

# Lakeland Industry & Community Association

Cold Lake Monitoring Site

Ambient Air Monitoring

Data Report

For

February 2011

Prepared By:



March 22, 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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T9N 2J5

Monitoring Location: Cold Lake  
Data Period: February 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 – February 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	0.88	4	VAR	VAR	VAR	VAR	2.1	21	99.9
TRS (PPB)	-	-	-	-	0.27	1	VAR	VAR	VAR	VAR	0.8	7	99.9
NO <sub>2</sub> (PPB)	212	106	0	0	6.89	43	14	8	1.1	101(E)	18.2	14	99.9
NO (PPB)	-	-	-	-	1.50	81	14	8	1.1	101(E)	7.8	7	99.9
NO <sub>x</sub> (PPB)	-	-	-	-	8.39	124	14	8	1.1	101(E)	25.5	14	99.9
O <sub>3</sub> (PPB)	82	-	0	-	27.92	43	26	VAR	VAR	VAR	37.2	26	99.7
THC (PPM)	-	-	-	-	2.24	4.5	4	9	2.6	133(SE)	2.7	7	99.9
PM 2.5 (UG/M <sup>3</sup> )	-	30	-	0	5.04	23.5	9	14	5.7	226(SW)	14.1	9	99.6
TEMPERATURE (DEG C)	-	-	-	-	-13.88	6.9	12	14	8.5	233(SW)	2.1	3	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	70.49	96.0	4	20, 21	5, 5.5	10(N), 18(NNE)	88.5	11	100.0
VECTOR WS (KPH)	-	-	-	-	5.86	18.2	13	13	-	297(WNW)	10.1	15	100.0
VECTOR WD (DEGREES)	-	-	-	-	284(WNW)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS    NA: NOT AVAILABLE

# Monthly Non-Continuous Data Summary

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

### Passive Ambient Monitoring Network – February 2011

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO <sub>2</sub>	#14	2.2	1.1
H <sub>2</sub> S	#27	0.30	0.20
NO <sub>2</sub>	#28	6.1	1.9
O <sub>3</sub>	#15	40.3	34.2

## Volatile Organics Data Summary

### LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

#### Xontech Model 910A – February 2, 2010

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

#### Xontech Model 910A – February 8, 2010

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

#### Xontech Model 910A – February 14, 2010

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

#### Xontech Model 910A – February 20, 2010

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

#### Xontech Model 910A – February 26, 2010

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

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

### PUF cartridge – February 2, 2010

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

### PUF cartridge – February 8, 2010

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

### PUF cartridge – February 14, 2010

<b>Maximum reading (ng/m3)</b>	<b>Semi-Volatile Organic</b>
NA	NA

Note: No PAHs sample was collected on February 14<sup>th</sup> as the Puff sampler was not received on time.

### PUF cartridge – February 20, 2010

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

### PUF cartridge – February 26, 2010

<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. Data was corrected using daily zero information. The 24- hour objective was changed from 57 ppb to 48 ppb on February 15<sup>th</sup> as per Alberta Environment guidelines.

### Total Reduced Sulphur (PPB)

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

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

### Ozone (PPB)

- Analyzer make / model – API 400A, S/N: 446 replaced to Thermo 49i, S/N: 700419951

No operational issue was observed during the month. The Thermo 49i ozone analyzer was installed following a removal calibration was performed on the API 400A ozone analyzer, February 15<sup>th</sup>. The Thermo 49i analyzer was allowed to stabilize overnight, and an installation calibration was performed on February 16<sup>th</sup>. Data between two calibrations was kept, as the installation calibration required no adjustment. 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. 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 calibration was started. Data was corrected using daily zero information.

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

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

No operational issues observed during the month. Data was corrected using Alberta air quality guideline for PM2.5 analyzer. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. 3 hours of data were invalidated as the data were below –3.0 ug/m<sup>3</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.

### Relative Humidity (PERCENT)

- System make / model - Rotronic Hygroclip-S3

No operational issue was observed during the month.

# General Monthly Summary - Cold Lake

## AQM STATION – LICA – COLD LAKE

### 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.

# General Monthly Summary - Cold Lake

## AQM STATION – LICA – COLD LAKE

### Trailer

No issue was observed during this month. The manifold was cleaned on February 16<sup>th</sup>.

### Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. All AQI values recorded in February 2011 were within the Good range. The highest hourly concentration of PM<sub>2.5</sub> was 23.5ug/m<sup>3</sup> and an AQI value of 20, hour 14 on February 9<sup>th</sup>. The highest hourly concentration of Ozone was 43 ppb and an AQI value of 22 in various days.

### Passive Network

Samples at site #11 were not changed because the road access to the site was impassable due to snow.

### Volatile Organics (VOCs)

The volatile organics were sampled from February 2<sup>nd</sup> to February 26<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 February 2<sup>nd</sup> to February 26<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>. No sample for February 14<sup>th</sup> was collected, as the Puff sampler was not received on time.



# Continuous Monitoring

# Monthly Summaries, Graphs & Wind Roses

# Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

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

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	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
GOOD (1-25)	567	76.2%	22	VARIOUS	VARIOUS	56	7.5%	20	14	9	0	0.0%	-	-	-	0	0.0%	-	-	-	623	83.7%
OVERALL	567	76.2%	-	-	-	56	7.5%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	623	92.7%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49	7.3%

# Sulphur Dioxide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 2011

## SULPHUR DIOXIDE (SO<sub>2</sub>) 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	1	1	0	1	1	1	1	IZS	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
2	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1.0	24	
3	1	1	0	0	0	IZS	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.4	24	
4	0	0	0	0	IZS	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	0.3	24	
5	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0	24	
6	1	1	IZS	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	0	0	0	0	0	2	0.8	24	
7	0	IZS	0	0	0	0	0	1	1	1	1	1	1	C	C	C	C	1	1	1	1	1	1	1	1	0.7	24	
8	IZS	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	1.1	24
9	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	2	0.9	24	
10	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	IZS	0	0	1	0.7	24	
11	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	0	0	0	0	0	IZS	0	0	1	0.2	24	
12	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1	IZS	1	1	1	2	1.3	24	
13	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	IZS	0	0	0	0	1	0.6	24	
14	0	0	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	0	0	0	1	0.7	24	
15	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	2	2	1	1	2	1.0	24	
16	1	1	1	0	0	0	0	0	0	1	1	1	1	2	2	IZS	1	M	0	0	1	2	3	4	4	1.0	23	
17	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	3	1.1	24	
18	1	1	0	1	1	1	1	1	1	1	1	1	2	IZS	2	3	3	3	1	1	1	0	0	0	3	1.2	24	
19	0	0	0	0	0	0	0	0	0	1	1	1	IZS	1	2	2	2	3	4	4	4	2	1	1	4	1.3	24	
20	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	2	2	1.0	24	
21	4	3	3	3	2	1	1	1	2	2	IZS	3	3	3	2	2	3	2	2	2	1	1	1	1	4	2.1	24	
22	1	1	1	1	2	1	2	2	3	IZS	1	1	1	1	0	0	0	1	1	1	1	1	1	0	3	1.0	24	
23	0	0	0	0	0	0	0	0	IZS	1	1	2	1	1	1	1	1	1	1	1	2	1	1	1	2	0.7	24	
24	1	1	1	1	1	1	1	IZS	1	1	2	3	2	1	1	0	0	0	0	0	0	0	0	0	3	0.8	24	
25	0	0	0	0	0	0	IZS	0	1	1	2	2	3	2	2	2	2	2	2	2	2	2	2	2	3	1.3	24	
26	2	1	1	1	1	IZS	1	1	1	2	2	2	1	1	1	1	1	2	1	1	1	1	1	1	2	1.2	24	
27	0	0	0	1	IZS	1	1	1	0	1	1	1	1	0	0	1	1	1	1	1	0	0	0	0	1	0.6	24	
28	0	0	0	IZS	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0.5	24	
HOURLY MAX	4	3	3	3	2	2	2	2	3	2	2	3	3	3	2	3	3	3	3	4	4	4	2	3	4			
HOURLY AVG	0.7	0.7	0.6	0.8	0.7	0.6	0.6	0.7	0.9	1.0	1.1	1.3	1.3	1.1	1.1	1.0	1.0	1.1	0.9	0.9	0.9	0.8	0.7	0.7				

### STATUS FLAG CODES

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

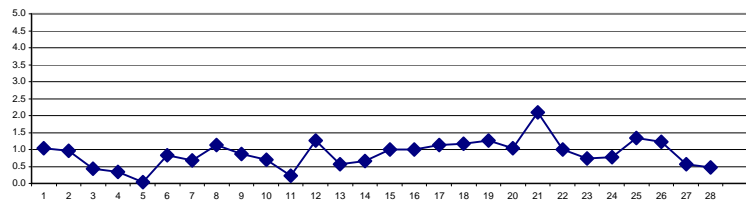
### OBJECTIVE LIMIT:

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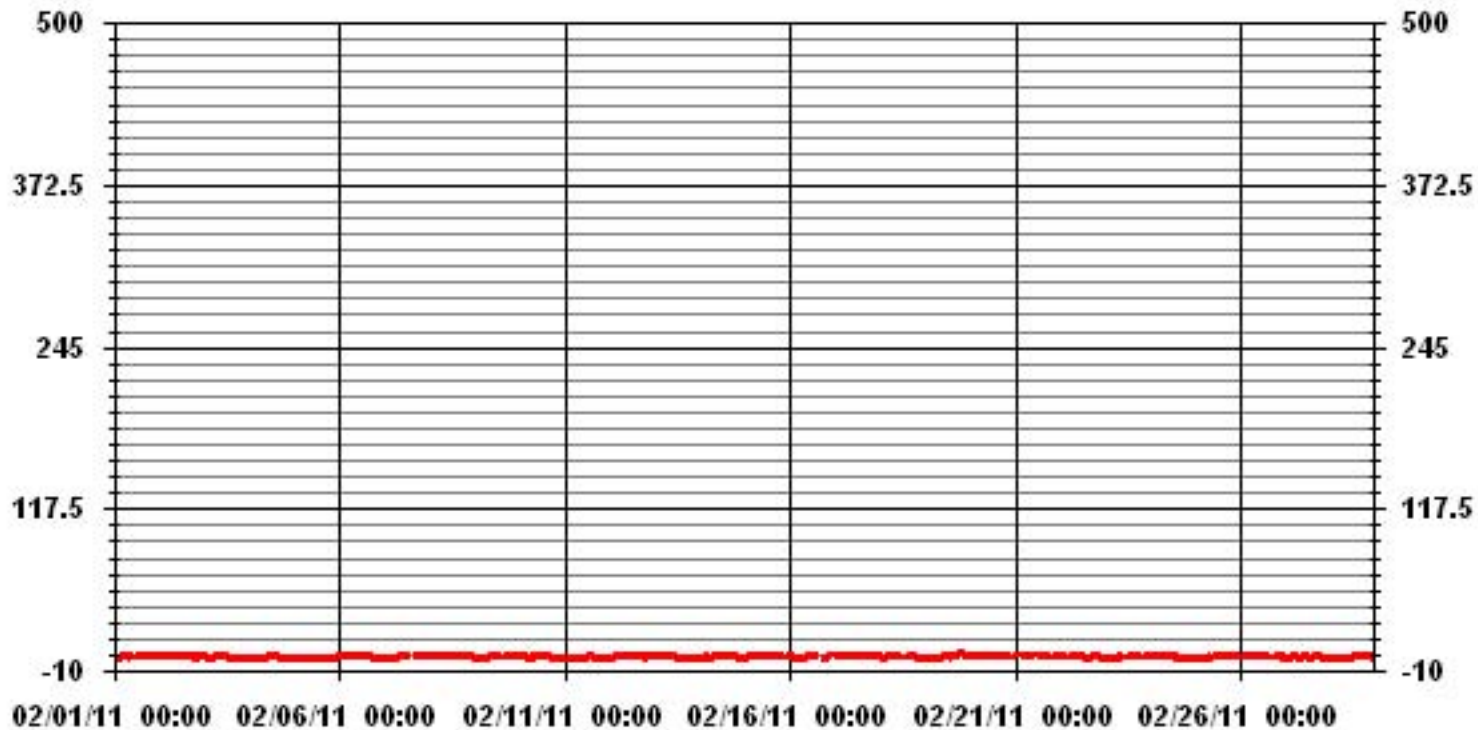
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	448					
MAXIMUM 1-HR AVERAGE:	4	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	2.1	PPB			ON DAY(S)	21
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	0.75		MONTHLY AVERAGE:	0.88	PPB	

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA SO2\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 2011

## SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	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	2	IZS	2	2	2	2	1	1	2	1	2	1	1	2	1	1	1	1	2	1.3	24	
2		1	1	2	2	2	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
3		1	1	1	1	1	1	IZS	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
4		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	
5		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	
6		1	1	IZS	1	1	2	1	2	1	2	2	3	2	1	1	1	1	1	1	1	1	1	1	1	3	1.3	24	
7		1	IZS	1	1	1	1	1	1	1	1	1	1	C	C	C	C	C	2	2	1	1	1	1	1	2	1.1	24	
8		IZS	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	1.3	24
9		1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	IZS	1	2	1.3	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	IZS	1	1	1.0	24
11		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	
12		1	1	1	2	2	1	1	1	1	2	2	3	3	3	2	2	2	2	2	2	IZS	1	1	1	1	3	1.7	24
13		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1.0	24
14		1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	IZS	1	1	1	1	1	2	1.3	24	
15		1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	IZS	1	1	2	3	2	2	1	3	1.3	24	
16		1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	IZS	1	M	1	1	2	2	4	4	4	1.5	23	
17		5	2	2	1	1	1	1	1	1	1	2	1	2	1	2	IZS	1	1	1	1	1	1	1	1	5	1.3	24	
18		1	1	1	1	1	1	1	1	1	2	1	2	2	IZS	3	3	4	4	4	2	1	1	1	1	4	1.6	24	
19		1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	3	2	3	3	5	5	4	3	2	1	5	2.0	24	
20		1	1	1	1	1	1	1	1	1	2	2	IZS	1	1	1	2	1	2	1	1	1	2	3	3	1.3	24		
21		4	4	4	3	3	2	2	1	3	3	IZS	4	4	3	3	3	3	3	2	2	2	1	1	4	2.7	24		
22		1	1	1	2	2	2	2	3	4	IZS	1	1	1	1	1	1	1	1	1	2	1	1	1	1	4	1.4	24	
23		1	1	1	1	1	1	1	1	IZS	1	2	2	2	2	1	1	1	1	2	2	2	1	2	2	2	1.4	24	
24		2	1	1	1	1	1	1	IZS	1	2	3	3	2	2	1	1	1	1	1	1	1	1	1	1	3	1.3	24	
25		1	1	1	1	1	1	1	IZS	1	1	2	3	3	3	3	2	2	2	2	2	2	2	2	2	3	1.8	24	
26		2	2	1	2	2	IZS	2	2	2	2	2	2	1	1	1	1	2	2	2	1	2	2	1	1	2	1.7	24	
27		1	1	1	1	IZS	1	1	1	1	1	1	2	2	1	1	1	1	1	2	1	1	1	1	1	2	1.1	24	
28		1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	1.1	24	
HOURLY MAX		5	4	4	3	3	2	2	3	4	3	3	4	4	3	3	3	4	4	5	5	4	3	4	4				
HOURLY AVG		1.3	1.2	1.2	1.3	1.3	1.2	1.2	1.2	1.3	1.4	1.4	1.7	1.6	1.5	1.5	1.4	1.4	1.5	1.4	1.4	1.4	1.3	1.3	1.3				

**STATUS FLAG CODES**

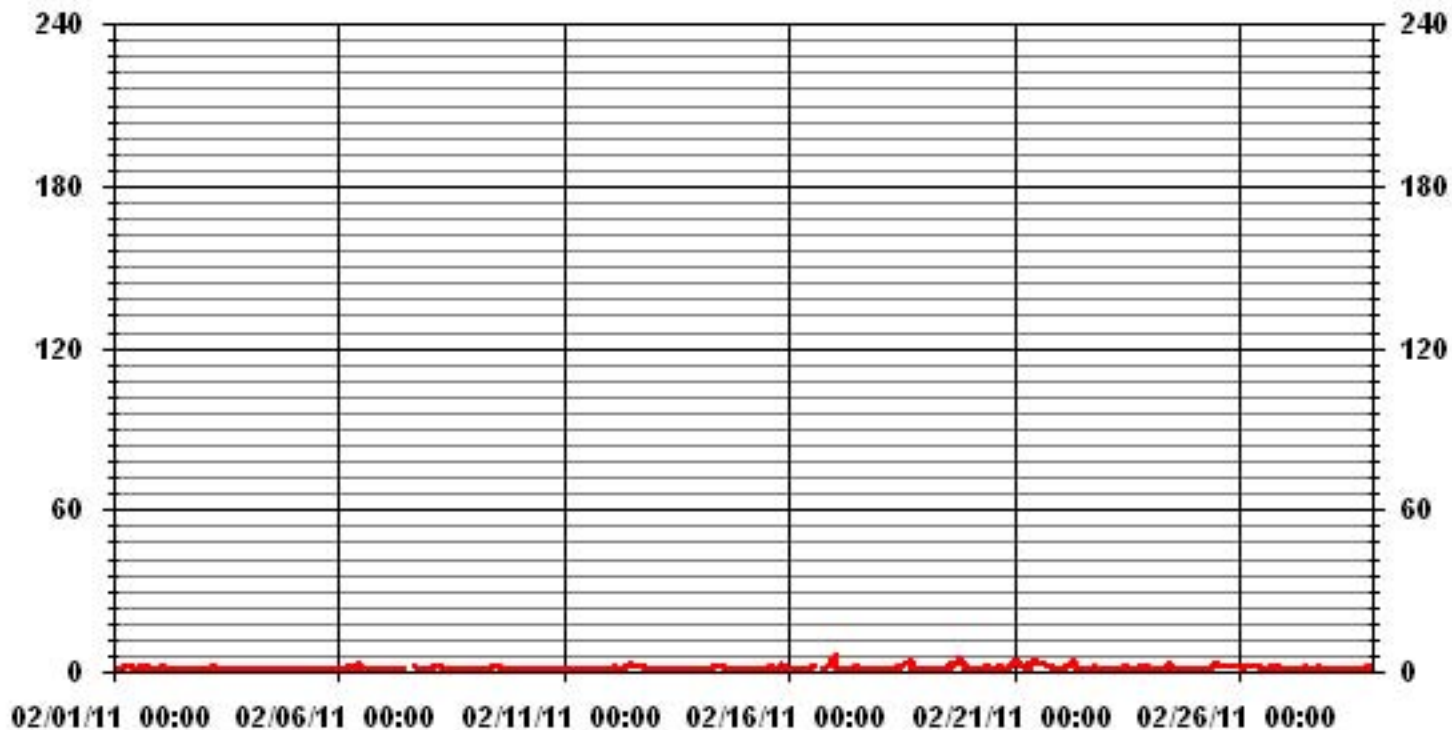
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	637					
MAXIMUM INSTANTANEOUS VALUE:	5	PPB	@ HOUR(S)	VAR	ON DAY(S)	17, 19
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.69					



### 01 Hour Averages



— LICA SO2MAX PPB

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

February 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	5.17	7.05	6.42	1.56	1.72	2.19	7.52	2.82	2.97	3.29	15.51	18.65	10.50	4.23	6.58	3.76	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	5.17	7.05	6.42	1.56	1.72	2.19	7.52	2.82	2.97	3.29	15.51	18.65	10.50	4.23	6.58	3.76	

Calm : .00 %

Total # Operational Hours : 638

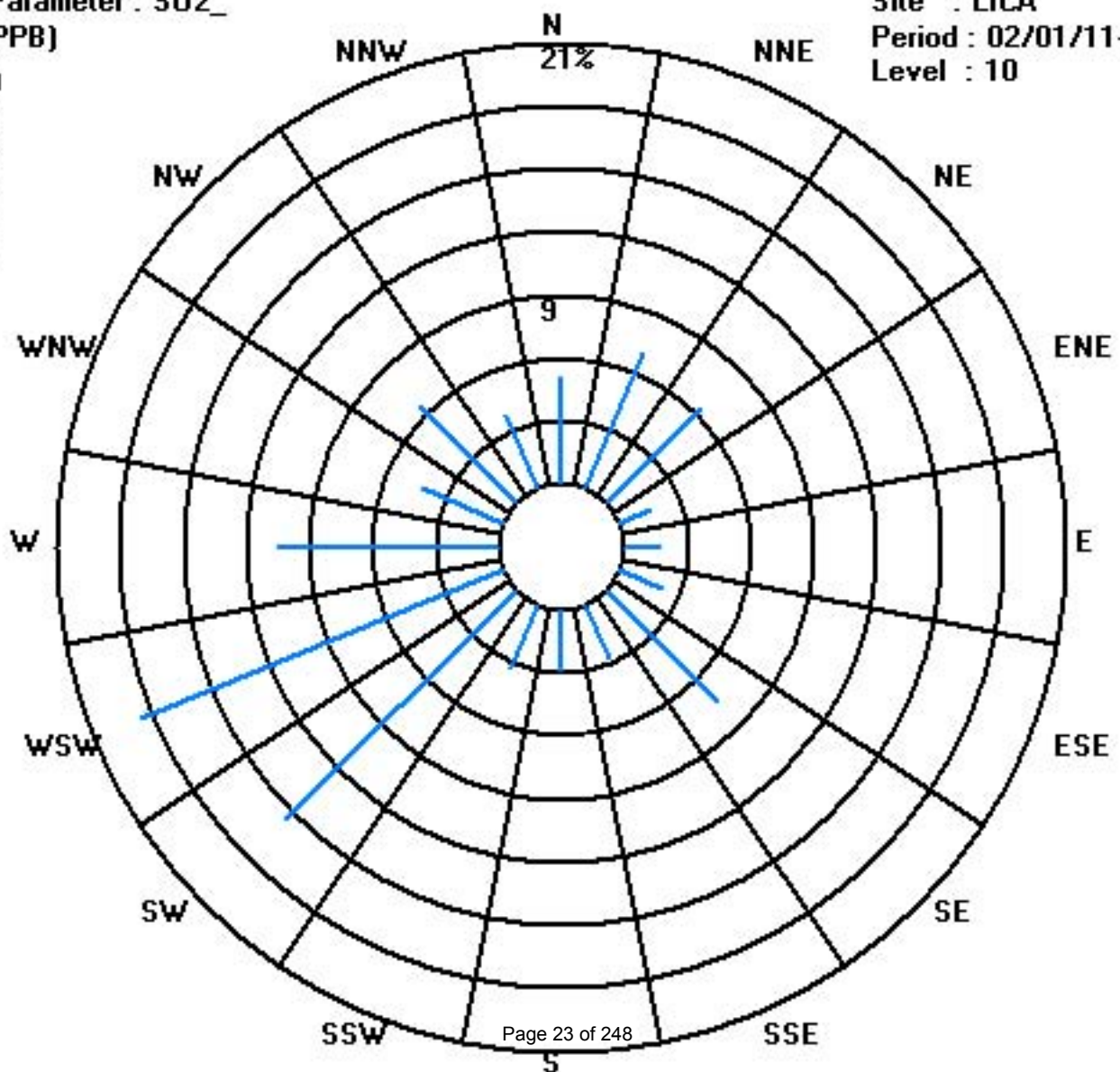
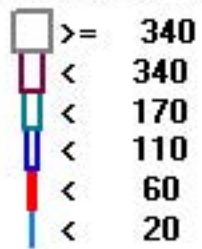
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	33	45	41	10	11	14	48	18	19	21	99	119	67	27	42	24	638
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	33	45	41	10	11	14	48	18	19	21	99	119	67	27	42	24	

