6	13.9	15.9	16.6	18.1	17.9	18.9	15.3	10.3	7.3	14.1	11.5	5.6	5.3	7.2	3.3	5.6	18.9	10.4	24
23		5.8	8.5	8.4	10	11.3	7.4	7.6	4.6	5.4	8.1	8.1	11.2	16.6	13.5	13.1	12.7	15.9	6.8	9.7	5.2	5.5	6.1	7.3	8.7	16.6	9.1	24
24		9.6	8.2	3.6	5.7	1.9	2.2	3.7	6.6	6.7	5.9	6.9	6.6	11.8	11.8	8.9	16.4	13.4	11.8	10.7	10.4	9.2	11.2	13	14.9	16.4	8.8	24
25		12.6	12.3	12.2	11.7	10	10	16	16.4	16.6	22.1	18.1	18.5	19.3	18.9	19.3	19.7	19.2	19.5	15.4	10.4	11.3	12.4	10.5	17.4	22.1	15.4	24
26		13.2	7.9	10.4	14.2	13.5	11.5	13.6	15.7	17	14	18.2	4.6	8.5	9.1	6.6	8.5	12	9.7	10.4	8.2	7.1	5	6.2	8.5	18.2	10.6	24
27		7.7	6.3	5.1	5.6	7.4	7.5	6.7	5.4	3.3	4.6	3.3	2.4	2.2	2.2	2.2	10.8	17.5	12.1	5.5	4.6	6.1	3.1	6.2	6.9	17.5	6.0	24
28		6.2	3.6	6	6.4	7	6.9	6.2	8.7	4.7	3.6	12	13.1	13	18.1	15	15.8	19	16.9	16.5	15.6	15.7	15.5	16.4	12.8	19.0	11.4	24
29		14.3	15.6	16.2	17.7	16.8	15.4	14.7	17	17.3	19.1	18.6	17.5	16.9	15.9	14.9	15.3	13.3	14.6	9.9	4.6	2.3	5	4.4	3.3	19.1	13.4	24
30		1.9	3.5	3.9	5.2	6.7	6.8	8	7.1	2.4	2.7	6.8	7.1	1.7	11	19.1	7.2	17.2	3.1	1.8	7.9	1.8	3	5.9	8.2	19.1	6.3	24
HOURLY MAX		27.8	25.5	25.0	23.7	21.5	21.3	22.7	23.8	28.5	29.5	35.1	35.0	34.4	32.3	33.7	35.5	30.5	30.1	30.4	31.2	31.0	25.7	24.8	28.1			
HOURLY AVG		8.7	8.3	8.0	8.8	8.2	8.0	8.3	8.7	9.3	10.3	11.2	12.4	12.9	13.6	13.4	14.0	14.9	13.3	11.5	9.9	9.3	8.5	8.0	8.9			

### 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: September 24, 2009

24 HOUR AVERAGES FOR APRIL 2011

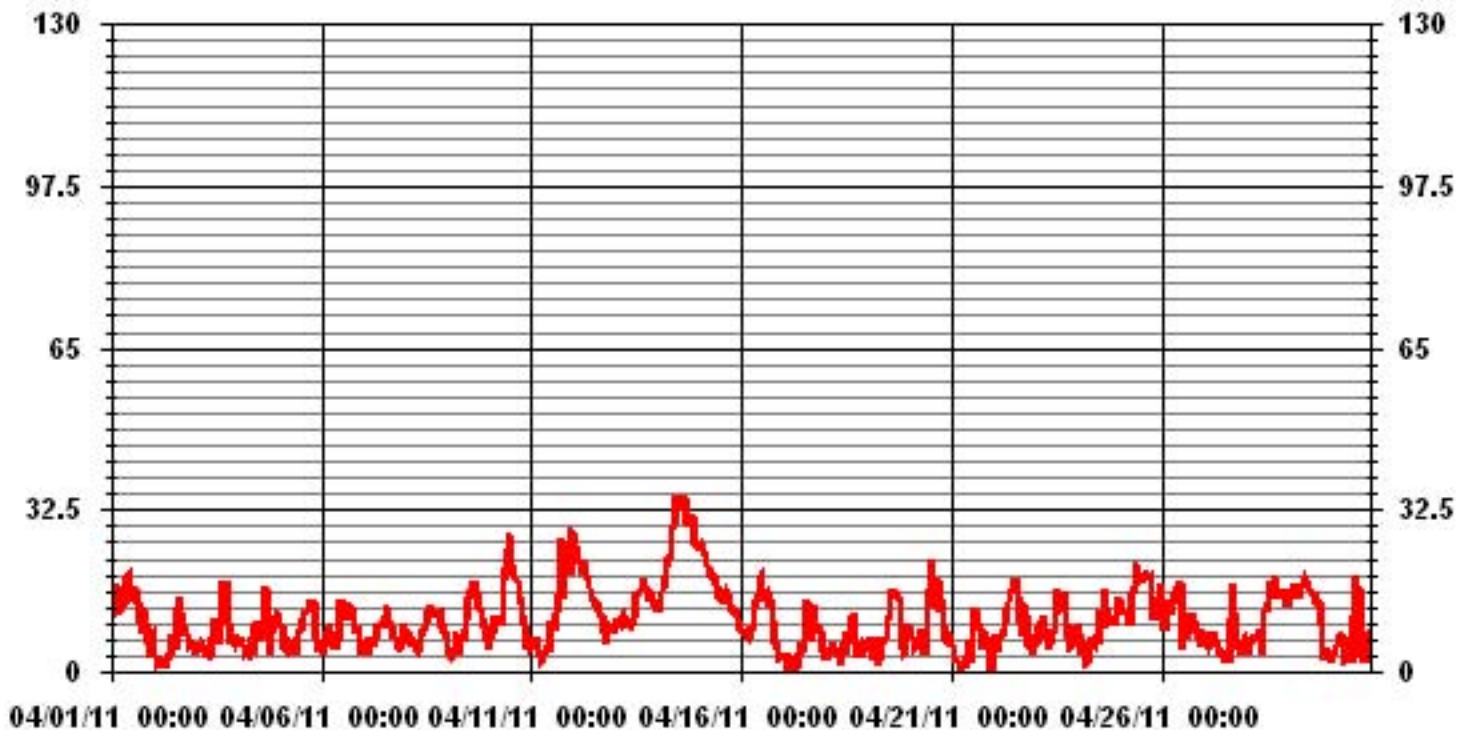


### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	35.5 KPH	@ HOUR(S)	15	ON DAY(S)	14
MAXIMUM 24-HR AVERAGE:	26.7 KPH			ON DAY(S)	14
CALMS (≤ 1 KPH)	0.13 %	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	0 HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION:	6.30	MONTHLY AVERAGE	10.34	KPH	



### 01 Hour Averages



— LICA33 WSP KPH

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE**

APRIL 2011

**VECTOR WIND SPEED MAX instantaneous maximum in km/hr**

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.
DAY	1	19	22.3	23.9	28.1	19.3	21.9	24	30.7	29.1	29.6	25.4	25.7	25.8	28.1	31	24.9	21	15.7	18.9	15.7	13.9	12.9	16.7	12.5	31
	2	11.9	12	6.2	8.6	6.2	4.3	4.9	4.1	5.5	5.7	6.2	11.3	8	7.9	33	35.6	35.1	22	15.8	17.7	11	10.6	11.2	10.2	35.6
	3	7.7	8.5	8.3	9	9.6	8.8	7.9	5.9	8.5	8.7	15.6	27.4	17.1	16	14	28.5	28.1	27	23.7	18.7	17.8	16.9	16.2	14.9	28.5
	4	16	11.1	12.7	11.5	7.3	12.8	8.7	17.6	15.9	10.7	13.8	16.9	15.8	16.4	18.7	18.2	28.4	27.6	15.6	6.5	19.9	16.3	15.3	15.4	28.4
	5	14.6	12.8	14.7	11.7	7.7	8.2	9.9	10	11.5	8.1	7.8	11.1	21	21.3	21.5	18	19.4	20.5	21	17.7	33.7	14.1	9.1	12.5	33.7
	6	11	9.8	12.9	11.2	12.4	8.5	7.8	8.8	11	12.1	16.2	25.8	18.7	24.9	17.8	20.2	20.2	18.4	17.3	11.6	13.5	12.7	10.4	8	25.8
	7	11.5	9.1	10.6	7.2	12.3	10.1	9.2	13	16.6	17.5	17.4	18.8	23.8	28.2	27	19.3	13.8	26.7	14	9.9	10.1	6.7	13.8	12.3	28.2
	8	12.3	13.5	12.9	9.3	9.2	12.7	12.3	11.3	12.1	19.8	20.9	23.4	25.3	28.3	29.1	28	26.2	27.7	25.5	26.7	22.7	22.8	19.4	17.5	29.1
	9	14.5	8.8	7.3	6.2	10.5	12.4	8.7	10	17.7	11.2	13.8	21	24.4	24.8	24.3	27.2	24.7	23.6	20.2	16.8	14.6	13.2	10.5	8.7	27.2
	10	9.9	11	12.6	16.4	16	15.2	18.6	21.1	30.3	33.8	43	43.9	39.3	37.8	37.2	32.2	36.5	24.8	22.8	15	14.1	11.4	9.3	6.4	43.9
	11	7.9	9.8	9.9	11.4	10.6	5.9	6.5	9.1	10.2	13.3	13.9	14.7	18.5	21.4	26.1	28.2	42.6	53.6	42	54.6	45.1	35.4	32.3	57.9	57.9
	12	50.5	36.5	41.7	36.6	33.4	40.7	37	37.1	35.8	34.2	28.8	28.2	26.9	31	25.2	24.9	22.2	18.7	13.2	15.2	15.1	12.3	11.6	14.1	50.5
	13	13.8	13.3	12.5	16.1	16.4	14.3	14.3	12.9	13.1	14.3	26.8	26.7	29.3	29.1	30	30.6	29.1	27.7	22.7	21.8	26.3	20.3	20.9	18.7	30.6
	14	15.6	19.7	24.3	24.2	25.1	32.7	31.9	35.4	46.1	45.3	54.2	51.2	49.1	56.8	51	57	51.8	44.1	43.8	51.2	50	36.3	37.8	38.7	57
	15	35.3	37.1	39.3	34.6	31.8	32.1	29.8	29.2	27.8	28.2	24.8	24.4	22.3	22.3	24.5	26.5	25.6	25.7	24	20.2	22.6	19.7	18.7	13.7	39.3
	16	12.2	12.6	10.6	11.9	10.7	10.7	15.9	21.4	20.9	23.5	31.1	29	33	24.5	21.3	24.9	22.7	21.8	17.3	12.5	6.8	6.2	5.5	6.2	33
	17	5.7	6	6.4	11.8	4	7.6	6.3	5.9	10.1	14.2	14.2	14.2	24	29.2	31.4	23.3	33.4	24.4	17.8	14.9	15.7	16	8.6	5.8	33.4
	18	6.5	5.8	6.6	6.6	7.3	8.8	7.8	6.9	5.3	13.2	13.8	23.5	25.4	16.8	22.1	25.5	28.4	23.2	17.6	12.8	14.2	9.8	9.7	11.2	28.4
	19	12	11	6.4	11.6	9.8	7.4	7.5	8.7	10.9	13.6	16.3	33.7	32.9	33.4	36.6	35.9	33.5	31.6	32.4	13.7	8.3	11.2	15.1	14.1	36.6
	20	12.6	12.3	11.3	12.8	10.7	9.9	15.4	13.9	11.6	14.9	29.9	31.7	44.1	40.6	38	36.5	35.3	28.4	23.6	16.7	13.8	8.5	10.5	8.8	44.1
	21	9.5	7	5.7	7.7	10.4	4.7	5.1	5.1	7	15	11.1	16.3	30	34.1	25.2	26.1	24.4	26.2	16.8	14.7	12	10.7	4.5	7.5	34.1
	22	10.2	10.7	10.7	10.3	11.7	14.3	17.8	20	25	29.2	34.2	35.2	42	36.9	35.3	31.1	23.5	28.8	22	12.9	7.7	9.9	12.2	8.6	42
	23	9.3	14.2	14.1	16.3	16.4	15.1	14.6	13.5	13	15.3	18.6	29.8	35.4	34.8	38.8	35.4	29	24.6	17.6	8.3	8.4	7.6	10	13.4	38.8
	24	13.9	12.4	11	16.1	6.1	4.7	8.2	12.7	12.7	16.2	17.5	18	24.2	21.2	33.9	31	24.7	20.2	18.2	15.7	13.3	18	20.3	23.1	33.9
	25	19.6	18.5	18.2	17.7	14.5	15.9	22.7	21.7	31.8	34.2	29.6	31.7	31	32.4	32.9	31.9	29.6	30.4	27.3	13.3	19.6	21.4	18.9	31.3	34.2
	26	20.7	18.2	17.4	21.9	18.9	17.9	24.5	25	29.3	30.4	27.9	18.4	18	16	14.6	18.3	19.6	16.1	17.6	17.6	16.3	7.9	9.5	13.2	30.4
	27	11.3	11	9.5	11	9.8	11.4	11.8	11.6	12.2	11.7	13.6	20.9	14	13	12.2	33.9	35.8	20.2	15	11.6	13.6	8.8	9.7	12	35.8
	28	13.2	7.9	10.3	9.3	14.3	12.6	12.6	14.8	9.7	15.7	18.7	22.3	20.4	29.3	26.5	27.9	32.5	30.3	33.8	27.7	29.4	25.5	28.1	23.3	33.8
	29	29.5	28.9	30	32.1	29	27.5	27.2	33.6	31.9	32	34.9	32.6	35.4	37.9	33.3	29.5	30.8	28.3	22.5	10.2	6.8	13.5	9	4.6	37.9
	30	4.2	7.9	7.4	14.4	12	11	15.7	13.2	7.2	17	20.6	22.5	16.1	38.6	43.7	33.7	48.8	32.6	6.7	11.1	11.7	6.4	10.7	10.5	48.8
PEAK		50.5	37.1	41.7	36.6	33.4	40.7	37.0	37.1	46.1	45.3	54.2	51.2	49.1	56.8	51.0	57.0	51.8	53.6	43.8	54.6	50.0	36.3	37.8	57.9	

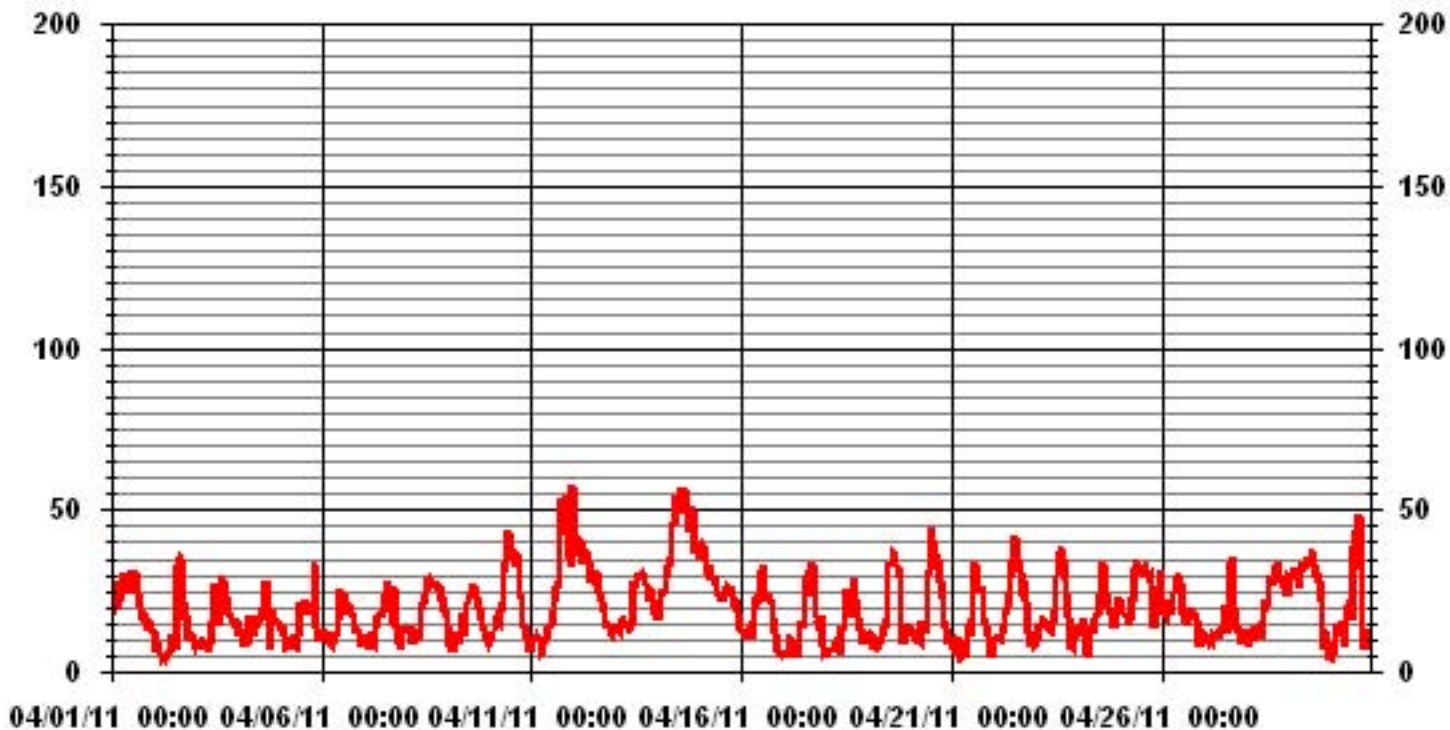
**STATUS FLAG CODES**

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**

MAXIMUM INSTANTANEOUS READING	57.9	KPH	@ HOUR(S)	23
			ON DAY(S)	11

### 01 Hour Averages



— LICA33 WSMAX KPH

LICA33  
WSP / WDR Joint Frequency Distribution (Percent)

April 2011

Distribution By % Of Samples

Logger Id : 33  
Site Name : LICA33  
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	1.11	1.11	.41	1.66	.55	.55	1.38	1.52	3.19	5.41	3.75	2.91	1.94	1.66	.69	28.88
< 12.0	1.38	1.11	1.38	.97	4.30	.69	.27	.27	1.94	1.38	8.61	4.58	2.77	4.30	1.38	.69	36.11
< 20.0	2.22	1.80	1.94	1.66	2.91	.97	1.80	1.25	.55	.00	3.33	3.33	2.50	2.50	.83	1.52	29.16
< 29.0	.00	.00	.00	.55	1.25	.00	.13	.00	.00	.00	.00	.13	.69	1.38	.00	.00	4.16
< 39.0	.00	.00	.00	.00	.97	.69	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.66
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.58	4.02	4.44	3.61	11.11	2.91	2.77	2.91	4.02	4.58	17.36	11.80	8.88	10.13	3.88	2.91	

Calm : .00 %

Total # Operational Hours : 720

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	7	8	8	3	12	4	4	10	11	23	39	27	21	14	12	5	208
< 12.0	10	8	10	7	31	5	2	2	14	10	62	33	20	31	10	5	260
< 20.0	16	13	14	12	21	7	13	9	4		24	24	18	18	6	11	210
< 29.0				4	9		1					1	5	10			30
< 39.0					7	5											12
>= 39.0																	
Totals	33	29	32	26	80	21	20	21	29	33	125	85	64	73	28	21	

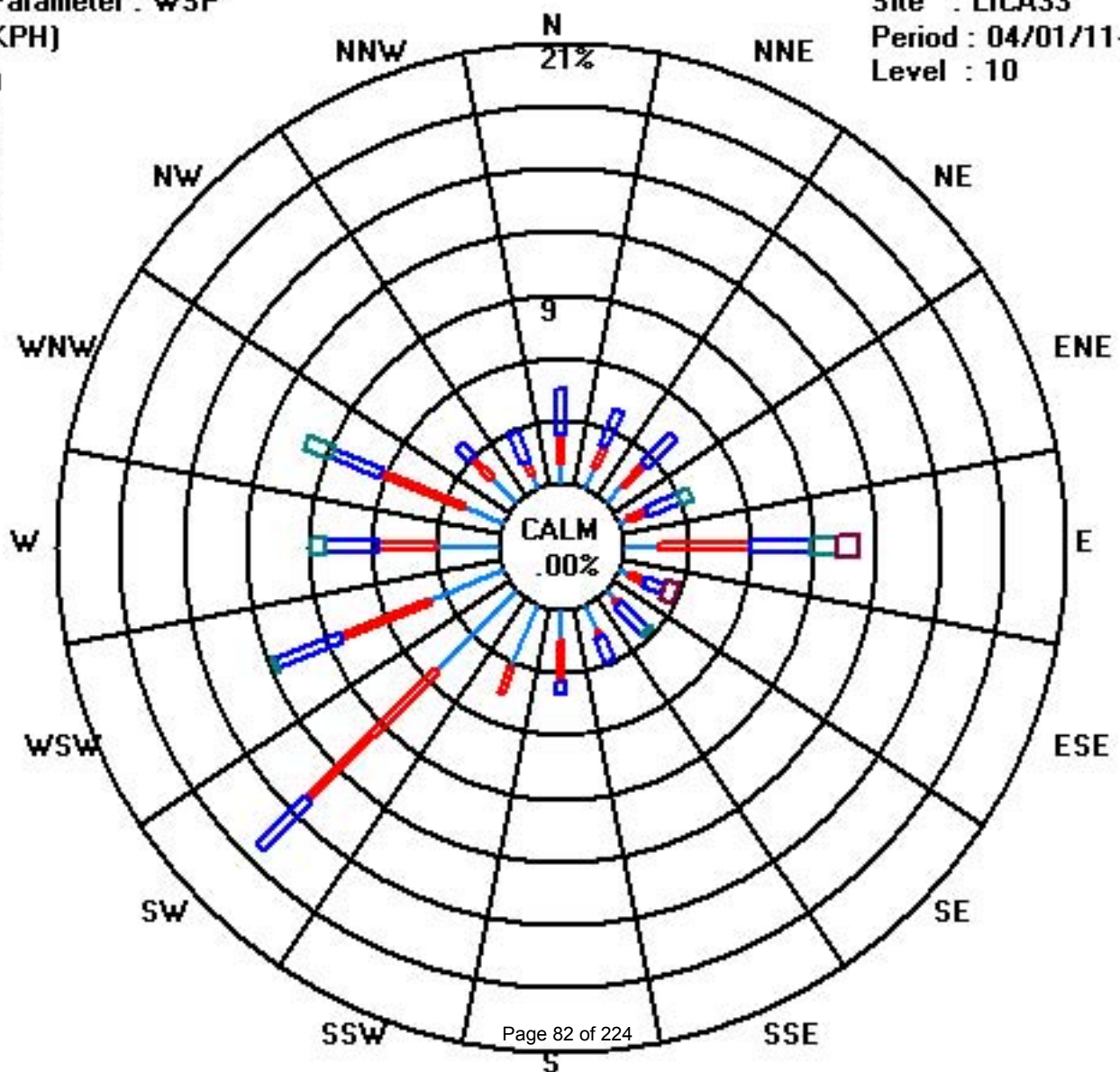
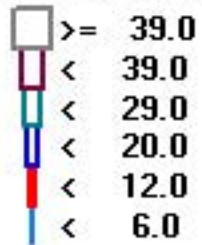
Calm : .00 %

Total # Operational Hours : 720

Class Limits (KPH)

Period : 04/01/11-04/30/11

Level : 10



# Vector Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 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	258	252	275	256	249	254	271	282	281	297	280	277	269	277	251	244	237	232	215	224	227	291	226	262	262	W	24
2	224	234	151	232	13	26	25	46	101	122	118	92	151	169	42	39	352	297	354	339	321	20	14	358	17	NNE	24	
3	335	323	300	313	353	2	345	349	21	212	212	271	226	209	216	241	232	224	224	222	193	189	189	191	237	237	SW	24
4	183	183	183	156	165	167	162	194	206	210	226	225	207	208	216	215	231	244	266	183	226	240	235	233	216	216	SW	24
5	237	240	242	260	238	245	269	263	285	241	144	153	295	299	288	225	219	219	220	222	221	233	256	219	240	240	WSW	24
6	227	208	230	233	226	230	230	215	211	219	214	237	229	238	226	236	242	230	233	234	251	226	279	231	232	232	WSW	24
7	222	234	247	264	284	273	256	277	301	300	283	288	314	297	314	305	282	283	302	302	255	247	226	225	280	280	W	24
8	228	226	228	232	222	183	195	192	209	201	194	197	191	190	188	185	190	187	185	182	193	186	188	190	196	196	SSW	24
9	201	193	197	214	210	222	195	220	232	227	187	227	228	226	225	228	232	232	224	226	228	230	243	257	225	225	SW	24
10	231	230	230	234	241	248	244	259	279	280	288	287	282	279	273	272	260	233	227	226	225	183	128	109	260	260	WSW	24
11	98	92	82	96	47	87	94	144	184	187	166	100	106	176	225	232	249	298	284	297	296	298	292	290	276	276	W	24
12	289	281	279	280	279	288	291	313	327	339	331	328	321	334	334	338	325	1	34	87	99	99	110	99	313	313	NW	24
13	101	98	92	88	95	90	94	92	97	100	136	135	150	145	141	145	137	137	108	108	135	130	126	115	121	121	ESE	24
14	104	87	86	85	82	81	84	92	95	88	94	98	99	112	96	99	103	102	99	108	113	99	94	95	97	97	E	24
15	86	81	76	73	70	67	62	62	59	57	57	57	58	43	45	46	47	47	43	30	29	30	33	31	58	58	ENE	24
16	31	20	349	352	350	358	37	50	59	76	67	82	82	88	88	96	95	91	98	104	109	81	52	21	68	68	ENE	24
17	7	9	156	342	296	291	315	195	219	269	231	214	255	257	310	319	299	247	242	239	242	260	242	216	265	265	W	24
18	214	220	228	233	231	247	282	315	255	237	241	231	295	238	218	198	211	134	225	338	14	76	169	214	230	230	SW	24
19	224	221	211	219	227	260	222	246	239	236	248	246	263	242	248	247	246	262	263	254	246	213	223	232	243	243	WSW	24
20	241	258	233	222	230	230	235	245	240	221	230	238	241	238	242	259	244	252	258	271	273	237	232	232	243	243	WSW	24
21	228	260	276	235	301	201	215	46	88	97	101	240	8	329	292	291	295	306	218	248	230	275	250	168	283	283	W	24
22	218	229	245	239	238	254	265	286	297	297	300	296	283	277	269	303	305	271	287	277	231	230	263	265	276	276	W	24
23	263	262	264	276	270	269	275	283	291	289	306	291	294	304	249	292	302	1	101	172	208	225	232	241	276	276	W	24
24	248	249	310	240	294	277	309	23	66	48	32	41	91	99	62	43	37	56	49	84	79	78	80	91	60	60	ENE	24
25	86	87	83	92	88	84	96	106	118	146	149	152	147	158	153	157	148	146	141	121	119	134	152	151	131	131	SE	24
26	138	81	72	79	107	87	70	94	90	84	70	27	67	43	45	352	13	39	44	332	11	308	286	276	63	63	ENE	24
27	289	289	265	255	240	283	258	269	259	232	246	286	291	202	201	303	292	286	279	188	240	283	71	304	274	274	W	24
28	328	325	277	261	266	292	293	296	284	38	48	31	29	33	32	45	31	25	19	16	12	6	5	9	10	10	N	24
29	9	9	10	11	8	1	2	8	10	13	6	353	347	348	353	334	328	314	334	335	251	171	153	90	357	357	N	24
30	85	73	85	97	124	53	64	94	74	322	326	40	349	304	313	283	54	37	312	259	206	221	263	285	359	359	N	24
HOURLY AVG	335	325	349	352	353	358	345	349	327	339	331	353	349	348	353	352	352	314	354	339	321	308	292	358				