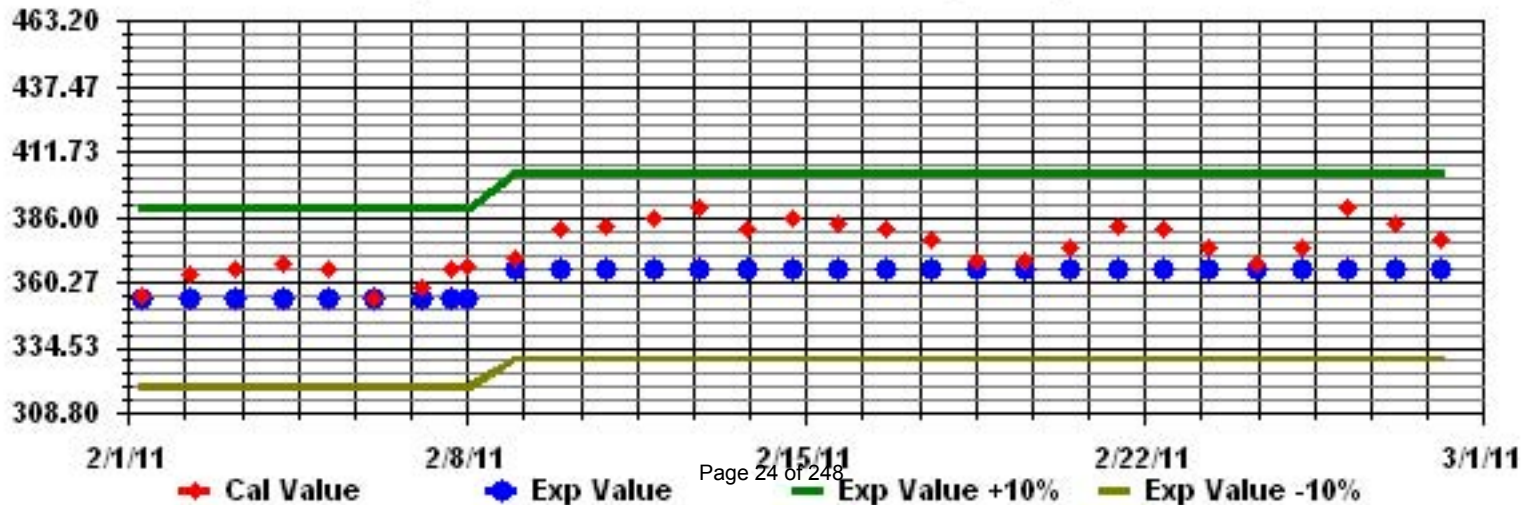
Calm : .00 %

Total # Operational Hours : 638

Class Limits (PPB)



Calibration Graph for Site: LICA Parameter: S02\_ Sequence: S02 Phase: SPAN



# Total Reduced Sulphur

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 2011

## TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

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

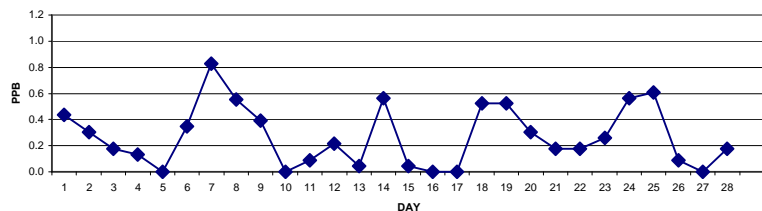
### OBJECTIVE LIMIT:

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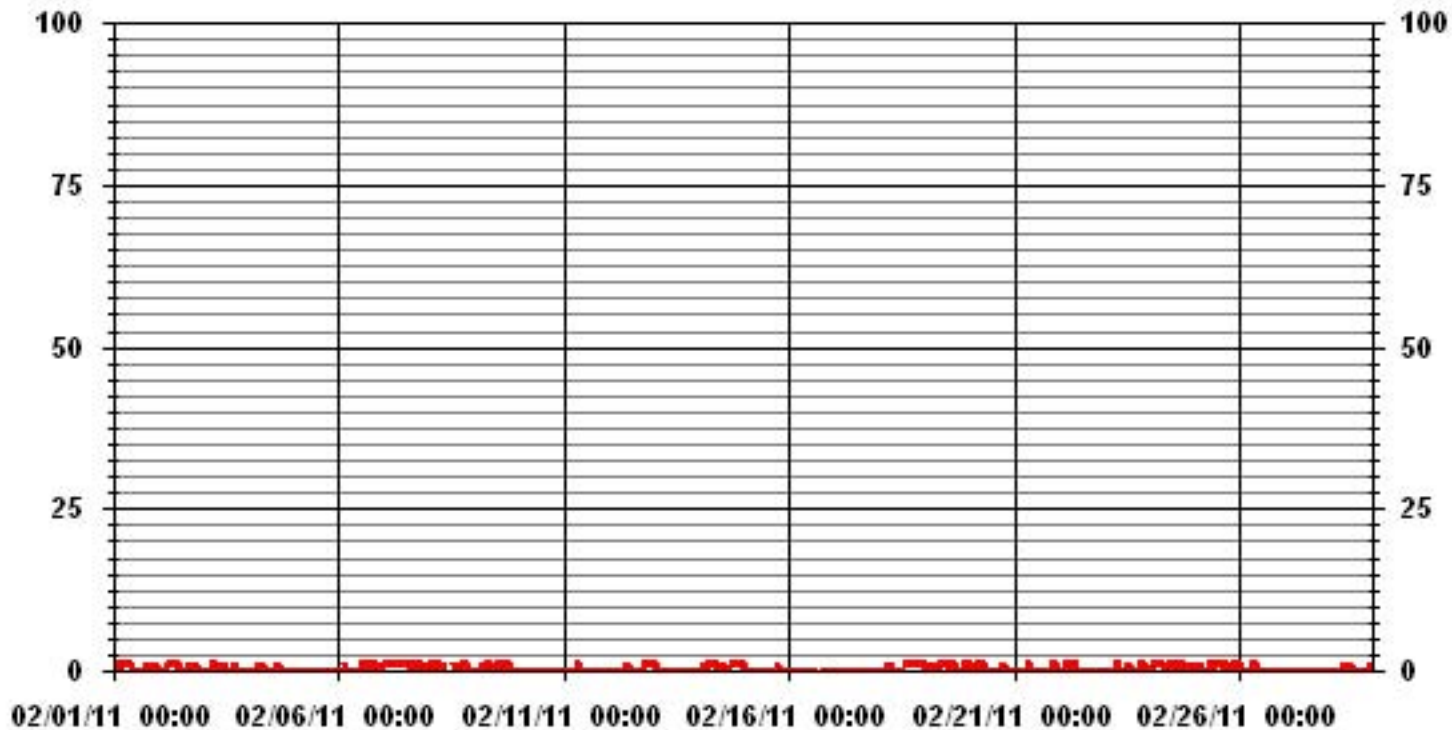
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	170					
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.8	PPB			ON DAY(S)	7
				VAR-VARIOUS		
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME	99.9	%	
STANDARD DEVIATION	0.44		MONTHLY AVERAGE	0.27	PPB	

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA TRS\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 2011

**TOTAL REDUCED SULPHUR MAX** instantaneous maximum in ppb

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	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	1	1	1	1	1	1.0	24		
2	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	1.0	24	
3	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	1.0	24	
4	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	1.0	24	
5	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	1.0	24	
6	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	1.0	24	
7	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	1.0	24	
8	IZS	1	1	1	1	1	1	1	1	C	C	C	C	C	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	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	1.0	24	
11	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	1	1.0	24	
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1.0	24	
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1.0	24	
14	1	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	
15	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	1.0	24	
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	M	1	1	1	1	1	1	1	1	1	1.0	23	
17	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	1	1.0	24
18	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	1	1.0	24
19	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	1	1.0	24
20	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	1.0	24	
21	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	1.0	24	
22	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	1.0	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	1.0	24	
24	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	1.0	24	
25	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	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	1.0	24	
27	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	1.0	24	
28	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	1.0	24	
HOURLY MAX	1	1	1	1	1	1	1	1	2	2	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	1.0			

**STATUS FLAG CODES**

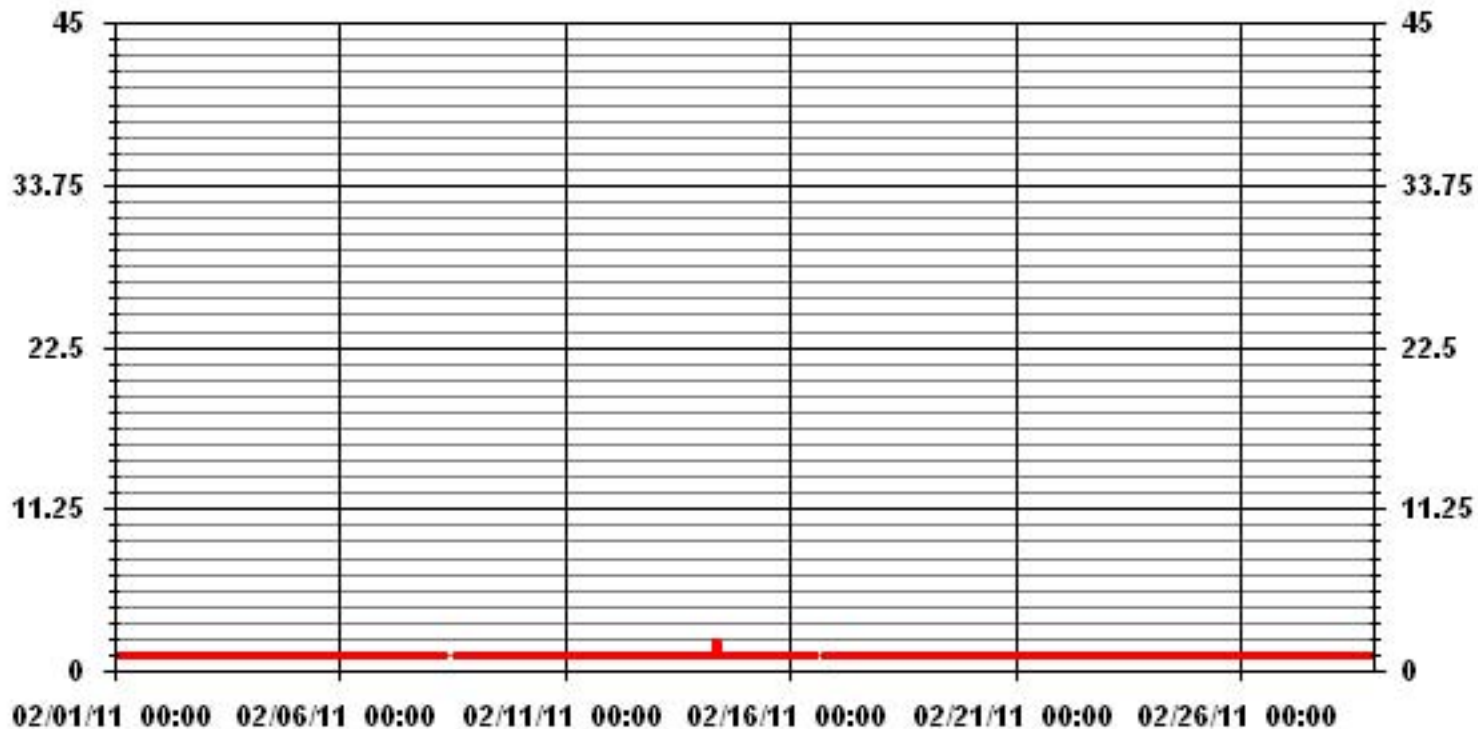
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	637					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	8,9	ON DAY(S)	14
	VAR - VARIOUS					
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.06					



### 01 Hour Averages



— LICA — TRSMAX — PPB

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

February 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	5.17	7.05	6.42	1.56	1.72	2.19	7.52	2.82	2.97	3.29	16.14	18.18	10.34	4.23	6.58	3.76	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.17	7.05	6.42	1.56	1.72	2.19	7.52	2.82	2.97	3.29	16.14	18.18	10.34	4.23	6.58	3.76	

Calm : .00 %

Total # Operational Hours : 638

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	33	45	41	10	11	14	48	18	19	21	103	116	66	27	42	24	638
< 10																	
< 50																	
>= 50																	
Totals	33	45	41	10	11	14	48	18	19	21	103	116	66	27	42	24	

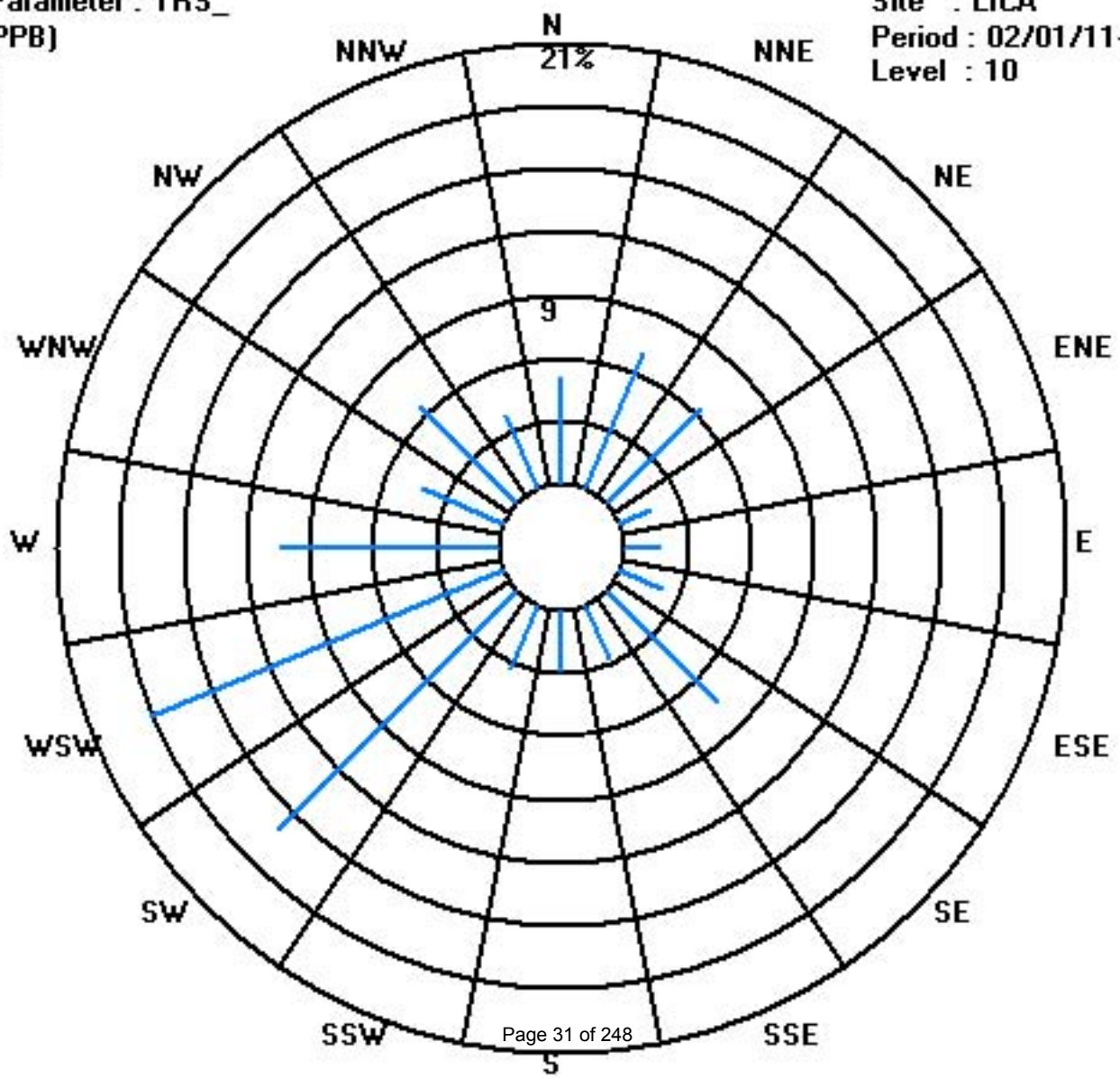
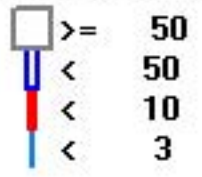
Calm : .00 %

Total # Operational Hours : 638

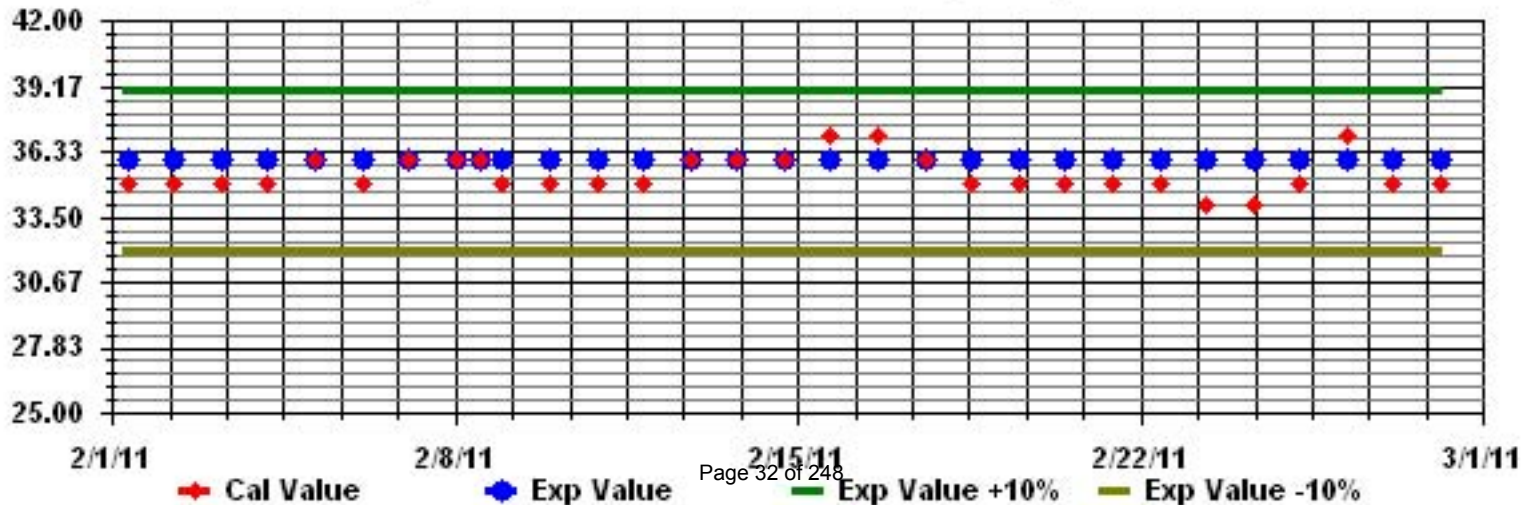
Class Limits (PPB)

Period : 02/01/11-02/28/11

Level : 10



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



# Total Hydrocarbons

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 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	
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	3.2	3.2	3.2	3.2	3	2.9	2.8	<b>IZS</b>	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.4	3.2	2.5	24	
2	2.4	2.5	2.6	3	2.9	2.9	<b>IZS</b>	2.7	2.2	2.3	2.4	2.2	2.1	2.1	2	2	2.1	2.1	2	2	2.1	2.2	2.2	2.1	3.0	2.3	24	
3	2.1	2.1	2	2	2	<b>IZS</b>	2	2	2	2	2	2	1.9	1.9	1.9	1.9	2	2	2	2	2	2.1	2.2	2.2	2.2	2.0	24	
4	2.1	2.1	2.1	2	<b>IZS</b>	2.1	2.2	2.2	2.3	<b>4.5</b>	4.3	3.5	2.4	2.2	2.1	2.2	2.3	2	1.9	1.9	2	1.9	1.9	1.9	<b>4.5</b>	2.4	24	
5	1.9	1.9	1.9	<b>IZS</b>	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2	2	2.0	1.9	24	
6	2	2	<b>IZS</b>	2	2.1	2.1	2.1	2.1	2.2	2.4	2.4	2.3	2.4	2.4	2.4	2.3	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.5	2.5	2.2	24	
7	2.6	<b>IZS</b>	2.6	2.7	2.6	2.7	2.6	2.7	3.7	3.4	2.7	2.7	3.2	3	3	3	2.8	2.5	2.3	2.4	2.3	2.2	2.2	2.2	3.7	<b>2.7</b>	24	
8	<b>IZS</b>	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.5	2.7	2.5	2.2	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	2.1	2.2	2.2	2.3	2.3	2.3	2.4	<b>IZS</b>	2.7	2.3	24	
9	2.4	2.4	2.4	2.4	2.5	2.7	2.6	2.8	2.9	2.9	2.9	3.2	3	2.7	2.9	2.7	2.5	2.5	2.4	2.3	2.2	2.1	<b>IZS</b>	2.4	3.2	2.6	24	
10	2.4	2.6	2.7	2.3	2.4	2.4	2.5	2.2	2.1	2.1	2.1	2.1	2.1	2	2	2	2.1	2.1	2	2	2	<b>IZS</b>	1.8	1.9	2.7	2.2	24	
11	1.9	2	2	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.1	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	<b>IZS</b>	2.1	2.1	2.2	2.3	2.0	24	
12	2.2	2.2	2.3	2.5	2.6	2.2	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2	2.1	2.1	2.1	2.1	2.1	2.2	<b>IZS</b>	2.4	2.9	2.8	2.7	2.9	2.3	24
13	2.7	2.2	2.2	2.2	2.3	2.6	2.4	2.3	2.2	2.1	2	2	1.9	1.9	1.9	1.9	2	2	<b>IZS</b>	2.1	2.1	2.1	2.1	2.1	2.1	2.7	2.1	24
14	2.2	2.3	2.4	2.4	2.2	2.2	2.3	2.5	3.1	2.6	2.4	2.5	2.5	2.5	2.5	2.4	2.4	<b>IZS</b>	2.5	2.6	2.6	2.6	2.6	2.5	3.1	2.5	24	
15	2.2	2.2	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	<b>IZS</b>	1.9	1.9	1.9	2	2	2	2	2	2.2	2.0	24
16	2	2.1	2	2	2.1	2.3	2.2	2.3	2.3	2.2	2.1	2.2	2.1	2.1	2	<b>IZS</b>	1.9	<b>M</b>	2	1.9	2	2	2	2	2	2.3	2.1	23
17	2	1.9	1.9	1.9	2	2	2	2	2	2	2	2	2	2	2	<b>IZS</b>	2	2	2	2	2	2	2	2	2	2.0	2.0	24
18	2	2.1	2.2	2.2	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.2	2.2	<b>IZS</b>	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.2	24	
19	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.7	2.8	3	2.9	2.7	<b>IZS</b>	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.5	2.6	2.7	3.0	2.5	24	
20	2.8	2.8	2.9	2.9	2.9	3	3	3	2.8	2.7	2.6	<b>IZS</b>	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	3.0	2.5	24		
21	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.4	<b>IZS</b>	2.4	2.4	2.4	2.4	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.4	24	
22	2.7	2.8	2.9	3.1	2.8	2.9	2.3	2.1	2.1	<b>IZS</b>	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2.2	2.1	3.1	2.2	24	
23	2.1	2	2.1	2.2	2.3	2.2	2.3	2.2	<b>IZS</b>	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2.2	2	2.1	2.1	2.3	2.1	24
24	2.1	2	2	2.1	2	2.1	2	2.1	<b>IZS</b>	2.1	2.1	2	2	2	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.3	2.3	2.4	2.4	2.1	24	
25	2.4	2.4	2.3	2.3	2.4	2.5	<b>IZS</b>	2.5	2.4	2.6	2.6	2.3	2.2	2.2	2.1	2.1	2.1	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.6	2.3	24	
26	2.2	2.2	2.2	2.1	2.1	<b>IZS</b>	2.1	2.1	2.2	2.2	2.1	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2.2	2.0	24	
27	2.1	2.1	2	2	<b>IZS</b>	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	1.9	1.9	1.9	1.9	1.9	2.1	1.9	24	
28	1.9	1.9	1.9	<b>IZS</b>	1.9	1.9	1.9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.0	24
HOURLY MAX	3.2	3.2	3.2	3.2	3.0	3.0	3.0	3.0	3.7	4.5	4.3	3.5	3.2	3.0	3.0	3.0	2.8	2.6	2.7	2.7	2.7	2.7	2.9	2.8	2.7			
HOURLY AVG	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2			

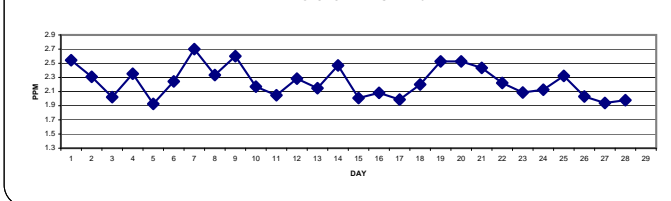
#### STATUS FLAG CODES

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

#### MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	638		
MAXIMUM 1-HR AVERAGE:	4.5 PPM	@ HOUR(S)	9 ON DAY(S)
MAXIMUM 24-HR AVERAGE:	2.7 PPM		7 ON DAY(S)
IZS CALIBRATION TIME:	29 HRS	OPERATIONAL TIME:	671 HRS
MONTHLY CALIBRATION TIME:	4 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.33	MONTHLY AVERAGE:	2.24 PPM

24 AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA THC PPM

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 2011

### TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST																										DAILY	24-HOUR	
DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	3.3	3.5	3.3	3.3	3.2	3.1	3	IZS	2.7	2.6	2.5	2.5	2.4	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.4	2.5	2.5	2.5	2.5	3.5	2.7	24
2	2.5	2.5	3.2	3.2	3	3.1	IZS	3.2	2.4	2.4	2.4	2.3	2.3	2.9	2.1	2.1	2.6	2.2	2.4	2.1	2.2	2.3	2.3	2.2	3.2	2.5	24	
3	2.1	2.2	2.1	2	2.1	IZS	2	2.1	2.1	2.1	2.1	2	2	2	2.1	2	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.3	2.2	2.3	2.1	24
4	2.2	2.2	2.1	2.1	IZS	2.2	2.3	2.7	2.6	6.5	5.4	4.5	3.5	2.3	2.2	2.4	3.2	2.1	1.9	2	2.1	2	1.9	1.9	6.5	2.7	24	
5	1.9	1.9	1.9	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3	2	2	1.9	2.3	2	2	2	2	2	2	2	2	3	2.0	24	
6	2	2	IZS	2.1	2.2	2.2	2.3	2.2	2.3	2.6	2.7	2.4	2.4	2.5	2.8	2.4	2.4	3	2.4	2.3	2.3	2.4	2.4	2.8	3	2.4	24	
7	3.1	IZS	2.7	2.8	2.8	3.3	2.7	3.4	4.4	4	3	3.3	3.4	3.4	3.2	3.2	3	2.7	2.5	2.5	2.7	2.7	2.2	2.3	4.4	3.0	24	
8	IZS	2.3	2.4	2.3	2.3	2.4	2.4	2.7	2.8	2.9	2.9	2.4	C	C	C	C	2.2	2.2	2.3	2.3	2.4	2.4	2.5	IZS	2.9	2.5	24	
9	2.4	2.4	2.5	2.5	2.6	2.9	2.8	3.2	3.7	3.3	3.2	3.7	3.4	2.9	4.4	4.2	2.7	2.7	2.6	2.4	2.7	2.3	IZS	2.5	4.4	3.0	24	
10	2.5	2.7	2.9	2.5	2.5	2.5	2.7	2.3	2.3	2.2	2.4	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	1.9	1.9	2.9	2.3	24	
11	2	2.1	2.1	2.1	2.2	2.2	2.2	3.3	2.5	2.4	2.4	2.2	2.1	2	2	9	2.5	1.9	2	2	IZS	2.3	2.2	2.4	9	2.5	24	
12	2.3	2.4	2.5	2.6	2.8	2.5	2.7	2.5	2.4	2.3	2.2	2.5	2.3	2.1	2.2	2.2	2.2	2.2	2.4	IZS	2.8	3.1	3	2.8	3.1	2.5	24	
13	3.1	2.5	2.7	2.3	2.5	2.7	2.5	2.4	2.5	2.2	2.1	2.1	1.9	1.9	2	2	2.2	2.1	IZS	2.2	2.2	2.2	2.3	2.2	3.1	2.3	24	
14	2.3	2.5	2.6	2.5	2.5	2.5	2.5	2.8	4.2	3	5.4	2.6	3	2.6	2.8	2.5	2.5	IZS	2.6	2.7	2.7	2.8	2.8	2.7	5.4	2.8	24	
15	2.3	2.2	2.2	2	2	2	2.2	2	2	2	2	2	2	2	2	2.1	IZS	2	2	2	2	2	2	2	2.3	2.0	24	
16	2.2	2.2	2.1	2.2	2.2	2.5	2.4	2.4	2.4	2.3	2.4	2.3	2.2	2.2	IZS	2	2	M	3.1	2	2	2	2	2	3.1	2.3	23	
17	2	2	2	2	2	2	2	2	2.3	2	2	2	2	2	2	IZS	2	2.1	2	2.4	2.1	2	2	2	2.1	2.4	2.0	24
18	2.1	2.2	2.3	2.3	2.3	2.3	2.4	2.3	2.2	2.1	2.3	2.3	2.4	IZS	2.3	2.3	2.4	3.1	2.3	2.5	2.3	2.4	2.4	2.6	3.1	2.4	24	
19	2.5	2.5	2.7	2.7	2.7	2.7	2.8	2.8	3	3.2	3.1	3.2	IZS	2.4	2.4	2.3	2.3	2.3	2.3	2.8	2.8	2.8	2.8	2.9	3.2	2.7	24	
20	2.9	2.9	3	3	3	3.8	3.2	3.1	3	2.8	2.7	IZS	2.4	2.3	2.3	2.8	2.3	2.4	2.4	2.3	2.3	3.4	4.1	2.3	4.1	2.8	24	
21	2.4	2.3	2.2	2.3	2.4	2.5	2.3	3.2	2.6	2.5	IZS	2.4	2.7	2.4	2.5	2.7	3	3	2.7	2.8	3	2.9	2.8	3.2	2.6	24		
22	2.9	3	3.3	3.3	3.1	3	2.8	2.2	2.3	IZS	2	1.9	1.9	1.9	2	2	2.1	2	2	2	2	2	2.4	2.4	3.3	2.4	24	
23	2.1	2.1	2.3	2.3	2.4	2.3	2.4	2.5	IZS	2.1	2.5	2.2	2.1	2	2	2	2	2	2	2	2.1	2.4	2.1	2.6	2.4	2.6	2.2	24
24	2.4	2.1	2.1	2.1	2.1	2.1	2.2	IZS	2.3	2.2	2.1	2.1	2.3	2.2	2.2	2.2	2.9	4	2.3	2.2	2.3	2.4	2.5	2.5	4	2.3	24	
25	2.5	2.5	2.4	2.4	2.5	2.7	IZS	2.8	2.7	2.9	2.8	2.5	2.3	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.9	2.5	24	
26	2.3	2.3	2.2	2.2	2.1	IZS	2.2	2.2	2.3	2.4	2.2	2.1	2	1.9	2	2	2	2	2	2	2	2	2.1	2.4	2.1	2.4	2.1	24
27	2.2	2.3	2	2	IZS	1.9	2	2.1	2	2	2	2	2	2.5	2.1	2	2.7	2	2.4	3.5	2	2	2	2	3.5	2.2	24	
28	2	2	2	IZS	2.2	2.7	2	2.2	2	2.1	2	2	2.1	2	2	2	2	2	2	2	2	2.2	2.3	2.1	2.1	2.7	2.1	24
HOURLY MAX	3	4	3	3	3	4	3	3	4	7	5	5	4	3	4	9	3	4	4	4	3	3	3	4	3			
HOURLY AVG	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.6	2.6	2.6	2.6	2.5	2.4	2.3	2.3	2.6	2.3	2.4	2.3	2.2	2.3	2.4	2.4	2.3				

**STATUS FLAG CODES**

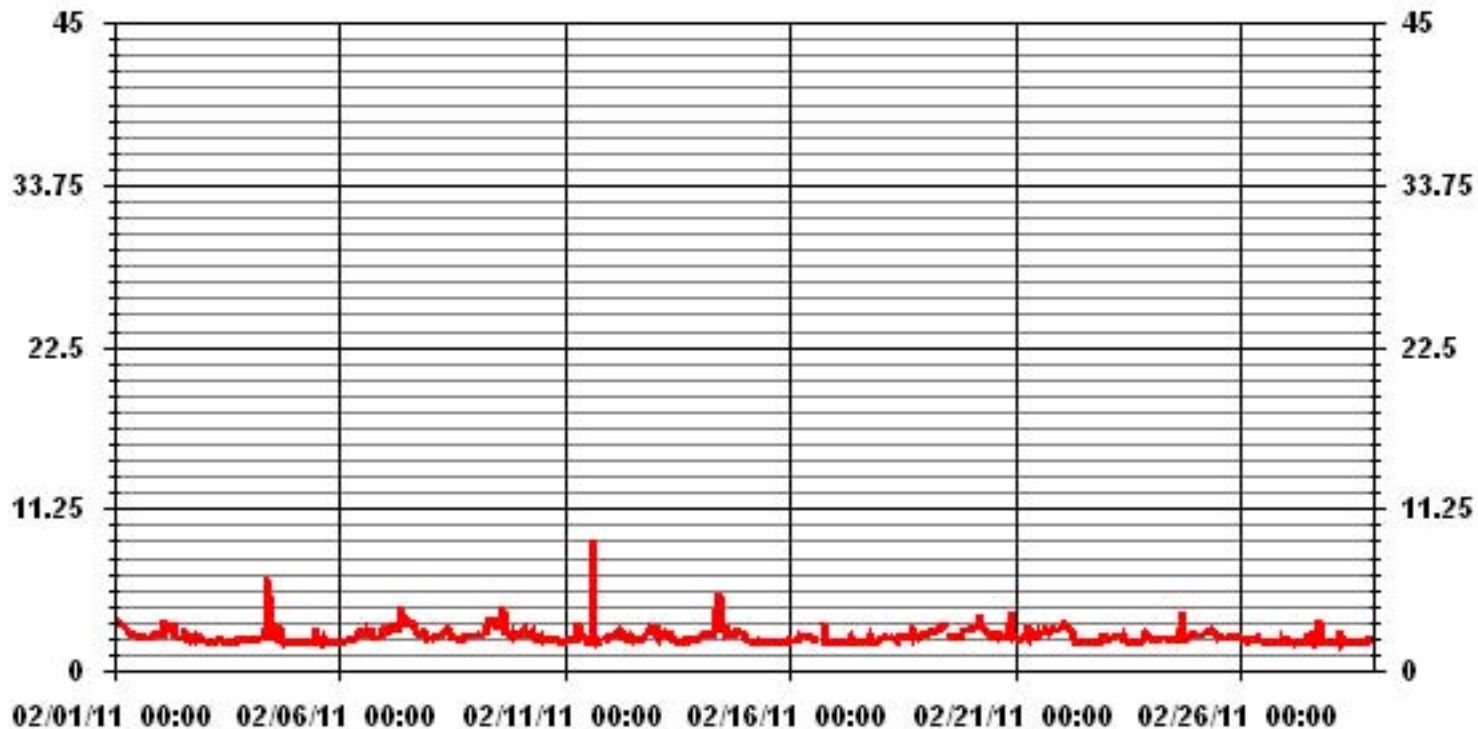
S - OUT OF SERVICE	IZS - IZS - DAILY ZERO/SPAN CHECK
N - INVALID DATA	M - MISSING DATA
D - INSTRUMENT DRIFT	P - POWER FAILURE
C - CALIBRATION	NA - NOT APPLICABLE
BB - BELOW BACKGROUND OF 1.5 PPM	

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	638					
MAXIMUM INSTANTANEOUS VALUE:	9.0	PPM	@ HOUR(S)	15	ON DAY(S)	11
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671 HRS		
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.55					



### 01 Hour Averages



— LICA THCMAX PPM

LICA  
 THC / WD Joint Frequency Distribution (Percent)

February 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	4.85	7.05	6.26	1.41	1.56	2.19	6.73	2.82	2.82	3.13	15.51	17.55	10.18	4.23	6.26	3.76	96.39
< 10.0	.31	.00	.15	.15	.15	.00	.78	.00	.15	.15	.62	.47	.31	.00	.31	.00	3.60
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.17	7.05	6.42	1.56	1.72	2.19	7.52	2.82	2.97	3.29	16.14	18.02	10.50	4.23	6.58	3.76	

Calm : .00 %

Total # Operational Hours : 638

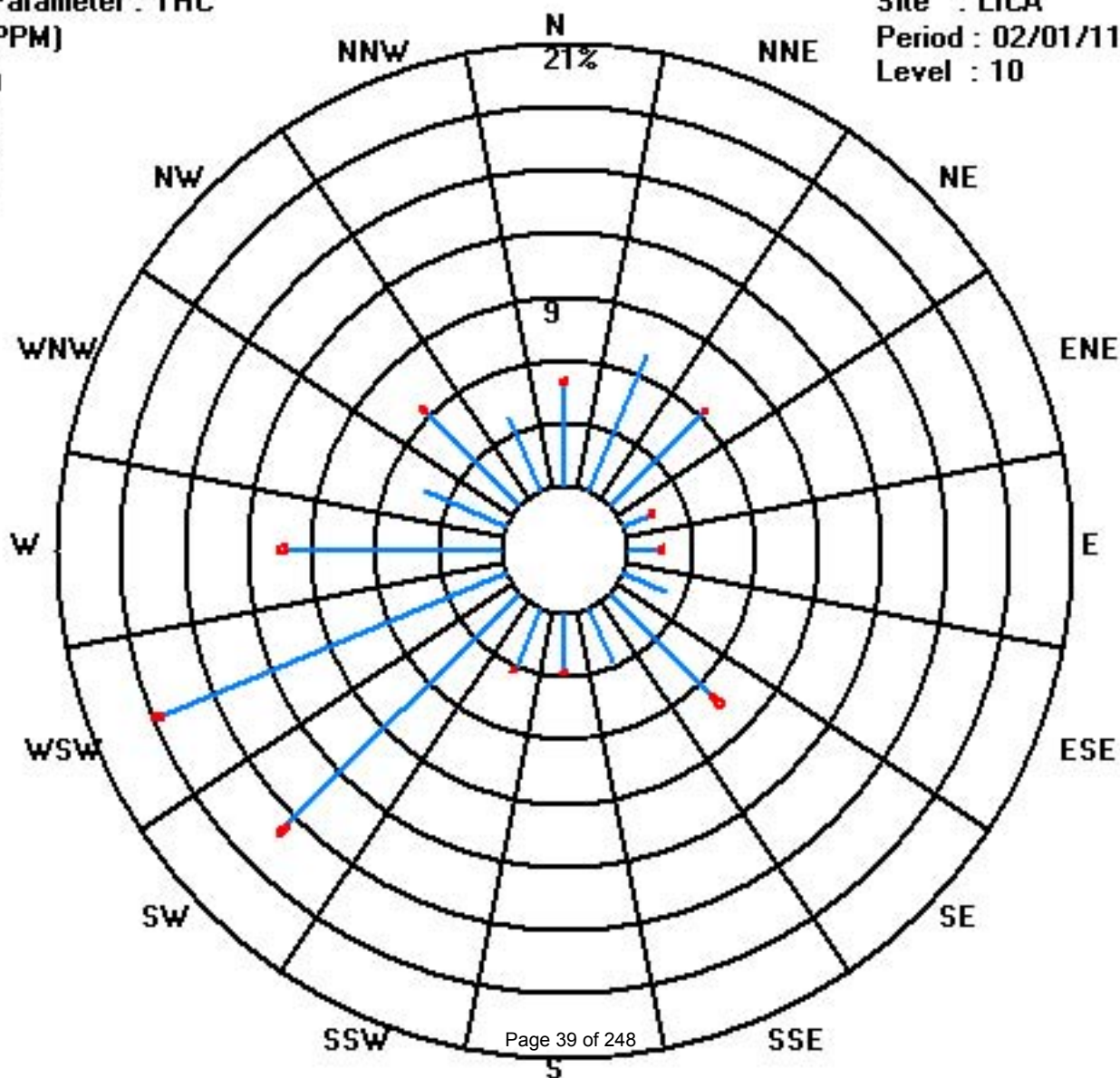
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	31	45	40	9	10	14	43	18	18	20	99	112	65	27	40	24	615
< 10.0	2		1	1	1		5		1	1	4	3	2		2		23
< 50.0																	
>= 50.0																	
Totals	33	45	41	10	11	14	48	18	19	21	103	115	67	27	42	24	

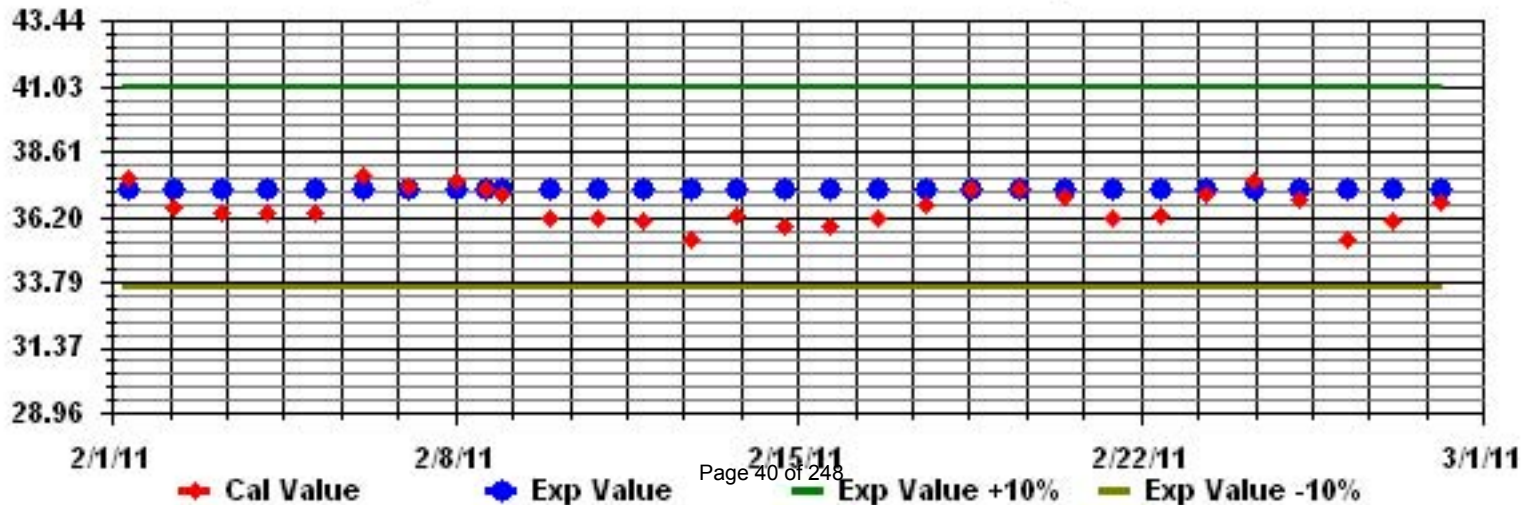
Calm : .00 %

Total # Operational Hours : 638

Class Limits (PPM)



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



# Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 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		
HOURLY MAX	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		9	6.9	4.4	6.5	6.5	9.4	11.5	7.9	10.9	3.4	7.9	6	1.9	4.4	7.5	1.9	4.4	6	5.5	3.4	8.4	9	9.4	9.4	11.5	6.7	24	
2		9	9	6	7.9	13.5	9.9	12.5	12.5	14.4	9	6.9	1	5.5	4	0	0	0	4	0.4	2.5	1.9	4.4	1	1.9	14.4	5.7	24	
3		1.4	0	3.4	0	1	7.5	9	9.4	6.9	5	3.4	6	1.4	4	6	1.4	4.4	0	0	2.9	1.9	0	0.4	2.5	9.4	3.2	24	
4		0.4	4	1	0	1.4	0	1.9	0	7.5	0	4.4	4.4	8.4	12	6.4	2.9	9.4	1.4	0	5.5	2.9	0.4	4.4	0.4	12.0	3.3	24	
5		0	0	4.4	2.9	0	0	1	2.5	0	1.9	0	4	6.9	0	1	5	4.4	1	N	N	3.4	1	0	1.9	6.9	1.9	22	
6		1	1.9	2.5	1.9	0	1	2.5	5	1.9	1.9	0	0	4.4	5	6	2.9	5.5	5.5	4.4	2.5	4	4	4	2.9	6.0	2.9	24	
7		7.5	9	6.5	5	6	4.4	11.5	10.5	6.5	8.4	5.5	10.5	14.5	6	6	2.9	7.5	5	5.5	3.4	4	4.4	2.9	4.4	14.5	6.6	24	
8		5.5	6	2.9	6.9	9	12.5	14.5	12.5	12.4	6.5	6.5	9.4	4	5.5	5	6.9	2.5	1	7.9	13.5	13.9	13.4	13.5	12	14.5	8.5	24	
9		9.9	12	7.5	11	10.9	10.5	14.4	13.5	13.9	10.9	16.5	18.5	20.5	21.5	23.5	17	16	21.5	18	13	9.4	9	8.4	9.9	23.5	14.1	24	
10		7.5	9	1.9	1	1.9	4	1.9	0.4	0.4	0	4.4	0	2.9	1	2.5	2.5	0	2.5	4	0	2.9	1	0	0	9.0	2.2	24	
11		0	0.4	1.4	N	0	1.4	0	4.4	3.4	0	0	1	2.5	0	2.5	0.4	4.4	4.4	7.9	5	1.4	3.4	0	3.4	5.5	7.9	2.1	23
12		5	3.4	0.4	5.5	6.9	7.5	9	2.9	8.4	3.4	4	4.4	4	3.4	3.4	3.4	7.5	0	2.5	6	9	8.4	9.9	11.5	11.5	5.4	24	
13		14.5	6.9	2.9	6.5	7.5	7.9	5	6.9	3.4	1	0	3.4	0	0	0	2.9	1.4	1	4.4	0	0	0	0	0	0	14.5	3.2	24
14		0.4	5	4.4	9.4	6	9.4	4.4	9	9.4	5	4	7.9	4.4	7.9	5.5	7.9	8.4	1.9	9.4	6.9	6.5	11.5	13	13	13.0	7.1	24	
15		1.4	5.5	4.4	4	2.9	8.4	2.9	5.5	4.4	9	6.5	4.4	9	7.9	6.9	10.9	6.4	5	6	6.4	4	1	1.9	1	10.9	5.2	24	
16		1.4	5.5	2.9	1.4	1	4	0	6.9	1.9	5.5	4.4	C	2.5	1	1.9	2.5	1.4	0	4.4	5.5	6.4	3.4	6.4	4	6.9	3.2	24	
17		5	4.4	5.5	6	3.4	6	0.4	7.9	2.9	2.5	0	4	2.5	3.4	0	5.5	5	6	3.4	1	0	0	3.4	2.5	7.9	3.4	24	
18		4.4	4.4	0.4	6.9	1	4	4.4	11.5	2.5	0	4	3.4	0.4	4.4	6	5.5	2.5	5	7.5	6	4.4	6.4	4.4	5	11.5	4.4	24	
19		5.5	5.5	6.4	8.4	4	1.9	2.5	7.9	8.4	7.5	6.4	7.9	11.5	6.9	7.9	3.4	6.4	6.4	7.9	11.5	11	9.9	9	9	11.5	7.2	24	
20		9.9	7.9	8.4	12	7.9	7.9	9	9.4	7.9	5.5	9	5.5	4	5.5	2.9	3.4	3.4	6	5.5	7.9	8.4	9.9	6.4	5	12.0	7.0	24	
21		6	5.5	9	4.4	6.4	7.9	6	6.9	6.9	5.5	7.5	15.5	7.9	7.9	7.9	13.4	10.9	11.5	7.9	7.9	9	9.4	10.5	7.5	15.5	8.3	24	
22		6.9	12	7.5	9	12.5	11.5	6.9	10.9	9.4	2.9	2.9	0	0	1.4	5.5	2.5	2.9	4.4	1.9	5.5	1	0	4	3.4	12.5	5.2	24	
23		2.5	2.5	1.4	1.9	1.4	0	4	4	0	0	1	4	2.5	3.4	0	2.5	1.4	1	1.9	1.4	1.4	4	3.4	1.4	4.0	2.0	24	
24		3.4	1.9	2.5	1.4	2.5	2.9	2.9	2.9	4	2.9	1	5.5	7.9	8.4	5.5	7.5	5.5	5.5	5.5	5.5	1.4	2.5	5	2.9	6	8.4	4.1	24
25		5	6.4	2.9	2.9	1.4	6.4	12	5	9.4	6	7.9	6.9	9	8.4	9	4	6	7.5	9	9.9	9.4	7.9	9	7.5	12.0	7.0	24	
26		4	5	5	3.4	6.4	2.5	6.9	6	0.4	5.5	5.5	6.4	1.9	0	1.9	0	2.5	1.4	5.5	1.4	1.9	3.4	5	6.9	3.4	24		
27		0.4	3.4	1.9	0	0	0.4	2.5	3.4	3.4	1.9	5	5.5	5	5	4	8.4	4.4	5	3.4	4.4	5.5	2.5	5	4.4	8.4	3.5	24	
28		0	0	4	4	4	1.4	4	3.4	2.9	0	6.9	7.5	5	4	0.4	6.9	0	3.4	3.4	3.4	6.4	6	6	7.5	7.5	3.8	24	
HOURLY MAX		15	12	9	12	14	13	15	14	14	11	17	19	21	22	24	17	16	22	18	14	14	13	14	13				
HOURLY AVG		4.5	5.1	4.0	4.8	4.5	5.4	5.8	6.8	5.9	4.0	4.7	5.7	5.4	5.1	4.8	4.8	4.7	4.6	5.0	5.1	5.1	4.8	5.2	5.2				