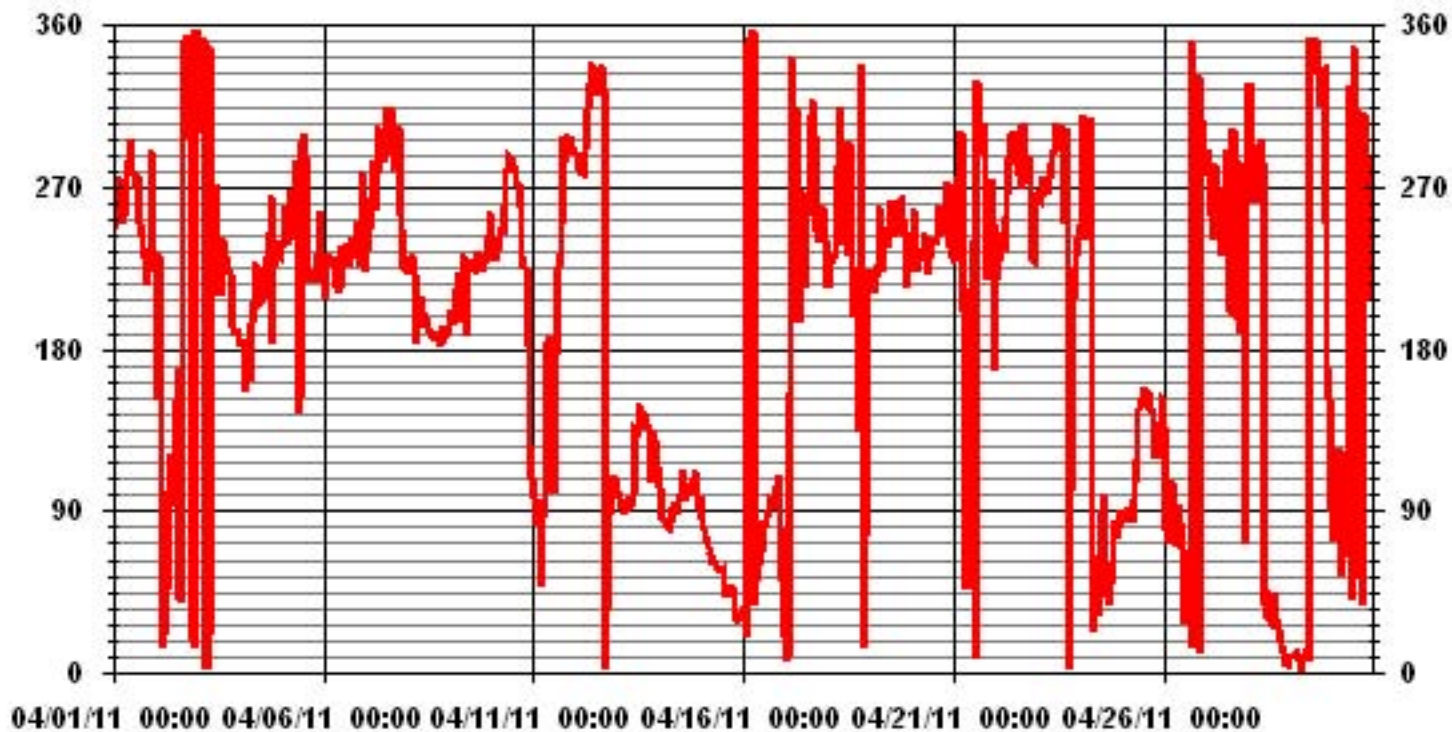
**STATUS FLAG CODES**

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

LAST CALIBRATION:	September 24, 2009
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	720 HRS
STANDARD DEVIATION	94.04	AMD OPERATION UPTIME	100.0 %
		MONTHLY AVERAGE	255 DEG

### 01 Hour Averages



— LICA33 WDR DEG



# Standard Deviation Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 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	6	8	7	7	8	6	7	9	7	8	10	9	7	12	8	10	17	17	6	15	10	18	39	7	
2	11	23	47	40	16	45	47	29	19	12	11	7	9	6	18	15	16	9	12	15	14	9	12	13	
3	14	10	6	9	12	9	8	12	16	30	20	17	26	22	23	11	7	7	6	11	24	21	23	26	
4	17	16	16	24	15	49	21	26	21	21	9	11	20	22	16	20	7	10	32	14	14	6	5	4	
5	5	5	7	17	44	8	10	11	9	19	18	7	31	15	12	8	9	9	10	8	8	12	25	15	
6	14	28	6	6	6	6	7	11	18	12	19	8	8	8	10	10	7	6	5	5	15	9	24	16	
7	16	7	45	16	7	8	9	10	8	13	12	13	18	13	22	16	22	14	12	10	19	9	7	6	
8	9	6	13	7	13	13	22	24	23	23	22	23	22	21	19	18	21	19	17	17	23	19	21	23	
9	25	29	20	15	21	12	23	17	20	7	21	17	11	9	12	7	7	7	6	4	4	6	10	11	
10	6	7	7	5	5	5	8	10	8	9	11	10	11	14	13	11	12	8	5	4	5	21	5	4	
11	4	4	6	5	43	57	35	16	24	24	31	8	14	19	17	10	13	10	10	9	9	9	8	9	
12	9	8	8	8	8	9	9	13	14	14	16	19	19	22	21	21	20	19	21	7	6	6	7	5	
13	5	5	6	6	6	7	7	8	8	10	20	15	16	14	18	17	13	10	6	4	6	6	5	5	
14	5	6	5	5	6	6	6	6	7	7	7	7	7	6	11	8	7	8	6	6	9	7	6	5	6
15	6	7	6	6	6	6	7	7	7	7	7	7	7	8	10	9	9	9	8	8	9	9	9	8	7
16	6	8	8	9	9	9	7	7	10	8	10	10	16	10	10	9	12	8	6	7	13	24	16	20	
17	12	11	30	18	46	23	62	51	27	30	35	32	27	17	20	32	25	14	12	8	8	9	12	17	
18	14	15	7	6	4	13	16	14	36	22	25	51	34	37	20	23	21	35	30	20	20	13	11	13	
19	12	18	33	19	5	20	29	53	19	19	29	22	25	16	16	15	14	15	13	13	18	18	12	7	
20	6	9	18	10	7	6	9	15	31	20	21	17	14	19	17	24	12	13	10	8	8	6	5	11	
21	7	19	23	45	54	45	47	46	14	13	34	65	23	17	31	30	20	42	13	8	11	43	30	17	
22	13	4	18	6	6	7	10	9	11	13	17	14	16	12	27	22	28	12	16	9	13	6	39	10	
23	9	8	7	7	7	11	11	25	20	22	24	25	15	21	25	22	13	19	7	12	12	6	4	6	
24	6	6	20	15	24	34	16	12	18	33	33	42	22	17	26	13	15	11	8	8	5	7	6	5	
25	6	6	6	6	5	6	6	6	10	10	15	13	14	13	14	13	11	10	7	4	5	7	12	9	
26	8	37	7	7	5	9	14	12	17	28	12	37	19	14	28	15	15	9	8	16	17	11	12	6	
27	6	7	9	9	8	7	11	15	25	27	54	47	61	61	59	29	10	10	20	13	16	30	14	11	
28	12	15	6	12	8	9	10	10	17	32	8	9	9	9	9	10	11	10	11	11	11	12	12	11	
29	12	12	13	13	12	13	15	14	16	16	16	18	20	19	21	19	23	16	13	11	22	16	14	8	
30	12	10	24	12	10	15	11	9	50	52	41	46	62	44	15	41	22	36	24	7	37	17	6	4	

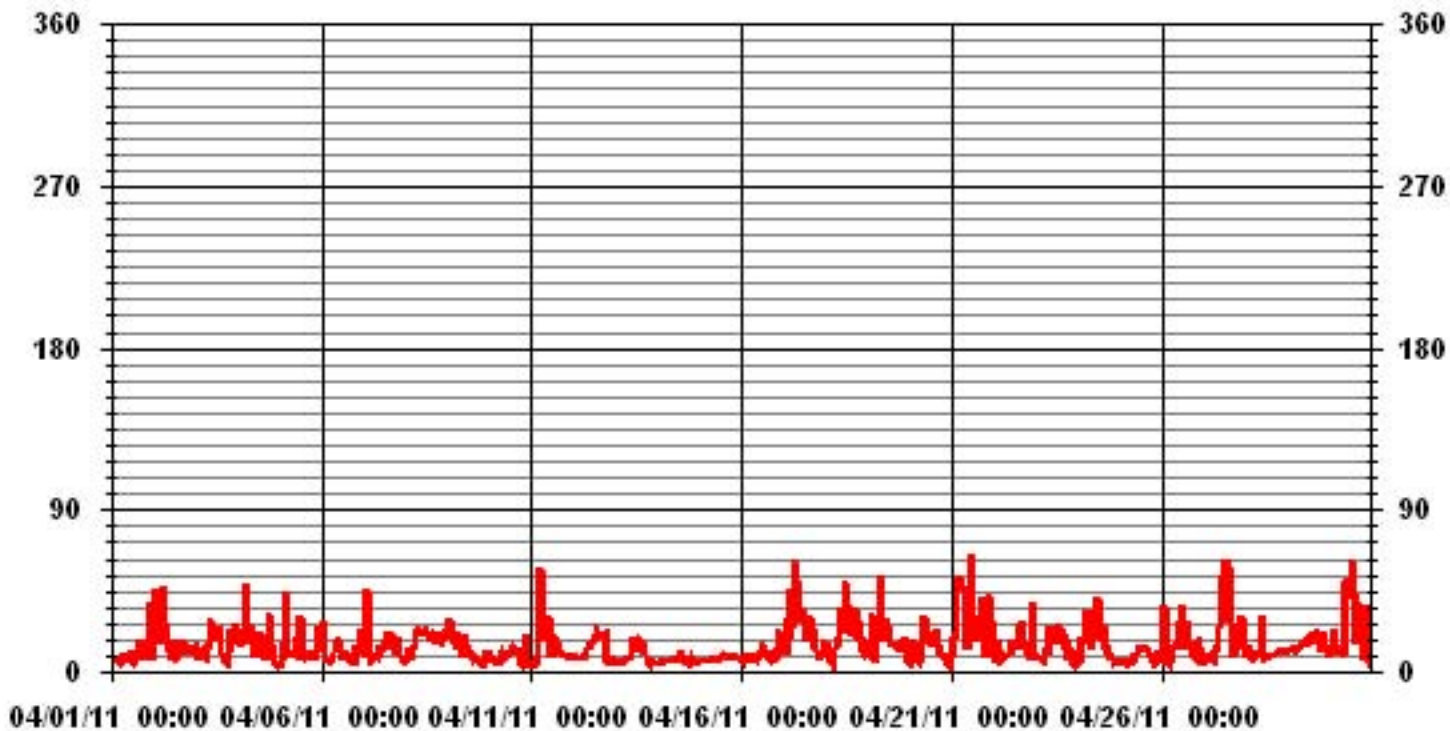
**STATUS FLAG CODES**

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

LAST CALIBRATION: September 24, 2009

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 720 HRS

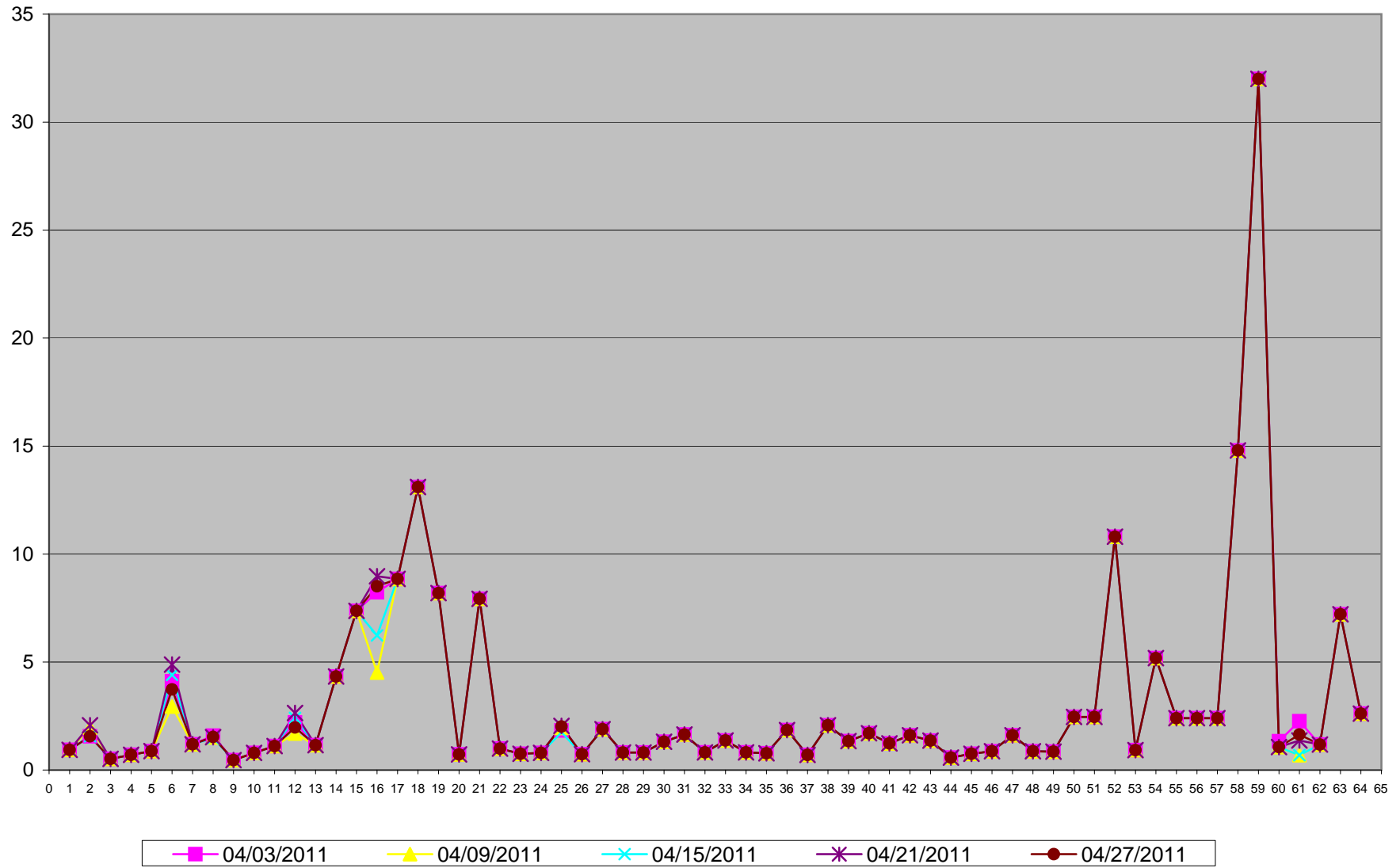
### 01 Hour Averages



— LICA33 STDWDIR DEG

# 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 April 2011

LICA- Portable Site

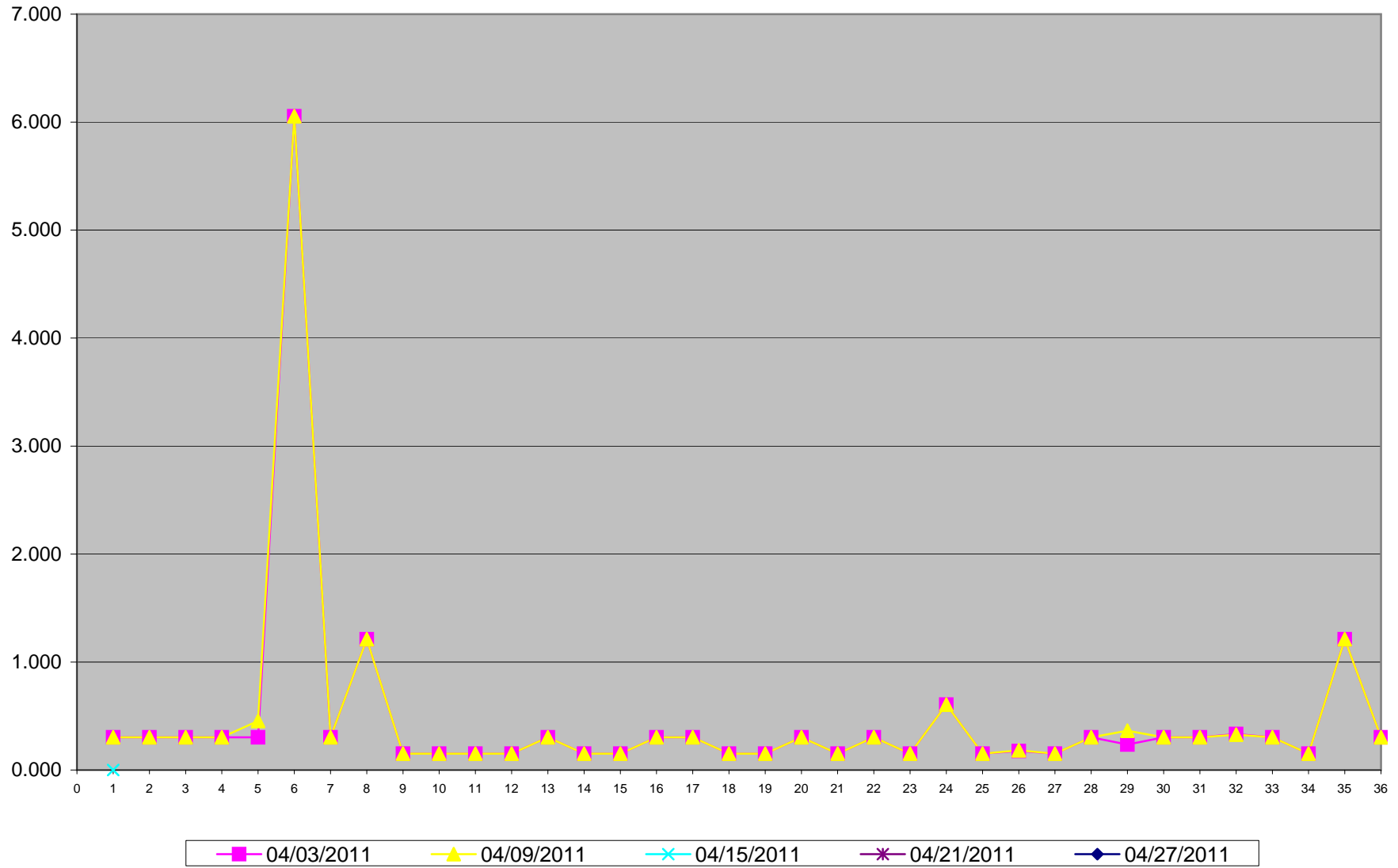
Unit: ng/m3

PAHs	04/03/2011	04/09/2011	04/15/2011	04/21/2011	04/27/2011
Sample Volume (unit: m3)	330.33	330.34	330.36	330.32	330.34
1 1-Methylnaphthalene	0.303	0.303	0.303	0.303	0.303
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	0.303	0.454	0.303	0.303	0.303
6 3-Methylcholanthrene	6.055	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-Dimethylantracene	1.211	1.211	1.211	1.211	1.211
9 Acenaphthene	0.151	0.151	0.151	0.151	0.151
10 Acenaphthylene	0.151	0.151	0.151	0.151	0.151
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	0.151	0.151	0.151	0.151
16 Benzo(b)fluorene	0.303	0.303	0.303	0.303	0.303
17 Benzo(e)pyrene	0.303	0.303	0.303	0.303	0.303
18 Benzo(g,h,i)perylene	0.151	0.151	0.151	0.151	0.151
19 Benzo(k)fluoranthene	0.151	0.151	0.151	0.151	0.151
20 Biphenyl	0.303	0.303	0.303	0.303	0.303
21 Chrysene	0.151	0.151	0.151	0.151	0.151
22 Coronene	0.303	0.303	0.303	0.303	0.303
23 Dibenz(a,h)anthracene	0.151	0.151	0.151	0.151	0.151
24 Dibenzo(a,e)pyrene	0.605	0.605	0.605	0.605	0.605
25 Fluoranthene	0.151	0.151	0.151	0.151	0.151
26 Fluorene	0.176	0.182	0.151	0.212	0.151
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	0.151	0.151	0.151
28 m-Terphenyl	0.303	0.303	0.303	0.303	0.303
29 Naphthalene	0.236	0.363	0.218	0.381	0.285
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	0.333	0.327	0.200	0.521	0.418
33 p-Terphenyl	0.303	0.303	0.303	0.303	0.303
34 Pyrene	0.151	0.151	0.151	0.151	0.151
35 Quinoline	1.211	1.211	1.211	1.211	1.211
36 Tetralin	0.303	0.303	0.303	0.303	0.303

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



PAHs in ng/m3 Site: LICA - Portable Site



1	1-Methylnaphthalene
2	1-Methylphenanthrene
3	2-Chloronaphthalene
4	2-Methylantracene
5	2-Methylnaphthalene
6	3-Methylcholanthrene
7	7,12-Dimethylbenzo(a)anthracene
8	9,10-Dimethylantracene
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

### SO<sub>2</sub> Calibration Report

#### Station Information

Calibration Date	April 13, 2011	Previous Calibration	March 10, 2011
Company	Lakeland Community and Industry Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	8:57	End Time (MST)	12:23
Reason:	Monthly Calibration		
Barometric Pressure	0.939 atm	Station Temperature	23 Deg C
Cal Gas	49 ppm	Cal Gas Expiry date	2/4/2013
DAS Output Voltage	0 - 10 Volts		

#### Equipment Information

Analyzer Make / Model:	API 100E	S/N :	467	Method:	UV absorbtion
Converter Make / Model:	-	S/N :	-		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO 717		
Flow Meter:	API 700	S/N :	831		

#### Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 1000	ppb	
Sample Flow / Box Temp	581 ccm, 32.4 Deg C	578 ccm, 33.8 Deg C	
HVPS / Lamp Setting	612, 2083	612, 2083	
PMT / RxCell Temp	8.1 Deg C, 50.0 Deg C	8.1 Deg C, 50.0 Deg C	
Converter / IZS Temp	NA Deg C, 45.0 Deg C	NA Deg C, 45.0 Deg C	
Offset / Slope	66.9, 1.05	66.9, 1.054	

#### Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
4922	76.5	750	745	1.0066
4922	76.5	750	750	0.9999
4959	40.8	400	397	1.0072
4981	17.3	170	170	0.9976
4996	0	0	0	N/A
Sum of Least Squares				1.0014
New Correction Factor				0.9999

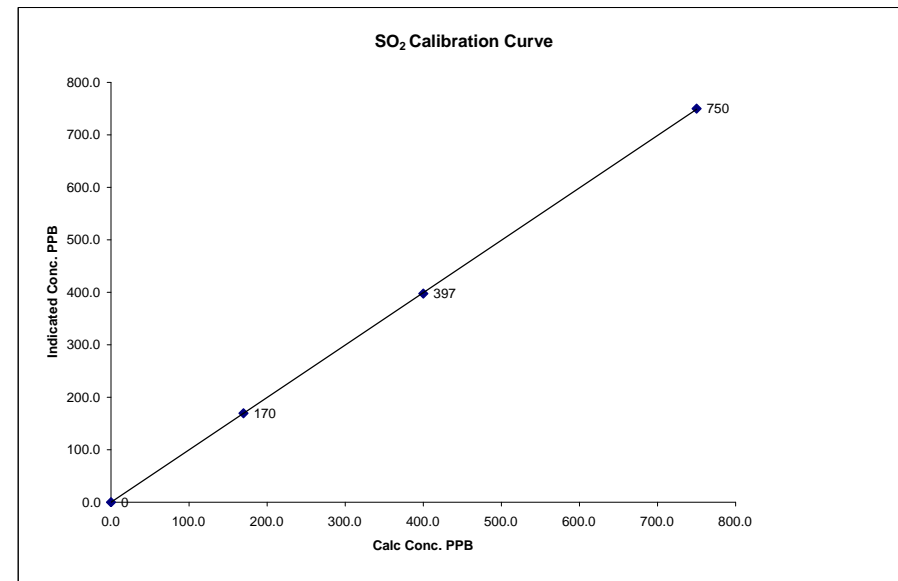
	Before Calibration	After Calibration
Auto Zero	0.4	0.3
Auto Span	366	369
Sample Lines Connected		YES
Percent Change from Previous Calibration		-5.1%

Calibration Performed by: Ting Xu

### SO<sub>2</sub> Calibration Curve

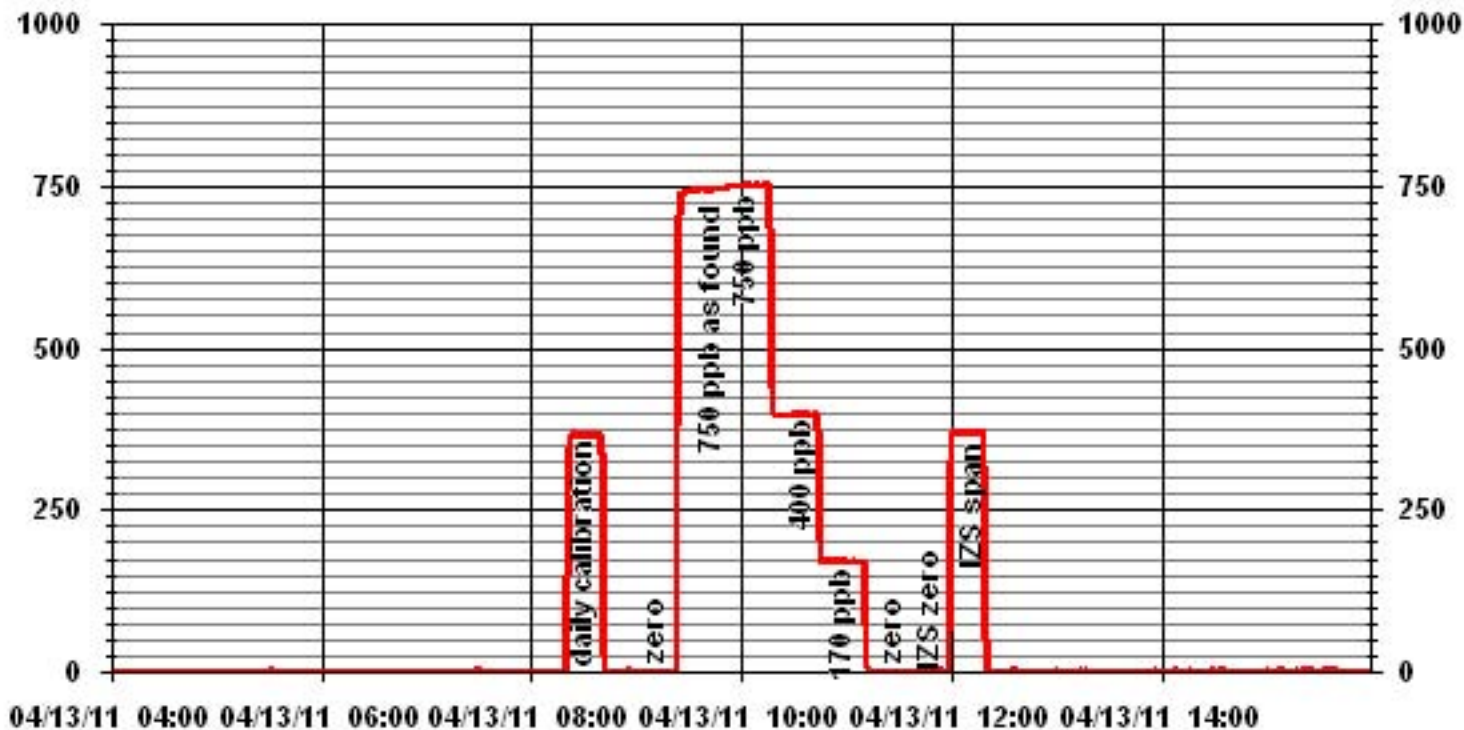
Calibration Date	April 13, 2011
Company	Lakeland Community and Industry Association
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M
Start Time (MST)	8:57
End Time (MST)	12:23