STATUS FLAG CODES

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

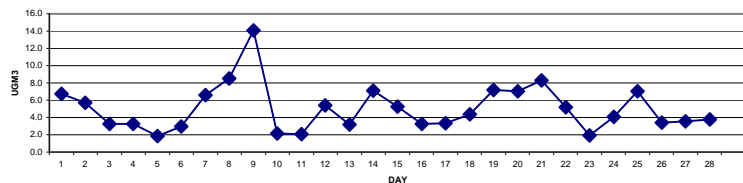
OBJECTIVE LIMIT:

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

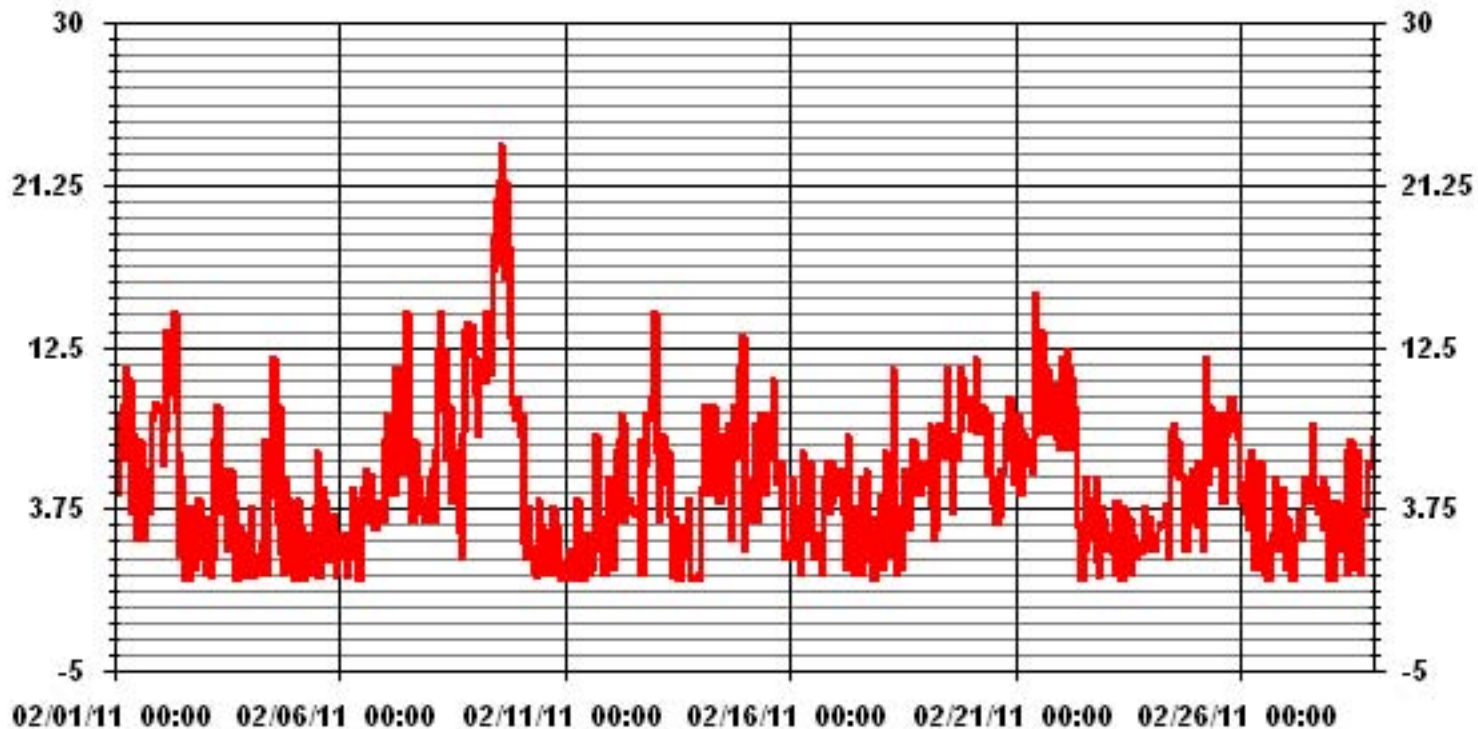
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-	PROPOSED CANADA WIDE GUIDELINE
NUMBER OF 24-HR EXCEEDENCES:	0	
NUMBER OF NON-ZERO READINGS:	598	
MAXIMUM 1-HR AVERAGE:	23.5 UG/M <sup>3</sup>	@ HOUR(S) 14 ON DAY(S) 9
MAXIMUM 24-HR AVERAGE:	14.1 UG/M <sup>3</sup>	ON DAY(S) 9
IZS CALIBRATION TIME:	0 HRS	OPERATIONAL TIME: 669 HRS
MONTHLY CALIBRATION TIME:	1 HRS	AMD OPERATION UPTIME 99.6 %
STANDARD DEVIATION	3.85	MONTHLY AVERAGE 5.04 UG/M <sup>3</sup>

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA PM2 UG/M3

LICA  
PM2 / WD Joint Frequency Distribution (Percent)

February 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	4.78	7.17	6.72	1.49	1.64	2.39	7.62	2.84	2.84	3.28	16.14	18.08	10.31	4.18	6.72	3.73	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	4.78	7.17	6.72	1.49	1.64	2.39	7.62	2.84	2.84	3.28	16.14	18.08	10.31	4.18	6.72	3.73	

Calm : .00 %

Total # Operational Hours : 669

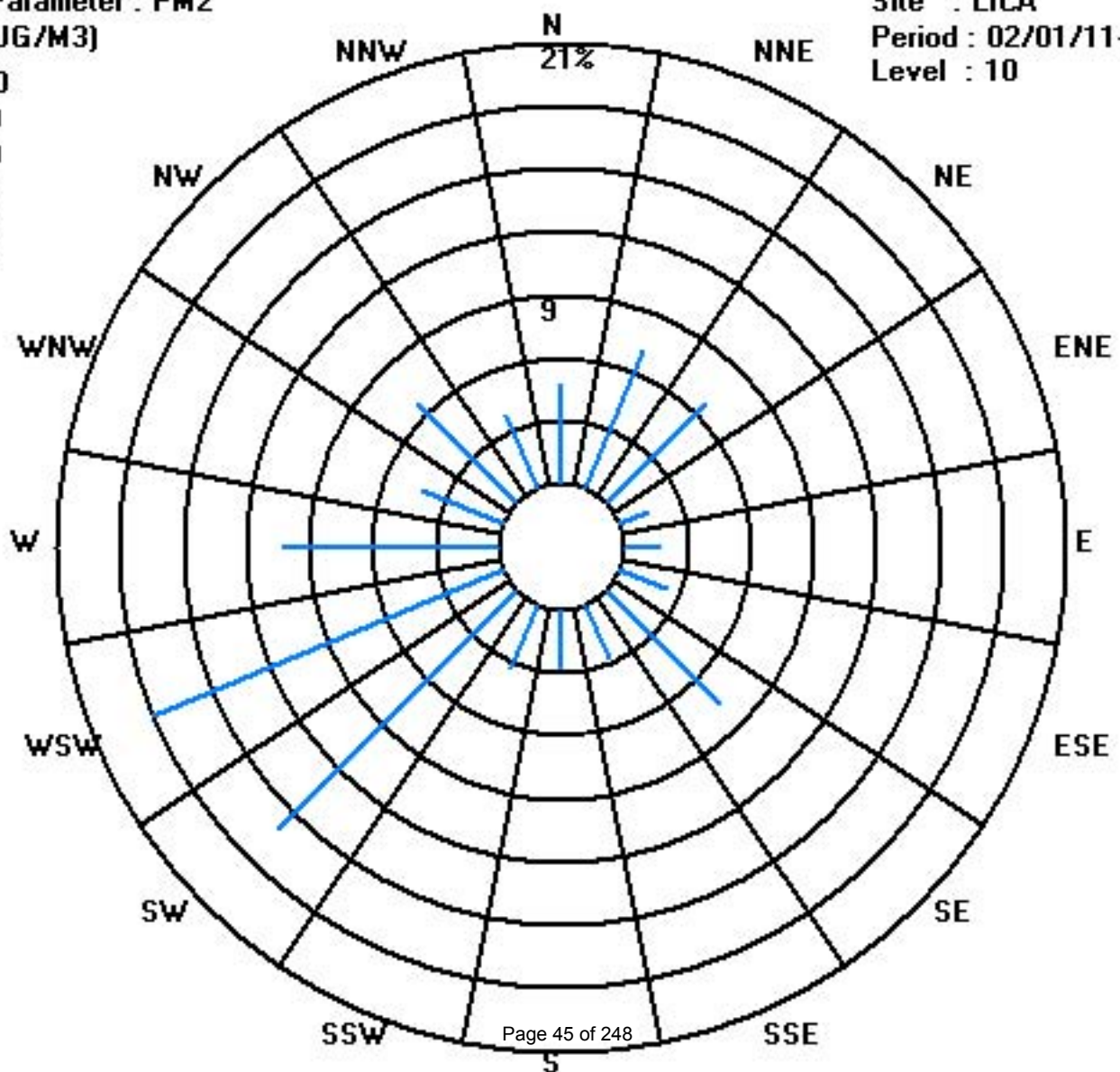
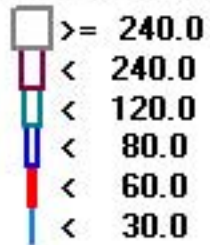
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	32	48	45	10	11	16	51	19	19	22	108	121	69	28	45	25	669
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	32	48	45	10	11	16	51	19	19	22	108	121	69	28	45	25	

Calm : .00 %

Total # Operational Hours : 669





# Nitrogen Dioxide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 2011

## NITROGEN DIOXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	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	11	10	11	11	11	12	12	IZS	11	7	6	5	4	4	4	6	7	9	7	7	8	14	12	11	14	8.7	24	
2	9	8	9	13	13	13	IZS	21	13	10	8	6	5	5	4	5	7	6	6	5	6	5	4	4	21	8.0	24	
3	3	4	3	4	3	IZS	5	6	7	6	6	5	4	4	4	3	4	4	6	4	5	5	6	5	7	4.6	24	
4	5	4	5	3	IZS	6	20	17	21	11	6	5	6	7	5	8	16	5	3	3	3	2	2	2	21	7.2	24	
5	2	2	1	IZS	1	1	1	1	1	2	1	2	2	1	1	1	3	2	1	1	1	1	0	0	3	1.3	24	
6	0	1	IZS	1	1	2	7	6	5	5	6	5	5	5	4	4	5	8	10	10	11	15	13	12	15	6.1	24	
7	15	IZS	22	23	22	23	23	26	22	25	16	10	11	11	8	10	10	9	9	8	7	4	3	5	26	14.0	24	
8	IZS	6	7	8	11	12	12	14	12	10	8	5	4	3	3	4	5	7	8	15	12	12	10	IZS	15	8.5	24	
9	8	7	7	9	13	21	21	26	25	25	12	11	10	11	12	13	13	14	14	11	7	7	IZS	10	26	13.3	24	
10	9	8	8	6	8	7	7	6	8	7	5	4	3	3	3	3	5	4	4	4	3	IZS	2	4	9	5.3	24	
11	3	4	4	4	4	4	7	16	20	10	8	5	4	3	3	4	4	3	3	4	IZS	3	3	3	20	5.5	24	
12	3	4	5	6	7	8	7	5	7	7	7	6	5	4	5	5	5	6	19	IZS	35	38	32	29	38	11.1	24	
13	27	7	5	8	6	8	7	8	5	3	2	2	1	1	1	1	2	3	IZS	5	4	4	5	4	27	5.2	24	
14	9	15	24	20	13	17	26	39	43	19	5	4	4	5	6	7	11	IZS	22	28	25	27	27	22	43	18.2	24	
15	5	4	2	2	3	2	3	3	2	2	1	1	1	1	2	2	IZS	2	2	5	4	3	3	2	5	2.5	24	
16	3	3	3	4	6	5	5	6	13	C	C	C	C	C	C	IZS	4	M	4	2	2	3	3	4	13	4.4	23	
17	3	1	1	1	1	1	1	3	2	1	1	1	1	1	IZS	1	2	2	3	3	3	2	2	1	3	1.7	24	
18	3	4	6	7	10	11	12	10	6	5	5	4	4	IZS	5	3	5	10	14	18	18	16	16	16	18	9.0	24	
19	16	13	12	13	11	10	13	14	10	8	6	5	IZS	3	5	4	4	5	7	8	10	12	16	12	16	9.4	24	
20	10	8	9	7	8	14	17	20	11	6	4	IZS	2	2	2	2	2	9	3	3	4	5	4	4	20	6.8	24	
21	4	4	4	3	5	8	9	21	13	4	IZS	4	6	5	6	7	9	9	10	11	17	17	16	16	21	9.0	24	
22	15	15	17	16	16	17	7	6	10	IZS	1	1	1	1	1	1	1	1	2	3	3	4	5	4	17	6.4	24	
23	4	3	4	6	5	5	10	8	IZS	3	2	1	1	1	1	1	1	1	2	3	4	2	2	3	10	3.2	24	
24	5	5	3	5	7	8	10	IZS	9	3	2	2	1	1	3	1	3	6	6	6	6	6	10	6	5	10	4.9	24
25	5	4	4	4	4	6	IZS	14	12	8	5	5	5	5	5	5	5	10	11	15	13	13	13	11	15	7.9	24	
26	8	7	6	6	6	IZS	6	6	6	7	5	3	2	2	2	3	3	2	2	4	6	11	14	14	14	5.2	24	
27	9	9	1	1	IZS	3	5	6	3	2	1	1	1	1	1	1	2	3	3	3	1	1	1	1	9	2.6	24	
28	1	1	1	IZS	1	2	2	2	3	1	1	1	1	1	1	2	2	2	3	3	3	6	4	5	6	2.1	24	
HOURLY MAX	27	15	24	23	22	23	26	39	43	25	16	11	11	11	12	13	16	14	22	28	35	38	32	29				
HOURLY AVG	7.2	6.0	6.8	7.3	7.5	8.7	9.8	11.9	11.1	7.6	5.0	4.0	3.6	3.5	3.7	3.9	5.2	5.5	6.8	7.0	8.1	8.8	8.2	7.7				

### 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

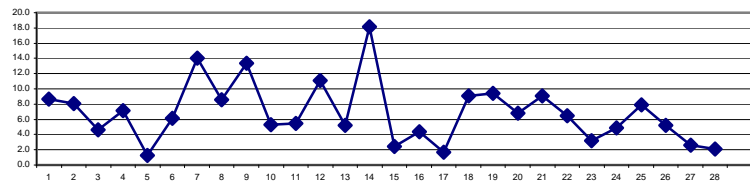
### OBJECTIVE LIMIT:

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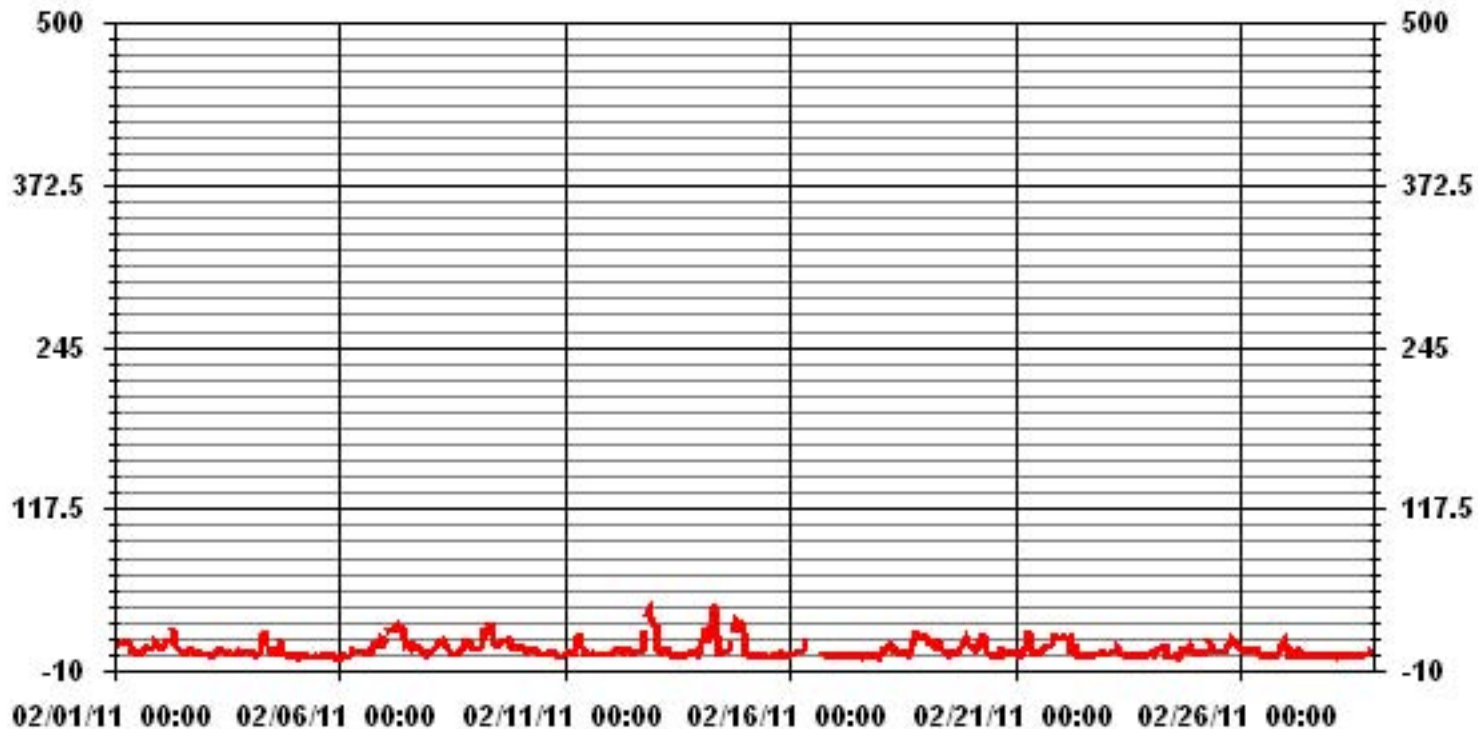
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	633					
MAXIMUM 1-HR AVERAGE:	43	PPB	@ HOUR(S)	8	ON DAY(S)	14
MAXIMUM 24-HR AVERAGE:	18.2	PPB			ON DAY(S)	14
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME	99.9	%	
STANDARD DEVIATION	6.18		MONTHLY AVERAGE	6.89	PPB	

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA H02\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 2011

## NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	12	12	17	15	14	21	16	<b>IZS</b>	19	12	7	10	8	5	5	8	11	15	9	8	15	30	31	30	31	14.3	24
2	12	14	13	14	16	27	<b>IZS</b>	33	17	13	9	7	6	6	5	8	8	8	8	7	7	6	5	5	33	11.0	24
3	4	6	5	7	5	<b>IZS</b>	6	8	8	7	8	7	7	7	7	5	5	7	8	6	7	8	7	6	8	6.6	24
4	6	5	6	6	<b>IZS</b>	41	33	22	34	21	11	7	11	17	6	12	26	12	3	4	5	4	3	2	41	12.9	24
5	3	3	2	<b>IZS</b>	2	2	2	3	5	7	5	2	3	2	1	3	5	8	1	2	1	2	1	1	8	2.9	24
6	1	2	<b>IZS</b>	3	2	16	18	7	7	6	7	7	6	6	8	5	6	15	18	18	17	21	21	17	21	10.2	24
7	20	<b>IZS</b>	24	25	24	26	26	31	32	50	22	15	17	33	10	12	12	11	12	10	11	7	5	7	50	19.2	24
8	<b>IZS</b>	7	10	10	16	16	14	19	14	13	10	7	6	6	5	6	9	11	13	19	16	16	15	<b>IZS</b>	19	11.7	24
9	16	9	10	13	19	28	25	30	39	35	20	14	12	12	14	17	16	16	17	15	10	10	<b>IZS</b>	14	39	17.9	24
10	11	11	12	8	12	9	10	8	11	11	7	6	4	5	5	6	6	5	6	6	<b>IZS</b>	5	6	12	7.6	24	
11	5	5	7	6	6	6	9	34	34	25	20	9	10	16	6	9	10	5	5	5	<b>IZS</b>	5	5	5	34	10.7	24
12	4	6	6	7	9	10	10	7	9	8	10	8	7	8	8	6	7	9	32	<b>IZS</b>	41	42	40	33	42	14.2	24
13	35	16	9	12	8	11	10	10	7	7	3	3	2	1	1	1	3	6	<b>IZS</b>	7	6	6	9	12	35	8.0	24
14	15	25	33	25	21	52	42	48	53	48	7	6	6	8	11	12	23	<b>IZS</b>	27	37	31	31	31	29	53	27.0	24
15	9	11	5	3	4	3	4	4	4	3	2	2	2	2	3	3	<b>IZS</b>	4	3	6	5	6	5	4	11	4.2	24
16	6	4	5	8	8	7	8	7	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>IZS</b>	9	<b>M</b>	11	3	3	5	4	4	11	6.1	23
17	4	2	2	2	2	2	2	3	3	3	4	2	2	3	<b>IZS</b>	4	4	4	11	4	4	3	5	4	11	3.4	24
18	5	8	7	10	13	17	16	13	11	6	8	5	6	<b>IZS</b>	9	4	8	18	18	30	23	23	20	22	30	13.0	24
19	19	15	14	18	12	11	16	17	16	11	13	7	<b>IZS</b>	4	8	5	4	7	8	13	13	20	24	19	24	12.8	24
20	14	13	21	18	21	<b>103</b>	25	25	16	19	6	<b>IZS</b>	7	3	2	3	3	43	5	7	5	7	8	5	<b>103</b>	16.5	24
21	5	5	5	4	10	96	12	37	24	5	<b>IZS</b>	18	21	6	8	9	11	12	16	16	24	25	20	23	96	17.9	24
22	20	19	22	19	20	22	13	13	14	<b>IZS</b>	3	2	2	1	2	2	2	2	3	5	4	8	8	9	22	9.3	24
23	7	6	7	9	7	6	20	12	<b>IZS</b>	5	2	2	2	2	2	2	1	1	3	3	6	2	4	5	20	5.0	24
24	16	16	7	10	12	14	22	<b>IZS</b>	17	7	2	3	3	3	21	3	7	8	9	10	7	12	10	6	22	9.8	24
25	6	5	7	17	15	16	<b>IZS</b>	20	42	12	7	6	6	7	6	7	7	11	12	59	32	21	15	14	59	15.2	24
26	10	8	7	7	7	<b>IZS</b>	7	6	8	9	6	4	2	2	2	3	4	4	4	3	7	11	18	20	20	6.9	24
27	12	18	2	3	<b>IZS</b>	7	11	12	6	3	3	2	2	2	2	3	4	6	6	4	4	2	2	1	18	5.1	24
28	2	2	2	<b>IZS</b>	3	4	3	6	11	3	3	2	2	2	6	5	3	3	5	3	4	8	5	10	11	4.2	24
HOURLY MAX	35	25	33	25	24	103	42	48	53	50	22	18	21	33	21	17	26	43	32	59	41	42	40	33			
HOURLY AVG	10.3	9.4	9.9	10.7	11.1	22.0	14.6	16.7	17.7	13.4	7.9	6.3	6.2	6.5	6.3	6.0	7.9	9.7	10.1	11.5	11.6	12.6	12.1	11.6			

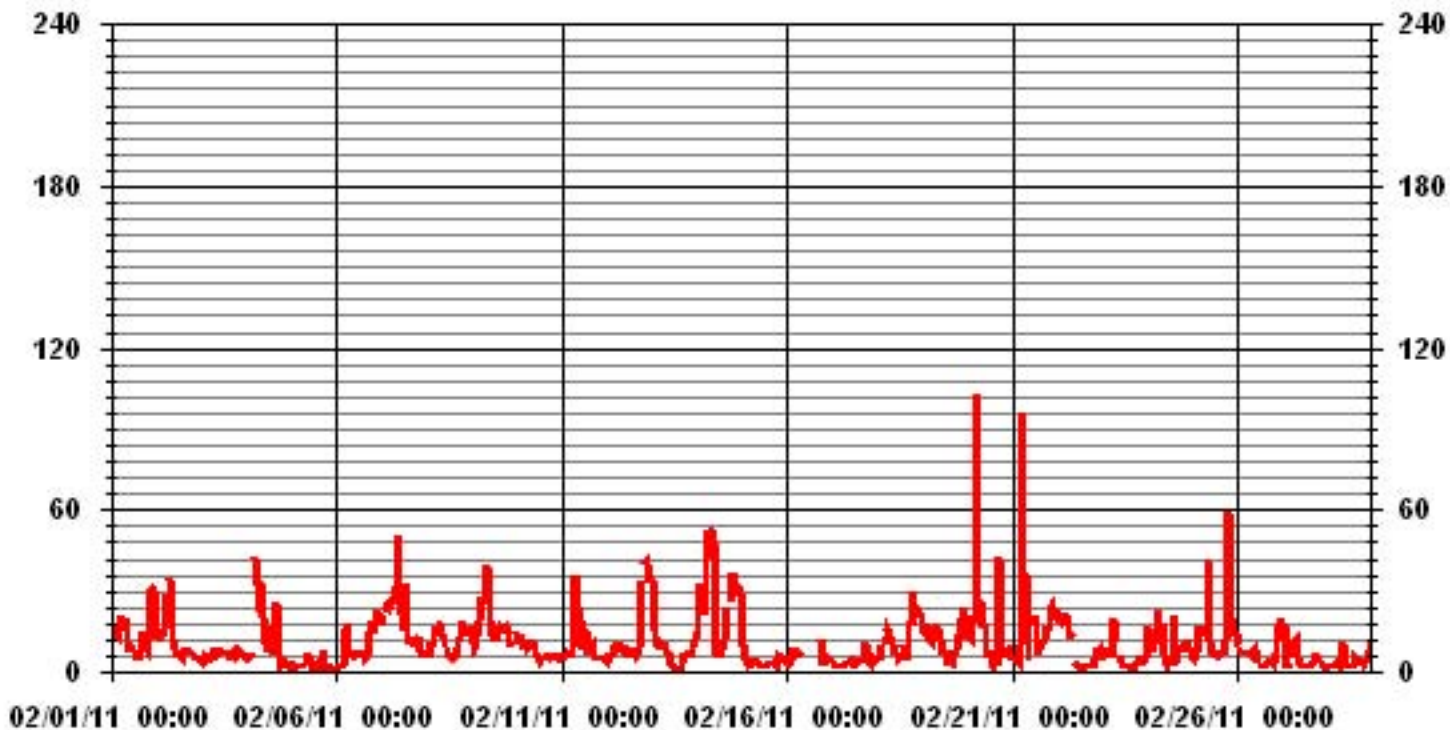
**STATUS FLAG CODES**

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:	635
MAXIMUM INSTANTANEOUS VALUE:	103 PPB @ HOUR(S) 5 ON DAY(S) 20
IZS CALIBRATION TIME:	29 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	10.46
OPERATIONAL TIME:	671 HRS

### 01 Hour Averages



— LICA NO2MAX PPB

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

February 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	5.18	7.07	6.28	1.57	1.72	2.20	7.54	2.83	2.98	3.30	16.19	18.08	10.53	4.24	6.44	3.77	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.18	7.07	6.28	1.57	1.72	2.20	7.54	2.83	2.98	3.30	16.19	18.08	10.53	4.24	6.44	3.77	

Calm : .00 %

Total # Operational Hours : 636

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	33	45	40	10	11	14	48	18	19	21	103	115	67	27	41	24	636
< 110																	
< 210																	
>= 210																	
Totals	33	45	40	10	11	14	48	18	19	21	103	115	67	27	41	24	

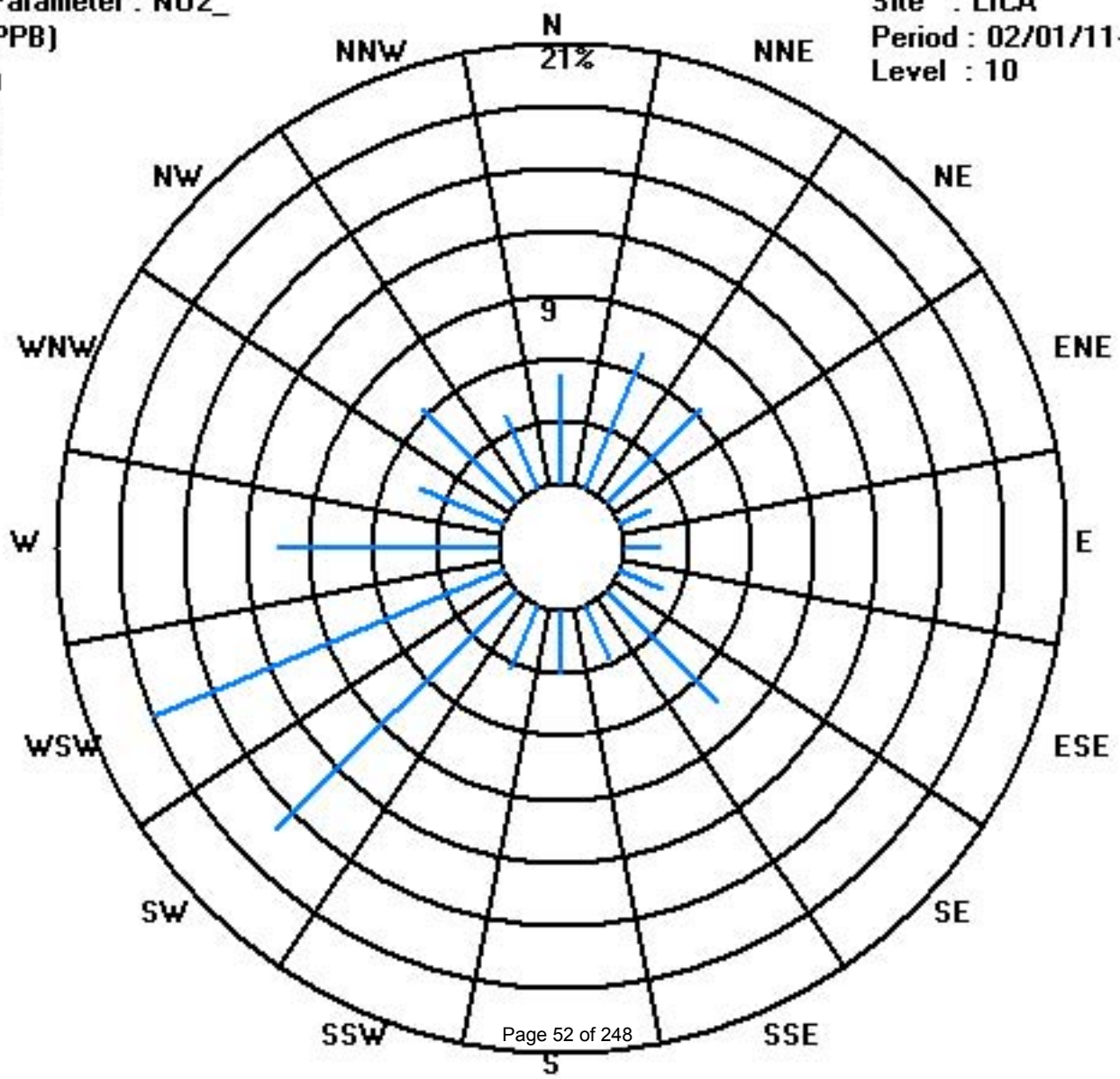
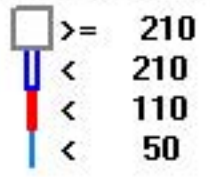
Calm : .00 %

Total # Operational Hours : 636

Class Limits (PPB)

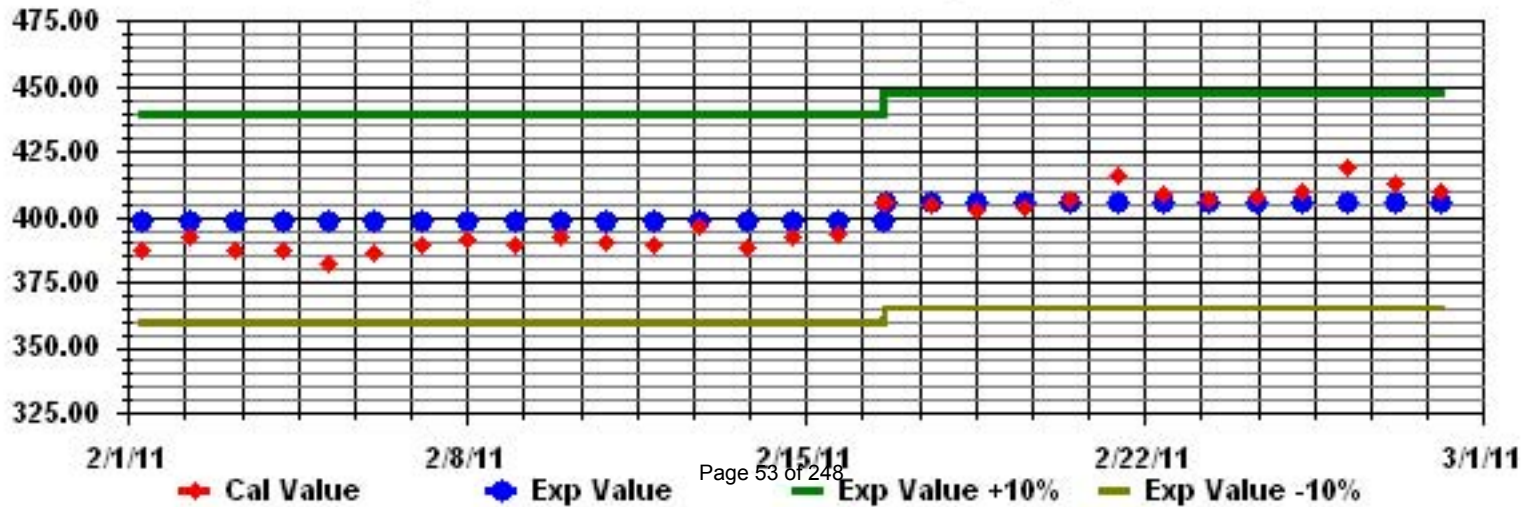
Period : 02/01/11-02/28/11

Level : 10





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



# Nitric Oxide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 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	1	1	IZS	2	2	3	2	2	2	1	1	1	0	0	0	0	0	1	0	3	0.8	24	
2	0	0	0	0	0	0	IZS	2	1	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	2	0.5	24	
3	0	0	0	0	0	IZS	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
4	0	0	0	0	IZS	0	1	0	6	2	1	1	2	3	1	1	2	0	0	0	0	0	0	0	6	0.9	24	
5	0	0	0	IZS	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0.1	24	
6	0	0	IZS	0	0	0	0	0	0	2	3	3	3	3	2	1	1	0	0	0	0	1	0	0	3	0.8	24	
7	0	IZS	2	1	1	4	6	24	29	43	21	10	11	16	4	4	2	0	1	0	1	0	0	0	43	7.8	24	
8	IZS	0	0	0	1	1	1	1	2	4	5	3	2	1	1	1	1	0	0	0	0	0	0	0	IZS	5	1.1	24
9	0	0	0	0	0	3	3	25	35	42	12	10	9	9	8	5	2	1	0	0	0	0	0	IZS	0	42	7.1	24
10	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	1	0	0	0	0	0	0	IZS	0	0	1	0.3	24
11	0	0	0	0	0	0	0	2	15	9	4	2	1	1	1	1	0	0	0	0	0	IZS	0	0	0	15	1.6	24
12	0	0	0	0	0	0	0	0	1	1	3	3	2	2	1	1	0	0	0	0	IZS	8	18	5	2	18	2.0	24
13	3	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	3	0.2	24
14	0	0	1	1	0	1	3	34	81	28	2	2	2	2	2	2	2	IZS	1	1	1	2	3	1	81	7.5	24	
15	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	IZS	0	0	0	0	0	0	0	1	0.1	24	
16	0	0	0	0	0	0	0	0	3	C	C	C	C	C	C	IZS	1	M	1	0	0	0	0	0	3	0.3	23	
17	0	0	0	0	0	0	0	0	0	1	1	1	1	1	IZS	1	1	0	0	0	0	0	0	0	1	0.3	24	
18	0	0	0	0	0	0	0	0	1	2	3	3	3	3	IZS	3	2	1	1	0	1	1	1	1	0	3	1.0	24
19	1	0	0	0	0	0	0	1	6	8	6	5	IZS	2	3	2	1	0	0	0	0	0	1	1	8	1.6	24	
20	0	0	1	0	1	4	1	3	5	4	2	IZS	1	1	1	1	0	3	0	0	0	1	0	0	5	1.3	24	
21	0	0	0	0	0	1	0	5	5	2	IZS	3	5	2	2	2	1	0	0	0	0	0	0	0	5	1.2	24	
22	0	0	0	1	0	0	0	3	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.2	24	
23	0	0	0	0	0	0	1	1	IZS	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24	
24	0	0	1	0	0	1	1	IZS	5	3	2	3	1	1	3	2	1	1	0	0	0	0	0	0	5	1.1	24	
25	0	0	0	0	0	0	IZS	2	10	7	4	5	4	4	3	2	1	1	0	2	0	0	0	0	10	2.0	24	
26	0	0	0	0	0	IZS	0	0	0	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24	
27	0	0	0	0	IZS	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	0.6	24	
28	0	1	0	IZS	1	1	1	1	1	1	1	0	0	1	2	1	0	0	0	0	0	0	0	1	2	0.6	24	
HOURLY MAX	3	1	2	1	1	4	6	34	81	43	21	10	11	16	8	5	2	3	1	2	8	18	5	2				
HOURLY AVG	0.1	0.0	0.2	0.1	0.2	0.7	0.8	3.9	7.9	6.6	3.2	2.4	2.0	2.1	1.6	1.2	0.7	0.3	0.1	0.1	0.4	0.9	0.4	0.2				

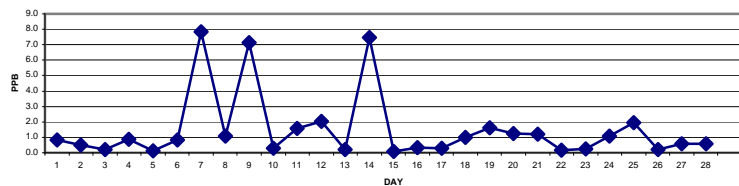
### STATUS FLAG CODES

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

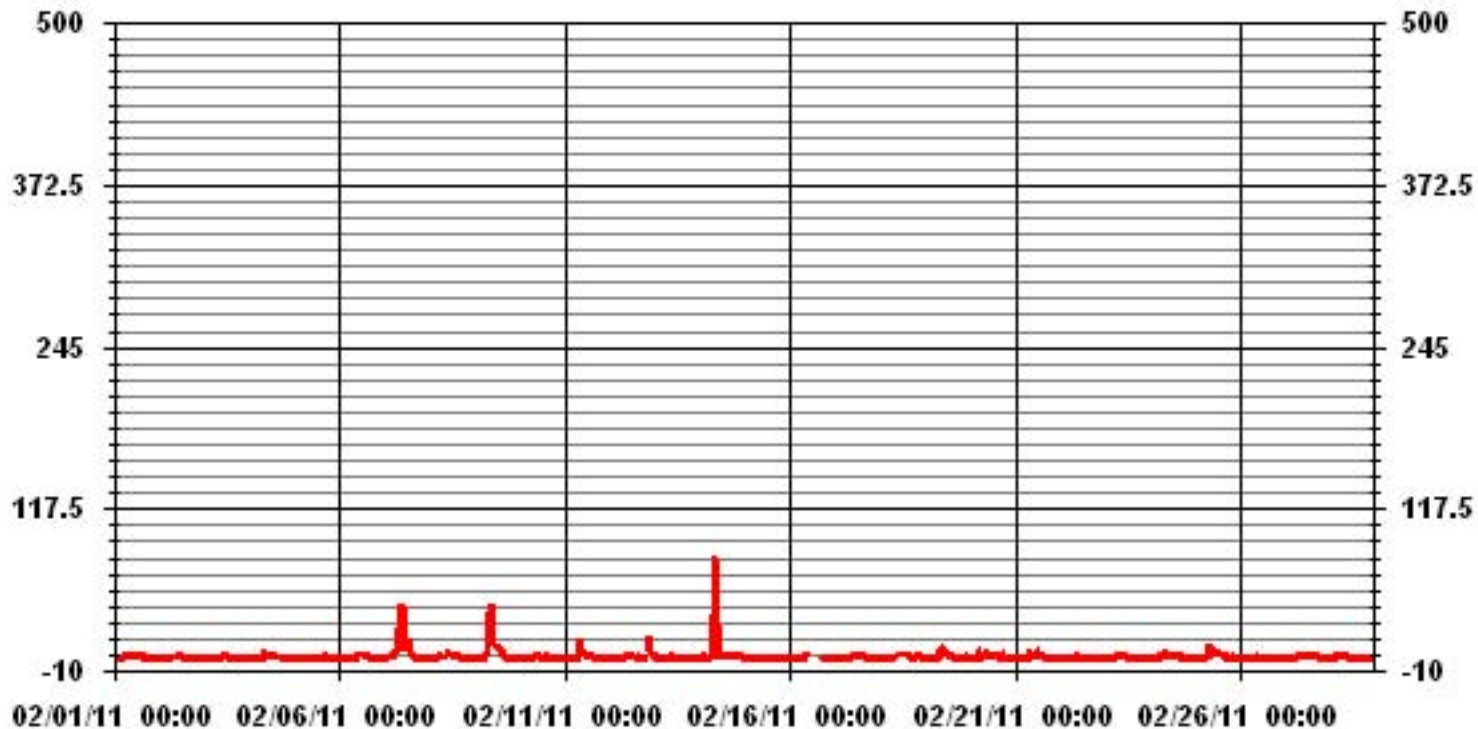
### MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	262
MAXIMUM 1-HR AVERAGE:	81 PPB @ HOUR(S) 8 ON DAY(S) 14
MAXIMUM 24-HR AVERAGE:	7.8 PPB ON DAY(S) 7
IZS CALIBRATION TIME:	29 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION	5.23
OPERATIONAL TIME:	671 HRS
AMD OPERATION UPTIME	99.9 %
MONTHLY AVERAGE	1.50 PPB

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA NO\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 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	0	5	1	2	5	3	IZS	4	3	4	4	5	3	2	1	2	15	0	0	1	4	13	8	15	3.7	24	
2	3	3	0	1	2	6	IZS	8	2	3	3	3	1	2	1	1	1	1	1	1	1	1	1	1	8	2.0	24	
3	1	1	1	1	1	IZS	1	1	1	1	4	1	1	1	2	1	1	1	1	1	1	2	0	1	4	1.2	24	
4	0	1	0	0	IZS	9	4	0	21	15	6	7	5	8	2	1	5	18	0	0	1	3	2	0	21	4.7	24	
5	1	0	1	IZS	0	1	0	0	1	3	2	1	1	1	0	1	2	4	0	0	0	1	0	0	4	0.9	24	
6	0	0	IZS	0	0	1	5	1	1	3	4	4	4	5	3	1	2	2	4	8	2	6	4	1	8	2.7	24	
7	2	IZS	6	4	2	15	15	42	173	120	32	14	21	80	5	5	3	1	3	2	3	2	1	2	173	24.0	24	
8	IZS	1	1	1	2	2	2	2	4	7	6	5	3	3	2	2	2	1	1	1	1	1	1	IZS	7	2.3	24	
9	2	0	1	1	2	10	10	49	70	63	27	15	10	12	10	6	4	4	3	2	1	0	IZS	1	70	13.2	24	
10	1	2	1	2	1	2	2	1	4	2	1	2	1	1	1	1	1	1	1	1	1	1	IZS	1	1	4	1.4	24
11	1	2	1	2	1	1	1	17	44	20	22	4	6	9	4	11	8	1	2	4	IZS	2	0	1	44	7.1	24	
12	0	1	0	1	1	1	1	2	2	2	5	4	3	3	3	1	1	1	3	IZS	22	30	20	4	30	4.8	24	
13	6	1	2	0	2	1	2	1	2	4	1	1	0	0	0	0	0	1	IZS	1	1	0	0	1	6	1.2	24	
14	1	1	2	1	2	17	18	55	147	86	3	3	6	3	6	5	6	IZS	3	5	3	10	6	4	147	17.1	24	
15	1	2	0	1	1	1	2	1	3	2	1	0	2	0	1	1	IZS	0	0	0	0	1	1	0	3	0.9	24	
16	2	1	1	2	2	2	1	1	C	C	C	C	C	C	C	IZS	8	M	7	0	2	1	0	1	8	2.1	23	
17	0	0	0	1	0	0	1	0	1	1	11	2	3	7	IZS	2	1	1	4	1	1	0	4	1	11	1.8	24	
18	1	1	0	2	0	0	2	3	2	2	5	4	5	IZS	5	3	2	5	0	5	3	12	9	2	12	3.2	24	
19	1	1	2	0	0	1	1	6	9	11	14	14	IZS	3	8	3	1	3	0	4	6	4	6	4	14	4.4	24	
20	3	1	8	3	8	63	7	9	8	21	7	IZS	2	2	1	3	1	30	3	5	1	1	5	1	63	8.4	24	
21	1	0	0	0	1	33	1	18	12	2	IZS	13	22	3	5	4	2	1	4	2	2	4	2	2	33	5.8	24	
22	2	1	3	3	1	1	1	2	5	IZS	0	0	0	1	0	0	0	0	0	0	0	1	2	1	5	1.0	24	
23	1	3	1	1	1	1	4	3	IZS	2	1	1	1	1	0	0	0	0	0	0	0	0	0	1	4	1.0	24	
24	2	3	2	1	2	3	4	IZS	8	5	3	3	2	3	18	44	6	2	1	4	1	2	3	2	44	5.4	24	
25	0	0	2	8	3	5	IZS	9	44	11	5	6	5	5	5	3	5	2	1	37	7	5	6	1	44	7.6	24	
26	0	0	0	0	1	IZS	0	0	2	4	3	1	0	0	0	0	0	0	0	0	1	0	1	2	4	0.7	24	
27	1	1	1	1	IZS	0	2	3	2	4	2	2	2	2	1	4	3	4	8	1	3	0	1	0	8	2.1	24	
28	1	1	1	IZS	2	3	2	4	7	1	1	1	2	1	38	3	1	0	0	0	0	1	3	2	38	3.3	24	
HOURLY MAX	6	3	8	8	8	63	18	55	173	120	32	15	22	80	38	44	8	30	8	37	22	30	20	8				
HOURLY AVG	1.3	1.0	1.6	1.5	1.5	7.1	3.5	9.2	22.3	15.3	6.7	4.4	4.3	6.1	4.7	4.0	2.5	3.8	1.9	3.1	2.4	3.5	3.4	1.7				