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999979
0	0	n/a	Intercept	(± 3% F.S.)	-0.351426
170	170	0.9976			
400	397	1.0072			
750	750	0.9999			



Notes:

### 01 Minute Averages



# Hydrogen Sulphide

## H<sub>2</sub>S Calibration Report

### Station Information

Calibration Date	April 12, 2011		Previous Calibration	March 10, 2011	
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION				
Plant / Location	Portable/ Devon Wellsite 13-16-62-5-W4M				
Start Time (MST)	7:49	End Time (MST)	11:01		
Reason:	Monthly Calibration				
Barometric Pressure	0.942	atm	Station Temperature	22	Deg C
Cal Gas	10.2	ppm	Cal Gas Expiry date	02/02/2012	
DAS Output Voltage	0 - 1 Volts				

### Equipment Information

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

### Analyzer Settings

		Before Calibration		After Calibration	
Concentration Range		0 - 100		ppb	
Sample Flow / Box Temp	531 ccm	33.4	Deg C	534	33.8 Deg C
HVPS / Lamp Setting	540	2136		2136	
PMT / RxCell Temp	7.9 Deg C	50	Deg C	7.9	50 Deg C
Converter / IZS Temp	314 Deg C	45	Deg C	315.1	45 Deg C
Offset / Slope	52.3	1.058		52.3 1.058	

### Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	N/A
4959	39.2	80	80	1.0000
4981	19.6	40	41	0.9751
4985	11.2	23	23	0.9941
4996	0	0	0	N/A
Sum of Least Squares				0.9948
New Correction Factor				1.0000

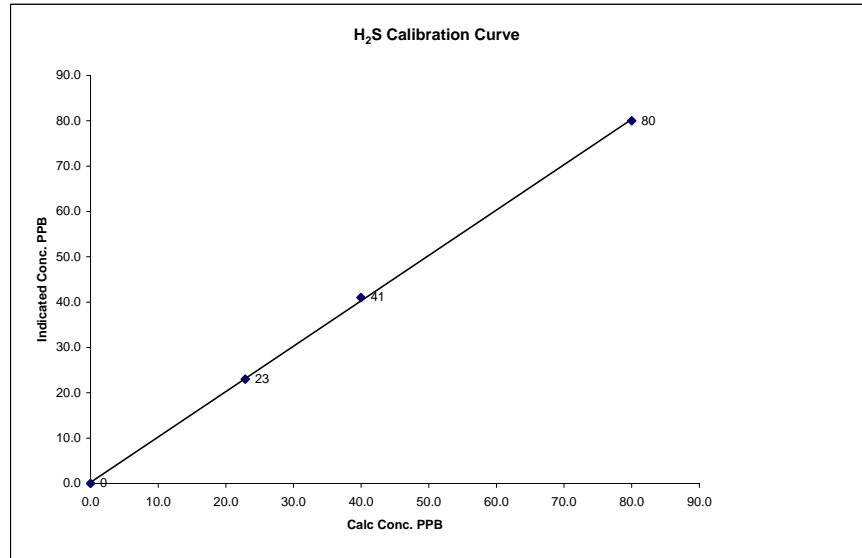
		Before Calibration	After Calibration
Auto Zero		1.4	1.5
Auto Span		60	58
Sample Lines Connected			YES
Percent Change from Previous Calibration			0.0%

Calibration Performed by:                     Ting Xu                    

## H<sub>2</sub>S Calibration Curve

Calibration Date	April 12, 2011	
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION	
Plant / Location	Portable/ Devon Wellsite 13-16-62-5-W4M	
Start Time (MST)	7:49	End Time (MST) 11:01

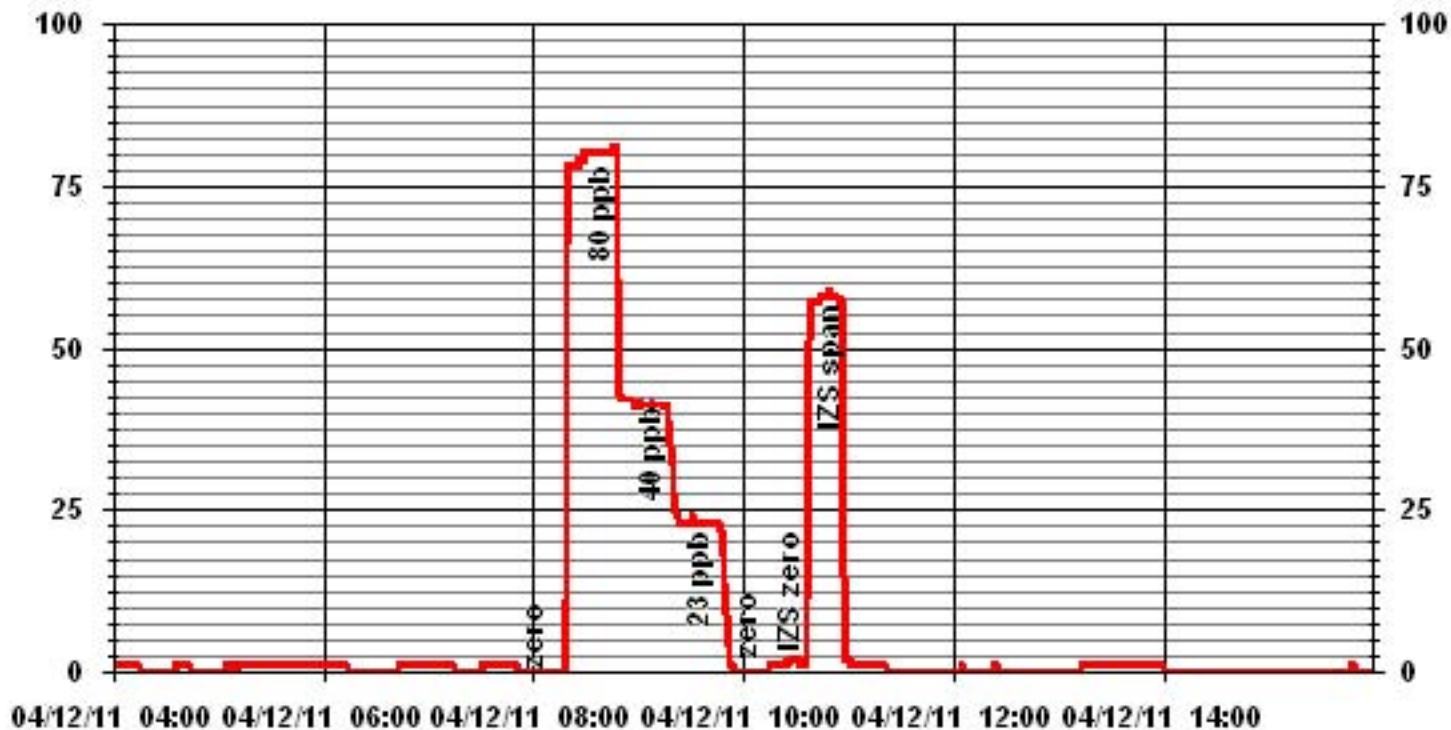
Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	0.999789 1.000810 0.260728
0	0	n/a	Intercept		
23	23	0.9941			
40	41	0.9751			
80	80	1.0000			



Notes:



### 01 Minute Averages



# Particulate Matter 2.5

**TEOM 1405F Audit**

	<b><u>Station</u></b>		<b><u>Audit Transfer Standard</u></b>
Date:	<u>April 18, 2011</u>	Make/Model:	<u>Streamline FTS</u>
Station Name:	<u>Lica Portable (CASA # 33)</u>	Serial Number:	<u>Hi 091001</u>
Location:	<u>Devon Wellsite 13-16-62-5 W4M</u>	Cell s/n:	<u>Lo 091099</u>
Operator:	<u>LICA</u>	Thermometer s/n:	<u>Fisher Brad 15-021B</u>

	<b><u>Sampler</u></b>		<b><u>Set-up and current Sampler readings</u></b>
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>1405A207691003</u>	Filter Load (%)	<u>32.9%</u>
Firmware Ver.	<u>1.51</u>	K <sub>o</sub> Factor	<u>15634.0</u>
Parameter	<u>PM 2.5 (with FDMS)</u>	Temp (°C)	<u>3.5</u>
		Press (ATM)	<u>0.940</u>

**Conversion from mmHg or "Hg to ATM (Atmospheres)**

ATM = (mmHg) X (1.316 X 10<sup>-3</sup>) or ATM = ("Hg) X (3.34207 X 10<sup>-2</sup>)

**Note: Tolerances are noted as BOLD in Brackets**

**Audit**

<b>Status</b>			
Noise <b>&lt;0.10ug</b>	<u>0.003</u>	Warnings	<u>None</u>
0.32	<u>0.32</u>	Pump Gauge (inHg)	<u>-19</u>
<b>Temperature/Pressure</b>			
Measured Temp ( <b>± 2 °C</b> )	<u>3.2</u>	<b>D °C</b>	<u>0.3</u>
Measured Press ( <b>± 0.01atm</b> )	<u>0.922</u>	<b>DATM</b>	<u>0.018</u>
<b>Flow Audit</b>			
Indicated Main Flow (l/min)	<u>3.00</u>	Main Flow Drift ( <b>±10.0%</b> )	<u>1.38%</u>
Measured Main Flow (l/min)	<u>3.06</u>	Flow Adjusted to Measured?	<u>Yes</u>
Indicated Bypass Flow (l/min)	<u>13.67</u>	Bypass Flow Drift ( <b>±10.0%</b> )	<u>2.16%</u>
Measured Bypass Flow (l/min)	<u>14.04</u>	Flow Adjusted to Measured?	<u>Yes</u>
<b>Leak Check</b>			
Main ( <b>&lt; 0.15 l/min</b> )	<u>NA</u>	<b>Instrument Setup</b>	
Aux ( <b>&lt; 0.6 l/min</b> )	<u>NA</u>	Flow Control = Active	
		Report Conditions = Standard (25.0 C and 1atm)	
<b>K<sub>o</sub> Factor</b>			
Measured	<u>NA</u>		
K <sub>o</sub> Difference ( <b>± 2.5%</b> )	<u>NA</u>		

**Start Time:** 12:05      **Finish Time:** 13:55

**Sample Inlet Cleaned:** Yes      **New Filters Installed:** Yes  
**New Filter Loading %:** 18.8%

**Comments:**

**Auditor/s:** Ting Xu

# Nitrogen Dioxide

## NOx - NO- NO2 Calibration Report

### Station Information

Calibration Date	April 12, 2011		Previous Calibration	October 10, 2011	
Company	LICA		Plant/Location	Portable/ 13-16-62-5W4M	
Start Time (MST)	7:49		End Time (MST)	14:20	
Reason:	Monthly Calibration		Other		
Barometric Pressure	0.942 atm	Station Temperature	22 Deg C	MFCF	1
Cal Gas Concentration	NOx 51.7 ppm	NO	50.4 ppm	Cal Gas Expiry date	04-Feb-13
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	NA	Volts	

### Equipment Information

Analyzer Make / Model:	API 200E	S/N :	593	Method:	Chemiluminescent
Calibrator Make / Model:	EnviroNics 2000	S/N:	1991		
DAS Make / Model:	ESC 8832	S/N :	AO 717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	EnviroNics 2000	S/N :	1991		

### Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0-1000			ppb			
Sample Flow/Conv. Temp	484 ccm	314.2 Deg C		484 ccm	314.4 Deg C		
Ozone Flow / Vacuum	78 ccm	4.2 "Hg-A		79 ccm	4.2 "Hg-A		
HVPS / A ZERO	662 Volts	6.7 MV		662 Volts	6.8 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	32.8 Deg C	45.3 Deg C		33.6 Deg C	45.2 Deg C		
Offset	1.9 NOx	0.8 NO		2.9 NOx	-0.2 NO		
Slope	1.039 NOx	1.008 NO		1.094 NOx	1.056 NO		
NO2 COEF / Conv Efficiency	NA	0.996		NA	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	----	0	0	----	0	-1	1	----	----
4994	0.0	----	0	0	----	-1	0	0	----	----
4921	74.2	----	768	749	----	726	716	10	1.0563	1.0456
4921	74.2	----	768	749	----	770	750	20	0.9961	0.9982
4954	39.6	----	410	400	----	409	400	9	-1.2933	-1.2648
4973	19.8	----	205	200	----	205	201	6	-0.3935	-0.3881
4995	0.0	----	0	0	0	-1	0	-1	----	----

### 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	74.2	----	768	749	----	774	753	21	----	----
4921	74.2	600	768	----	580	775	194	580	1.0175	100.00%
4921	74.2	250	768	----	252	776	522	254	1.0328	100.87%
4921	74.2	140	768	----	150	776	624	152	1.0563	101.55%

Linearity	Sum of Least Squares		NOx= 0.999	NO= 0.998	NO2= 0.998
OK?	Yes	No	Correction Factors:	NOx= 0.9961	NO= 0.9982
Average Converter Efficiency= 100.81%					

Before Calibration				After Calibration			
Auto Zero	-0.6 NOx	-0.1 NO2		-0.9 NOx	-2.4 NO2		
Auto Span	709 NOx	695 NO2		742 NOx	725 NO2		
Sample Lines Connected YES							
Percent Change from Previous Calibration				NOx -5.6%	NO -4.5%	NO2 -1.4%	

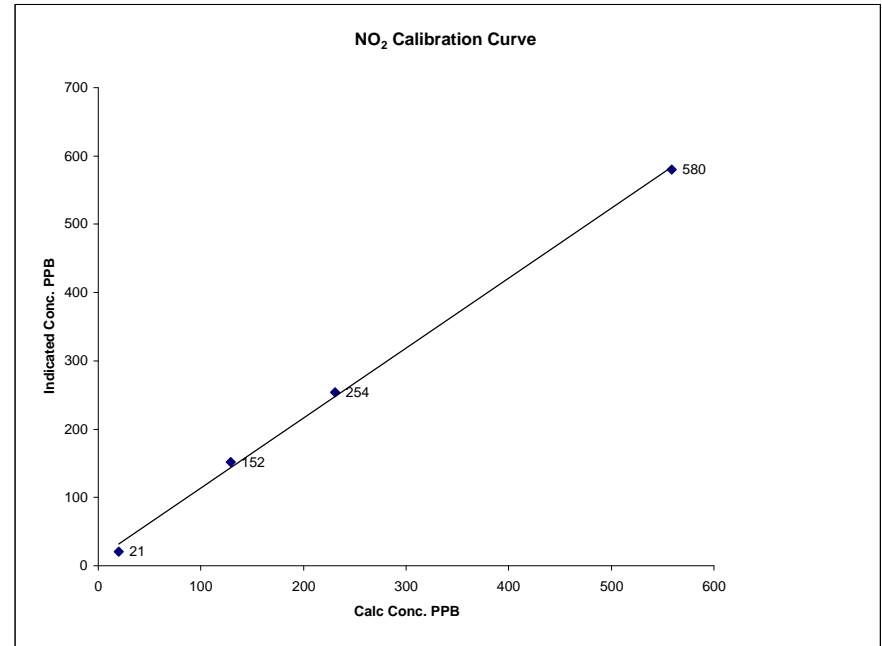
Notes: Additional point done for ozone cal (O3 set point= 420), NOx=777, NO=362, NO2=414.

Calibration Performed by: Ting Xu

## NO2 Calibration Curve

Calibration Date	April 12, 2011	
Company	LICA	
Plant / Location	Portable/ 13-16-62-5W4M	
Start Time (MST)	7:49	End Time (MST) 14:20

Calculated Conc.	Indicated Response	Correction Factor	Correlation Coefficient (≥ 0.995)	0.998586
ppb	ppb		Slope	1.025090
20	21	N/A	Intercept	11.11004
129	152	0.8487		
231	254	0.9094		
559	580	0.9638		

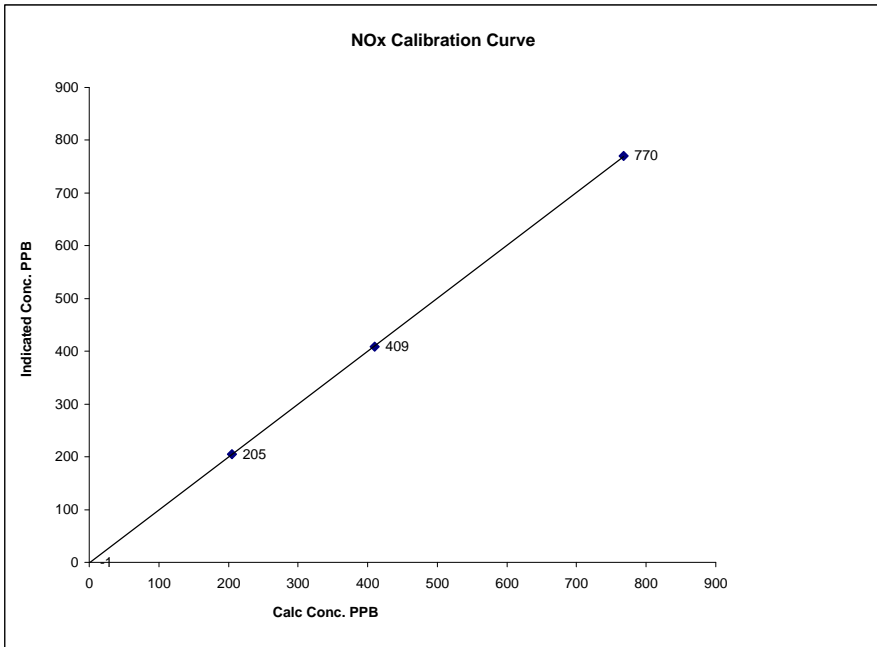


Notes:

### NOx Calibration Curve

Calibration Date April 12, 2011  
 Company LICA  
 Plant / Location Portable/ 13-16-62-5W4M  
 Start Time (MST) 7:49 End Time (MST) 14:20

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999994
0	-1	N/A	Slope (0.85 to 1.15)	1.003559
205	205	1.0001	Intercept (± 3% F.S.)	-1.22594
410	409	1.0024		
768	770	0.9974		

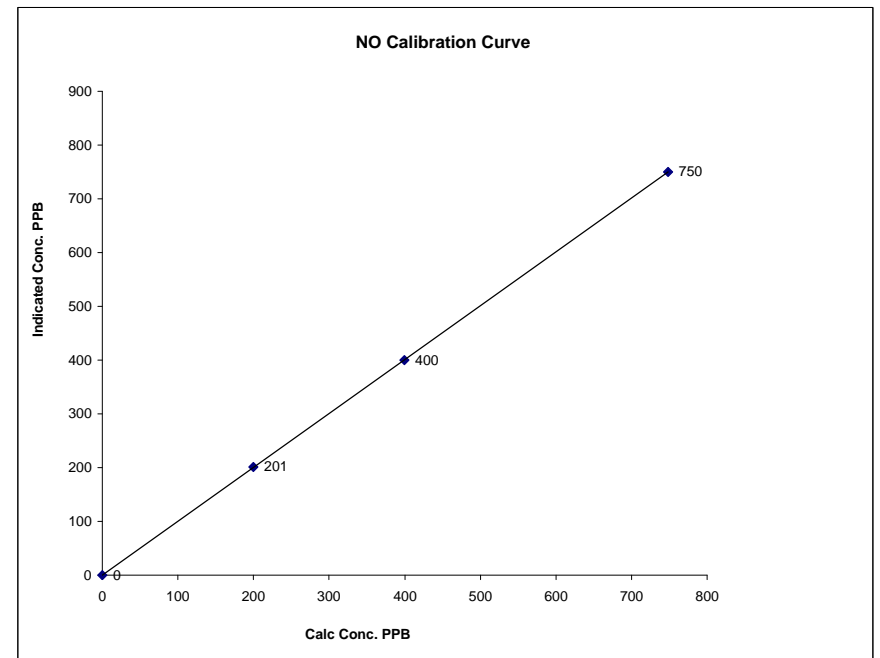


Notes:

### NO Calibration Curve

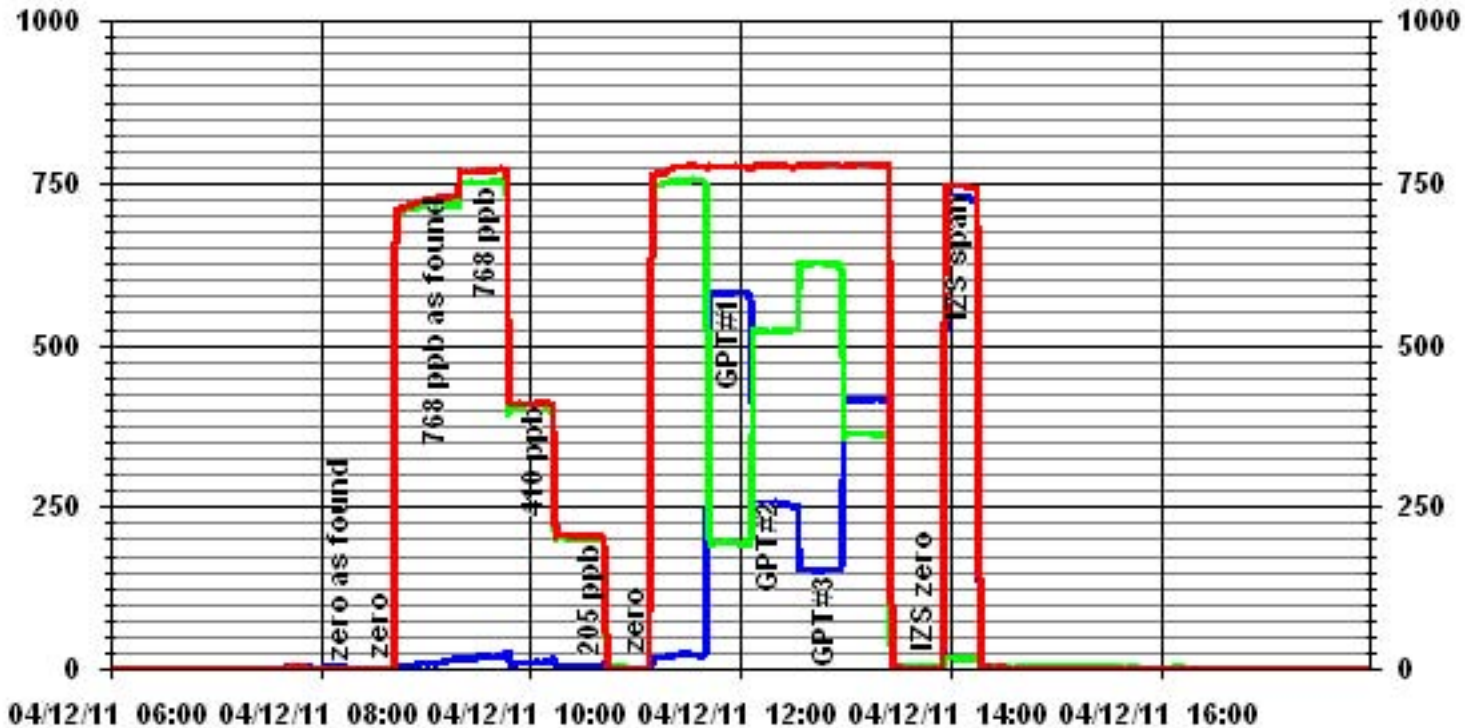
Calibration Date April 12, 2011  
 Company LICA  
 Plant / Location Portable/ 13-16-62-5W4M  
 Start Time (MST) 7:49 End Time (MST) 14:20

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999998
0	0	N/A	Slope (0.85 to 1.15)	1.000681
200	201	0.9944	Intercept (± 3% F.S.)	-0.8534
400	400	0.9992		
749	750	0.9982		



Notes:

### 01 Minute Averages

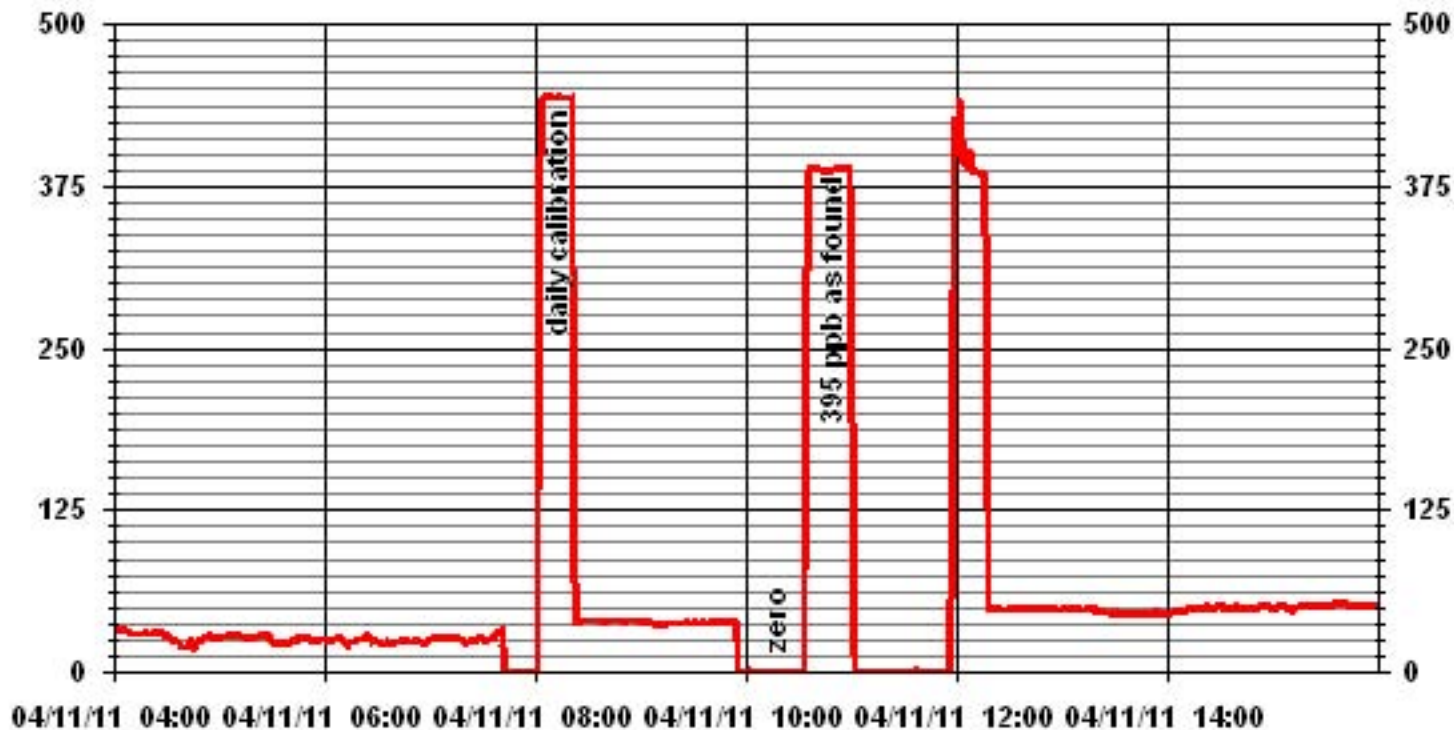


# Ozone





### 01 Minute Averages



### O<sub>3</sub> Calibration Report

#### Station Information

Calibration Date	April 13, 2011	Previous Calibration	April 11, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	8:57	End Time (MST)	12:02
Reason:	Monthly Calibration		
Barometric Pressure	0.939 mm Hg	Station Temperature	23 Deg C
DAS Output Voltage	0 - 10 Volts		

#### Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	1002240372	Method:	Photometric
Calibrator Make / Model:	Enviro-nics 2000	S/N :	1991	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO717		

#### Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 500			
Cell A Flow / Cell B Flow	761 ccm	771 ccm	760 ccm	769 Deg C
Pressure	708 mmHg		706 mmHg	
Bench Lamp Temp	54.1 Deg C		54.1 Deg C	
O3 Lamp / Box Temp	68.2 Deg C	31.9 Deg C	68.3 Deg C	32.7 Deg C
Offset/Slop	0	0.971	0	0.971

#### Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	N/A
4995	420	391	392	0.9974
4995	250	231	233	0.9914
4995	140	129	131	0.9847
4995	0	0	0	N/A
Sum of Least Squares				N/A
New Correction Factor				0.9974

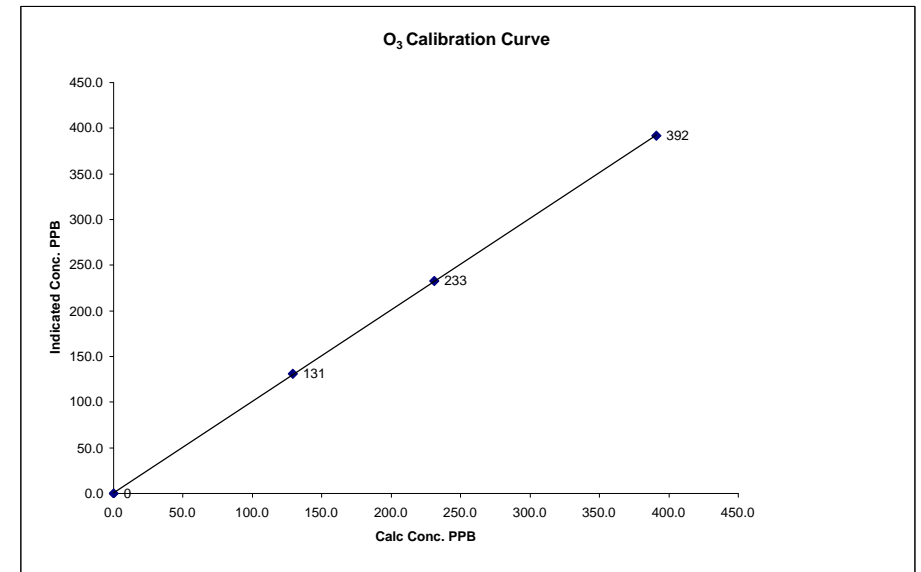
	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	345	348
Sample Lines Connected		YES
Percent Change from Previous Calibration		-

Calibration Performed by: Ting Xu

### O<sub>3</sub> Calibration Curve

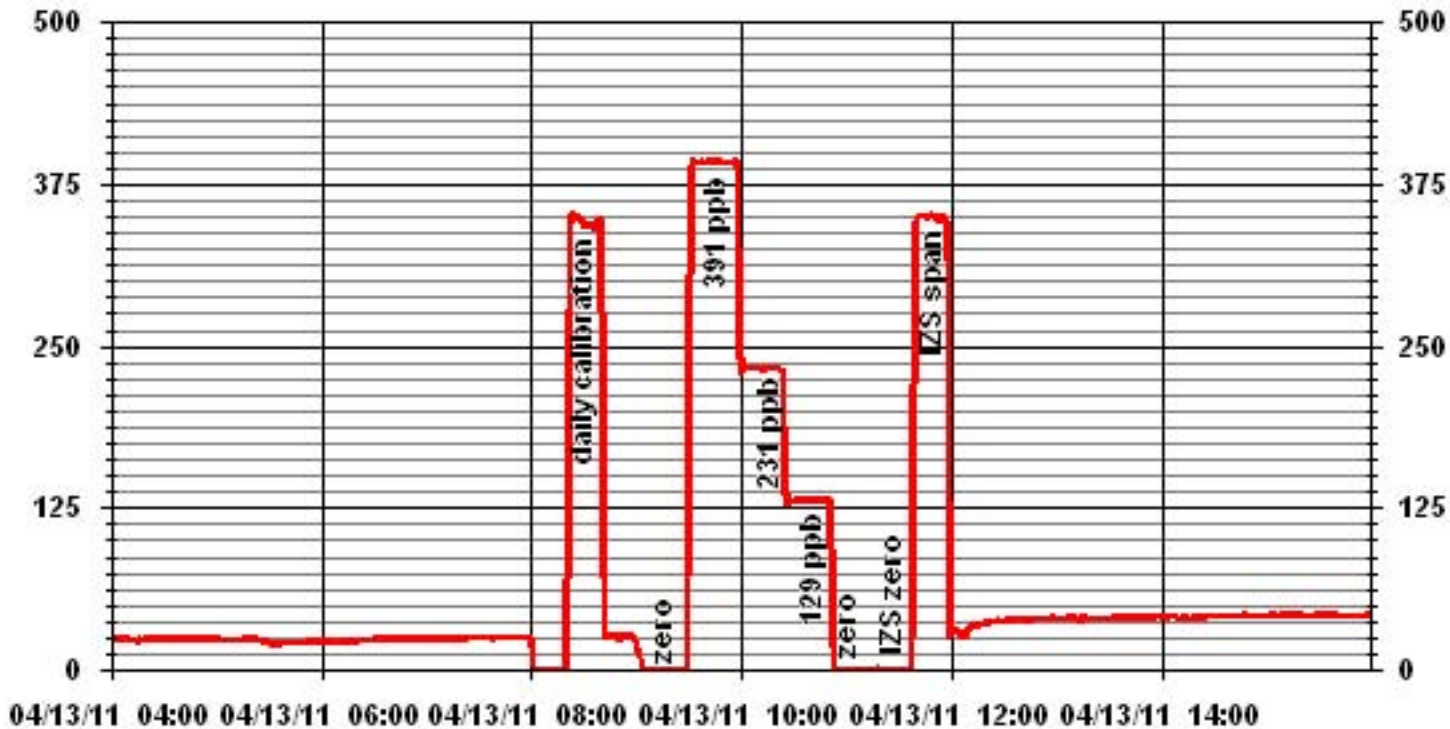
Calibration Date	April 13, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	8:57	End Time (MST)	12:02

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope (≥ 0.995)	Intercept (± 3% F.S.)	
0	0	n/a			0.999971
129	131	0.9847			1.002104
231	233	0.9914			
391	392	0.9974			0.855046



Notes:

### 01 Minute Averages



# Total Hydrocarbons

### THC Calibration Report

#### Station Information

Calibration Date:	April 12, 2011	Previous Calibration	March 9, 2011
Company:	Lakeland Industry and Community Association		
Plant / Location:	Portable Station Devon Wellsite 13-16-62-5W4M		
Start Time (MST)	10:30	End Time (MST)	14:16
Reason:	Monthly Calibration		
Barometric Pressure:	0.936 atm	Station Temperature:	22 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	207Prop/602Meth/1171.25THC ppm	Cal Gas Expiry Date:	9/21/2011
DAS make & Model:	ESC 8832	S/N :	AO717
Output Voltage Range:	0 - 10 VDC		

#### Analyzer Information

Make / Model	TECO 51C	S/N :	04366-09739	Method	Flame Ionization
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#### 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
1999	0	0.0	-0.1	N/A
1999	0	0.0	0.0	N/A
1999	70.0	39.6	40.1	0.9882
1999	70.0	39.6	40.0	0.9907
1999	34.9	20.1	19.9	1.0099
1999	20.0	11.6	11.5	1.0089
1999	0	0.0	0.0	N/A
Correction Factor:				0.9907

#### Percent Change

Previous Calibration Correction Factor:	0.9956
Current Correction Factor Before Span Adjust:	0.9882
Percent Change:	0.8%

#### IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-0.1	-0.1
Auto Span	33.7	33.5
Sample Lines Connected		YES

#### Cylinder Pressures

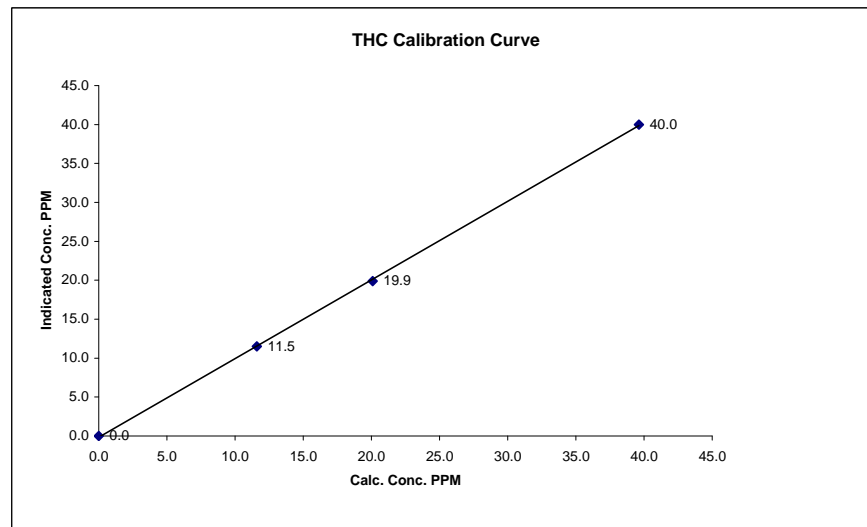
Span	700 psi
Hydrogen	1150 psi
Zero Air	30 psi Using API 700

Calibration Performed by: Ting Xu

### THC Calibration Curve

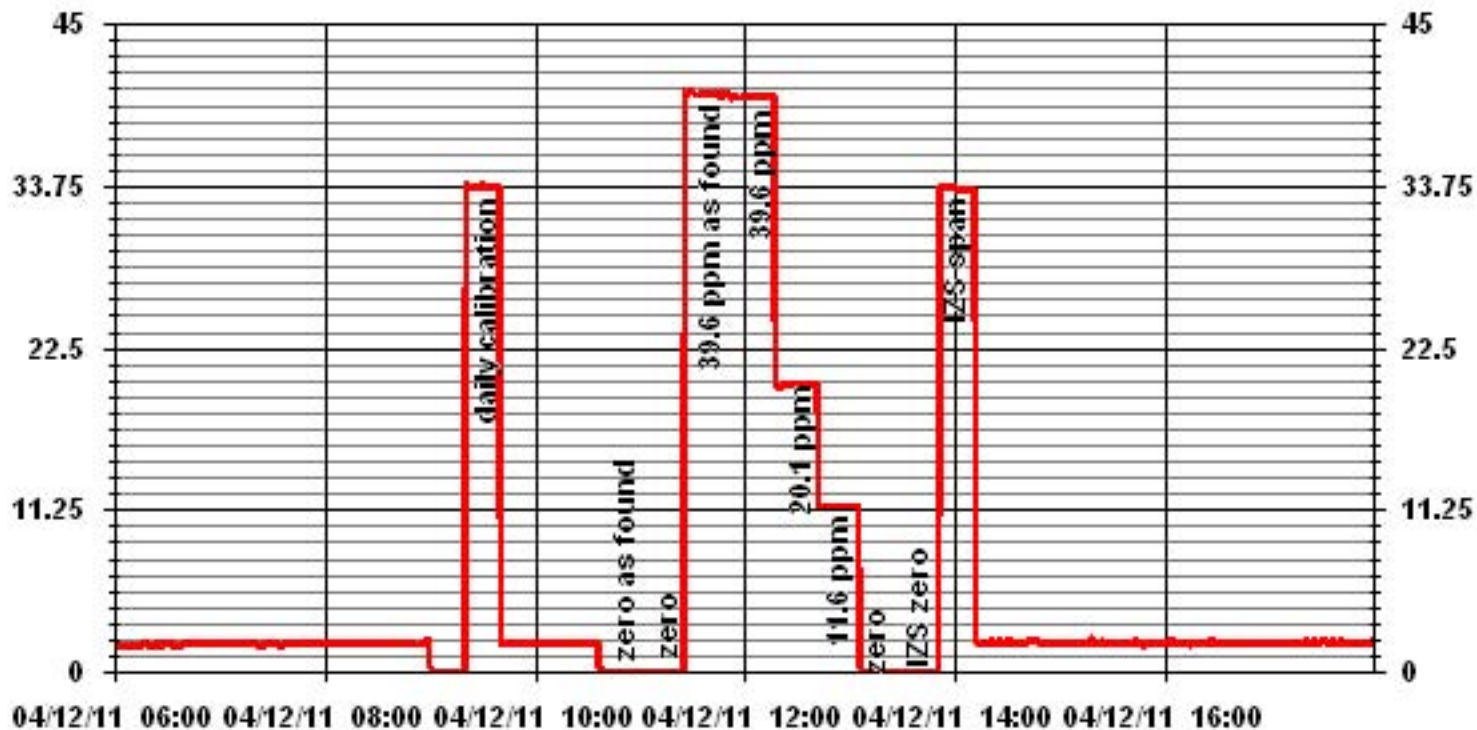
Calibration Date	April 12, 2011
Company	Lakeland Industry and Community Association
Plant / Location	Portable Station Devon Wellsite 13-16-62-5W4M
Start Time (MST)	10:30
End Time (MST)	14:16

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999877
0.0	0.0		Intercept	(0.85 to 1.15)	1.009949
11.6	11.5	1.0089		(± 3% F.S.)	-0.159053
20.1	19.9	1.0099			
39.6	40.0	0.9907			



Notes:

### 01 Minute Averages



— LICA33 THC PPM

# **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: 7910  
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Apr 01, 11 @ 10:09 mst  
Field Sample ID: LICA VOC/PORT/ Apr 03, 11 Canister Removal Date/Time: Apr 04, 11 @ 8:20 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
3-Apr-11	04/03/2011 0:00	04/04/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1492	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	21

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 # 07086  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Technician Signiture: Ting Xu\_\_\_\_\_

Your C.O.C. #: 07086

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

Report Date: 2011/04/11

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B146042****Received: 2011/04/06, 09:04**Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/04/07	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/04/07	BRL SOP-00304	EPA TO-15

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

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

## Encryption Key

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

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

=====

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

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Total cover pages: 1

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Maxxam Job #: B146042  
 Report Date: 2011/04/11

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		JC5623	JC5624	
Sampling Date		2011/04/03	2011/04/03	
		00:00	00:00	
COC Number		07086	07086	
	<b>Units</b>	<b>LICA</b>	<b>LICA</b>	<b>QC Batch</b>
		<b>VOC/CLS/APR03,11/7832</b>	<b>VOC/PORT/APR03,11/7910</b>	

<b>Volatile Organics</b>				
Pressure on Receipt	psig	22	22	2453352

QC Batch = Quality Control Batch

Maxxam Job #: B146042  
 Report Date: 2011/04/11

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JC5623				
Sampling Date		2011/04/03 00:00				
COC Number		07086				
	<b>Units</b>	<b>LICA</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		<b>VOC/CLS/APR03,11/7832</b>				

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2453354
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2453354
Propene	ppbv	<0.30	0.30	<0.516	0.516	2453354
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2453354
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2453354
Dichlorodifluoromethane (FREON 12)	ppbv	0.79	0.20	3.93	0.989	2453354
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2453354
Chloromethane	ppbv	0.70	0.30	1.44	0.620	2453354
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2453354
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2453354
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2453354
Trichlorofluoromethane (FREON 11)	ppbv	0.38	0.20	2.11	1.12	2453354
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2453354
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2453354
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2453354
2-Propanone	ppbv	2.28	0.80	5.42	1.90	2453354
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2453354
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2453354
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2453354
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2453354
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2453354
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2453354
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2453354
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2453354
Methylene Chloride(Dichloromethane)	ppbv	0.48	0.30	1.66	1.04	2453354
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2453354
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2453354
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2453354
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2453354
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2453354
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2453354

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B146042  
 Report Date: 2011/04/11

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JC5623				
Sampling Date		2011/04/03 00:00				
COC Number		07086				
	<b>Units</b>	<b>LICA</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		<b>VOC/CLS/APR03,11/7832</b>				
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2453354
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2453354
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2453354
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2453354
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2453354
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2453354
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2453354
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2453354
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2453354
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2453354
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2453354
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2453354
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2453354
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2453354
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2453354
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2453354
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2453354
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2453354
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2453354
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2453354
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2453354
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2453354
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2453354
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2453354
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2453354
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2453354
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2453354
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2453354
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2453354
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2453354
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2453354
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2453354
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2453354
QC Batch = Quality Control Batch						

Maxxam Job #: B146042  
 Report Date: 2011/04/11

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JC5623				
Sampling Date		2011/04/03 00:00				
COC Number		07086				
	<b>Units</b>	<b>LICA</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		VOC/CLS/APR03,11/7832				

<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	82		N/A	N/A	2453354
D5-Chlorobenzene	%	82		N/A	N/A	2453354
Difluorobenzene	%	84		N/A	N/A	2453354

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

Maxxam Job #: B146042  
 Report Date: 2011/04/11

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JC5624				
Sampling Date		2011/04/03 00:00				
COC Number		07086				
	<b>Units</b>	<b>LICA</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		<b>VOC/PORT/APR03,11/7910</b>				

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2453354
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2453354
Propene	ppbv	<0.30	0.30	<0.516	0.516	2453354
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2453354
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2453354
Dichlorodifluoromethane (FREON 12)	ppbv	0.83	0.20	4.11	0.989	2453354
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2453354
Chloromethane	ppbv	0.77	0.30	1.59	0.620	2453354
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2453354
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2453354
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2453354
Trichlorofluoromethane (FREON 11)	ppbv	0.39	0.20	2.20	1.12	2453354
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2453354
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2453354
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2453354
2-Propanone	ppbv	3.46	0.80	8.23	1.90	2453354
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2453354
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2453354
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2453354
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2453354
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2453354
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2453354
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2453354
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2453354
Methylene Chloride(Dichloromethane)	ppbv	0.53	0.30	1.83	1.04	2453354
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2453354
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2453354
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2453354
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2453354
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2453354
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2453354

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B146042  
 Report Date: 2011/04/11

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JC5624				
Sampling Date		2011/04/03 00:00				
COC Number		07086				
	<b>Units</b>	<b>LICA</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		<b>VOC/PORT/APR03,11/7910</b>				
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2453354
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2453354
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2453354
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2453354
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2453354
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2453354
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2453354
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2453354
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2453354
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2453354
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2453354
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2453354
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2453354
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2453354
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2453354
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2453354
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2453354
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2453354
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2453354
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2453354
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2453354
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2453354
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2453354
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2453354
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2453354
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2453354
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2453354
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2453354
Hexane	ppbv	0.38	0.30	1.33	1.06	2453354
Cyclohexane	ppbv	0.66	0.20	2.26	0.688	2453354
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2453354
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2453354
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2453354
QC Batch = Quality Control Batch						



Maxxam Job #: B146042  
 Report Date: 2011/04/11

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JC5624				
Sampling Date		2011/04/03 00:00				
COC Number		07086				
	<b>Units</b>	<b>LICA</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		VOC/PORT/APR03,11/7910				

<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	80		N/A	N/A	2453354
D5-Chlorobenzene	%	82		N/A	N/A	2453354
Difluorobenzene	%	84		N/A	N/A	2453354

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



Maxxam Job #: B146042  
Report Date: 2011/04/11

**GENERAL COMMENTS**

**Results relate only to the items tested.**

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

### Quality Assurance Report

Maxxam Job Number: GB146042

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2453354 LSY	Spiked Blank	Bromochloromethane	2011/04/07		104	%	60 - 140
		D5-Chlorobenzene	2011/04/07		105	%	60 - 140
		Difluorobenzene	2011/04/07		107	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/07		100	%	70 - 130
		Carbon Disulfide	2011/04/07		89	%	70 - 130
		Propene	2011/04/07		98	%	70 - 130
		Vinyl Acetate	2011/04/07		113	%	70 - 130
		Vinyl Bromide	2011/04/07		97	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/04/07		104	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/04/07		114	%	70 - 130
		Chloromethane	2011/04/07		104	%	70 - 130
		Vinyl Chloride	2011/04/07		103	%	70 - 130
		Chloroethane	2011/04/07		100	%	70 - 130
		1,3-Butadiene	2011/04/07		92	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/04/07		102	%	70 - 130
		Trichlorotrifluoroethane	2011/04/07		95	%	70 - 130
		Ethanol	2011/04/07		111	%	70 - 130
		2-propanol	2011/04/07		105	%	70 - 130
		2-Propanone	2011/04/07		106	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/04/07		98	%	70 - 130
		Methyl Isobutyl Ketone	2011/04/07		104	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/04/07		112	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/04/07		107	%	70 - 130
		Ethyl Acetate	2011/04/07		107	%	70 - 130
		1,1-Dichloroethylene	2011/04/07		104	%	70 - 130
		cis-1,2-Dichloroethylene	2011/04/07		103	%	70 - 130
		trans-1,2-Dichloroethylene	2011/04/07		104	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/04/07		93	%	70 - 130
		Chloroform	2011/04/07		101	%	70 - 130
		Carbon Tetrachloride	2011/04/07		101	%	70 - 130
		1,1-Dichloroethane	2011/04/07		101	%	70 - 130
		1,2-Dichloroethane	2011/04/07		109	%	70 - 130
		Ethylene Dibromide	2011/04/07		94	%	70 - 130
		1,1,1-Trichloroethane	2011/04/07		100	%	70 - 130
		1,1,2-Trichloroethane	2011/04/07		93	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/04/07		87	%	70 - 130
		cis-1,3-Dichloropropene	2011/04/07		102	%	70 - 130
		trans-1,3-Dichloropropene	2011/04/07		105	%	70 - 130
		1,2-Dichloropropane	2011/04/07		95	%	70 - 130
		Bromomethane	2011/04/07		99	%	70 - 130
		Bromoform	2011/04/07		99	%	70 - 130
		Bromodichloromethane	2011/04/07		100	%	70 - 130
		Dibromochloromethane	2011/04/07		100	%	70 - 130
		Heptane	2011/04/07		104	%	70 - 130
		Trichloroethylene	2011/04/07		92	%	70 - 130
		Tetrachloroethylene	2011/04/07		91	%	70 - 130
		Benzene	2011/04/07		96	%	70 - 130
		Toluene	2011/04/07		98	%	70 - 130
		Ethylbenzene	2011/04/07		101	%	70 - 130
		p+m-Xylene	2011/04/07		101	%	70 - 130
		o-Xylene	2011/04/07		101	%	70 - 130
		Styrene	2011/04/07		102	%	70 - 130
		1,3,5-Trimethylbenzene	2011/04/07		93	%	70 - 130
		1,2,4-Trimethylbenzene	2011/04/07		89	%	70 - 130
		4-ethyltoluene	2011/04/07		95	%	70 - 130

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB146042

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2453354 LSY	Spiked Blank	Chlorobenzene	2011/04/07		93	%	70 - 130
		Benzyl chloride	2011/04/07		87	%	70 - 130
		1,3-Dichlorobenzene	2011/04/07		84	%	70 - 130
		1,4-Dichlorobenzene	2011/04/07		86	%	70 - 130
		1,2-Dichlorobenzene	2011/04/07		80	%	70 - 130
		1,2,4-Trichlorobenzene	2011/04/07		101	%	70 - 130
		Hexachlorobutadiene	2011/04/07		106	%	70 - 130
		Hexane	2011/04/07		106	%	70 - 130
		Cyclohexane	2011/04/07		103	%	70 - 130
		Tetrahydrofuran	2011/04/07		106	%	70 - 130
		1,4-Dioxane	2011/04/07		93	%	70 - 130
	Method Blank	Bromochloromethane	2011/04/07		88	%	60 - 140
		D5-Chlorobenzene	2011/04/07		89	%	60 - 140
		Difluorobenzene	2011/04/07		91	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/07	<0.20		ppbv	
		Carbon Disulfide	2011/04/07	<0.50		ppbv	
		Propene	2011/04/07	<0.30		ppbv	
		Vinyl Acetate	2011/04/07	<0.20		ppbv	
		Vinyl Bromide	2011/04/07	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/04/07	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/04/07	<0.17		ppbv	
		Chloromethane	2011/04/07	<0.30		ppbv	
		Vinyl Chloride	2011/04/07	<0.18		ppbv	
		Chloroethane	2011/04/07	<0.30		ppbv	
		1,3-Butadiene	2011/04/07	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/04/07	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/04/07	<0.15		ppbv	
		Ethanol	2011/04/07	<2.3		ppbv	
		2-propanol	2011/04/07	<3.0		ppbv	
		2-Propanone	2011/04/07	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/04/07	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/04/07	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/04/07	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/04/07	<0.20		ppbv	
		Ethyl Acetate	2011/04/07	<2.2		ppbv	
		1,1-Dichloroethylene	2011/04/07	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/04/07	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/04/07	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/04/07	0.45, RDL=0.30		ppbv	
		Chloroform	2011/04/07	<0.15		ppbv	
		Carbon Tetrachloride	2011/04/07	<0.30		ppbv	
		1,1-Dichloroethane	2011/04/07	<0.20		ppbv	
		1,2-Dichloroethane	2011/04/07	<0.20		ppbv	
		Ethylene Dibromide	2011/04/07	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/04/07	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/04/07	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/04/07	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/04/07	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/04/07	<0.17		ppbv	
		1,2-Dichloropropane	2011/04/07	<0.40		ppbv	
		Bromomethane	2011/04/07	<0.18		ppbv	
		Bromoform	2011/04/07	<0.20		ppbv	
		Bromodichloromethane	2011/04/07	<0.20		ppbv	
		Dibromochloromethane	2011/04/07	<0.20		ppbv	
		Heptane	2011/04/07	<0.30		ppbv	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB146042

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2453354 LSY	Method Blank	Trichloroethylene	2011/04/07	<0.30		ppbv	
		Tetrachloroethylene	2011/04/07	<0.20		ppbv	
		Benzene	2011/04/07	<0.18		ppbv	
		Toluene	2011/04/07	<0.20		ppbv	
		Ethylbenzene	2011/04/07	<0.20		ppbv	
		p+m-Xylene	2011/04/07	<0.37		ppbv	
		o-Xylene	2011/04/07	<0.20		ppbv	
		Styrene	2011/04/07	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/04/07	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/04/07	<0.50		ppbv	
		4-ethyltoluene	2011/04/07	<2.2		ppbv	
		Chlorobenzene	2011/04/07	<0.20		ppbv	
		Benzyl chloride	2011/04/07	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/04/07	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/04/07	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/04/07	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/04/07	<2.0		ppbv	
		Hexachlorobutadiene	2011/04/07	<3.0		ppbv	
		Hexane	2011/04/07	<0.30		ppbv	
		Cyclohexane	2011/04/07	<0.20		ppbv	
		Tetrahydrofuran	2011/04/07	<0.40		ppbv	
		1,4-Dioxane	2011/04/07	<2.0		ppbv	
		Xylene (Total)	2011/04/07	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/04/07	NC		%	25
		Carbon Disulfide	2011/04/07	NC		%	25
		Propene	2011/04/07	7.2		%	25
		Vinyl Acetate	2011/04/07	NC		%	25
		Vinyl Bromide	2011/04/07	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/04/07	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/04/07	NC		%	25
		Chloromethane	2011/04/07	NC		%	25
		Vinyl Chloride	2011/04/07	NC		%	25
		Chloroethane	2011/04/07	NC		%	25
		1,3-Butadiene	2011/04/07	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/04/07	NC		%	25
		Trichlorotrifluoroethane	2011/04/07	NC		%	25
		Ethanol	2011/04/07	NC		%	25
		2-propanol	2011/04/07	NC		%	25
		2-Propanone	2011/04/07	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/04/07	NC		%	25
		Methyl Isobutyl Ketone	2011/04/07	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/04/07	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/04/07	NC		%	25
		Ethyl Acetate	2011/04/07	NC		%	25
		1,1-Dichloroethylene	2011/04/07	NC		%	25
		cis-1,2-Dichloroethylene	2011/04/07	NC		%	25
		trans-1,2-Dichloroethylene	2011/04/07	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/04/07	NC		%	25
		Chloroform	2011/04/07	NC		%	25
		Carbon Tetrachloride	2011/04/07	NC		%	25
		1,1-Dichloroethane	2011/04/07	NC		%	25
		1,2-Dichloroethane	2011/04/07	NC		%	25
		Ethylene Dibromide	2011/04/07	NC		%	25