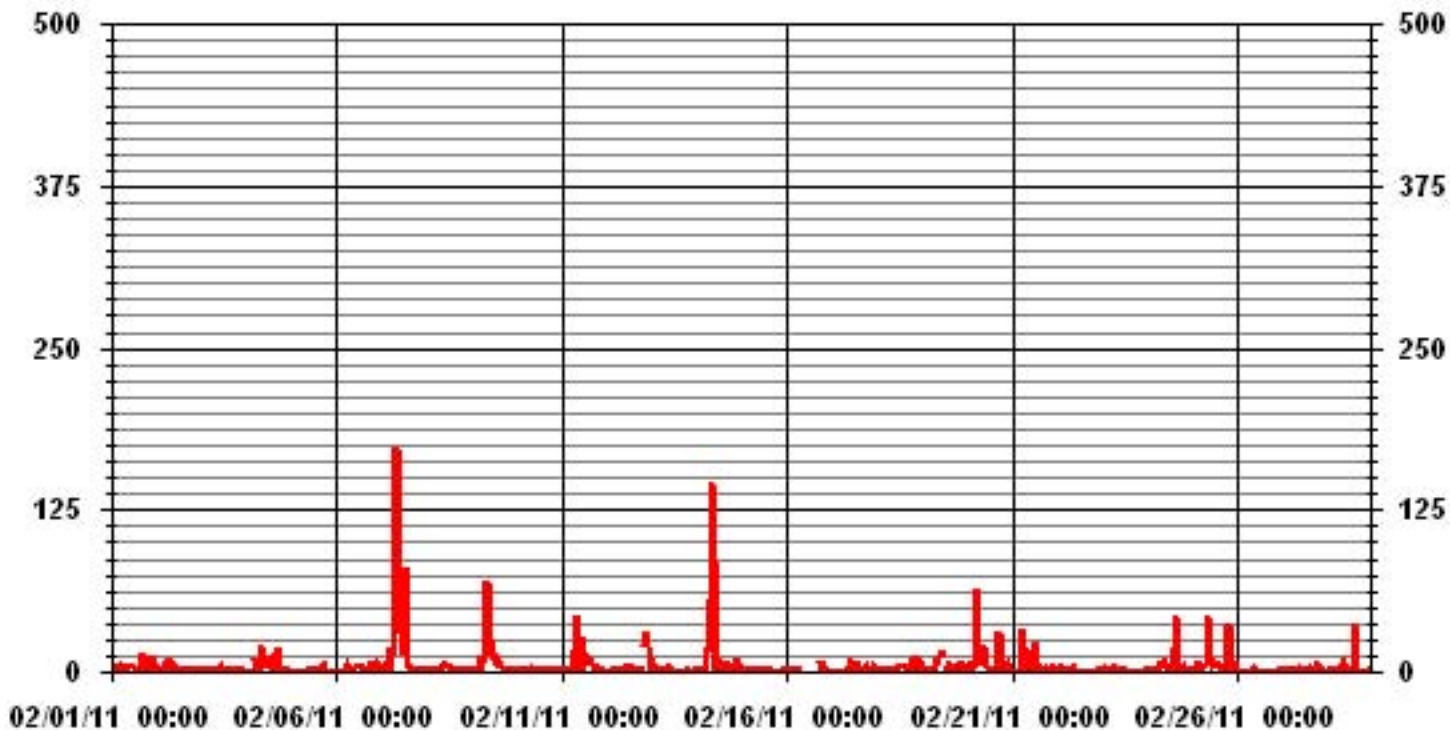
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	526				
MAXIMUM INSTANTANEOUS VALUE:	173	PPB	@ HOUR(S)	8	ON DAY(S) 7
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS
MONTHLY CALIBRATION TIME:	7	HRS			
STANDARD DEVIATION:	13.28				

### 01 Hour Averages



— LICA NOMAX PPB

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

February 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	5.18	7.07	6.28	1.57	1.57	2.20	7.54	2.83	2.98	3.30	16.19	18.08	10.53	4.24	6.44	3.77	99.84
< 110	.00	.00	.00	.00	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.18	7.07	6.28	1.57	1.72	2.20	7.54	2.83	2.98	3.30	16.19	18.08	10.53	4.24	6.44	3.77	

Calm : .00 %

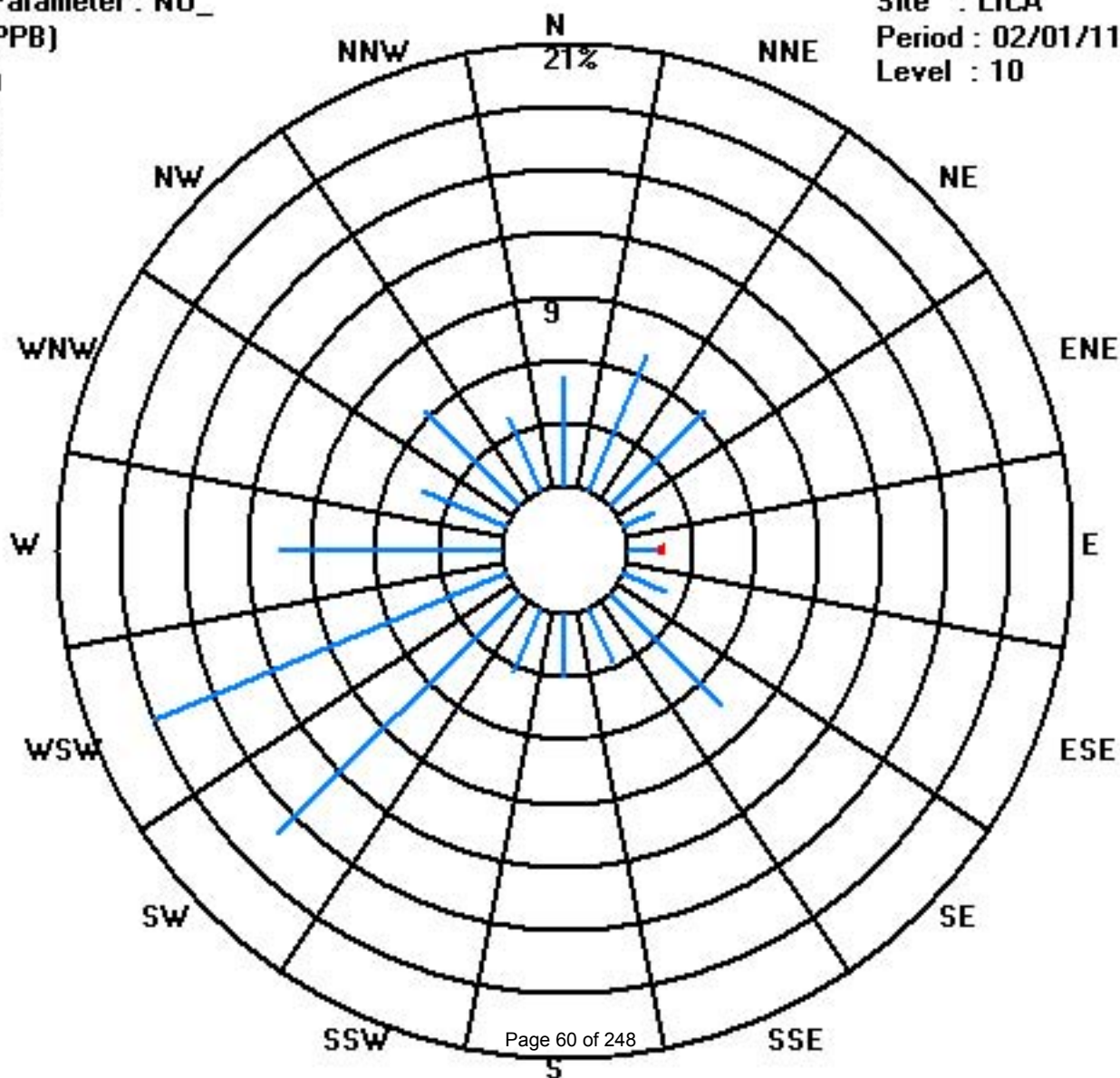
Total # Operational Hours : 636

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	33	45	40	10	10	14	48	18	19	21	103	115	67	27	41	24	635
< 110					1												1
< 210																	
>= 210																	
Totals	33	45	40	10	11	14	48	18	19	21	103	115	67	27	41	24	

Calm : .00 %

Total # Operational Hours : 636





# Oxides of Nitrogen

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 2011

## NITROGEN DIOXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	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	11	10	11	11	11	12	12	IZS	11	7	6	5	4	4	4	6	7	9	7	7	8	14	12	11	14	8.7	24	
2	9	8	9	13	13	13	IZS	21	13	10	8	6	5	5	4	5	7	6	6	5	6	5	4	4	21	8.0	24	
3	3	4	3	4	3	IZS	5	6	7	6	6	5	4	4	4	3	4	4	6	4	5	5	6	5	7	4.6	24	
4	5	4	5	3	IZS	6	20	17	21	11	6	5	6	7	5	8	16	5	3	3	3	2	2	2	21	7.2	24	
5	2	2	1	IZS	1	1	1	1	1	2	1	2	2	1	1	1	3	2	1	1	1	1	0	0	3	1.3	24	
6	0	1	IZS	1	1	2	7	6	5	5	6	5	5	5	4	4	5	8	10	10	11	15	13	12	15	6.1	24	
7	15	IZS	22	23	22	23	23	26	22	25	16	10	11	11	8	10	10	9	9	8	7	4	3	5	26	14.0	24	
8	IZS	6	7	8	11	12	12	14	12	10	8	5	4	3	3	4	5	7	8	15	12	12	10	IZS	15	8.5	24	
9	8	7	7	9	13	21	21	26	25	25	12	11	10	11	12	13	13	14	14	11	7	7	IZS	10	26	13.3	24	
10	9	8	8	6	8	7	7	6	8	7	5	4	3	3	3	3	5	4	4	4	3	IZS	2	4	9	5.3	24	
11	3	4	4	4	4	4	7	16	20	10	8	5	4	3	3	4	4	3	3	4	IZS	3	3	3	20	5.5	24	
12	3	4	5	6	7	8	7	5	7	7	7	6	5	4	5	5	5	6	19	IZS	35	38	32	29	38	11.1	24	
13	27	7	5	8	6	8	7	8	5	3	2	2	1	1	1	1	2	3	IZS	5	4	4	5	4	27	5.2	24	
14	9	15	24	20	13	17	26	39	43	19	5	4	4	5	6	7	11	IZS	22	28	25	27	27	22	43	18.2	24	
15	5	4	2	2	3	2	3	3	2	2	1	1	1	1	2	2	IZS	2	2	5	4	3	3	2	5	2.5	24	
16	3	3	3	4	6	5	5	6	13	C	C	C	C	C	C	IZS	4	M	4	2	2	3	3	4	13	4.4	23	
17	3	1	1	1	1	1	1	3	2	1	1	1	1	1	IZS	1	2	2	3	3	3	2	2	1	3	1.7	24	
18	3	4	6	7	10	11	12	10	6	5	5	4	4	IZS	5	3	5	10	14	18	18	16	16	16	18	9.0	24	
19	16	13	12	13	11	10	13	14	10	8	6	5	IZS	3	5	4	4	5	7	8	10	12	16	12	16	9.4	24	
20	10	8	9	7	8	14	17	20	11	6	4	IZS	2	2	2	2	2	9	3	3	4	5	4	4	20	6.8	24	
21	4	4	4	3	5	8	9	21	13	4	IZS	4	6	5	6	7	9	9	10	11	17	17	16	16	21	9.0	24	
22	15	15	17	16	16	17	7	6	10	IZS	1	1	1	1	1	1	1	1	2	3	3	4	5	4	17	6.4	24	
23	4	3	4	6	5	5	10	8	IZS	3	2	1	1	1	1	1	1	1	2	3	4	2	2	3	10	3.2	24	
24	5	5	3	5	7	8	10	IZS	9	3	2	2	1	1	3	1	3	6	6	6	6	6	10	6	5	10	4.9	24
25	5	4	4	4	4	6	IZS	14	12	8	5	5	5	5	5	5	5	10	11	15	13	13	13	11	15	7.9	24	
26	8	7	6	6	6	IZS	6	6	6	7	5	3	2	2	2	3	3	2	2	4	6	11	14	14	14	5.2	24	
27	9	9	1	1	IZS	3	5	6	3	2	1	1	1	1	1	1	2	3	3	3	1	1	1	1	9	2.6	24	
28	1	1	1	IZS	1	2	2	2	3	1	1	1	1	1	1	2	2	2	3	3	3	6	4	5	6	2.1	24	
HOURLY MAX	27	15	24	23	22	23	26	39	43	25	16	11	11	11	12	13	16	14	22	28	35	38	32	29				
HOURLY AVG	7.2	6.0	6.8	7.3	7.5	8.7	9.8	11.9	11.1	7.6	5.0	4.0	3.6	3.5	3.7	3.9	5.2	5.5	6.8	7.0	8.1	8.8	8.2	7.7				

### 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

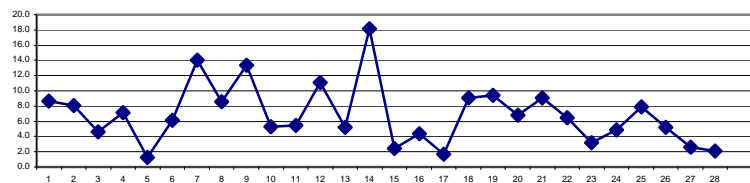
### OBJECTIVE LIMIT:

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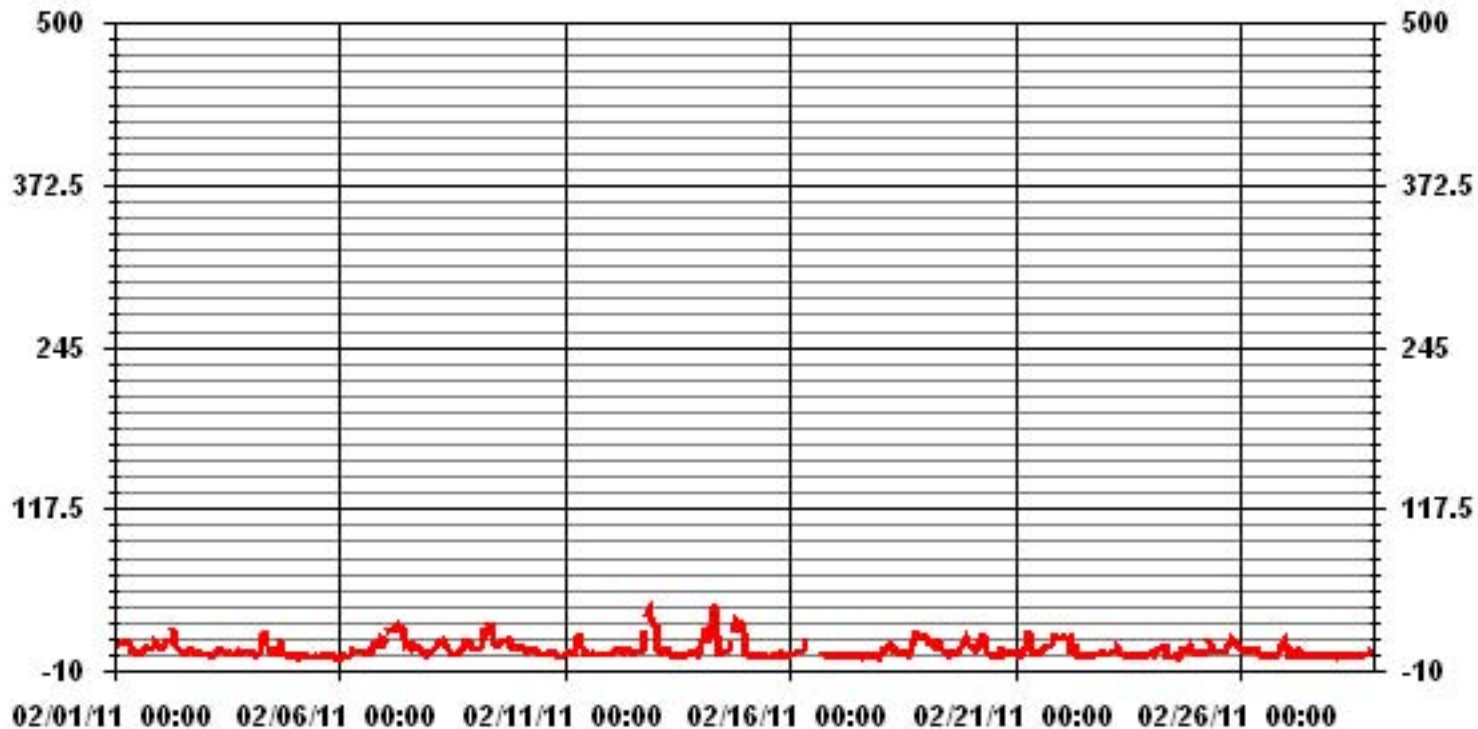
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	633		
MAXIMUM 1-HR AVERAGE:	43 PPB @ HOUR(S) 8 ON DAY(S) 14		
MAXIMUM 24-HR AVERAGE:	18.2 PPB ON DAY(S) 14		
IZS CALIBRATION TIME:	29 HRS	OPERATIONAL TIME:	671 HRS
MONTHLY CALIBRATION TIME:	6 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION	6.18	MONTHLY AVERAGE	6.89 PPB

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA H02\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 2011

## NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST																													DAILY	24-HOUR	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.			
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00							
DAY																															
1	12	12	17	15	14	21	16	<b>IZS</b>	19	12	7	10	8	5	5	8	11	15	9	8	15	30	31	30	31	31	14.3	24			
2	12	14	13	14	16	27	<b>IZS</b>	33	17	13	9	7	6	6	5	8	8	8	8	7	7	6	5	5	33	11.0	24				
3	4	6	5	7	5	<b>IZS</b>	6	8	8	7	8	7	7	7	7	5	5	7	8	6	7	8	7	6	8	6.6	24				
4	6	5	6	6	<b>IZS</b>	41	33	22	34	21	11	7	11	17	6	12	26	12	3	4	5	4	3	2	41	12.9	24				
5	3	3	2	<b>IZS</b>	2	2	2	3	5	7	5	2	3	2	1	3	5	8	1	2	1	2	1	1	8	2.9	24				
6	1	2	<b>IZS</b>	3	2	16	18	7	7	6	7	7	6	6	8	5	6	15	18	18	17	21	21	17	21	10.2	24				
7	20	<b>IZS</b>	24	25	24	26	26	31	32	50	22	15	17	33	10	12	12	11	12	10	11	7	5	7	50	19.2	24				
8	<b>IZS</b>	7	10	10	16	16	14	19	14	13	10	7	6	6	5	6	9	11	13	19	16	16	15	<b>IZS</b>	19	11.7	24				
9	16	9	10	13	19	28	25	30	39	35	20	14	12	12	14	17	16	16	17	15	10	10	<b>IZS</b>	14	39	17.9	24				
10	11	11	12	8	12	9	10	8	11	11	7	6	4	5	5	6	6	5	6	6	<b>IZS</b>	5	6	12	7.6	24					
11	5	5	7	6	6	6	9	34	34	25	20	9	10	16	6	9	10	5	5	5	<b>IZS</b>	5	5	5	34	10.7	24				
12	4	6	6	7	9	10	10	7	9	8	10	8	7	8	8	6	7	9	32	<b>IZS</b>	41	42	40	33	42	14.2	24				
13	35	16	9	12	8	11	10	10	7	7	3	3	2	1	1	1	3	6	<b>IZS</b>	7	6	6	9	12	35	8.0	24				
14	15	25	33	25	21	52	42	48	53	48	7	6	6	8	11	12	23	<b>IZS</b>	27	37	31	31	31	29	53	27.0	24				
15	9	11	5	3	4	3	4	4	4	3	2	2	2	2	3	3	<b>IZS</b>	4	3	6	5	6	5	4	11	4.2	24				
16	6	4	5	8	8	7	8	7	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>IZS</b>	9	<b>M</b>	11	3	3	5	4	4	11	6.1	23				
17	4	2	2	2	2	2	2	3	3	3	4	2	2	3	<b>IZS</b>	4	4	4	11	4	4	3	5	4	11	3.4	24				
18	5	8	7	10	13	17	16	13	11	6	8	5	6	<b>IZS</b>	9	4	8	18	18	30	23	23	20	22	30	13.0	24				
19	19	15	14	18	12	11	16	17	16	11	13	7	<b>IZS</b>	4	8	5	4	7	8	13	13	20	24	19	24	12.8	24				
20	14	13	21	18	21	<b>103</b>	25	25	16	19	6	<b>IZS</b>	7	3	2	3	3	43	5	7	5	7	8	5	<b>103</b>	16.5	24				
21	5	5	5	4	10	96	12	37	24	5	<b>IZS</b>	18	21	6	8	9	11	12	16	16	24	25	20	23	96	17.9	24				
22	20	19	22	19	20	22	13	13	14	<b>IZS</b>	3	2	2	1	2	2	2	2	3	5	4	8	8	9	22	9.3	24				
23	7	6	7	9	7	6	20	12	<b>IZS</b>	5	2	2	2	2	2	2	1	1	3	3	6	2	4	5	20	5.0	24				
24	16	16	7	10	12	14	22	<b>IZS</b>	17	7	2	3	3	3	21	3	7	8	9	10	7	12	10	6	22	9.8	24				
25	6	5	7	17	15	16	<b>IZS</b>	20	42	12	7	6	6	7	6	7	7	11	12	59	32	21	15	14	59	15.2	24				
26	10	8	7	7	7	<b>IZS</b>	7	6	8	9	6	4	2	2	2	3	4	4	4	3	7	11	18	20	20	6.9	24				
27	12	18	2	3	<b>IZS</b>	7	11	12	6	3	3	2	2	2	2	3	4	6	6	4	4	2	2	1	18	5.1	24				
28	2	2	2	<b>IZS</b>	3	4	3	6	11	3	3	2	2	2	6	5	3	3	5	3	4	8	5	10	11	4.2	24				
HOURLY MAX	35	25	33	25	24	103	42	48	53	50	22	18	21	33	21	17	26	43	32	59	41	42	40	33							
HOURLY AVG	10.3	9.4	9.9	10.7	11.1	22.0	14.6	16.7	17.7	13.4	7.9	6.3	6.2	6.5	6.3	6.0	7.9	9.7	10.1	11.5	11.6	12.6	12.1	11.6							

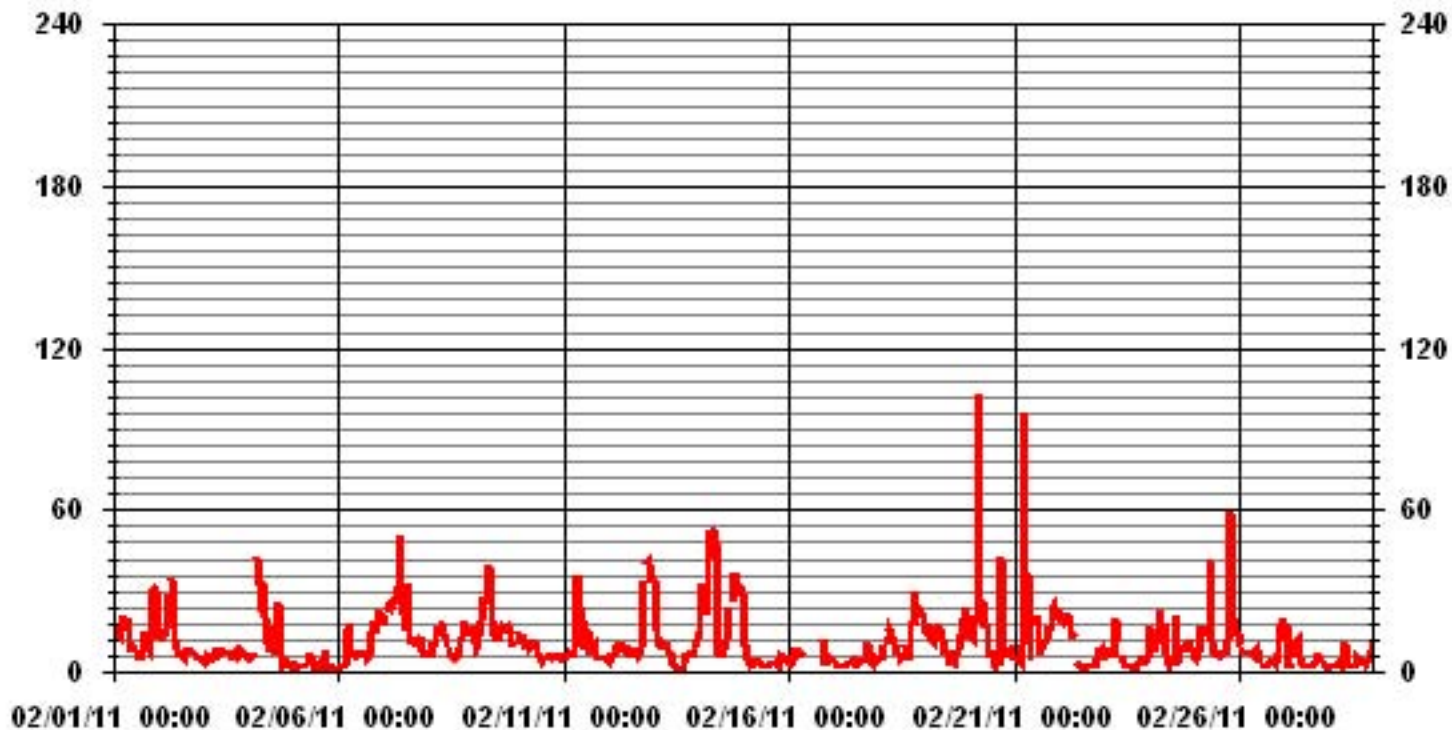
**STATUS FLAG CODES**

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:	635					
MAXIMUM INSTANTANEOUS VALUE:	103	PPB	@ HOUR(S)	5	ON DAY(S)	20
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	10.46					

### 01 Hour Averages



— LICA NO2MAX PPB

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

February 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	5.18	7.07	6.28	1.57	1.72	2.20	7.54	2.83	2.98	3.30	16.19	18.08	10.53	4.24	6.44	3.77	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.18	7.07	6.28	1.57	1.72	2.20	7.54	2.83	2.98	3.30	16.19	18.08	10.53	4.24	6.44	3.77	

Calm : .00 %

Total # Operational Hours : 636

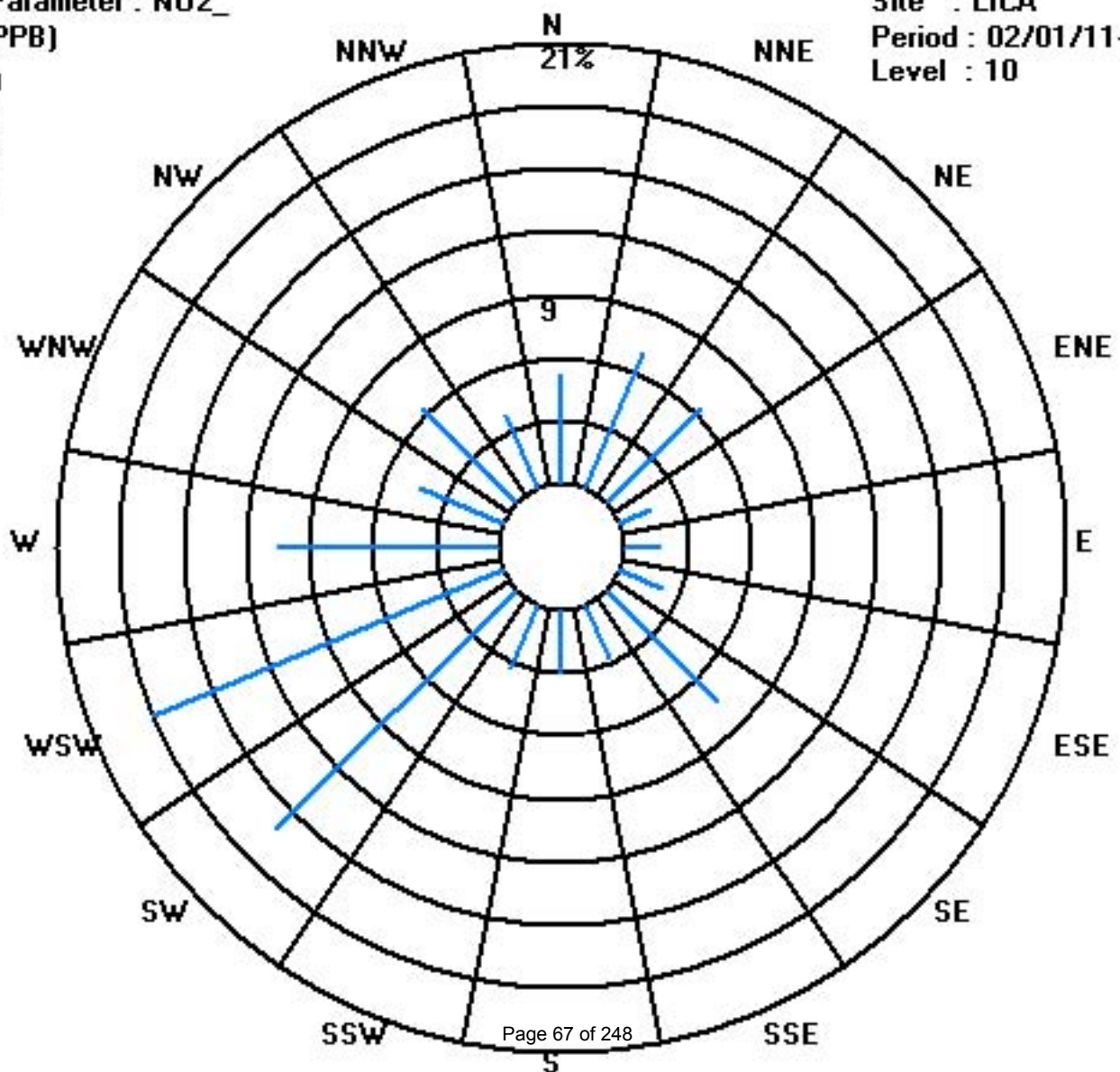
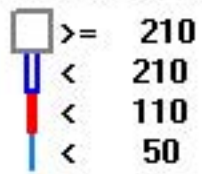
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	33	45	40	10	11	14	48	18	19	21	103	115	67	27	41	24	636
< 110																	
< 210																	
>= 210																	
Totals	33	45	40	10	11	14	48	18	19	21	103	115	67	27	41	24	

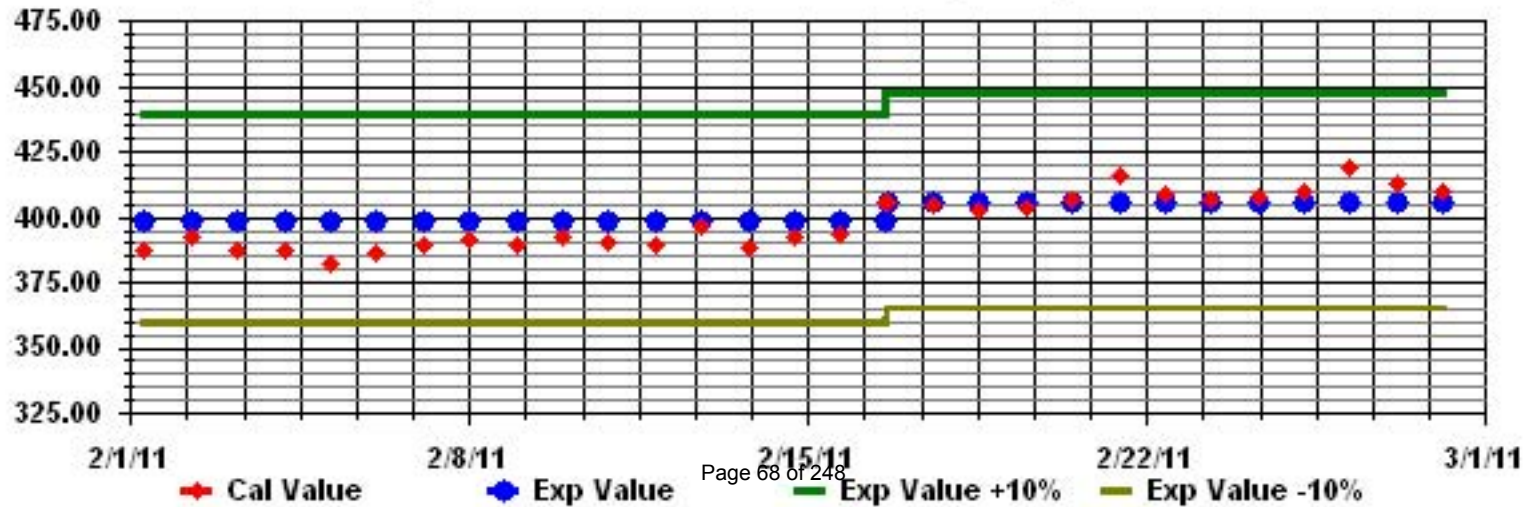
Calm : .00 %

Total # Operational Hours : 636

Class Limits (PPB)



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





# Ozone

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 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	18	16	14	13	15	15	17	IZS	23	29	32	35	36	37	37	36	34	33	35	34	33	23	23	24	37	26.6	24	
2	24	23	24	23	22	19	IZS	14	24	29	32	36	38	38	39	39	37	38	37	38	37	38	38	39	39	39	31.6	24
3	40	39	38	38	39	IZS	33	31	32	35	35	37	39	38	40	40	39	38	36	36	33	34	33	33	40	36.3	24	
4	34	34	34	35	IZS	29	16	13	12	23	27	27	28	28	29	26	17	27	28	26	24	25	27	29	35	26.0	24	
5	29	29	29	IZS	35	34	32	30	32	32	32	33	32	34	36	37	34	34	34	35	38	39	40	40	40	33.9	24	
6	40	39	IZS	39	37	35	27	28	25	29	30	31	32	32	34	35	34	28	22	20	18	13	14	14	40	28.5	24	
7	10	IZS	2	2	2	1	1	0	3	7	15	23	24	26	31	28	28	31	30	32	32	35	36	34	36	18.8	24	
8	IZS	32	30	28	25	24	23	20	23	25	28	32	33	36	36	36	35	33	31	26	27	26	25	IZS	36	28.8	24	
9	21	18	18	14	10	4	3	1	4	8	20	22	24	23	22	23	23	22	27	31	30	IZS	29	31	18.3	24		
10	30	30	27	31	29	24	26	31	29	30	33	34	36	37	37	38	36	36	36	34	34	IZS	35	29	38	32.3	24	
11	31	29	30	31	30	31	26	16	6	12	25	30	31	34	36	36	35	35	35	32	IZS	31	27	26	36	28.5	24	
12	24	21	19	24	26	28	29	31	32	33	34	35	38	40	41	41	40	38	21	IZS	3	3	2	3	41	26.3	24	
13	5	28	30	25	27	22	20	18	23	29	34	37	39	40	41	42	42	41	IZS	37	38	38	36	35	42	31.6	24	
14	26	19	10	13	16	15	7	1	3	20	34	36	37	37	36	35	31	IZS	18	12	11	4	5	9	37	18.9	24	
15	28	30	34	33	32	32	31	31	31	31	32	34	C	C	C	C	M	M	32	27	28	29	29	30	34	30.8	22	
16	29	29	29	27	25	27	27	27	21	27	29	29	29	30	C	C	C	C	27	29	29	28	28	28	30	27.7	24	
17	30	32	32	32	32	32	32	30	30	32	32	32	33	33	IZS	33	32	31	29	30	30	31	32	32	33	31.5	24	
18	30	26	24	22	19	17	17	20	24	27	28	29	30	IZS	30	32	30	25	18	12	11	10	10	9	32	21.7	24	
19	8	12	12	11	12	12	10	10	14	20	25	28	IZS	33	31	32	33	31	28	26	24	19	15	16	33	20.1	24	
20	19	18	20	23	22	19	12	8	17	29	32	IZS	35	36	37	37	37	35	36	36	35	34	34	34	37	28.0	24	
21	34	34	34	33	31	29	24	13	22	32	IZS	32	32	32	31	30	29	28	27	24	16	14	13	11	34	26.3	24	
22	11	10	10	14	12	11	23	25	20	IZS	39	40	40	41	41	41	42	41	40	39	39	37	36	36	42	29.9	24	
23	36	36	36	33	34	34	29	31	IZS	37	38	39	40	40	40	39	39	39	38	37	36	38	37	35	40	36.6	24	
24	33	33	33	30	26	22	19	IZS	17	21	21	22	24	24	24	24	23	22	22	23	23	20	23	25	33	24.1	24	
25	22	21	19	18	18	17	IZS	13	16	23	28	30	32	33	34	35	35	28	26	25	25	25	25	28	35	25.0	24	
26	32	34	35	35	35	IZS	35	35	35	35	37	39	41	42	43	43	42	42	43	43	40	37	30	23	43	37.2	24	
27	24	26	38	37	IZS	33	30	26	27	26	22	19	19	21	23	26	28	27	27	28	31	31	32	31	38	27.5	24	
28	30	31	31	IZS	29	28	29	30	29	31	32	33	33	33	33	33	33	32	31	29	26	20	21	19	33	29.4	24	
HOURLY MAX	40	39	38	39	39	35	35	35	35	37	39	40	41	42	43	43	42	42	43	43	40	39	40	40				
HOURLY AVG	25.9	27.0	25.6	25.5	24.6	22.8	22.2	20.5	21.3	26.4	29.9	31.6	32.9	33.8	34.5	34.5	33.4	32.6	30.0	29.5	27.9	26.4	26.1	26.0				

**STATUS FLAG CODES**

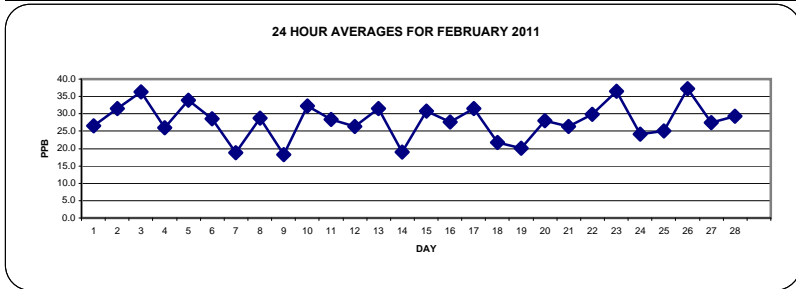
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

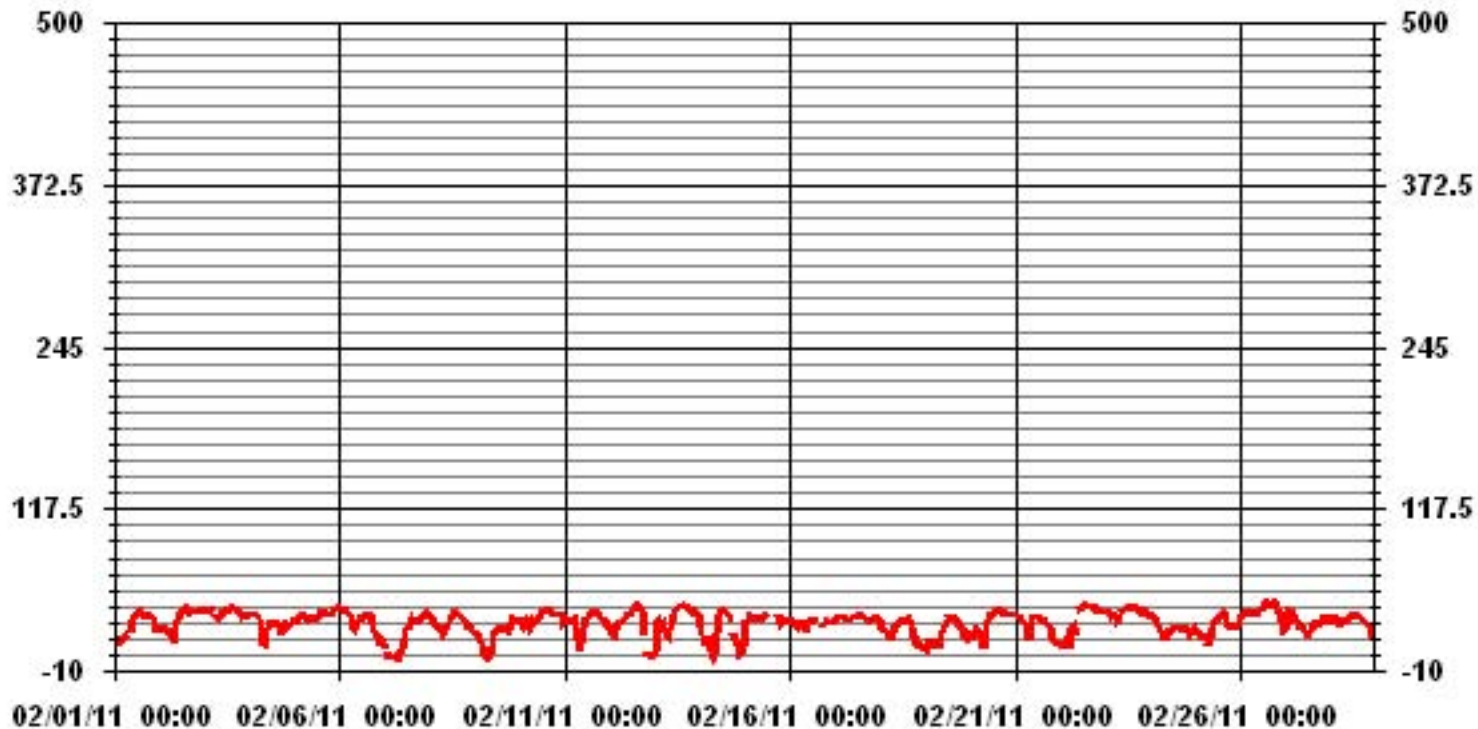
ALBERTA ENVIRONMENT: 1-HR 82 PPB

**MONTHLY SUMMARY**

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	634				
MAXIMUM 1-HR AVERAGE:	43	PPB	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	37.2	PPB			ON DAY(S)
					VAR-VARIOUS
IZS CALIBRATION TIME:	27	HRS	OPERATIONAL TIME:	670	HRS
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME	99.7	%
STANDARD DEVIATION	9.10		MONTHLY AVERAGE	27.92	PPB



### 01 Hour Averages



— LICA 03\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 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	19	17	17	17	18	20	22	<b>IZS</b>	27	32	34	36	37	38	38	37	35	35	36	35	35	31	28	29	38	29.3	24	
2	28	26	26	24	23	22	<b>IZS</b>	23	27	31	34	37	39	40	40	40	39	39	39	39	38	39	39	40	40	33.6	24	
3	41	40	40	40	40	<b>IZS</b>	35	33	35	35	37	38	41	41	42	42	40	40	37	38	37	35	35	34	42	38.1	24	
4	35	35	35	37	<b>IZS</b>	34	22	17	26	29	28	28	30	30	30	24	30	29	28	26	26	29	31	37	29.1	24		
5	30	31	30	<b>IZS</b>	36	35	34	32	34	34	34	35	36	35	39	39	36	36	36	37	39	41	41	41	41	35.7	24	
6	40	40	<b>IZS</b>	40	38	37	32	31	27	32	31	33	35	33	35	35	35	33	29	26	22	21	21	17	40	31.4	24	
7	13	<b>IZS</b>	3	3	4	2	3	1	8	11	20	29	29	33	34	31	31	35	34	37	34	36	37	35	37	21.9	24	
8	<b>IZS</b>	33	32	30	27	26	24	23	24	27	30	33	35	37	37	37	37	36	33	28	29	30	30	<b>IZS</b>	37	30.8	24	
9	25	21	21	18	15	10	5	4	7	13	23	26	26	27	24	25	25	24	26	30	32	32	<b>IZS</b>	32	32	21.3	24	
10	32	34	31	34	32	30	30	32	31	34	35	36	37	37	38	39	38	37	36	36	38	<b>IZS</b>	37	32	39	34.6	24	
11	32	32	32	32	32	33	30	29	13	16	30	33	33	37	37	39	38	36	36	34	<b>IZS</b>	33	31	28	39	31.6	24	
12	27	24	24	27	27	29	30	34	34	34	36	38	44	<b>52</b>	42	43	41	40	35	<b>IZS</b>	9	9	6	7	<b>52</b>	30.1	24	
13	17	32	33	29	28	25	22	20	27	33	36	40	40	41	42	44	43	43	<b>IZS</b>	40	39	41	39	40	44	34.5	24	
14	32	30	16	19	23	21	12	2	11	34	37	38	38	39	38	37	34	<b>IZS</b>	23	20	19	10	9	23	39	24.6	24	
15	31	33	35	35	33	33	32	32	32	32	33	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>M</b>	<b>M</b>	<b>IZS</b>	33	30	30	30	30	31	35	32.1	22
16	31	29	30	30	26	29	29	28	25	28	30	31	30	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	28	30	30	29	28	28	31	28.9	24
17	31	32	33	33	33	33	32	32	31	32	32	33	33	33	<b>IZS</b>	34	33	32	31	31	31	32	33	33	34	32.3	24	
18	31	27	25	23	22	20	20	21	26	28	30	30	30	<b>IZS</b>	32	33	32	30	21	18	17	13	11	33	24.2	24		
19	13	14	15	14	15	14	13	13	18	23	26	30	<b>IZS</b>	33	33	33	34	33	30	27	25	24	19	20	34	22.6	24	
20	22	22	25	25	27	24	17	14	25	31	34	<b>IZS</b>	36	37	37	37	37	37	37	36	36	36	36	35	37	30.6	24	
21	34	34	35	34	33	32	29	22	32	33	<b>IZS</b>	33	33	32	32	32	30	29	28	27	24	23	17	17	35	29.3	24	
22	17	14	14	16	14	16	26	26	29	<b>IZS</b>	40	41	41	41	42	42	42	42	41	40	39	39	39	38	42	32.1	24	
23	37	38	38	35	35	35	34	34	<b>IZS</b>	38	39	39	40	41	41	41	40	40	38	38	37	38	38	36	41	37.8	24	
24	36	35	35	32	29	27	22	<b>IZS</b>	20	22	21	24	25	26	25	25	25	23	24	24	24	22	25	25	36	25.9	24	
25	24	23	22	21	21	20	<b>IZS</b>	17	21	27	30	31	33	34	35	36	35	34	27	26	26	25	26	31	36	27.2	24	
26	33	35	35	36	36	<b>IZS</b>	35	36	36	36	38	40	42	42	44	43	42	43	44	43	43	39	34	27	44	38.3	24	
27	28	38	39	38	<b>IZS</b>	35	33	29	28	28	24	19	20	21	24	28	28	28	28	31	32	32	33	32	39	29.4	24	
28	31	31	31	<b>IZS</b>	30	29	30	30	30	32	33	33	33	34	34	33	33	33	31	31	27	23	22	21	34	30.2	24	
HOURLY MAX	41	40	40	40	40	37	35	36	36	38	40	41	44	52	44	44	43	43	44	43	43	41	41	41				
HOURLY AVG	28.5	29.6	27.9	27.8	26.8	25.8	25.1	23.7	25.3	29.1	31.7	33.2	34.5	35.8	35.8	36.0	34.9	34.7	32.2	31.9	30.3	29.4	28.7	28.7				