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB146042

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2453354 LSY	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/04/07	NC		%	25
		1,1,2-Trichloroethane	2011/04/07	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/04/07	NC		%	25
		cis-1,3-Dichloropropene	2011/04/07	NC		%	25
		trans-1,3-Dichloropropene	2011/04/07	NC		%	25
		1,2-Dichloropropane	2011/04/07	NC		%	25
		Bromomethane	2011/04/07	NC		%	25
		Bromoform	2011/04/07	NC		%	25
		Bromodichloromethane	2011/04/07	NC		%	25
		Dibromochloromethane	2011/04/07	NC		%	25
		Heptane	2011/04/07	NC		%	25
		Trichloroethylene	2011/04/07	1.4		%	25
		Tetrachloroethylene	2011/04/07	NC		%	25
		Benzene	2011/04/07	NC		%	25
		Toluene	2011/04/07	2.1		%	25
		Ethylbenzene	2011/04/07	1.8		%	25
		p+m-Xylene	2011/04/07	0.4		%	25
		o-Xylene	2011/04/07	3.6		%	25
		Styrene	2011/04/07	NC		%	25
		1,3,5-Trimethylbenzene	2011/04/07	NC		%	25
		1,2,4-Trimethylbenzene	2011/04/07	6.6		%	25
		4-ethyltoluene	2011/04/07	NC		%	25
		Chlorobenzene	2011/04/07	NC		%	25
		Benzyl chloride	2011/04/07	NC		%	25
		1,3-Dichlorobenzene	2011/04/07	NC		%	25
		1,4-Dichlorobenzene	2011/04/07	NC		%	25
		1,2-Dichlorobenzene	2011/04/07	NC		%	25
		1,2,4-Trichlorobenzene	2011/04/07	NC		%	25
		Hexachlorobutadiene	2011/04/07	NC		%	25
		Hexane	2011/04/07	NC		%	25
		Cyclohexane	2011/04/07	NC		%	25
		Tetrahydrofuran	2011/04/07	NC		%	25
		1,4-Dioxane	2011/04/07	NC		%	25
		Xylene (Total)	2011/04/07	1.2		%	25

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

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

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

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

# MAXXAM

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200  
Location: 13-16-62-5 W4M Canister ID: 7859  
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Apr 07, 11 @ 8:53 mst  
Field Sample ID: LICA VOC/PORT/ Apr 09, 11 Canister Removal Date/Time: Apr 11, 11 @ 10:07 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
9-Apr-11	04/09/2011 0:00	04/10/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1492	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	21

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 # 06959  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Technician Signiture: Ting Xu\_\_\_\_\_



Your C.O.C. #: 06959

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

Report Date: 2011/04/19

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B150205****Received: 2011/04/13, 09:42**Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/04/14	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/04/14	BRL SOP-00304	EPA TO-15

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

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

## Encryption Key

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

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

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

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Total cover pages: 1

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Page 134 of 224

Maxxam Job #: B150205  
 Report Date: 2011/04/19

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		JE6118	JE6119	
Sampling Date		2011/04/09 00:00	2011/04/09 00:00	
COC Number		06959	06959	
	<b>Units</b>	<b>LICA VOC/CLS/APR 09,11</b>	<b>LICA VOC/PORT/APR 09,11</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	22	22	2459720
QC Batch = Quality Control Batch				

Maxxam Job #: B150205  
Report Date: 2011/04/19

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JE6118				
Sampling Date		2011/04/09 00:00				
COC Number		06959				
	<b>Units</b>	<b>LICA VOC/CLS/APR 09,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2459600
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2459600
Propene	ppbv	<0.30	0.30	<0.516	0.516	2459600
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2459600
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2459600
Dichlorodifluoromethane (FREON 12)	ppbv	0.60	0.20	2.97	0.989	2459600
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2459600
Chloromethane	ppbv	0.75	0.30	1.54	0.620	2459600
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2459600
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2459600
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2459600
Trichlorofluoromethane (FREON 11)	ppbv	0.28	0.20	1.58	1.12	2459600
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2459600
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2459600
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2459600
2-Propanone	ppbv	1.74	0.80	4.13	1.90	2459600
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2459600
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2459600
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2459600
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2459600
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2459600
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2459600
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2459600
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2459600
Methylene Chloride(Dichloromethane)	ppbv	0.57	0.30	1.96	1.04	2459600
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2459600
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2459600
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2459600
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2459600
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2459600
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B150205  
 Report Date: 2011/04/19

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JE6118				
Sampling Date		2011/04/09 00:00				
COC Number		06959				
	<b>Units</b>	<b>LICA VOC/CLS/APR 09,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2459600
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2459600
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2459600
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2459600
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2459600
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2459600
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2459600
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2459600
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2459600
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2459600
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2459600
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2459600
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2459600
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2459600
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2459600
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2459600
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2459600
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2459600
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2459600
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2459600
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2459600
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2459600
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2459600
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2459600
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2459600
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2459600
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2459600
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2459600
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2459600
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2459600
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2459600
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2459600

QC Batch = Quality Control Batch

Maxxam Job #: B150205  
 Report Date: 2011/04/19

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JE6118				
Sampling Date		2011/04/09 00:00				
COC Number		06959				
	<b>Units</b>	<b>LICA VOC/CLS/APR 09,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2459600
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2459600
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	86		N/A	N/A	2459600
D5-Chlorobenzene	%	90		N/A	N/A	2459600
Difluorobenzene	%	88		N/A	N/A	2459600
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B150205  
 Report Date: 2011/04/19

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JE6119				
Sampling Date		2011/04/09 00:00				
COC Number		06959				
	<b>Units</b>	<b>LICA VOC/PORT/APR 09,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2459600
Carbon Disulfide	ppbv	0.63	0.50	1.96	1.56	2459600
Propene	ppbv	<0.30	0.30	<0.516	0.516	2459600
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2459600
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2459600
Dichlorodifluoromethane (FREON 12)	ppbv	0.60	0.20	2.94	0.989	2459600
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2459600
Chloromethane	ppbv	0.73	0.30	1.51	0.620	2459600
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2459600
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2459600
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2459600
Trichlorofluoromethane (FREON 11)	ppbv	0.30	0.20	1.69	1.12	2459600
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2459600
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2459600
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2459600
2-Propanone	ppbv	1.90	0.80	4.51	1.90	2459600
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2459600
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2459600
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2459600
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2459600
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2459600
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2459600
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2459600
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2459600
Methylene Chloride(Dichloromethane)	ppbv	0.56	0.30	1.95	1.04	2459600
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2459600
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2459600
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2459600
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2459600
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2459600
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B150205  
 Report Date: 2011/04/19

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JE6119				
Sampling Date		2011/04/09 00:00				
COC Number		06959				
	<b>Units</b>	<b>LICA VOC/PORT/APR 09,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2459600
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2459600
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2459600
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2459600
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2459600
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2459600
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2459600
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2459600
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2459600
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2459600
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2459600
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2459600
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2459600
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2459600
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2459600
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2459600
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2459600
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2459600
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2459600
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2459600
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2459600
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2459600
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2459600
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2459600
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2459600
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2459600
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2459600
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2459600
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2459600
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2459600
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2459600
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2459600

QC Batch = Quality Control Batch

Maxxam Job #: B150205  
 Report Date: 2011/04/19

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JE6119				
Sampling Date		2011/04/09 00:00				
COC Number		06959				
	<b>Units</b>	<b>LICA VOC/PORT/APR 09,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2459600
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2459600
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	85		N/A	N/A	2459600
D5-Chlorobenzene	%	89		N/A	N/A	2459600
Difluorobenzene	%	87		N/A	N/A	2459600
N/A = Not Applicable QC Batch = Quality Control Batch						



Maxxam Job #: B150205  
 Report Date: 2011/04/19

### Test Summary

**Maxxam ID** JE6118 **Collected** 2011/04/09  
**Sample ID** LICA VOC/CLS/APR 09,11 **Shipped**  
**Matrix** AIR **Received** 2011/04/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2459720	N/A	2011/04/14	DIANE VOYER
Volatile Organics in Air (TO-15)	GC/MS	2459600	N/A	2011/04/14	DIANE VOYER

**Maxxam ID** JE6118 Dup **Collected** 2011/04/09  
**Sample ID** LICA VOC/CLS/APR 09,11 **Shipped**  
**Matrix** AIR **Received** 2011/04/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Volatile Organics in Air (TO-15)	GC/MS	2459600	N/A	2011/04/14	DIANE VOYER

**Maxxam ID** JE6119 **Collected** 2011/04/09  
**Sample ID** LICA VOC/PORT/APR 09,11 **Shipped**  
**Matrix** AIR **Received** 2011/04/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2459720	N/A	2011/04/14	DIANE VOYER
Volatile Organics in Air (TO-15)	GC/MS	2459600	N/A	2011/04/14	DIANE VOYER

Maxxam Job #: B150205  
Report Date: 2011/04/19

**GENERAL COMMENTS**

**Results relate only to the items tested.**

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

Quality Assurance Report  
 Maxxam Job Number: GB150205

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2459600 DVO	Spiked Blank	Bromochloromethane	2011/04/14		90	%	60 - 140
		D5-Chlorobenzene	2011/04/14		95	%	60 - 140
		Difluorobenzene	2011/04/14		93	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/14		107	%	70 - 130
		Carbon Disulfide	2011/04/14		106	%	70 - 130
		Propene	2011/04/14		107	%	70 - 130
		Vinyl Acetate	2011/04/14		109	%	70 - 130
		Vinyl Bromide	2011/04/14		106	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/04/14		98	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/04/14		128	%	70 - 130
		Chloromethane	2011/04/14		120	%	70 - 130
		Vinyl Chloride	2011/04/14		114	%	70 - 130
		Chloroethane	2011/04/14		109	%	70 - 130
		1,3-Butadiene	2011/04/14		119	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/04/14		102	%	70 - 130
		Trichlorotrifluoroethane	2011/04/14		111	%	70 - 130
		Ethanol	2011/04/14		112	%	70 - 130
		2-propanol	2011/04/14		108	%	70 - 130
		2-Propanone	2011/04/14		105	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/04/14		125	%	70 - 130
		Methyl Isobutyl Ketone	2011/04/14		106	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/04/14		105	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/04/14		112	%	70 - 130
		Ethyl Acetate	2011/04/14		110	%	70 - 130
		1,1-Dichloroethylene	2011/04/14		106	%	70 - 130
		cis-1,2-Dichloroethylene	2011/04/14		99	%	70 - 130
		trans-1,2-Dichloroethylene	2011/04/14		118	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/04/14		111	%	70 - 130
		Chloroform	2011/04/14		100	%	70 - 130
		Carbon Tetrachloride	2011/04/14		95	%	70 - 130
		1,1-Dichloroethane	2011/04/14		104	%	70 - 130
		1,2-Dichloroethane	2011/04/14		94	%	70 - 130
		Ethylene Dibromide	2011/04/14		104	%	70 - 130
		1,1,1-Trichloroethane	2011/04/14		95	%	70 - 130
		1,1,2-Trichloroethane	2011/04/14		104	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/04/14		100	%	70 - 130
		cis-1,3-Dichloropropene	2011/04/14		105	%	70 - 130
		trans-1,3-Dichloropropene	2011/04/14		101	%	70 - 130
		1,2-Dichloropropane	2011/04/14		110	%	70 - 130
		Bromomethane	2011/04/14		110	%	70 - 130
		Bromoform	2011/04/14		111	%	70 - 130
		Bromodichloromethane	2011/04/14		108	%	70 - 130
		Dibromochloromethane	2011/04/14		112	%	70 - 130
		Heptane	2011/04/14		115	%	70 - 130
		Trichloroethylene	2011/04/14		100	%	70 - 130
		Tetrachloroethylene	2011/04/14		100	%	70 - 130
		Benzene	2011/04/14		102	%	70 - 130
		Toluene	2011/04/14		102	%	70 - 130
		Ethylbenzene	2011/04/14		97	%	70 - 130
		p+m-Xylene	2011/04/14		94	%	70 - 130
		o-Xylene	2011/04/14		97	%	70 - 130
		Styrene	2011/04/14		100	%	70 - 130
		1,3,5-Trimethylbenzene	2011/04/14		94	%	70 - 130
		1,2,4-Trimethylbenzene	2011/04/14		92	%	70 - 130
		4-ethyltoluene	2011/04/14		100	%	70 - 130

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB150205

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2459600 DVO	Spiked Blank	Chlorobenzene	2011/04/14		97	%	70 - 130
		Benzyl chloride	2011/04/14		103	%	70 - 130
		1,3-Dichlorobenzene	2011/04/14		95	%	70 - 130
		1,4-Dichlorobenzene	2011/04/14		101	%	70 - 130
		1,2-Dichlorobenzene	2011/04/14		97	%	70 - 130
		1,2,4-Trichlorobenzene	2011/04/14		106	%	70 - 130
		Hexachlorobutadiene	2011/04/14		96	%	70 - 130
		Hexane	2011/04/14		107	%	70 - 130
		Cyclohexane	2011/04/14		108	%	70 - 130
		Tetrahydrofuran	2011/04/14		111	%	70 - 130
		1,4-Dioxane	2011/04/14		97	%	70 - 130
	Method Blank	Bromochloromethane	2011/04/14		86	%	60 - 140
		D5-Chlorobenzene	2011/04/14		86	%	60 - 140
		Difluorobenzene	2011/04/14		92	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/14	<0.20		ppbv	
		Carbon Disulfide	2011/04/14	<0.50		ppbv	
		Propene	2011/04/14	<0.30		ppbv	
		Vinyl Acetate	2011/04/14	<0.20		ppbv	
		Vinyl Bromide	2011/04/14	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/04/14	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/04/14	<0.17		ppbv	
		Chloromethane	2011/04/14	<0.30		ppbv	
		Vinyl Chloride	2011/04/14	<0.18		ppbv	
		Chloroethane	2011/04/14	<0.30		ppbv	
		1,3-Butadiene	2011/04/14	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/04/14	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/04/14	<0.15		ppbv	
		Ethanol	2011/04/14	<2.3		ppbv	
		2-propanol	2011/04/14	<3.0		ppbv	
		2-Propanone	2011/04/14	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/04/14	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/04/14	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/04/14	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/04/14	<0.20		ppbv	
		Ethyl Acetate	2011/04/14	<2.2		ppbv	
		1,1-Dichloroethylene	2011/04/14	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/04/14	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/04/14	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/04/14	0.37, RDL=0.30		ppbv	
		Chloroform	2011/04/14	<0.15		ppbv	
		Carbon Tetrachloride	2011/04/14	<0.30		ppbv	
		1,1-Dichloroethane	2011/04/14	<0.20		ppbv	
		1,2-Dichloroethane	2011/04/14	<0.20		ppbv	
		Ethylene Dibromide	2011/04/14	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/04/14	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/04/14	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/04/14	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/04/14	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/04/14	<0.17		ppbv	
		1,2-Dichloropropane	2011/04/14	<0.40		ppbv	
		Bromomethane	2011/04/14	<0.18		ppbv	
		Bromoform	2011/04/14	<0.20		ppbv	
		Bromodichloromethane	2011/04/14	<0.20		ppbv	
		Dibromochloromethane	2011/04/14	<0.20		ppbv	
		Heptane	2011/04/14	<0.30		ppbv	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB150205

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2459600	DVO	Method Blank					
		Trichloroethylene	2011/04/14	<0.30		ppbv	
		Tetrachloroethylene	2011/04/14	<0.20		ppbv	
		Benzene	2011/04/14	<0.18		ppbv	
		Toluene	2011/04/14	<0.20		ppbv	
		Ethylbenzene	2011/04/14	<0.20		ppbv	
		p+m-Xylene	2011/04/14	<0.37		ppbv	
		o-Xylene	2011/04/14	<0.20		ppbv	
		Styrene	2011/04/14	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/04/14	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/04/14	<0.50		ppbv	
		4-ethyltoluene	2011/04/14	<2.2		ppbv	
		Chlorobenzene	2011/04/14	<0.20		ppbv	
		Benzyl chloride	2011/04/14	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/04/14	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/04/14	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/04/14	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/04/14	<2.0		ppbv	
		Hexachlorobutadiene	2011/04/14	<3.0		ppbv	
		Hexane	2011/04/14	<0.30		ppbv	
		Cyclohexane	2011/04/14	<0.20		ppbv	
		Tetrahydrofuran	2011/04/14	<0.40		ppbv	
		1,4-Dioxane	2011/04/14	<2.0		ppbv	
		Xylene (Total)	2011/04/14	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/04/14	NC		%	25
		Carbon Disulfide	2011/04/14	NC		%	25
		Propene	2011/04/14	NC		%	25
		Vinyl Acetate	2011/04/14	NC		%	25
		Vinyl Bromide	2011/04/14	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/04/14	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/04/14	NC		%	25
		Chloromethane	2011/04/14	NC		%	25
		Vinyl Chloride	2011/04/14	NC		%	25
		Chloroethane	2011/04/14	NC		%	25
		1,3-Butadiene	2011/04/14	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/04/14	NC		%	25
		Trichlorotrifluoroethane	2011/04/14	NC		%	25
		Ethanol	2011/04/14	NC		%	25
		2-propanol	2011/04/14	NC		%	25
		2-Propanone	2011/04/14	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/04/14	NC		%	25
		Methyl Isobutyl Ketone	2011/04/14	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/04/14	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/04/14	NC		%	25
		Ethyl Acetate	2011/04/14	NC		%	25
		1,1-Dichloroethylene	2011/04/14	NC		%	25
		cis-1,2-Dichloroethylene	2011/04/14	NC		%	25
		trans-1,2-Dichloroethylene	2011/04/14	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/04/14	NC		%	25
		Chloroform	2011/04/14	NC		%	25
		Carbon Tetrachloride	2011/04/14	NC		%	25
		1,1-Dichloroethane	2011/04/14	NC		%	25
		1,2-Dichloroethane	2011/04/14	NC		%	25
		Ethylene Dibromide	2011/04/14	NC		%	25

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB150205

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2459600 DVO	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/04/14	NC		%	25
		1,1,2-Trichloroethane	2011/04/14	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/04/14	NC		%	25
		cis-1,3-Dichloropropene	2011/04/14	NC		%	25
		trans-1,3-Dichloropropene	2011/04/14	NC		%	25
		1,2-Dichloropropane	2011/04/14	NC		%	25
		Bromomethane	2011/04/14	NC		%	25
		Bromoform	2011/04/14	NC		%	25
		Bromodichloromethane	2011/04/14	NC		%	25
		Dibromochloromethane	2011/04/14	NC		%	25
		Heptane	2011/04/14	NC		%	25
		Trichloroethylene	2011/04/14	NC		%	25
		Tetrachloroethylene	2011/04/14	NC		%	25
		Benzene	2011/04/14	NC		%	25
		Toluene	2011/04/14	NC		%	25
		Ethylbenzene	2011/04/14	NC		%	25
		p+m-Xylene	2011/04/14	NC		%	25
		o-Xylene	2011/04/14	NC		%	25
		Styrene	2011/04/14	NC		%	25
		1,3,5-Trimethylbenzene	2011/04/14	NC		%	25
		1,2,4-Trimethylbenzene	2011/04/14	NC		%	25
		4-ethyltoluene	2011/04/14	NC		%	25
		Chlorobenzene	2011/04/14	NC		%	25
		Benzyl chloride	2011/04/14	NC		%	25
		1,3-Dichlorobenzene	2011/04/14	NC		%	25
		1,4-Dichlorobenzene	2011/04/14	NC		%	25
		1,2-Dichlorobenzene	2011/04/14	NC		%	25
		1,2,4-Trichlorobenzene	2011/04/14	NC		%	25
		Hexachlorobutadiene	2011/04/14	NC		%	25
		Hexane	2011/04/14	NC		%	25
		Cyclohexane	2011/04/14	NC		%	25
		Tetrahydrofuran	2011/04/14	NC		%	25
		1,4-Dioxane	2011/04/14	NC		%	25
		Xylene (Total)	2011/04/14	NC		%	25

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

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

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

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

# MAXXAM

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200  
Location: 13-16-62-5 W4M Canister ID: 7837  
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Apr 13, 11 @ 11:26 mst  
Field Sample ID: LICA VOC/PORT/ Apr 15, 11 Canister Removal Date/Time: Apr 18, 11 @ 11:46 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
15-Apr-11	04/15/2011 0:00	04/16/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1492	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	21

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 # 07512  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Technician Signiture: Ting Xu\_\_\_\_\_

Your C.O.C. #: 07512

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

Report Date: 2011/04/29

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B153923****Received: 2011/04/20, 10:21**Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/04/26	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/04/26	BRL SOP-00304	EPA TO-15

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

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

## Encryption Key

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

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

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

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Total cover pages: 1

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Maxxam Job #: B153923  
 Report Date: 2011/04/29

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		JG3773	JG3774	
Sampling Date		2011/04/15	2011/04/15	
COC Number		07512	07512	
	<b>Units</b>	<b>LICA VOC/CLS/APR 15,11 - 7813</b>	<b>LICA VOC/PORT/APR 15,11 - 7837</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	22	22	2469588

QC Batch = Quality Control Batch

Maxxam Job #: B153923  
 Report Date: 2011/04/29

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JG3773			JG3774				
Sampling Date		2011/04/15			2011/04/15				
COC Number		07512			07512				
	<b>Units</b>	<b>LICA VOC/CLS/APR 15,11 - 7813</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>LICA VOC/PORT/APR 15,11 - 7837</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Volatiles Organics</b>									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2469993
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2469993
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2469993
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2469993
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2469993
Dichlorodifluoromethane (FREON 12)	ppbv	0.92	4.56	0.989	0.89	0.20	4.40	0.989	2469993
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2469993
Chloromethane	ppbv	0.72	1.48	0.620	0.71	0.30	1.47	0.620	2469993
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2469993
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2469993
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2469993
Trichlorofluoromethane (FREON 11)	ppbv	0.43	2.44	1.12	0.43	0.20	2.41	1.12	2469993
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2469993
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2469993
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2469993
2-Propanone	ppbv	2.31	5.49	1.90	2.62	0.80	6.23	1.90	2469993
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2469993
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2469993
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2469993
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2469993
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2469993
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2469993
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2469993
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2469993
Methylene Chloride(Dichloromethane)	ppbv	0.57	1.98	1.04	0.50	0.30	1.74	1.04	2469993
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2469993
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2469993
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2469993
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2469993
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2469993
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2469993

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B153923  
 Report Date: 2011/04/29

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JG3773			JG3774				
Sampling Date		2011/04/15			2011/04/15				
COC Number		07512			07512				
	Units	LICA VOC/CLS/APR 15,11 - 7813	ug/m3	DL (ug/m3)	LICA VOC/PORT/APR 15,11 - 7837	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	2469993
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2469993
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2469993
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2469993
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2469993
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2469993
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2469993
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2469993
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2469993
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2469993
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2469993
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2469993
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2469993
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2469993
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2469993
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2469993
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2469993
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2469993
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2469993
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2469993
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2469993
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2469993
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2469993
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2469993
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2469993
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2469993
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2469993
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2469993
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2469993
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2469993
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2469993
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2469993
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2469993
QC Batch = Quality Control Batch									

Maxxam Job #: B153923  
 Report Date: 2011/04/29

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JG3773			JG3774				
Sampling Date		2011/04/15			2011/04/15				
COC Number		07512			07512				
	<b>Units</b>	<b>LICA VOC/CLS/APR 15,11 - 7813</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>LICA VOC/PORT/APR 15,11 - 7837</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Surrogate Recovery (%)</b>									
Bromochloromethane	%	81	N/A	N/A	81		N/A	N/A	2469993
D5-Chlorobenzene	%	79	N/A	N/A	79		N/A	N/A	2469993
Difluorobenzene	%	82	N/A	N/A	81		N/A	N/A	2469993

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



Maxxam Job #: B153923  
Report Date: 2011/04/29

**GENERAL COMMENTS**

**Results relate only to the items tested.**

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

### Quality Assurance Report

Maxxam Job Number: GB153923

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2469993 LSY	Spiked Blank	Bromochloromethane	2011/04/26		103	%	60 - 140
		D5-Chlorobenzene	2011/04/26		108	%	60 - 140
		Difluorobenzene	2011/04/26		106	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/26		95	%	70 - 130
		Carbon Disulfide	2011/04/26		87	%	70 - 130
		Propene	2011/04/26		96	%	70 - 130
		Vinyl Acetate	2011/04/26		114	%	70 - 130
		Vinyl Bromide	2011/04/26		98	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/04/26		115	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/04/26		116	%	70 - 130
		Chloromethane	2011/04/26		107	%	70 - 130
		Vinyl Chloride	2011/04/26		101	%	70 - 130
		Chloroethane	2011/04/26		96	%	70 - 130
		1,3-Butadiene	2011/04/26		94	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/04/26		116	%	70 - 130
		Trichlorotrifluoroethane	2011/04/26		96	%	70 - 130
		Ethanol	2011/04/26		125	%	70 - 130
		2-propanol	2011/04/26		112	%	70 - 130
		2-Propanone	2011/04/26		119	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/04/26		99	%	70 - 130
		Methyl Isobutyl Ketone	2011/04/26		104	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/04/26		108	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/04/26		113	%	70 - 130
		Ethyl Acetate	2011/04/26		108	%	70 - 130
		1,1-Dichloroethylene	2011/04/26		110	%	70 - 130
		cis-1,2-Dichloroethylene	2011/04/26		107	%	70 - 130
		trans-1,2-Dichloroethylene	2011/04/26		106	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/04/26		92	%	70 - 130
		Chloroform	2011/04/26		107	%	70 - 130
		Carbon Tetrachloride	2011/04/26		114	%	70 - 130
		1,1-Dichloroethane	2011/04/26		102	%	70 - 130
		1,2-Dichloroethane	2011/04/26		124	%	70 - 130
		Ethylene Dibromide	2011/04/26		92	%	70 - 130
		1,1,1-Trichloroethane	2011/04/26		112	%	70 - 130
		1,1,2-Trichloroethane	2011/04/26		90	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/04/26		80	%	70 - 130
		cis-1,3-Dichloropropene	2011/04/26		100	%	70 - 130
		trans-1,3-Dichloropropene	2011/04/26		107	%	70 - 130
		1,2-Dichloropropane	2011/04/26		90	%	70 - 130
		Bromomethane	2011/04/26		97	%	70 - 130
		Bromoform	2011/04/26		100	%	70 - 130
		Bromodichloromethane	2011/04/26		106	%	70 - 130
		Dibromochloromethane	2011/04/26		105	%	70 - 130
		Heptane	2011/04/26		102	%	70 - 130
		Trichloroethylene	2011/04/26		91	%	70 - 130
		Tetrachloroethylene	2011/04/26		91	%	70 - 130
		Benzene	2011/04/26		92	%	70 - 130
		Toluene	2011/04/26		97	%	70 - 130
		Ethylbenzene	2011/04/26		98	%	70 - 130
		p+m-Xylene	2011/04/26		99	%	70 - 130
		o-Xylene	2011/04/26		100	%	70 - 130
		Styrene	2011/04/26		89	%	70 - 130
		1,3,5-Trimethylbenzene	2011/04/26		93	%	70 - 130
		1,2,4-Trimethylbenzene	2011/04/26		89	%	70 - 130
		4-ethyltoluene	2011/04/26		93	%	70 - 130

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB153923

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2469993 LSY	Spiked Blank	Chlorobenzene	2011/04/26		87	%	70 - 130
		Benzyl chloride	2011/04/26		79	%	70 - 130
		1,3-Dichlorobenzene	2011/04/26		78	%	70 - 130
		1,4-Dichlorobenzene	2011/04/26		78	%	70 - 130
		1,2-Dichlorobenzene	2011/04/26		76	%	70 - 130
		1,2,4-Trichlorobenzene	2011/04/26		81	%	70 - 130
		Hexachlorobutadiene	2011/04/26		101	%	70 - 130
		Hexane	2011/04/26		103	%	70 - 130
		Cyclohexane	2011/04/26		98	%	70 - 130
		Tetrahydrofuran	2011/04/26		105	%	70 - 130
		1,4-Dioxane	2011/04/26		95	%	70 - 130
	Method Blank	Bromochloromethane	2011/04/26		78	%	60 - 140
		D5-Chlorobenzene	2011/04/26		78	%	60 - 140
		Difluorobenzene	2011/04/26		80	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/26	<0.20		ppbv	
		Carbon Disulfide	2011/04/26	<0.50		ppbv	
		Propene	2011/04/26	<0.30		ppbv	
		Vinyl Acetate	2011/04/26	<0.20		ppbv	
		Vinyl Bromide	2011/04/26	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/04/26	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/04/26	<0.17		ppbv	
		Chloromethane	2011/04/26	<0.30		ppbv	
		Vinyl Chloride	2011/04/26	<0.18		ppbv	
		Chloroethane	2011/04/26	<0.30		ppbv	
		1,3-Butadiene	2011/04/26	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/04/26	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/04/26	<0.15		ppbv	
		Ethanol	2011/04/26	<2.3		ppbv	
		2-propanol	2011/04/26	<3.0		ppbv	
		2-Propanone	2011/04/26	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/04/26	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/04/26	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/04/26	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/04/26	<0.20		ppbv	
		Ethyl Acetate	2011/04/26	<2.2		ppbv	
		1,1-Dichloroethylene	2011/04/26	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/04/26	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/04/26	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/04/26	0.50, RDL=0.30		ppbv	
		Chloroform	2011/04/26	<0.15		ppbv	
		Carbon Tetrachloride	2011/04/26	<0.30		ppbv	
		1,1-Dichloroethane	2011/04/26	<0.20		ppbv	
		1,2-Dichloroethane	2011/04/26	<0.20		ppbv	
		Ethylene Dibromide	2011/04/26	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/04/26	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/04/26	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/04/26	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/04/26	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/04/26	<0.17		ppbv	
		1,2-Dichloropropane	2011/04/26	<0.40		ppbv	
		Bromomethane	2011/04/26	<0.18		ppbv	
		Bromoform	2011/04/26	<0.20		ppbv	
		Bromodichloromethane	2011/04/26	<0.20		ppbv	
		Dibromochloromethane	2011/04/26	<0.20		ppbv	
		Heptane	2011/04/26	<0.30		ppbv	



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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB153923

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2469993 LSY	Method Blank	Trichloroethylene	2011/04/26	<0.30		ppbv	
		Tetrachloroethylene	2011/04/26	<0.20		ppbv	
		Benzene	2011/04/26	<0.18		ppbv	
		Toluene	2011/04/26	<0.20		ppbv	
		Ethylbenzene	2011/04/26	<0.20		ppbv	
		p+m-Xylene	2011/04/26	<0.37		ppbv	
		o-Xylene	2011/04/26	<0.20		ppbv	
		Styrene	2011/04/26	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/04/26	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/04/26	<0.50		ppbv	
		4-ethyltoluene	2011/04/26	<2.2		ppbv	
		Chlorobenzene	2011/04/26	<0.20		ppbv	
		Benzyl chloride	2011/04/26	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/04/26	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/04/26	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/04/26	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/04/26	<2.0		ppbv	
		Hexachlorobutadiene	2011/04/26	<3.0		ppbv	
		Hexane	2011/04/26	<0.30		ppbv	
		Cyclohexane	2011/04/26	<0.20		ppbv	
		Tetrahydrofuran	2011/04/26	<0.40		ppbv	
		1,4-Dioxane	2011/04/26	<2.0		ppbv	
		Xylene (Total)	2011/04/26	<0.60		ppbv	

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

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

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

# MAXXAM

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200  
Location: 13-16-62-5 W4M Canister ID: 7909  
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Apr 19, 11 @ 9:46 mst  
Field Sample ID: LICA VOC/PORT/ Apr 21, 11 Canister Removal Date/Time: Apr 25, 11 @ 10:03 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
21-Apr-11	04/21/2011 0:00	04/22/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1492	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	21

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 # 07550  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Technician Signiture: Ting Xu\_\_\_\_\_



Your C.O.C. #: 07550

**Attention: Michael Bisaga**

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

**Report Date: 2011/05/04**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B157075**

**Received: 2011/04/27, 11:30**

Sample Matrix: AIR  
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/04/28	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/04/28	BRL SOP-00304	EPA TO-15

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

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

**Encryption Key**

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

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

=====

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

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Total cover pages: 1

Maxxam Job #: B157075  
 Report Date: 2011/05/04

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		JH8375	JH8376	
Sampling Date		2011/04/21 00:00	2011/04/21 00:00	
COC Number		07550	07550	
	<b>Units</b>	<b>LICA VOC/CLS/APR 21,11 - 7809</b>	<b>LICA VOC/PORT/APR 21,11 - 7909</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	22	21	2472918
QC Batch = Quality Control Batch				

Maxxam Job #: B157075  
 Report Date: 2011/05/04

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JH8375				
Sampling Date		2011/04/21 00:00				
COC Number		07550				
	<b>Units</b>	<b>LICA VOC/CLS/APR 21,11 - 7809</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2474437
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2474437
Propene	ppbv	<0.30	0.30	<0.516	0.516	2474437
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2474437
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2474437
Dichlorodifluoromethane (FREON 12)	ppbv	0.95	0.20	4.70	0.989	2474437
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2474437
Chloromethane	ppbv	0.72	0.30	1.49	0.620	2474437
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2474437
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2474437
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2474437
Trichlorofluoromethane (FREON 11)	ppbv	0.47	0.20	2.63	1.12	2474437
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2474437
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2474437
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2474437
2-Propanone	ppbv	3.58	0.80	8.51	1.90	2474437
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2474437
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2474437
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2474437
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2474437
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2474437
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2474437
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2474437
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2474437
Methylene Chloride(Dichloromethane)	ppbv	0.54	0.30	1.88	1.04	2474437
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2474437
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2474437
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2474437
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2474437
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2474437
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B157075  
 Report Date: 2011/05/04

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JH8375				
Sampling Date		2011/04/21 00:00				
COC Number		07550				
	<b>Units</b>	<b>LICA VOC/CLS/APR 21,11 - 7809</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2474437
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2474437
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2474437
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2474437
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2474437
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2474437
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2474437
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2474437
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2474437
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2474437
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2474437
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2474437
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2474437
Benzene	ppbv	0.24	0.18	0.754	0.575	2474437
Toluene	ppbv	0.50	0.20	1.89	0.753	2474437
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2474437
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2474437
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2474437
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2474437
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2474437
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2474437
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2474437
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2474437
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2474437
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2474437
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2474437
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2474437
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2474437
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2474437
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2474437
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2474437
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2474437

QC Batch = Quality Control Batch

Maxxam Job #: B157075  
 Report Date: 2011/05/04

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JH8375				
Sampling Date		2011/04/21 00:00				
COC Number		07550				
	<b>Units</b>	<b>LICA VOC/CLS/APR 21,11 - 7809</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2474437
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2474437
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	75		N/A	N/A	2474437
D5-Chlorobenzene	%	73		N/A	N/A	2474437
Difluorobenzene	%	76		N/A	N/A	2474437
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B157075  
 Report Date: 2011/05/04

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JH8376				
Sampling Date		2011/04/21 00:00				
COC Number		07550				
	<b>Units</b>	<b>LICA VOC/PORT/APR 21,11 - 7909</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2474437
Carbon Disulfide	ppbv	0.66	0.50	2.07	1.56	2474437
Propene	ppbv	<0.30	0.30	<0.516	0.516	2474437
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2474437
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2474437
Dichlorodifluoromethane (FREON 12)	ppbv	0.99	0.20	4.88	0.989	2474437
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2474437
Chloromethane	ppbv	0.74	0.30	1.52	0.620	2474437
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2474437
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2474437
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2474437
Trichlorofluoromethane (FREON 11)	ppbv	0.47	0.20	2.64	1.12	2474437
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2474437
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2474437
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2474437
2-Propanone	ppbv	3.78	0.80	8.97	1.90	2474437
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2474437
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2474437
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2474437
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2474437
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2474437
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2474437
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2474437
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2474437
Methylene Chloride(Dichloromethane)	ppbv	0.59	0.30	2.04	1.04	2474437
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2474437
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2474437
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2474437
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2474437
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2474437
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						



Maxxam Job #: B157075  
 Report Date: 2011/05/04

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JH8376				
Sampling Date		2011/04/21 00:00				
COC Number		07550				
	<b>Units</b>	<b>LICA VOC/PORT/APR 21,11 - 7909</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2474437
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2474437
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2474437
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2474437
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2474437
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2474437
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2474437
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2474437
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2474437
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2474437
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2474437
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2474437
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2474437
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2474437
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2474437
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2474437
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2474437
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2474437
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2474437
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2474437
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2474437
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2474437
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2474437
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2474437
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2474437
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2474437
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2474437
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2474437
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2474437
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2474437
Cyclohexane	ppbv	0.40	0.20	1.37	0.688	2474437
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2474437

QC Batch = Quality Control Batch

Maxxam Job #: B157075  
 Report Date: 2011/05/04

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		JH8376				
Sampling Date		2011/04/21 00:00				
COC Number		07550				
	<b>Units</b>	<b>LICA VOC/PORT/APR 21,11 - 7909</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2474437
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2474437
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	74		N/A	N/A	2474437
D5-Chlorobenzene	%	72		N/A	N/A	2474437
Difluorobenzene	%	74		N/A	N/A	2474437
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B157075  
 Report Date: 2011/05/04

### Test Summary

**Maxxam ID** JH8375 **Collected** 2011/04/21  
**Sample ID** LICA VOC/CLS/APR 21,11 - 7809 **Shipped**  
**Matrix** AIR **Received** 2011/04/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2472918	N/A	2011/04/28	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2474437	N/A	2011/04/28	YAO LIANG SUN

**Maxxam ID** JH8376 **Collected** 2011/04/21  
**Sample ID** LICA VOC/PORT/APR 21,11 - 7909 **Shipped**  
**Matrix** AIR **Received** 2011/04/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2472918	N/A	2011/04/28	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2474437	N/A	2011/04/28	YAO LIANG SUN

Maxxam Job #: B157075  
Report Date: 2011/05/04

**GENERAL COMMENTS**

**Results relate only to the items tested.**

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

### Quality Assurance Report

Maxxam Job Number: GB157075

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2474437 LSY	Spiked Blank	Bromochloromethane	2011/04/28		89	%	60 - 140
		D5-Chlorobenzene	2011/04/28		89	%	60 - 140
		Difluorobenzene	2011/04/28		90	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/28		94	%	70 - 130
		Carbon Disulfide	2011/04/28		89	%	70 - 130
		Propene	2011/04/28		97	%	70 - 130
		Vinyl Acetate	2011/04/28		110	%	70 - 130
		Vinyl Bromide	2011/04/28		99	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/04/28		124	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/04/28		122	%	70 - 130
		Chloromethane	2011/04/28		111	%	70 - 130
		Vinyl Chloride	2011/04/28		104	%	70 - 130
		Chloroethane	2011/04/28		96	%	70 - 130
		1,3-Butadiene	2011/04/28		94	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/04/28		124	%	70 - 130
		Trichlorotrifluoroethane	2011/04/28		99	%	70 - 130
		Ethanol	2011/04/28		117	%	70 - 130
		2-propanol	2011/04/28		107	%	70 - 130
		2-Propanone	2011/04/28		119	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/04/28		95	%	70 - 130
		Methyl Isobutyl Ketone	2011/04/28		101	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/04/28		103	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/04/28		116	%	70 - 130
		Ethyl Acetate	2011/04/28		104	%	70 - 130
		1,1-Dichloroethylene	2011/04/28		113	%	70 - 130
		cis-1,2-Dichloroethylene	2011/04/28		109	%	70 - 130
		trans-1,2-Dichloroethylene	2011/04/28		107	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/04/28		92	%	70 - 130
		Chloroform	2011/04/28		112	%	70 - 130
		Carbon Tetrachloride	2011/04/28		125	%	70 - 130
		1,1-Dichloroethane	2011/04/28		102	%	70 - 130
		1,2-Dichloroethane	2011/04/28		131 (1)	%	70 - 130
		Ethylene Dibromide	2011/04/28		96	%	70 - 130
		1,1,1-Trichloroethane	2011/04/28		121	%	70 - 130
		1,1,2-Trichloroethane	2011/04/28		93	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/04/28		83	%	70 - 130
		cis-1,3-Dichloropropene	2011/04/28		101	%	70 - 130
		trans-1,3-Dichloropropene	2011/04/28		111	%	70 - 130
		1,2-Dichloropropane	2011/04/28		90	%	70 - 130
		Bromomethane	2011/04/28		101	%	70 - 130
		Bromoform	2011/04/28		107	%	70 - 130
		Bromodichloromethane	2011/04/28		111	%	70 - 130
		Dibromochloromethane	2011/04/28		112	%	70 - 130
		Heptane	2011/04/28		98	%	70 - 130
		Trichloroethylene	2011/04/28		94	%	70 - 130
		Tetrachloroethylene	2011/04/28		98	%	70 - 130
		Benzene	2011/04/28		96	%	70 - 130
		Toluene	2011/04/28		98	%	70 - 130
		Ethylbenzene	2011/04/28		102	%	70 - 130
		p+m-Xylene	2011/04/28		103	%	70 - 130
		o-Xylene	2011/04/28		104	%	70 - 130
		Styrene	2011/04/28		92	%	70 - 130
		1,3,5-Trimethylbenzene	2011/04/28		98	%	70 - 130
		1,2,4-Trimethylbenzene	2011/04/28		93	%	70 - 130
		4-ethyltoluene	2011/04/28		98	%	70 - 130

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB157075

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2474437 LSY	Spiked Blank	Chlorobenzene	2011/04/28		93	%	70 - 130
		Benzyl chloride	2011/04/28		81	%	70 - 130
		1,3-Dichlorobenzene	2011/04/28		84	%	70 - 130
		1,4-Dichlorobenzene	2011/04/28		83	%	70 - 130
		1,2-Dichlorobenzene	2011/04/28		82	%	70 - 130
		1,2,4-Trichlorobenzene	2011/04/28		84	%	70 - 130
		Hexachlorobutadiene	2011/04/28		111	%	70 - 130
		Hexane	2011/04/28		99	%	70 - 130
		Cyclohexane	2011/04/28		97	%	70 - 130
		Tetrahydrofuran	2011/04/28		100	%	70 - 130
		1,4-Dioxane	2011/04/28		92	%	70 - 130
	Method Blank	Bromochloromethane	2011/04/28		78	%	60 - 140
		D5-Chlorobenzene	2011/04/28		76	%	60 - 140
		Difluorobenzene	2011/04/28		80	%	60 - 140
		2,2,4-Trimethylpentane	2011/04/28	<0.20		ppbv	
		Carbon Disulfide	2011/04/28	<0.50		ppbv	
		Propene	2011/04/28	<0.30		ppbv	
		Vinyl Acetate	2011/04/28	<0.20		ppbv	
		Vinyl Bromide	2011/04/28	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/04/28	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/04/28	<0.17		ppbv	
		Chloromethane	2011/04/28	<0.30		ppbv	
		Vinyl Chloride	2011/04/28	<0.18		ppbv	
		Chloroethane	2011/04/28	<0.30		ppbv	
		1,3-Butadiene	2011/04/28	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/04/28	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/04/28	<0.15		ppbv	
		Ethanol	2011/04/28	<2.3		ppbv	
		2-propanol	2011/04/28	<3.0		ppbv	
		2-Propanone	2011/04/28	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/04/28	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/04/28	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/04/28	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/04/28	<0.20		ppbv	
		Ethyl Acetate	2011/04/28	<2.2		ppbv	
		1,1-Dichloroethylene	2011/04/28	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/04/28	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/04/28	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/04/28	0.47, RDL=0.30		ppbv	
		Chloroform	2011/04/28	<0.15		ppbv	
		Carbon Tetrachloride	2011/04/28	<0.30		ppbv	
		1,1-Dichloroethane	2011/04/28	<0.20		ppbv	
		1,2-Dichloroethane	2011/04/28	<0.20		ppbv	
		Ethylene Dibromide	2011/04/28	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/04/28	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/04/28	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/04/28	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/04/28	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/04/28	<0.17		ppbv	
		1,2-Dichloropropane	2011/04/28	<0.40		ppbv	
		Bromomethane	2011/04/28	<0.18		ppbv	
		Bromoform	2011/04/28	<0.20		ppbv	
		Bromodichloromethane	2011/04/28	<0.20		ppbv	
		Dibromochloromethane	2011/04/28	<0.20		ppbv	
		Heptane	2011/04/28	<0.30		ppbv	

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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB157075

QA/QC Batch			Date Analyzed					
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2474437	LSY	Method Blank	2011/04/28	<0.30		ppbv		
		Trichloroethylene	2011/04/28	<0.20		ppbv		
		Tetrachloroethylene	2011/04/28	<0.18		ppbv		
		Benzene	2011/04/28	<0.20		ppbv		
		Toluene	2011/04/28	<0.20		ppbv		
		Ethylbenzene	2011/04/28	<0.37		ppbv		
		p+m-Xylene	2011/04/28	<0.20		ppbv		
		o-Xylene	2011/04/28	<0.20		ppbv		
		Styrene	2011/04/28	<0.50		ppbv		
		1,3,5-Trimethylbenzene	2011/04/28	<0.50		ppbv		
		1,2,4-Trimethylbenzene	2011/04/28	<2.2		ppbv		
		4-ethyltoluene	2011/04/28	<0.20		ppbv		
		Chlorobenzene	2011/04/28	<1.0		ppbv		
		Benzyl chloride	2011/04/28	<0.40		ppbv		
		1,3-Dichlorobenzene	2011/04/28	<0.40		ppbv		
		1,4-Dichlorobenzene	2011/04/28	<0.40		ppbv		
		1,2-Dichlorobenzene	2011/04/28	<2.0		ppbv		
		1,2,4-Trichlorobenzene	2011/04/28	<3.0		ppbv		
		Hexachlorobutadiene	2011/04/28	<0.30		ppbv		
		Hexane	2011/04/28	<0.20		ppbv		
		Cyclohexane	2011/04/28	<0.40		ppbv		
		Tetrahydrofuran	2011/04/28	<2.0		ppbv		
		1,4-Dioxane	2011/04/28	<0.60		ppbv		
		Xylene (Total)	2011/04/28			ppbv		

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

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

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

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

# MAXXAM

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200  
Location: 13-16-62-5 W4M Canister ID: 7858  
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Apr 25, 11 @ 10:21 mst  
Field Sample ID: LICA VOC/PORT/ Apr 27, 11 Canister Removal Date/Time: Apr 28, 11 @ 9:12 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
27-Apr-11	04/27/2011 0:00	04/28/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1492	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	21

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 # 06946  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Technician Signiture: Ting Xu\_\_\_\_\_





Your C.O.C. #: 06946

**Attention: Michael Bisaga**

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

**Report Date: 2011/05/05**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B159322**

**Received: 2011/04/30, 16:25**

Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/05/03	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/05/03	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  
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=====  
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Total cover pages: 1

Maxxam Job #: B159322  
 Report Date: 2011/05/05

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		J18562	J18563	
Sampling Date		2011/04/27	2011/04/27	
COC Number		06946	06946	
	<b>Units</b>	<b>LICA VOC/CLS/APR 27,2011</b>	<b>LICA VOC/PORT/APR 27,2011</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	21	22	2476889

QC Batch = Quality Control Batch

Maxxam Job #: B159322  
 Report Date: 2011/05/05

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		J18562			J18563				
Sampling Date		2011/04/27			2011/04/27				
COC Number		06946			06946				
	<b>Units</b>	<b>LICA VOC/CLS/APR 27,2011</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>LICA VOC/PORT/APR 27,2011</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Volatile Organics</b>									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2477688
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2477688
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2477688
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2477688
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2477688
Dichlorodifluoromethane (FREON 12)	ppbv	0.78	3.85	0.989	0.75	0.20	3.73	0.989	2477688
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2477688
Chloromethane	ppbv	0.77	1.58	0.620	0.74	0.30	1.53	0.620	2477688
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2477688
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2477688
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2477688
Trichlorofluoromethane (FREON 11)	ppbv	0.35	1.96	1.12	0.35	0.20	1.97	1.12	2477688
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2477688
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2477688
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2477688
2-Propanone	ppbv	3.97	9.43	1.90	3.58	0.80	8.51	1.90	2477688
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2477688
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2477688
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2477688
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2477688
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2477688
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2477688
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2477688
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2477688
Methylene Chloride(Dichloromethane)	ppbv	0.55	1.91	1.04	0.58	0.30	2.01	1.04	2477688
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2477688
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2477688
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2477688
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2477688
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2477688
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2477688

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B159322  
 Report Date: 2011/05/05

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		J18562			J18563				
Sampling Date		2011/04/27			2011/04/27				
COC Number		06946			06946				
	Units	LICA VOC/CLS/APR 27,2011	ug/m3	DL (ug/m3)	LICA VOC/PORT/APR 27,2011	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	2477688
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2477688
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2477688
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2477688
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2477688
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2477688
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2477688
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2477688
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2477688
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2477688
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2477688
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2477688
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2477688
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2477688
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2477688
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2477688
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2477688
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2477688
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2477688
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2477688
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2477688
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2477688
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2477688
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2477688
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2477688
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2477688
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2477688
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2477688
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2477688
Cyclohexane	ppbv	0.34	1.16	0.688	0.48	0.20	1.64	0.688	2477688
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2477688
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2477688
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2477688
QC Batch = Quality Control Batch									

Maxxam Job #: B159322  
 Report Date: 2011/05/05

**VOLATILE ORGANICS BY GC/MS (AIR)**

Maxxam ID		J18562			J18563				
Sampling Date		2011/04/27			2011/04/27				
COC Number		06946			06946				
	<b>Units</b>	<b>LICA VOC/CLS/APR 27,2011</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>LICA VOC/PORT/APR 27,2011</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Surrogate Recovery (%)</b>									
Bromochloromethane	%	84	N/A	N/A	84		N/A	N/A	2477688
D5-Chlorobenzene	%	86	N/A	N/A	88		N/A	N/A	2477688
Difluorobenzene	%	86	N/A	N/A	86		N/A	N/A	2477688

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

Maxxam Job #: B159322  
 Report Date: 2011/05/05

### Test Summary

<b>Maxxam ID</b>	J18562	<b>Collected</b>	2011/04/27
<b>Sample ID</b>	LICA VOC/CLS/APR 27,2011	<b>Shipped</b>	
<b>Matrix</b>	AIR	<b>Received</b>	2011/04/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2476889	N/A	2011/05/03	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2477688	N/A	2011/05/03	YAO LIANG SUN

<b>Maxxam ID</b>	J18563	<b>Collected</b>	2011/04/27
<b>Sample ID</b>	LICA VOC/PORT/APR 27,2011	<b>Shipped</b>	
<b>Matrix</b>	AIR	<b>Received</b>	2011/04/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2476889	N/A	2011/05/03	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2477688	N/A	2011/05/03	YAO LIANG SUN

Maxxam Job #: B159322  
Report Date: 2011/05/05

**GENERAL COMMENTS**

**Results relate only to the items tested.**

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

Quality Assurance Report  
 Maxxam Job Number: GB159322

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2477688 LSY	Spiked Blank	Bromochloromethane	2011/05/03		91	%	60 - 140
		D5-Chlorobenzene	2011/05/03		90	%	60 - 140
		Difluorobenzene	2011/05/03		92	%	60 - 140
		2,2,4-Trimethylpentane	2011/05/03		97	%	70 - 130
		Carbon Disulfide	2011/05/03		90	%	70 - 130
		Propene	2011/05/03		94	%	70 - 130
		Vinyl Acetate	2011/05/03		110	%	70 - 130
		Vinyl Bromide	2011/05/03		97	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/05/03		96	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/05/03		111	%	70 - 130
		Chloromethane	2011/05/03		100	%	70 - 130
		Vinyl Chloride	2011/05/03		98	%	70 - 130
		Chloroethane	2011/05/03		97	%	70 - 130
		1,3-Butadiene	2011/05/03		87	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/05/03		97	%	70 - 130
		Trichlorotrifluoroethane	2011/05/03		97	%	70 - 130
		Ethanol	2011/05/03		89	%	70 - 130
		2-propanol	2011/05/03		99	%	70 - 130
		2-Propanone	2011/05/03		92	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/05/03		97	%	70 - 130
		Methyl Isobutyl Ketone	2011/05/03		96	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/05/03		97	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/05/03		98	%	70 - 130
		Ethyl Acetate	2011/05/03		103	%	70 - 130
		1,1-Dichloroethylene	2011/05/03		99	%	70 - 130
		cis-1,2-Dichloroethylene	2011/05/03		97	%	70 - 130
		trans-1,2-Dichloroethylene	2011/05/03		100	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/05/03		91	%	70 - 130
		Chloroform	2011/05/03		98	%	70 - 130
		Carbon Tetrachloride	2011/05/03		109	%	70 - 130
		1,1-Dichloroethane	2011/05/03		98	%	70 - 130
		1,2-Dichloroethane	2011/05/03		100	%	70 - 130
		Ethylene Dibromide	2011/05/03		94	%	70 - 130
		1,1,1-Trichloroethane	2011/05/03		100	%	70 - 130
		1,1,2-Trichloroethane	2011/05/03		94	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/05/03		85	%	70 - 130
		cis-1,3-Dichloropropene	2011/05/03		101	%	70 - 130
		trans-1,3-Dichloropropene	2011/05/03		100	%	70 - 130
		1,2-Dichloropropane	2011/05/03		97	%	70 - 130
		Bromomethane	2011/05/03		97	%	70 - 130
		Bromoform	2011/05/03		115	%	70 - 130
		Bromodichloromethane	2011/05/03		106	%	70 - 130
		Dibromochloromethane	2011/05/03		112	%	70 - 130
		Heptane	2011/05/03		98	%	70 - 130
		Trichloroethylene	2011/05/03		93	%	70 - 130
		Tetrachloroethylene	2011/05/03		92	%	70 - 130
		Benzene	2011/05/03		94	%	70 - 130
		Toluene	2011/05/03		94	%	70 - 130
		Ethylbenzene	2011/05/03		95	%	70 - 130
		p+m-Xylene	2011/05/03		94	%	70 - 130
		o-Xylene	2011/05/03		93	%	70 - 130
		Styrene	2011/05/03		94	%	70 - 130
		1,3,5-Trimethylbenzene	2011/05/03		80	%	70 - 130
		1,2,4-Trimethylbenzene	2011/05/03		78	%	70 - 130
		4-ethyltoluene	2011/05/03		85	%	70 - 130



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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB159322

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2477688 LSY	Spiked Blank	Chlorobenzene	2011/05/03		95	%	70 - 130
		Benzyl chloride	2011/05/03		92	%	70 - 130
		1,3-Dichlorobenzene	2011/05/03		79	%	70 - 130
		1,4-Dichlorobenzene	2011/05/03		80	%	70 - 130
		1,2-Dichlorobenzene	2011/05/03		73	%	70 - 130
		1,2,4-Trichlorobenzene	2011/05/03		96	%	70 - 130
		Hexachlorobutadiene	2011/05/03		95	%	70 - 130
		Hexane	2011/05/03		98	%	70 - 130
		Cyclohexane	2011/05/03		97	%	70 - 130
		Tetrahydrofuran	2011/05/03		100	%	70 - 130
		1,4-Dioxane	2011/05/03		84	%	70 - 130
	Method Blank	Bromochloromethane	2011/05/03		82	%	60 - 140
		D5-Chlorobenzene	2011/05/03		80	%	60 - 140
		Difluorobenzene	2011/05/03		83	%	60 - 140
		2,2,4-Trimethylpentane	2011/05/03	<0.20		ppbv	
		Carbon Disulfide	2011/05/03	<0.50		ppbv	
		Propene	2011/05/03	<0.30		ppbv	
		Vinyl Acetate	2011/05/03	<0.20		ppbv	
		Vinyl Bromide	2011/05/03	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/05/03	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/05/03	<0.17		ppbv	
		Chloromethane	2011/05/03	<0.30		ppbv	
		Vinyl Chloride	2011/05/03	<0.18		ppbv	
		Chloroethane	2011/05/03	<0.30		ppbv	
		1,3-Butadiene	2011/05/03	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/05/03	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/05/03	<0.15		ppbv	
		Ethanol	2011/05/03	<2.3		ppbv	
		2-propanol	2011/05/03	<3.0		ppbv	
		2-Propanone	2011/05/03	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/05/03	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/05/03	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/05/03	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/05/03	<0.20		ppbv	
		Ethyl Acetate	2011/05/03	<2.2		ppbv	
		1,1-Dichloroethylene	2011/05/03	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/05/03	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/05/03	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/05/03	0.45, RDL=0.30		ppbv	
		Chloroform	2011/05/03	<0.15		ppbv	
		Carbon Tetrachloride	2011/05/03	<0.30		ppbv	
		1,1-Dichloroethane	2011/05/03	<0.20		ppbv	
		1,2-Dichloroethane	2011/05/03	<0.20		ppbv	
		Ethylene Dibromide	2011/05/03	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/05/03	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/05/03	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/05/03	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/05/03	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/05/03	<0.17		ppbv	
		1,2-Dichloropropane	2011/05/03	<0.40		ppbv	
		Bromomethane	2011/05/03	<0.18		ppbv	
		Bromoform	2011/05/03	<0.20		ppbv	
		Bromodichloromethane	2011/05/03	<0.20		ppbv	
		Dibromochloromethane	2011/05/03	<0.20		ppbv	
		Heptane	2011/05/03	<0.30		ppbv	

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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB159322

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2477688 LSY	Method Blank	Trichloroethylene	2011/05/03	<0.30		ppbv	
		Tetrachloroethylene	2011/05/03	<0.20		ppbv	
		Benzene	2011/05/03	<0.18		ppbv	
		Toluene	2011/05/03	<0.20		ppbv	
		Ethylbenzene	2011/05/03	<0.20		ppbv	
		p+m-Xylene	2011/05/03	<0.37		ppbv	
		o-Xylene	2011/05/03	<0.20		ppbv	
		Styrene	2011/05/03	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/05/03	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/05/03	<0.50		ppbv	
		4-ethyltoluene	2011/05/03	<2.2		ppbv	
		Chlorobenzene	2011/05/03	<0.20		ppbv	
		Benzyl chloride	2011/05/03	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/05/03	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/05/03	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/05/03	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/05/03	<2.0		ppbv	
		Hexachlorobutadiene	2011/05/03	<3.0		ppbv	
		Hexane	2011/05/03	<0.30		ppbv	
		Cyclohexane	2011/05/03	<0.20		ppbv	
		Tetrahydrofuran	2011/05/03	<0.40		ppbv	
		1,4-Dioxane	2011/05/03	<2.0		ppbv	
		Xylene (Total)	2011/05/03	<0.60		ppbv	

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

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

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

# **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/Apr 03, 11

Puf+ s/n: 100-1015  
 Motor s/n: 1139  
 Installation Date/Time: Apr 01, 2011 @ 10: 25 mst  
 Removal Date/Time: Apr 04, 2011 @ 8: 30 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
03-Apr-11	04/03/2011 0:00	04/04/2011 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
31-Mar-11	04-Apr-11	13-Apr-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 29-Mar-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature ( C)	Volume (Vstd m <sup>3</sup> )
710	229	0.4	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# 07087

GB124673 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Apr 03, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 07087

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

Report Date: 2011/04/12

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B146163****Received: 2011/04/06, 08:35**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/04/07	2011/04/11	BRL SOP-00201	CARB429(ARBM1,M2)mod

## Encryption Key

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

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

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Total cover pages: 1

Maxxam Job #: B146163  
 Report Date: 2011/04/12

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

Maxxam ID		JC6305	JC6306		
Sampling Date		2011/04/03	2011/04/03		
COC Number		07087	07087		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/APR 03, 11</b>	<b>LICA PUFF+QFF/PORT/APR 03, 11</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2451936
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2451936
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2451936
2-Methylantracene	ug	<0.10	<0.10	0.10	2451936
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2451936
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2451936
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2451936
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2451936
Acenaphthene	ug	<0.050	<0.050	0.050	2451936
Acenaphthylene	ug	<0.050	<0.050	0.050	2451936
Anthracene	ug	<0.050	<0.050	0.050	2451936
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2451936
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2451936
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2451936
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2451936
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2451936
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2451936
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2451936
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2451936
Biphenyl	ug	<0.10	<0.10	0.10	2451936
Chrysene	ug	<0.050	<0.050	0.050	2451936
Coronene	ug	<0.10	<0.10	0.10	2451936
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2451936
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2451936
Fluoranthene	ug	<0.050	<0.050	0.050	2451936
Fluorene	ug	0.074	0.058	0.050	2451936
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2451936
m-Terphenyl	ug	<0.10	<0.10	0.10	2451936
Naphthalene	ug	0.072	0.078	0.072	2451936
o-Terphenyl	ug	<0.10	<0.10	0.10	2451936
Perylene	ug	<0.10	<0.10	0.10	2451936

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B146163  
 Report Date: 2011/04/12

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

Maxxam ID		JC6305	JC6306		
Sampling Date		2011/04/03	2011/04/03		
COC Number		07087	07087		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/APR 03, 11</b>	<b>LICA PUFF+QFF/PORT/APR 03, 11</b>	<b>RDL</b>	<b>QC Batch</b>

Phenanthrene	ug	0.162	0.110	0.050	2451936
p-Terphenyl	ug	<0.10	<0.10	0.10	2451936
Pyrene	ug	<0.050	<0.050	0.050	2451936
Quinoline	ug	<0.40	<0.40	0.40	2451936
Tetralin	ug	<0.10	<0.10	0.10	2451936
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	66	76		2451936
D10-Fluoranthene	%	90	88		2451936
D10-Fluorene (FS)	%	19 (1)	31 (1)		2451936
D10-Phenanthrene	%	82	82		2451936
D12-Benzo(a)anthracene	%	108	102		2451936
D12-Benzo(a)pyrene	%	90	90		2451936
D12-Benzo(b)fluoranthene	%	96	90		2451936
D12-Benzo(ghi)perylene	%	96	96		2451936
D12-Benzo(k)fluoranthene	%	84	86		2451936
D12-Chrysene	%	84	82		2451936
D12-Indeno(1,2,3-cd)pyrene	%	98	96		2451936
D12-Perylene	%	90	88		2451936
D14-Dibenzo(a,h)anthracene	%	100	100		2451936
D14-Terphenyl (FS)	%	88	86		2451936
D8-Acenaphthylene	%	70	80		2451936
D8-Naphthalene	%	64	74		2451936

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 #: B146163  
 Report Date: 2011/04/12

### Test Summary

<b>Maxxam ID</b>	JC6305	<b>Collected</b>	2011/04/03
<b>Sample ID</b>	LICA PUFF+QFF/CLS/APR 03, 11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/06

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2451936	2011/04/07	2011/04/11	WENDY ZHAO

<b>Maxxam ID</b>	JC6306	<b>Collected</b>	2011/04/03
<b>Sample ID</b>	LICA PUFF+QFF/PORT/APR 03, 11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/06

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2451936	2011/04/07	2011/04/11	WENDY ZHAO



Maxxam Job #: B146163  
Report Date: 2011/04/12

#### GENERAL COMMENTS

PAHMS-F

7,12-Dimethylbenzo(a)anthracene is above 25% RSD in initial calibration. No positive found for this compound.

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.

Sample JC6305-01: PAHMS-F

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

Sample JC6306-01: PAHMS-F

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. #:  
 Project name:

### Quality Assurance Report

Maxxam Job Number: GB146163

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2451936 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/04/11		78	%	50 - 150
		D10-Fluoranthene	2011/04/11		84	%	50 - 150
		D10-Phenanthrene	2011/04/11		82	%	50 - 150
		D12-Benzo(a)anthracene	2011/04/11		98	%	50 - 150
		D12-Benzo(a)pyrene	2011/04/11		90	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/04/11		92	%	50 - 150
		D12-Benzo(ghi)perylene	2011/04/11		96	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/04/11		84	%	50 - 150
		D12-Chrysene	2011/04/11		82	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/04/11		98	%	50 - 150
		D12-Perylene	2011/04/11		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/04/11		100	%	50 - 150
		D8-Acenaphthylene	2011/04/11		80	%	50 - 150
		D8-Naphthalene	2011/04/11		80	%	50 - 150
	RPD	Acenaphthene	2011/04/11		76	%	60 - 130
	RPD	Acenaphthene	2011/04/11	1.7		%	50
	Spiked Blank	Acenaphthylene	2011/04/11		76	%	60 - 130
	RPD	Acenaphthylene	2011/04/11	1.7		%	50
	Spiked Blank	Anthracene	2011/04/11		71	%	60 - 130
	RPD	Anthracene	2011/04/11	0.4		%	50
	Spiked Blank	Benzo(a)anthracene	2011/04/11		80	%	60 - 130
	RPD	Benzo(a)anthracene	2011/04/11	1.9		%	50
	Spiked Blank	Benzo(a)pyrene	2011/04/11		68	%	60 - 130
	RPD	Benzo(a)pyrene	2011/04/11	1.5		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/04/11		74	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/04/11	0.3		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/04/11		82	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/04/11	0.6		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/04/11		79	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/04/11	1.3		%	50
	Spiked Blank	Chrysene	2011/04/11		77	%	60 - 130
	RPD	Chrysene	2011/04/11	0.3		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/04/11		84	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/04/11	0.9		%	50
	Spiked Blank	Fluoranthene	2011/04/11		80	%	60 - 130
	RPD	Fluoranthene	2011/04/11	1.6		%	50
	Spiked Blank	Fluorene	2011/04/11		75	%	60 - 130
	RPD	Fluorene	2011/04/11	0		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/04/11		84	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/04/11	0.3		%	50
	Spiked Blank	Naphthalene	2011/04/11		84	%	60 - 130
	RPD	Naphthalene	2011/04/11	2.7		%	50
	Spiked Blank	Phenanthrene	2011/04/11		74	%	60 - 130
	RPD	Phenanthrene	2011/04/11	2.0		%	50
Spiked Blank	Pyrene	2011/04/11		74	%	60 - 130	
RPD	Pyrene	2011/04/11	1.0		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/04/11		76	%	50 - 150	
	D10-Fluoranthene	2011/04/11		88	%	50 - 150	
	D10-Phenanthrene	2011/04/11		82	%	50 - 150	
	D12-Benzo(a)anthracene	2011/04/11		104	%	50 - 150	
	D12-Benzo(a)pyrene	2011/04/11		92	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/04/11		88	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/04/11		98	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/04/11		84	%	50 - 150	
	D12-Chrysene	2011/04/11		80	%	50 - 150	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB146163

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2451936 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/04/11		100	%	50 - 150
		D12-Perylene	2011/04/11		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/04/11		100	%	50 - 150
		D8-Acenaphthylene	2011/04/11		80	%	50 - 150
		D8-Naphthalene	2011/04/11		76	%	50 - 150
		1-Methylnaphthalene	2011/04/11	<0.10		ug	
		1-Methylphenanthrene	2011/04/11	<0.10		ug	
		2-Chloronaphthalene	2011/04/11	<0.10		ug	
		2-Methylantracene	2011/04/11	<0.10		ug	
		2-Methylnaphthalene	2011/04/11	<0.10		ug	
		3-Methylcholanthrene	2011/04/11	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/04/11	<0.10		ug	
		9,10-Dimethylantracene	2011/04/11	<0.40		ug	
		Acenaphthene	2011/04/11	<0.050		ug	
		Acenaphthylene	2011/04/11	<0.050		ug	
		Anthracene	2011/04/11	<0.050		ug	
		Benzo(a)anthracene	2011/04/11	<0.050		ug	
		Benzo(a)fluorene	2011/04/11	<0.10		ug	
		Benzo(a)pyrene	2011/04/11	<0.050		ug	
		Benzo(b)fluoranthene	2011/04/11	<0.050		ug	
		Benzo(b)fluorene	2011/04/11	<0.10		ug	
		Benzo(e)pyrene	2011/04/11	<0.10		ug	
		Benzo(g,h,i)perylene	2011/04/11	<0.050		ug	
		Benzo(k)fluoranthene	2011/04/11	<0.050		ug	
		Biphenyl	2011/04/11	<0.10		ug	
		Chrysene	2011/04/11	<0.050		ug	
		Coronene	2011/04/11	<0.10		ug	
		Dibenz(a,h)anthracene	2011/04/11	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/04/11	<0.20		ug	
		Fluoranthene	2011/04/11	<0.050		ug	
		Fluorene	2011/04/11	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/04/11	<0.050		ug	
		m-Terphenyl	2011/04/11	<0.10		ug	
		Naphthalene	2011/04/11	<0.072		ug	
		o-Terphenyl	2011/04/11	<0.10		ug	
		Perylene	2011/04/11	<0.10		ug	
		Phenanthrene	2011/04/11	<0.050		ug	
		p-Terphenyl	2011/04/11	<0.10		ug	
		Pyrene	2011/04/11	<0.050		ug	
		Quinoline	2011/04/11	<0.40		ug	
		Tetralin	2011/04/11	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.  
 Spiked Blank: A blank matrix 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/Apr 09, 11

Puf+ s/n: 100-1015  
 Motor s/n: 1139  
 Installation Date/Time: Apr 07, 2011 @ 9:05 mst  
 Removal Date/Time: Apr 11, 2011 @ 10:11 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
09-Apr-11	04/09/2011 0:00	04/10/2011 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
06-Apr-11	11-Apr-11	18-Apr-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 29-Mar-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature ( C)	Volume (Vstd m <sup>3</sup> )
700	229	3.4	330.34

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

Comments: COC# 06960

GB144674 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Apr 09, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 06960

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

Report Date: 2011/04/25

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B149982****Received: 2011/04/13, 08:50**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/04/16	2011/04/18	BRL SOP-00201	CARB429(ARBM1,M2)mod

## Encryption Key

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

THERESA STEPHENSON, Project Manager  
Email: TStephenson@maxxam.ca  
Phone# (905) 817-5763=====  
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Total cover pages: 1

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Maxxam Job #: B149982  
 Report Date: 2011/04/25

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

Maxxam ID		JE4933	JE4934		
Sampling Date		2011/04/09	2011/04/09		
COC Number		06960	06960		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/APR 09,11</b>	<b>LICA PUFF+QFF/PORT/APR 09,11</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2460811
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2460811
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2460811
2-Methylantracene	ug	<0.10	<0.10	0.10	2460811
2-Methylnaphthalene	ug	0.12	0.15	0.10	2460811
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2460811
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2460811
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2460811
Acenaphthene	ug	<0.050	<0.050	0.050	2460811
Acenaphthylene	ug	<0.050	<0.050	0.050	2460811
Anthracene	ug	<0.050	<0.050	0.050	2460811
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2460811
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2460811
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2460811
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2460811
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2460811
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2460811
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2460811
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2460811
Biphenyl	ug	<0.10	<0.10	0.10	2460811
Chrysene	ug	<0.050	<0.050	0.050	2460811
Coronene	ug	<0.10	<0.10	0.10	2460811
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2460811
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2460811
Fluoranthene	ug	<0.050	<0.050	0.050	2460811
Fluorene	ug	0.070	0.060	0.050	2460811
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2460811
m-Terphenyl	ug	<0.10	<0.10	0.10	2460811
Naphthalene	ug	0.094	0.120	0.072	2460811
o-Terphenyl	ug	<0.10	<0.10	0.10	2460811
Perylene	ug	<0.10	<0.10	0.10	2460811
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					

Maxxam Job #: B149982  
 Report Date: 2011/04/25

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

Maxxam ID		JE4933	JE4934		
Sampling Date		2011/04/09	2011/04/09		
COC Number		06960	06960		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/APR 09,11</b>	<b>LICA PUFF+QFF/PORT/APR 09,11</b>	<b>RDL</b>	<b>QC Batch</b>

Phenanthrene	ug	0.140	0.108	0.050	2460811
p-Terphenyl	ug	<0.10	<0.10	0.10	2460811
Pyrene	ug	<0.050	<0.050	0.050	2460811
Quinoline	ug	<0.40	<0.40	0.40	2460811
Tetralin	ug	<0.10	<0.10	0.10	2460811
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	64	80		2460811
D10-Fluoranthene	%	90	92		2460811
D10-Fluorene (FS)	%	24 (1)	21 (1)		2460811
D10-Phenanthrene	%	78	86		2460811
D12-Benzo(a)anthracene	%	100	100		2460811
D12-Benzo(a)pyrene	%	92	94		2460811
D12-Benzo(b)fluoranthene	%	94	88		2460811
D12-Benzo(ghi)perylene	%	104	104		2460811
D12-Benzo(k)fluoranthene	%	82	88		2460811
D12-Chrysene	%	86	82		2460811
D12-Indeno(1,2,3-cd)pyrene	%	104	104		2460811
D12-Perylene	%	92	92		2460811
D14-Dibenzo(a,h)anthracene	%	106	104		2460811
D14-Terphenyl (FS)	%	86	84		2460811
D8-Acenaphthylene	%	72	90		2460811
D8-Naphthalene	%	62	78		2460811

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 #: B149982  
Report Date: 2011/04/25

#### GENERAL COMMENTS

PAHMS-F

7,12-Dimethylbenzo(a)anthracene and 3-Methylcholanthrene are above 25% RSD in initial calibration and continuing. No positives found for these 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.

Sample JE4933-01: PAHMS-F

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

Sample JE4934-01: PAHMS-F

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. #:  
 Project name:

### Quality Assurance Report

Maxxam Job Number: GB149982

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2460811 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/04/18		76	%	50 - 150
		D10-Fluoranthene	2011/04/18		88	%	50 - 150
		D10-Phenanthrene	2011/04/18		80	%	50 - 150
		D12-Benzo(a)anthracene	2011/04/18		98	%	50 - 150
		D12-Benzo(a)pyrene	2011/04/18		96	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/04/18		96	%	50 - 150
		D12-Benzo(ghi)perylene	2011/04/18		102	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/04/18		86	%	50 - 150
		D12-Chrysene	2011/04/18		88	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/04/18		104	%	50 - 150
		D12-Perylene	2011/04/18		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/04/18		104	%	50 - 150
		D8-Acenaphthylene	2011/04/18		82	%	50 - 150
		D8-Naphthalene	2011/04/18		78	%	50 - 150
		RPD	Acenaphthene	2011/04/18		76	%
	Spiked Blank	Acenaphthene	2011/04/18	4.7		%	50
	RPD	Acenaphthylene	2011/04/18		78	%	60 - 130
	Spiked Blank	Acenaphthylene	2011/04/18	4.9		%	50
	RPD	Anthracene	2011/04/18		75	%	60 - 130
	Spiked Blank	Anthracene	2011/04/18	1.3		%	50
	RPD	Anthracene	2011/04/18		1.3		50
	Spiked Blank	Benzo(a)anthracene	2011/04/18		82	%	60 - 130
	RPD	Benzo(a)anthracene	2011/04/18		1.5		50
	Spiked Blank	Benzo(a)pyrene	2011/04/18		73	%	60 - 130
	RPD	Benzo(a)pyrene	2011/04/18		1.7		50
	Spiked Blank	Benzo(b)fluoranthene	2011/04/18		76	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/04/18		1.3		50
	Spiked Blank	Benzo(g,h,i)perylene	2011/04/18		88	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/04/18		0.3		50
	Spiked Blank	Benzo(k)fluoranthene	2011/04/18		84	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/04/18		0.6		50
	Spiked Blank	Chrysene	2011/04/18		81	%	60 - 130
	RPD	Chrysene	2011/04/18		0.3		50
	Spiked Blank	Dibenz(a,h)anthracene	2011/04/18		88	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/04/18		0.6		50
	Spiked Blank	Fluoranthene	2011/04/18		84	%	60 - 130
	RPD	Fluoranthene	2011/04/18		5.5		50
	Spiked Blank	Fluorene	2011/04/18		76	%	60 - 130
	RPD	Fluorene	2011/04/18		1.3		50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/04/18		89	%	60 - 130
RPD	Indeno(1,2,3-cd)pyrene	2011/04/18		0.3		50	
Spiked Blank	Naphthalene	2011/04/18		81	%	60 - 130	
RPD	Naphthalene	2011/04/18		11.8		50	
Spiked Blank	Phenanthrene	2011/04/18		73	%	60 - 130	
RPD	Phenanthrene	2011/04/18		1.4		50	
Spiked Blank	Pyrene	2011/04/18		77	%	60 - 130	
RPD	Pyrene	2011/04/18		6.0		50	
Method Blank	D10-2-Methylnaphthalene	2011/04/18			78	%	50 - 150
	D10-Fluoranthene	2011/04/18			88	%	50 - 150
	D10-Phenanthrene	2011/04/18			76	%	50 - 150
	D12-Benzo(a)anthracene	2011/04/18			98	%	50 - 150
	D12-Benzo(a)pyrene	2011/04/18			94	%	50 - 150
	D12-Benzo(b)fluoranthene	2011/04/18			88	%	50 - 150
	D12-Benzo(ghi)perylene	2011/04/18			96	%	50 - 150
	D12-Benzo(k)fluoranthene	2011/04/18			86	%	50 - 150
	D12-Chrysene	2011/04/18			86	%	50 - 150

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB149982

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2460811 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/04/18		98	%	50 - 150
		D12-Perylene	2011/04/18		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/04/18		98	%	50 - 150
		D8-Acenaphthylene	2011/04/18		82	%	50 - 150
		D8-Naphthalene	2011/04/18		80	%	50 - 150
		1-Methylnaphthalene	2011/04/18	<0.10		ug	
		1-Methylphenanthrene	2011/04/18	<0.10		ug	
		2-Chloronaphthalene	2011/04/18	<0.10		ug	
		2-Methylanthracene	2011/04/18	<0.10		ug	
		2-Methylnaphthalene	2011/04/18	<0.10		ug	
		3-Methylcholanthrene	2011/04/18	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/04/18	<0.10		ug	
		9,10-Dimethylanthracene	2011/04/18	<0.40		ug	
		Acenaphthene	2011/04/18	<0.050		ug	
		Acenaphthylene	2011/04/18	<0.050		ug	
		Anthracene	2011/04/18	<0.050		ug	
		Benzo(a)anthracene	2011/04/18	<0.050		ug	
		Benzo(a)fluorene	2011/04/18	<0.10		ug	
		Benzo(a)pyrene	2011/04/18	<0.050		ug	
		Benzo(b)fluoranthene	2011/04/18	<0.050		ug	
		Benzo(b)fluorene	2011/04/18	<0.10		ug	
		Benzo(e)pyrene	2011/04/18	<0.10		ug	
		Benzo(g,h,i)perylene	2011/04/18	<0.050		ug	
		Benzo(k)fluoranthene	2011/04/18	<0.050		ug	
		Biphenyl	2011/04/18	<0.10		ug	
		Chrysene	2011/04/18	<0.050		ug	
		Coronene	2011/04/18	<0.10		ug	
		Dibenz(a,h)anthracene	2011/04/18	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/04/18	<0.20		ug	
		Fluoranthene	2011/04/18	<0.050		ug	
		Fluorene	2011/04/18	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/04/18	<0.050		ug	
		m-Terphenyl	2011/04/18	<0.10		ug	
		Naphthalene	2011/04/18	<0.072		ug	
		o-Terphenyl	2011/04/18	<0.10		ug	
		Perylene	2011/04/18	<0.10		ug	
		Phenanthrene	2011/04/18	<0.050		ug	
		p-Terphenyl	2011/04/18	<0.10		ug	
		Pyrene	2011/04/18	<0.050		ug	
		Quinoline	2011/04/18	<0.40		ug	
		Tetralin	2011/04/18	<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/Apr 15, 11

Puf+ s/n: 100-1015  
 Motor s/n: 1139  
 Installation Date/Time: Apr 13, 2011 @ 11:43 mst  
 Removal Date/Time: Apr 18, 2011 @ 11:46 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
15-Apr-11	04/15/2011 0:00	04/16/2011 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
12-Apr-11	18-Apr-11	22-Apr-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 29-Mar-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature ( C)	Volume (Vstd m <sup>3</sup> )
711	229	-1.5	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# 07513

GB144755 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Apr 15, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 07513

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

Report Date: 2011/04/29

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B154336****Received: 2011/04/20, 09:15**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/04/21	2011/04/27	BRL SOP-00201	CARB429(ARBM1,M2)mod

## Encryption Key

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

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

=====

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Total cover pages: 1

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Maxxam Job #: B154336  
 Report Date: 2011/04/29

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

Maxxam ID		JG5494	JG5495		
Sampling Date		2011/04/15	2011/04/15		
COC Number		07513	07513		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/APR 15, 11</b>	<b>LICA PUFF+QFF/PORT/APR 15, 11</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2465639
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2465639
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2465639
2-Methylantracene	ug	<0.10	<0.10	0.10	2465639
2-Methylnaphthalene	ug	0.11	<0.10	0.10	2465639
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2465639
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2465639
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2465639
Acenaphthene	ug	<0.050	<0.050	0.050	2465639
Acenaphthylene	ug	0.054	<0.050	0.050	2465639
Anthracene	ug	<0.050	<0.050	0.050	2465639
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2465639
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2465639
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2465639
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2465639
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2465639
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2465639
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2465639
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2465639
Biphenyl	ug	<0.10	<0.10	0.10	2465639
Chrysene	ug	<0.050	<0.050	0.050	2465639
Coronene	ug	<0.10	<0.10	0.10	2465639
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2465639
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2465639
Fluoranthene	ug	0.050	<0.050	0.050	2465639
Fluorene	ug	0.080	<0.050	0.050	2465639
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2465639
m-Terphenyl	ug	<0.10	<0.10	0.10	2465639
Naphthalene	ug	0.084	<0.072	0.072	2465639
o-Terphenyl	ug	<0.10	<0.10	0.10	2465639
Perylene	ug	<0.10	<0.10	0.10	2465639
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					

Maxxam Job #: B154336  
 Report Date: 2011/04/29

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

Maxxam ID		JG5494	JG5495		
Sampling Date		2011/04/15	2011/04/15		
COC Number		07513	07513		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/APR 15, 11</b>	<b>LICA PUFF+QFF/PORT/APR 15, 11</b>	<b>RDL</b>	<b>QC Batch</b>

Phenanthrene	ug	0.208	0.066	0.050	2465639
p-Terphenyl	ug	<0.10	<0.10	0.10	2465639
Pyrene	ug	<0.050	<0.050	0.050	2465639
Quinoline	ug	<0.40	<0.40	0.40	2465639
Tetralin	ug	<0.10	<0.10	0.10	2465639
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	62	72		2465639
D10-Fluoranthene	%	92	86		2465639
D10-Fluorene (FS)	%	27 (1)	28 (1)		2465639
D10-Phenanthrene	%	80	72		2465639
D12-Benzo(a)anthracene	%	96	84		2465639
D12-Benzo(a)pyrene	%	98	92		2465639
D12-Benzo(b)fluoranthene	%	92	86		2465639
D12-Benzo(ghi)perylene	%	108	102		2465639
D12-Benzo(k)fluoranthene	%	92	88		2465639
D12-Chrysene	%	90	84		2465639
D12-Indeno(1,2,3-cd)pyrene	%	108	102		2465639
D12-Perylene	%	100	96		2465639
D14-Dibenzo(a,h)anthracene	%	106	100		2465639
D14-Terphenyl (FS)	%	84	77		2465639
D8-Acenaphthylene	%	76	82		2465639
D8-Naphthalene	%	62	74		2465639

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 #: B154336  
Report Date: 2011/04/29

#### GENERAL COMMENTS

##### PAHMS-F

7,12-Dimethylbenzo(a)anthracene is above 25% RSD in initial calibration, Coronene and Dibenzo(a,e)pyrene are above 25% RSD in continuing. No positive found for these 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.

Sample JG5494-01: PAHMS-F

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

Sample JG5495-01: PAHMS-F

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. #:  
 Project name:

Quality Assurance Report  
 Maxxam Job Number: GB154336

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2465639 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/04/27		80	%	50 - 150
		D10-Fluoranthene	2011/04/27		96	%	50 - 150
		D10-Phenanthrene	2011/04/27		82	%	50 - 150
		D12-Benzo(a)anthracene	2011/04/27		98	%	50 - 150
		D12-Benzo(a)pyrene	2011/04/27		100	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/04/27		94	%	50 - 150
		D12-Benzo(ghi)perylene	2011/04/27		108	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/04/27		90	%	50 - 150
		D12-Chrysene	2011/04/27		86	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/04/27		110	%	50 - 150
		D12-Perylene	2011/04/27		100	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/04/27		108	%	50 - 150
		RPD	D8-Acenaphthylene	2011/04/27		86	%
	D8-Naphthalene		2011/04/27		86	%	50 - 150
	Spiked Blank	Acenaphthene	2011/04/27		83	%	60 - 130
		Acenaphthene	2011/04/27	5.3		%	50
	RPD	Acenaphthylene	2011/04/27		84	%	60 - 130
		Acenaphthylene	2011/04/27	1.2		%	50
	Spiked Blank	Anthracene	2011/04/27		79	%	60 - 130
		Anthracene	2011/04/27	1.3		%	50
	Spiked Blank	Benzo(a)anthracene	2011/04/27		83	%	60 - 130
		Benzo(a)anthracene	2011/04/27	0.3		%	50
	Spiked Blank	Benzo(a)pyrene	2011/04/27		79	%	60 - 130
		Benzo(a)pyrene	2011/04/27	0.3		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/04/27		84	%	60 - 130
		Benzo(b)fluoranthene	2011/04/27	0.9		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/04/27		98	%	60 - 130
		Benzo(g,h,i)perylene	2011/04/27	2.3		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/04/27		88	%	60 - 130
		Benzo(k)fluoranthene	2011/04/27	3.8		%	50
	Spiked Blank	Chrysene	2011/04/27		84	%	60 - 130
		Chrysene	2011/04/27	0.6		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/04/27		95	%	60 - 130
		Dibenz(a,h)anthracene	2011/04/27	0		%	50
	Spiked Blank	Fluoranthene	2011/04/27		95	%	60 - 130
		Fluoranthene	2011/04/27	3.2		%	50
	Spiked Blank	Fluorene	2011/04/27		82	%	60 - 130
		Fluorene	2011/04/27	3.4		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/04/27		97	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/04/27	0		%	50
Spiked Blank	Naphthalene	2011/04/27		88	%	60 - 130	
	Naphthalene	2011/04/27	7.7		%	50	
Spiked Blank	Phenanthrene	2011/04/27		77	%	60 - 130	
	Phenanthrene	2011/04/27	4.0		%	50	
Spiked Blank	Pyrene	2011/04/27		87	%	60 - 130	
	Pyrene	2011/04/27	2.6		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/04/27		76	%	50 - 150	
	D10-Fluoranthene	2011/04/27		94	%	50 - 150	
	D10-Phenanthrene	2011/04/27		76	%	50 - 150	
	D12-Benzo(a)anthracene	2011/04/27		92	%	50 - 150	
	D12-Benzo(a)pyrene	2011/04/27		100	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/04/27		94	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/04/27		108	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/04/27		92	%	50 - 150	
	D12-Chrysene	2011/04/27		88	%	50 - 150	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB154336

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2465639 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/04/27		108	%	50 - 150
		D12-Perylene	2011/04/27		102	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/04/27		106	%	50 - 150
		D8-Acenaphthylene	2011/04/27		86	%	50 - 150
		D8-Naphthalene	2011/04/27		80	%	50 - 150
		1-Methylnaphthalene	2011/04/27	<0.10		ug	
		1-Methylphenanthrene	2011/04/27	<0.10		ug	
		2-Chloronaphthalene	2011/04/27	<0.10		ug	
		2-Methylanthracene	2011/04/27	<0.10		ug	
		2-Methylnaphthalene	2011/04/27	<0.10		ug	
		3-Methylcholanthrene	2011/04/27	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/04/27	<0.10		ug	
		9,10-Dimethylanthracene	2011/04/27	<0.40		ug	
		Acenaphthene	2011/04/27	<0.050		ug	
		Acenaphthylene	2011/04/27	<0.050		ug	
		Anthracene	2011/04/27	<0.050		ug	
		Benzo(a)anthracene	2011/04/27	<0.050		ug	
		Benzo(a)fluorene	2011/04/27	<0.10		ug	
		Benzo(a)pyrene	2011/04/27	<0.050		ug	
		Benzo(b)fluoranthene	2011/04/27	<0.050		ug	
		Benzo(b)fluorene	2011/04/27	<0.10		ug	
		Benzo(e)pyrene	2011/04/27	<0.10		ug	
		Benzo(g,h,i)perylene	2011/04/27	<0.050		ug	
		Benzo(k)fluoranthene	2011/04/27	<0.050		ug	
		Biphenyl	2011/04/27	<0.10		ug	
		Chrysene	2011/04/27	<0.050		ug	
		Coronene	2011/04/27	<0.10		ug	
		Dibenz(a,h)anthracene	2011/04/27	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/04/27	<0.20		ug	
		Fluoranthene	2011/04/27	<0.050		ug	
		Fluorene	2011/04/27	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/04/27	<0.050		ug	
		m-Terphenyl	2011/04/27	<0.10		ug	
		Naphthalene	2011/04/27	<0.072		ug	
		o-Terphenyl	2011/04/27	<0.10		ug	
		Perylene	2011/04/27	<0.10		ug	
		Phenanthrene	2011/04/27	<0.050		ug	
		p-Terphenyl	2011/04/27	<0.10		ug	
		Pyrene	2011/04/27	<0.050		ug	
		Quinoline	2011/04/27	<0.40		ug	
		Tetralin	2011/04/27	<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/Apr 21, 11

Puf+ s/n: 100-1015  
 Motor s/n: 1139  
 Installation Date/Time: Apr 19, 2011 @ 9:58 mst  
 Removal Date/Time: Apr 25, 2011 @ 11:11 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
21-Apr-11	04/21/2011 0:00	04/22/2011 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
15-Apr-11	25-Apr-11	28-Apr-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 29-Mar-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature ( C)	Volume (Vstd m <sup>3</sup> )
707	229	3.4	330.32

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

Comments: COC# 07551

GB144872 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Apr 21, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 07551

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

Report Date: 2011/05/10

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B157346****Received: 2011/04/27, 09:22**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/04/29	2011/05/03	BRL SOP-00201	CARB429(ARBM1,M2)mod

## Encryption Key

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

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

=====

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Total cover pages: 1

Maxxam Job #: B157346  
 Report Date: 2011/05/10

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

Maxxam ID		JH9303	JH9304		
Sampling Date		2011/04/21	2011/04/21		
COC Number		07551	07551		
	Units	LICAPUFF+QFF/CLS/APR 21,11	LICAPUFF+QFF/PORT/APR 21,11	RDL	QC Batch
<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	0.24	<0.10	0.10	2472368
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2472368
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2472368
2-Methylantracene	ug	<0.10	<0.10	0.10	2472368
2-Methylnaphthalene	ug	0.53	<0.10	0.10	2472368
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2472368
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2472368
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2472368
Acenaphthene	ug	<0.050	<0.050	0.050	2472368
Acenaphthylene	ug	0.060	<0.050	0.050	2472368
Anthracene	ug	<0.050	<0.050	0.050	2472368
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2472368
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2472368
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2472368
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2472368
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2472368
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2472368
Benzo(g,h,i)perylene	ug	0.052	<0.050	0.050	2472368
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2472368
Biphenyl	ug	<0.10	<0.10	0.10	2472368
Chrysene	ug	<0.050	<0.050	0.050	2472368
Coronene	ug	<0.10	<0.10	0.10	2472368
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2472368
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2472368
Fluoranthene	ug	0.062	<0.050	0.050	2472368
Fluorene	ug	0.148	0.070	0.050	2472368
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2472368
m-Terphenyl	ug	<0.10	<0.10	0.10	2472368
Naphthalene	ug	0.450	0.126	0.072	2472368
o-Terphenyl	ug	<0.10	<0.10	0.10	2472368
Perylene	ug	<0.10	<0.10	0.10	2472368
Phenanthrene	ug	0.322	0.172	0.050	2472368
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					

Maxxam Job #: B157346  
 Report Date: 2011/05/10

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

Maxxam ID		JH9303	JH9304		
Sampling Date		2011/04/21	2011/04/21		
COC Number		07551	07551		
	Units	LICAPUFF+QFF/CLS/APR 21,11	LICAPUFF+QFF/PORT/APR 21,11	RDL	QC Batch
p-Terphenyl	ug	<0.10	<0.10	0.10	2472368
Pyrene	ug	0.058	<0.050	0.050	2472368
Quinoline	ug	<0.40	<0.40	0.40	2472368
Tetralin	ug	<0.10	<0.10	0.10	2472368
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	60	78		2472368
D10-Fluoranthene	%	80	94		2472368
D10-Fluorene (FS)	%	16 (1)	21 (1)		2472368
D10-Phenanthrene	%	76	90		2472368
D12-Benzo(a)anthracene	%	84	92		2472368
D12-Benzo(a)pyrene	%	88	96		2472368
D12-Benzo(b)fluoranthene	%	84	92		2472368
D12-Benzo(ghi)perylene	%	86	96		2472368
D12-Benzo(k)fluoranthene	%	86	88		2472368
D12-Chrysene	%	86	88		2472368
D12-Indeno(1,2,3-cd)pyrene	%	88	96		2472368
D12-Perylene	%	92	96		2472368
D14-Dibenzo(a,h)anthracene	%	84	98		2472368
D14-Terphenyl (FS)	%	73	87		2472368
D8-Acenaphthylene	%	66	86		2472368
D8-Naphthalene	%	58	74		2472368
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 #: B157346  
 Report Date: 2011/05/10

### Test Summary

<b>Maxxam ID</b>	JH9303	<b>Collected</b>	2011/04/21
<b>Sample ID</b>	LICAPUFF+QFF/CLS/APR 21,11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2472368	2011/04/29	2011/05/03	WENDY ZHAO

<b>Maxxam ID</b>	JH9304	<b>Collected</b>	2011/04/21
<b>Sample ID</b>	LICAPUFF+QFF/PORT/APR 21,11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2472368	2011/04/29	2011/05/03	WENDY ZHAO



Maxxam Job #: B157346  
Report Date: 2011/05/10

#### GENERAL COMMENTS

##### PAHMS-F

7,12-Dimethylbenzo(a)anthracene is above 25% RSD in initial calibration and Quinoline is above 25% RSD in continuing calibration. No positives found for these compounds.

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

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. #:  
 Project name:

Quality Assurance Report  
 Maxxam Job Number: GB157346

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2472368 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/05/03		74	%	50 - 150
		D10-Fluoranthene	2011/05/03		92	%	50 - 150
		D10-Phenanthrene	2011/05/03		94	%	50 - 150
		D12-Benzo(a)anthracene	2011/05/03		86	%	50 - 150
		D12-Benzo(a)pyrene	2011/05/03		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/05/03		92	%	50 - 150
		D12-Benzo(ghi)perylene	2011/05/03		92	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/05/03		84	%	50 - 150
		D12-Chrysene	2011/05/03		80	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/05/03		94	%	50 - 150
		D12-Perylene	2011/05/03		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/05/03		94	%	50 - 150
		D8-Acenaphthylene	2011/05/03		78	%	50 - 150
		D8-Naphthalene	2011/05/03		76	%	50 - 150
		Acenaphthene	2011/05/03		72	%	60 - 130
	RPD	Acenaphthene	2011/05/03	3.7		%	50
	Spiked Blank	Acenaphthylene	2011/05/03		75	%	60 - 130
	RPD	Acenaphthylene	2011/05/03	5.8		%	50
	Spiked Blank	Anthracene	2011/05/03		71	%	60 - 130
	RPD	Anthracene	2011/05/03	24.2		%	50
	Spiked Blank	Benzo(a)anthracene	2011/05/03		73	%	60 - 130
	RPD	Benzo(a)anthracene	2011/05/03	8.6		%	50
	Spiked Blank	Benzo(a)pyrene	2011/05/03		77	%	60 - 130
	RPD	Benzo(a)pyrene	2011/05/03	5.7		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/05/03		76	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/05/03	8.5		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/05/03		82	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/05/03	6.5		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/05/03		86	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/05/03	1.2		%	50
	Spiked Blank	Chrysene	2011/05/03		73	%	60 - 130
	RPD	Chrysene	2011/05/03	4.0		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/05/03		84	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/05/03	7.7		%	50
	Spiked Blank	Fluoranthene	2011/05/03		83	%	60 - 130
	RPD	Fluoranthene	2011/05/03	9.7		%	50
	Spiked Blank	Fluorene	2011/05/03		70	%	60 - 130
	RPD	Fluorene	2011/05/03	8.9		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/05/03		84	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/05/03	6.6		%	50
	Spiked Blank	Naphthalene	2011/05/03		62	%	60 - 130
	RPD	Naphthalene	2011/05/03	25.4		%	50
	Spiked Blank	Phenanthrene	2011/05/03		69	%	60 - 130
	RPD	Phenanthrene	2011/05/03	6.0		%	50
	Spiked Blank	Pyrene	2011/05/03		79	%	60 - 130
RPD	Pyrene	2011/05/03	8.7		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/05/03		78	%	50 - 150	
	D10-Fluoranthene	2011/05/03		88	%	50 - 150	
	D10-Phenanthrene	2011/05/03		86	%	50 - 150	
	D12-Benzo(a)anthracene	2011/05/03		80	%	50 - 150	
	D12-Benzo(a)pyrene	2011/05/03		90	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/05/03		84	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/05/03		86	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/05/03		90	%	50 - 150	
	D12-Chrysene	2011/05/03		86	%	50 - 150	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB157346

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2472368 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/05/03		88	%	50 - 150
		D12-Perylene	2011/05/03		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/05/03		86	%	50 - 150
		D8-Acenaphthylene	2011/05/03		80	%	50 - 150
		D8-Naphthalene	2011/05/03		80	%	50 - 150
		1-Methylnaphthalene	2011/05/03	<0.10		ug	
		1-Methylphenanthrene	2011/05/03	<0.10		ug	
		2-Chloronaphthalene	2011/05/03	<0.10		ug	
		2-Methylanthracene	2011/05/03	<0.10		ug	
		2-Methylnaphthalene	2011/05/03	<0.10		ug	
		3-Methylcholanthrene	2011/05/03	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/05/03	<0.10		ug	
		9,10-Dimethylanthracene	2011/05/03	<0.40		ug	
		Acenaphthene	2011/05/03	<0.050		ug	
		Acenaphthylene	2011/05/03	<0.050		ug	
		Anthracene	2011/05/03	<0.050		ug	
		Benzo(a)anthracene	2011/05/03	<0.050		ug	
		Benzo(a)fluorene	2011/05/03	<0.10		ug	
		Benzo(a)pyrene	2011/05/03	<0.050		ug	
		Benzo(b)fluoranthene	2011/05/03	<0.050		ug	
		Benzo(b)fluorene	2011/05/03	<0.10		ug	
		Benzo(e)pyrene	2011/05/03	<0.10		ug	
		Benzo(g,h,i)perylene	2011/05/03	<0.050		ug	
		Benzo(k)fluoranthene	2011/05/03	<0.050		ug	
		Biphenyl	2011/05/03	<0.10		ug	
		Chrysene	2011/05/03	<0.050		ug	
		Coronene	2011/05/03	<0.10		ug	
		Dibenz(a,h)anthracene	2011/05/03	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/05/03	<0.20		ug	
		Fluoranthene	2011/05/03	<0.050		ug	
		Fluorene	2011/05/03	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/05/03	0.050, RDL=0.050		ug	
		m-Terphenyl	2011/05/03	<0.10		ug	
		Naphthalene	2011/05/03	<0.072		ug	
		o-Terphenyl	2011/05/03	<0.10		ug	
		Perylene	2011/05/03	<0.10		ug	
		Phenanthrene	2011/05/03	<0.050		ug	
		p-Terphenyl	2011/05/03	<0.10		ug	
		Pyrene	2011/05/03	<0.050		ug	
		Quinoline	2011/05/03	<0.40		ug	
		Tetralin	2011/05/03	<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/Apr 27, 11

Puf+ s/n: 100-1015  
Motor s/n: 1139  
Installation Date/Time: Apr 25, 2011 @ 11:32 mst  
Removal Date/Time: Apr 28, 2011 @ 9:19 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
27-Apr-11	04/27/2011 0:00	04/28/2011 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
15-Apr-11	25-Apr-11	04-May-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 29-Mar-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature ( C)	Volume (Vstd m <sup>3</sup> )
704	229	7.3	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# 06976

GB148807 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Apr 27, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 06976

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

Report Date: 2011/05/10

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B159319****Received: 2011/04/30, 16:10**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/05/03	2011/05/07	BRL SOP-00201	CARB429(ARBM1,M2)mod

## Encryption Key

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

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

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Total cover pages: 1

Maxxam Job #: B159319  
 Report Date: 2011/05/10

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

Maxxam ID		J18547	J18548		
Sampling Date		2011/04/27 00:00	2011/04/27 00:00		
COC Number		06976	06976		
	<b>Units</b>	<b>LICA PUF+QFF/CLS/APR 27, 11</b>	<b>LICA PUF+QFF/PORT/APR 27, 11</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2475080
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2475080
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2475080
2-Methylantracene	ug	<0.10	<0.10	0.10	2475080
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2475080
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2475080
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2475080
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2475080
Acenaphthene	ug	<0.050	<0.050	0.050	2475080
Acenaphthylene	ug	<0.050	<0.050	0.050	2475080
Anthracene	ug	<0.050	<0.050	0.050	2475080
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2475080
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2475080
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2475080
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2475080
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2475080
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2475080
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2475080
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2475080
Biphenyl	ug	<0.10	<0.10	0.10	2475080
Chrysene	ug	<0.050	<0.050	0.050	2475080
Coronene	ug	<0.10	<0.10	0.10	2475080
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2475080
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2475080
Fluoranthene	ug	<0.050	<0.050	0.050	2475080
Fluorene	ug	0.102	<0.050	0.050	2475080
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2475080
m-Terphenyl	ug	<0.10	<0.10	0.10	2475080
Naphthalene	ug	0.204	0.094	0.072	2475080
o-Terphenyl	ug	<0.10	<0.10	0.10	2475080
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					

Maxxam Job #: B159319  
 Report Date: 2011/05/10

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

Maxxam ID		J18547	J18548		
Sampling Date		2011/04/27 00:00	2011/04/27 00:00		
COC Number		06976	06976		
	<b>Units</b>	<b>LICA PUF+QFF/CLS/APR 27, 11</b>	<b>LICA PUF+QFF/PORT/APR 27, 11</b>	<b>RDL</b>	<b>QC Batch</b>

Perylene	ug	<0.10	<0.10	0.10	2475080
Phenanthrene	ug	0.288	0.138	0.050	2475080
p-Terphenyl	ug	<0.10	<0.10	0.10	2475080
Pyrene	ug	<0.050	<0.050	0.050	2475080
Quinoline	ug	<0.40	<0.40	0.40	2475080
Tetralin	ug	<0.10	<0.10	0.10	2475080
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	66	80		2475080
D10-Fluoranthene	%	94	88		2475080
D10-Fluorene (FS)	%	11 (1)	13 (1)		2475080
D10-Phenanthrene	%	84	84		2475080
D12-Benzo(a)anthracene	%	100	92		2475080
D12-Benzo(a)pyrene	%	94	88		2475080
D12-Benzo(b)fluoranthene	%	90	92		2475080
D12-Benzo(ghi)perylene	%	86	82		2475080
D12-Benzo(k)fluoranthene	%	92	86		2475080
D12-Chrysene	%	88	86		2475080
D12-Indeno(1,2,3-cd)pyrene	%	84	80		2475080
D12-Perylene	%	72	68		2475080
D14-Dibenzo(a,h)anthracene	%	82	78		2475080
D14-Terphenyl (FS)	%	85	79		2475080
D8-Acenaphthylene	%	68	76		2475080
D8-Naphthalene	%	62	76		2475080

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 #: B159319  
 Report Date: 2011/05/10

### Test Summary

<b>Maxxam ID</b>	JI8547	<b>Collected</b>	2011/04/27
<b>Sample ID</b>	LICA PUF+QFF/CLS/APR 27, 11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2475080	2011/05/03	2011/05/07	WENDY ZHAO

<b>Maxxam ID</b>	JI8548	<b>Collected</b>	2011/04/27
<b>Sample ID</b>	LICA PUF+QFF/PORT/APR 27, 11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/04/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2475080	2011/05/03	2011/05/07	WENDY ZHAO



Maxxam Job #: B159319  
Report Date: 2011/05/10

#### 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.

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

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. #:  
 Project name:

Quality Assurance Report  
 Maxxam Job Number: GB159319

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2475080 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/05/07		72	%	50 - 150
		D10-Fluoranthene	2011/05/07		96	%	50 - 150
		D10-Phenanthrene	2011/05/07		84	%	50 - 150
		D12-Benzo(a)anthracene	2011/05/07		100	%	50 - 150
		D12-Benzo(a)pyrene	2011/05/07		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/05/07		94	%	50 - 150
		D12-Benzo(ghi)perylene	2011/05/07		84	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/05/07		84	%	50 - 150
		D12-Chrysene	2011/05/07		88	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/05/07		84	%	50 - 150
		D12-Perylene	2011/05/07		70	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/05/07		82	%	50 - 150
		RPD	Acenaphthylene	2011/05/07		70	%
	D8-Naphthalene		2011/05/07		70	%	50 - 150
	Acenaphthene		2011/05/07		68	%	60 - 130
	Acenaphthene		2011/05/07	3.6		%	50
	Acenaphthylene		2011/05/07		65	%	60 - 130
	Acenaphthylene		2011/05/07	6.3		%	50
	Anthracene		2011/05/07		78	%	60 - 130
	Anthracene		2011/05/07	16.4		%	50
	Benzo(a)anthracene		2011/05/07		85	%	60 - 130
	Benzo(a)anthracene		2011/05/07	1.8		%	50
	Benzo(a)pyrene		2011/05/07		76	%	60 - 130
	Benzo(a)pyrene		2011/05/07	2.0		%	50
	Benzo(b)fluoranthene		2011/05/07		85	%	60 - 130
	Benzo(b)fluoranthene		2011/05/07	2.7		%	50
	Benzo(g,h,i)perylene		2011/05/07		76	%	60 - 130
	Benzo(g,h,i)perylene		2011/05/07	5.4		%	50
	Benzo(k)fluoranthene		2011/05/07		88	%	60 - 130
	Benzo(k)fluoranthene	2011/05/07	2.2		%	50	
	Spiked Blank	Chrysene	2011/05/07		83	%	60 - 130
		Chrysene	2011/05/07	3.9		%	50
		Dibenz(a,h)anthracene	2011/05/07		75	%	60 - 130
		Dibenz(a,h)anthracene	2011/05/07	6.9		%	50
		Fluoranthene	2011/05/07		87	%	60 - 130
		Fluoranthene	2011/05/07	14.4		%	50
		Fluorene	2011/05/07		71	%	60 - 130
		Fluorene	2011/05/07	1.1		%	50
		Indeno(1,2,3-cd)pyrene	2011/05/07		76	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/05/07	6.8		%	50
Naphthalene		2011/05/07		67	%	60 - 130	
Naphthalene		2011/05/07	7.5		%	50	
Phenanthrene		2011/05/07		75	%	60 - 130	
Phenanthrene		2011/05/07	7.9		%	50	
Pyrene		2011/05/07		82	%	60 - 130	
Pyrene		2011/05/07	13.1		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/05/07		76	%	50 - 150	
	D10-Fluoranthene	2011/05/07		82	%	50 - 150	
	D10-Phenanthrene	2011/05/07		76	%	50 - 150	
	D12-Benzo(a)anthracene	2011/05/07		96	%	50 - 150	
	D12-Benzo(a)pyrene	2011/05/07		90	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/05/07		92	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/05/07		78	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/05/07		84	%	50 - 150	
	D12-Chrysene	2011/05/07		88	%	50 - 150	

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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB159319

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2475080 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/05/07		78	%	50 - 150
		D12-Perylene	2011/05/07		70	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/05/07		76	%	50 - 150
		D8-Acenaphthylene	2011/05/07		72	%	50 - 150
		D8-Naphthalene	2011/05/07		76	%	50 - 150
		1-Methylnaphthalene	2011/05/07	<0.10		ug	
		1-Methylphenanthrene	2011/05/07	<0.10		ug	
		2-Chloronaphthalene	2011/05/07	<0.10		ug	
		2-Methylanthracene	2011/05/07	<0.10		ug	
		2-Methylnaphthalene	2011/05/07	<0.10		ug	
		3-Methylcholanthrene	2011/05/07	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/05/07	<0.10		ug	
		9,10-Dimethylanthracene	2011/05/07	<0.40		ug	
		Acenaphthene	2011/05/07	<0.050		ug	
		Acenaphthylene	2011/05/07	<0.050		ug	
		Anthracene	2011/05/07	<0.050		ug	
		Benzo(a)anthracene	2011/05/07	<0.050		ug	
		Benzo(a)fluorene	2011/05/07	<0.10		ug	
		Benzo(a)pyrene	2011/05/07	<0.050		ug	
		Benzo(b)fluoranthene	2011/05/07	<0.050		ug	
		Benzo(b)fluorene	2011/05/07	<0.10		ug	
		Benzo(e)pyrene	2011/05/07	<0.10		ug	
		Benzo(g,h,i)perylene	2011/05/07	<0.050		ug	
		Benzo(k)fluoranthene	2011/05/07	<0.050		ug	
		Biphenyl	2011/05/07	<0.10		ug	
		Chrysene	2011/05/07	<0.050		ug	
		Coronene	2011/05/07	<0.10		ug	
		Dibenz(a,h)anthracene	2011/05/07	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/05/07	<0.20		ug	
		Fluoranthene	2011/05/07	<0.050		ug	
		Fluorene	2011/05/07	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/05/07	<0.050		ug	
		m-Terphenyl	2011/05/07	<0.10		ug	
		Naphthalene	2011/05/07	<0.072		ug	
		o-Terphenyl	2011/05/07	<0.10		ug	
		Perylene	2011/05/07	<0.10		ug	
		Phenanthrene	2011/05/07	<0.050		ug	
		p-Terphenyl	2011/05/07	<0.10		ug	
		Pyrene	2011/05/07	<0.050		ug	
		Quinoline	2011/05/07	<0.40		ug	
		Tetralin	2011/05/07	<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.