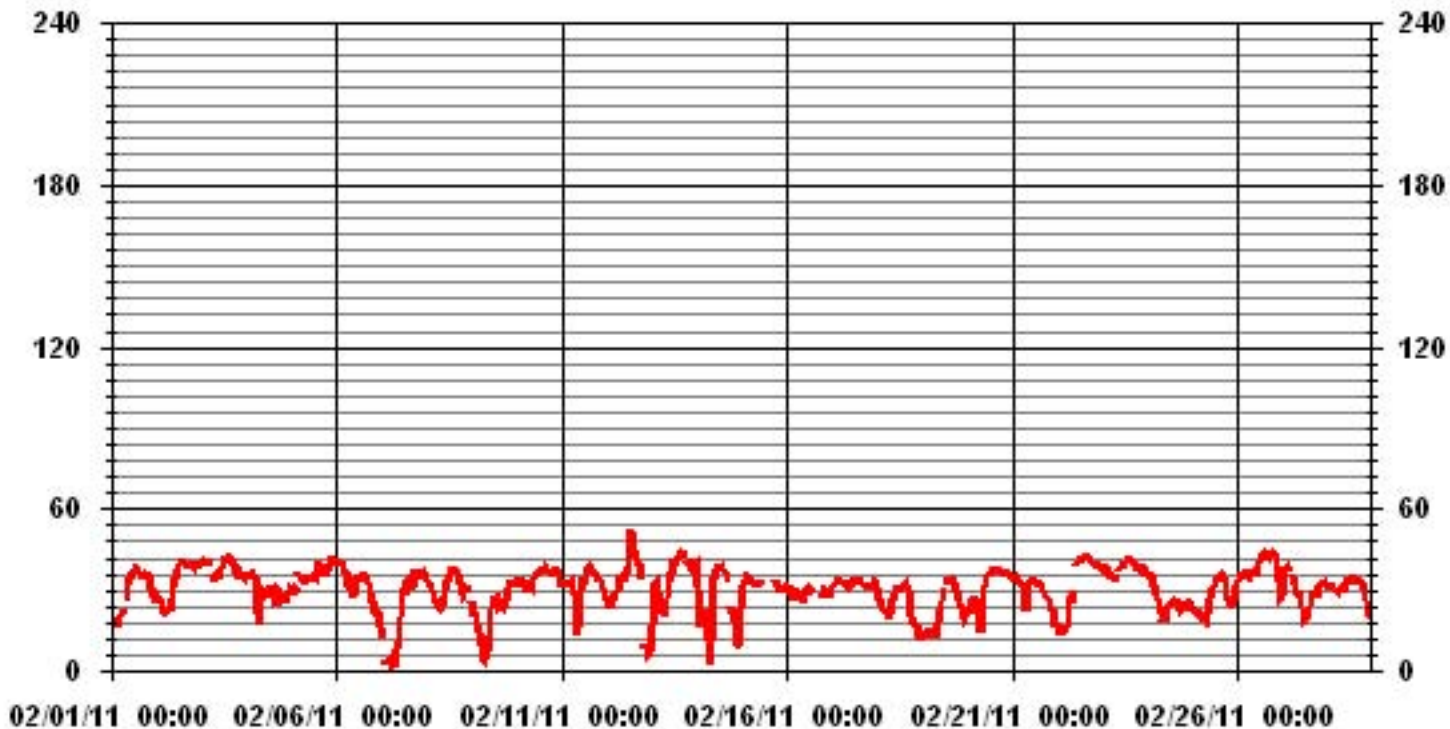
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	633					
MAXIMUM INSTANTANEOUS VALUE:	52	PPB	@ HOUR(S)	13	ON DAY(S)	12
IZS CALIBRATION TIME:	27	HRS	OPERATIONAL TIME:	670	HRS	
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	8.20					

### 01 Hour Averages



— LICA O3MAX PPB

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

February 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	5.03	6.92	6.29	1.57	1.73	2.20	7.55	2.83	2.99	3.30	16.22	18.74	10.55	4.25	6.14	3.62	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.03	6.92	6.29	1.57	1.73	2.20	7.55	2.83	2.99	3.30	16.22	18.74	10.55	4.25	6.14	3.62	

Calm : .00 %

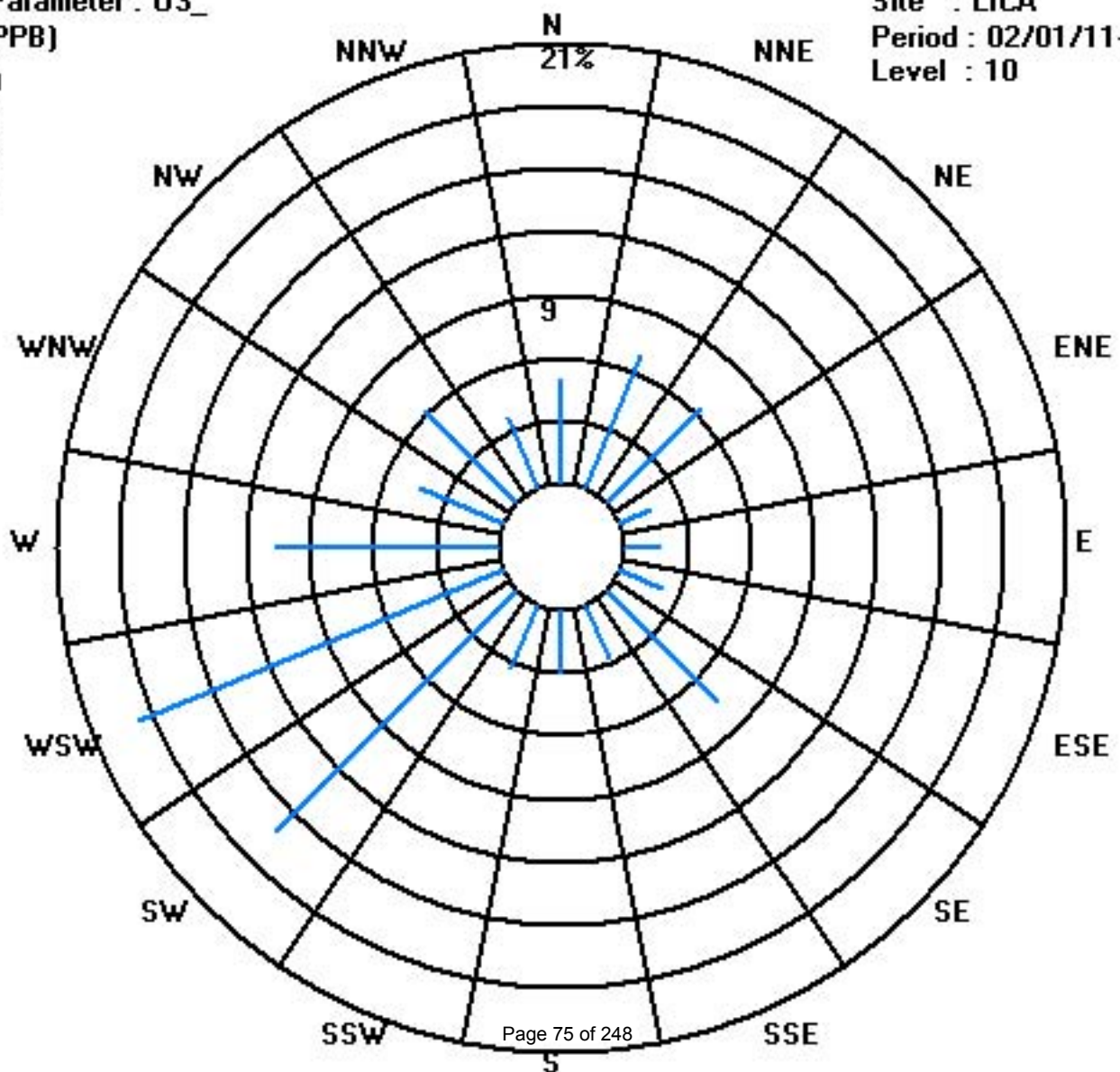
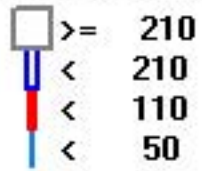
Total # Operational Hours : 635

Distribution By Samples

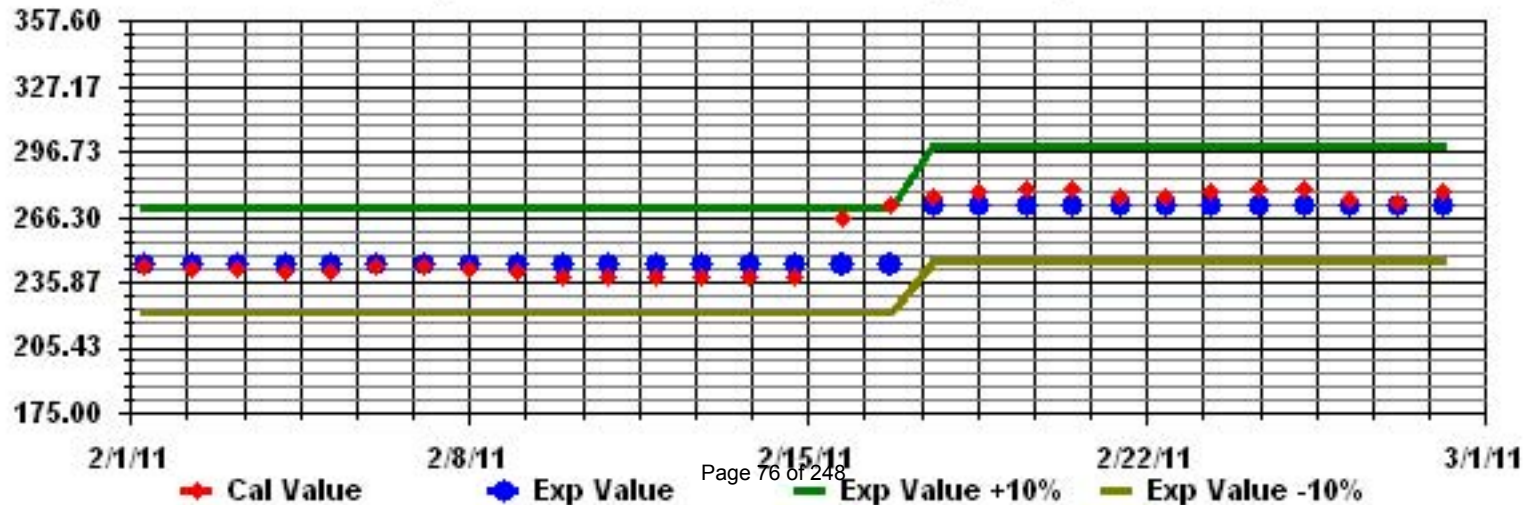
	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	32	44	40	10	11	14	48	18	19	21	103	119	67	27	39	23	635
< 110																	
< 210																	
>= 210																	
Totals	32	44	40	10	11	14	48	18	19	21	103	119	67	27	39	23	

Calm : .00 %

Total # Operational Hours : 635



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





# Ambient Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

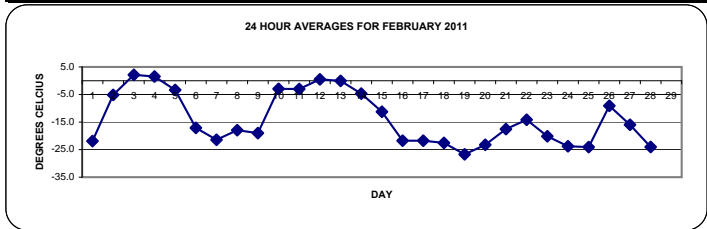
FEBRUARY 2011

AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 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	MAX.	AVG.	RDGS.
DAY	1	-26.7	-28.9	-30.5	-30.5	-29.6	-29.3	-29.1	-28	-26.6	-23.3	-21.7	-18.7	-16	-14.7	-13.9	-13.6	-15	-16.7	-17.2	-17.6	-18.1	-19.8	-19.7	-20.2	-13.6	-21.9	24
2	-20.8	-20.7	-18.4	-16.1	-15.8	-16	-16.9	-13.9	-8.6	-6.1	-3.6	0.1	2.6	3.5	4.2	4.7	4.6	4	3	2.4	1.5	1.3	0.7	1	4.7	-5.1	24	
3	0.9	0.2	-0.5	-0.7	-0.1	0.4	1	1.5	1.8	2.6	3.6	4.3	5.6	5.6	5.8	6.4	5.6	4.1	3	2	0.6	-0.3	-0.8	-1.2	6.4	<b>2.1</b>	24	
4	-1.7	-1.8	-1.6	-1	-0.9	-0.4	-0.4	-0.2	0.2	1.1	1.9	3.3	4.2	4.8	5.9	6.2	5	3.5	3.3	2.5	1.3	0.7	0.5	0.5	6.2	1.5	24	
5	0.3	0.1	-0.3	-0.7	-1.3	-1.5	-1.4	-1.3	-1.5	-1.5	-0.9	-0.8	-0.6	-1.1	-1.6	-2.7	-3.8	-4.6	-5.8	-7.4	-8.8	-9.8	-10.9	-12.5	0.3	-3.4	24	
6	-13.9	-14.5	-15.4	-16.4	-17.4	-18.1	-19.8	-19.8	-20.7	-17.8	-16.3	-14.8	-13.4	-12.7	-12	-11.6	-12.6	-15.3	-18.1	-19.5	-20.8	-22	-23.4	-24.4	-11.6	-17.1	24	
7	-25.4	-26.3	-26.9	-27.6	-28.2	-28.3	-29.1	-29.5	-28.6	-23.1	-19.5	-18	-15.1	-14.4	-13.7	-13.9	-15	-16.4	-17.6	-18.5	-18.8	-19.4	-20.1	-20.9	-13.7	-21.4	24	
8	-21.8	-22.2	-22.7	-22.7	-22.7	-22.5	-22.8	-23.3	-22.7	-20.5	-17.9	-15.3	-13.5	-11.6	-11.2	-11	-11.5	-12.7	-14.6	-15.3	-16	-16.8	-18.3	-21.2	-11.0	-18.0	24	
9	-22.2	-23.6	-24.8	-25.7	-26.6	-27.2	-28.3	-28.4	-27.6	-23.5	-20.9	-18.6	-16.4	-16.2	-14.9	-14.1	-13.9	-14.1	-14.1	-12.6	-11.4	-10.8	-10.6	-9.8	-9.8	-19.0	24	
10	-8.6	-8	-8.2	-7	-7.2	-7	-6.1	-5.5	-4.7	-3.5	-2.3	-1.1	-0.4	-0.1	0	0.1	0.2	0.1	-0.4	-0.3	-0.1	0	0.1	-0.6	0.2	-2.9	24	
11	-1.5	-3.1	-3.7	-3.6	-4.3	-4.6	-6.1	-7.9	-9.4	-6	-3.5	-2.5	-1	-0.9	-1.2	-1.3	-1.2	-1.3	-1.4	-1.5	-1.3	-1.7	-1.5	-1.5	-0.9	-3.0	24	
12	-1.3	-1	-1.2	-1.5	-1.8	-0.1	-0.2	-1	-0.4	0.6	2	3.8	5.6	6.3	<b>6.9</b>	6.1	4.4	0.7	-1.7	-2.4	-3.2	-2.9	-3	-2.5	<b>6.9</b>	0.5	24	
13	-2.4	-2.6	-2.3	-2	-2.4	-2.3	-1.8	-1	0	0.8	1.9	3.1	4.1	3.7	4.1	4.5	4	2.1	0.2	-1.5	-1.6	-2.4	-3.2	-4.2	4.5	-0.1	24	
14	-6.3	-6.9	-6.4	-6	-6.8	-7.6	-8.4	-8.5	-7.9	-4.8	-2.3	-0.7	0.7	1.4	1.3	0.6	-0.6	-2.1	-3.5	-4.5	-5.9	-7.8	-9.1	-10.1	1.4	-4.7	24	
15	-9.2	-8.1	-7	-6.4	-7.3	-8.3	-9.3	-9.8	-10.1	-10.1	-10.1	-10.4	-10.3	-9.7	-8.3	-9.3	-10.3	-11.5	-13	-15.5	-17.7	-18.8	-19.5	-20.2	-6.4	-11.3	24	
16	-21.1	-21.8	-22.5	-23.6	-24.7	-24.9	-25	-25.3	-24.6	-23.3	-22.3	-21.9	-21	-20.4	-20.2	-19.9	-19.7	-19.8	-19.4	-19.5	-19.7	-20	-20.5	-21.1	-19.4	-21.8	24	
17	-21.4	-21.7	-21.8	-22	-22.3	-22.4	-22.8	-23.9	-23.8	-23.3	-23.2	-22.7	-21.5	-20.6	-19.9	-18.8	-19.4	-20.5	-22	-21.6	-21.3	-21.5	-21.7	-22.3	-18.8	-21.8	24	
18	-22.6	-23	-22.6	-22.9	-23.1	-23.6	-22.8	-22.5	-22	-20.8	-20.6	-19.9	-18.8	-18.3	-18	-17.8	-18.1	-20.1	-23	-25.5	-26.9	-28.4	-29.5	-30.7	-17.8	-22.6	24	
19	-31.6	-32.5	-33.5	-34.3	-34.9	-35.7	-36.3	<b>-37</b>	-35.2	-29	-25.1	-21.4	-19.4	-17.1	-16.6	-16.2	-16.9	-19.1	-20.8	-22.3	-23.7	-26	-27.9	-28.4	-16.2	-26.7	24	
20	-28.9	-30.4	-30.3	-30	-29.9	-31.2	-31.8	-32.4	-30.7	-24.7	-22.2	-19.5	-16.2	-14	-13.4	-14	-14.4	-16.3	-19.1	-20.2	-21.5	-22.4	-22.6	-22.2	-13.4	-23.3	24	
21	-22	-22.4	-22.4	-22.7	-23.8	-25.3	-25.9	-26	-22.7	-18.6	-17.2	-14.9	-12.5	-11.7	-11.2	-10.8	-10.2	-10.7	-12.1	-13.2	-14.8	-16.1	-16.6	-17.1	-10.2	-17.5	24	
22	-18	-18.3	-17.1	-16	-15.3	-15	-13.1	-12.7	-13	-12.1	-12.6	-12.7	-12.6	-12	-11.7	-12	-12.4	-12.6	-13.5	-13.8	-14.2	-15	-16.5	-17.9	-11.7	-14.2	24	
23	-19.5	-20.3	-21.1	-22	-22.5	-23	-23.8	-23.7	-21.9	-20	-19	-18.3	-17.4	-16.9	-16.6	-16.6	-17	-18.2	-19.2	-20.1	-21	-21.2	-21.9	-22.4	-16.6	-20.2	24	
24	-23.1	-24.2	-24.6	-25.2	-26.2	-26.9	-26.8	-27.4	-26.6	-24.9	-23.3	-22.1	-20.8	-19.9	-19.2	-18.5	-19.2	-21	-22.8	-23.8	-24.8	-25.6	-26.3	-27.4	-18.5	-23.8	24	
25	-29.3	-31.1	-32.1	-32.5	-33	-33.5	-33.9	-34.2	-31.3	-26.5	-23.5	-21.4	-19.6	-17.9	-16.3	-15.9	-15.7	-17.7	-19.1	-19.6	-19.8	-19	-18	-17.1	-15.7	-24.1	24	
26	-15.8	-14.9	-14.3	-13.9	-13.9	-13.6	-13.4	-12.6	-11.4	-10	-7.4	-5.9	-4.8	-4.7	-4.3	-4	-3.5	-3.5	-3.8	-4.7	-6.1	-7.9	-10.8	-13.1	-3.5	-9.1	24	
27	-15.7	-13.9	-10.4	-11.1	-12	-13.8	-15	-16.2	-16	-15.8	-16.1	-16.4	-16.8	-16.6	-16.2	-15.9	-15.9	-16.4	-16.8	-17.5	-18.5	-19.5	-20.1	-20.8	-10.4	-16.0	24	
28	-21.3	-22.3	-23.5	-24.5	-25.3	-25.6	-25.7	-25.7	-25.4	-25.2	-24.5	-23.7	-23.4	-22.9	-22.5	-22.2	-21.9	-21.9	-22.3	-23.3	-24.6	-25.4	-26.3	-27.5	-21.3	-24.0	24	
HOURLY MAX		0.9	0.2	-0.3	-0.7	-0.1	0.4	1.0	1.5	1.8	2.6	3.6	4.3	5.6	6.3	6.9	6.4	5.6	4.1	3.3	2.5	1.5	1.3	0.7	1.0			
HOURLY AVG		-16.1	-16.6	-16.6	-16.7	-17.1	-17.4	-17.7	-16.8	-14.6	-13.1	-11.7	-10.3	-9.6	-9.1	-9.0	-9.4	-10.6	-11.9	-12.7	-13.5	-14.2	-14.9	-15.6				

STATUS FLAG CODES

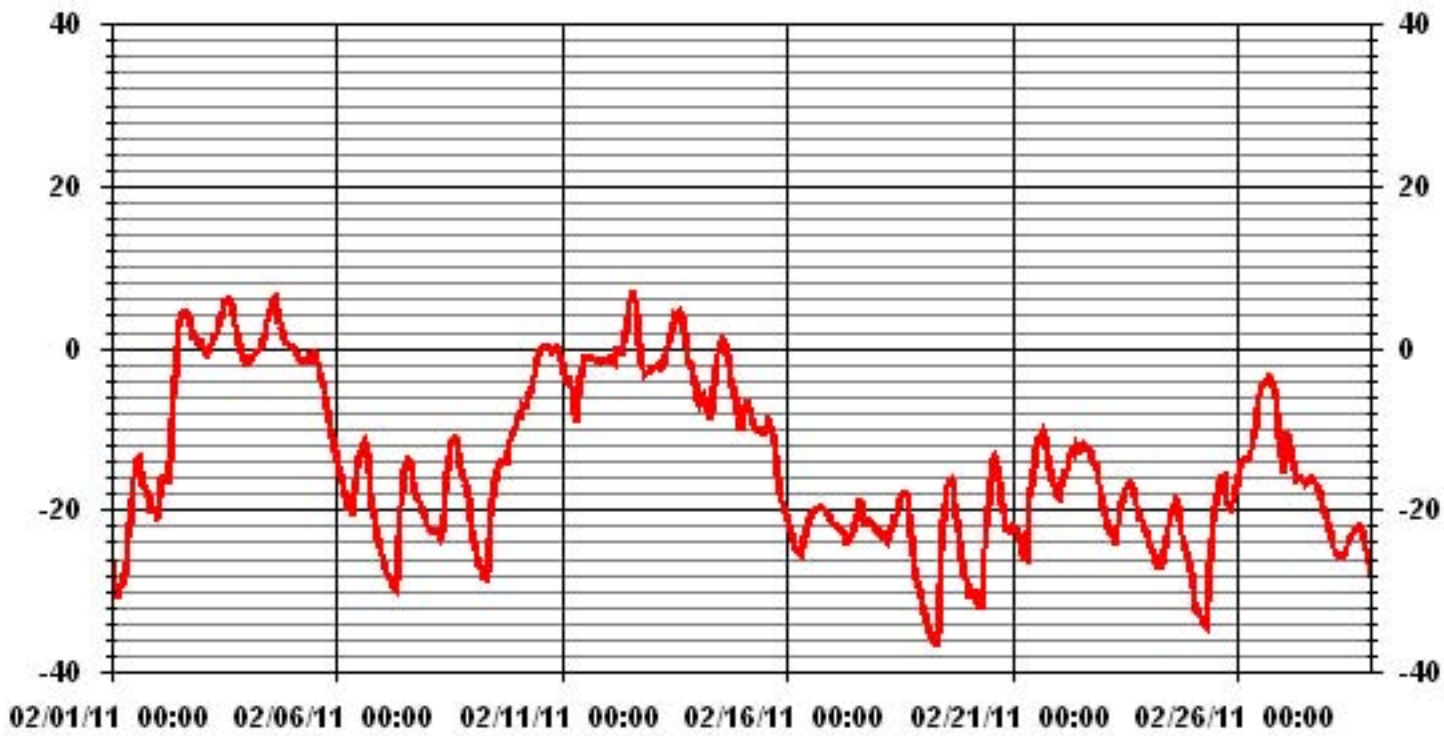
S	- OUT OF SERVICE	OD	- OUTSIDE DETECTION LIMITS
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-37 °C	@ HOUR(S)	7	ON DAY(S)	19
MAXIMUM 1-HR AVERAGE:	6.9 °C	@ HOUR(S)	14	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	2.1 °C			ON DAY(S)	3
VAR-VARIOUS					
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	672	HRS
STANDARD DEVIATION:	10.28		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	-13.88	°C

### 01 Hour Averages



— LICA TPX DGC

# Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 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	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	1	73	71	70	70	72	71	71	72	71	66	64	56	49	47	45	44	49	56	58	60	62	67	68	69	73	62.5	24	
2	2	71	70	69	66	67	70	73	82	84	81	77	70	66	66	66	65	65	69	73	74	76	77	78	77	84	72.2	24	
3	3	77	78	79	78	77	78	77	76	72	67	63	63	61	63	63	61	64	70	74	77	80	80	81	82	82	72.5	24	
4	4	82	81	80	79	80	80	84	89	90	88	89	86	82	78	72	70	77	84	89	92	95	96	96	95	96	84.8	24	
5	5	93	92	92	92	88	89	89	89	86	86	82	79	77	78	73	72	75	80	81	79	79	73	68	69	93	81.7	24	
6	6	68	70	72	73	76	76	78	77	74	71	68	63	58	57	55	60	70	75	77	78	77	74	75	78	69.9	24		
7	7	74	74	72	72	72	72	71	70	69	66	64	68	60	57	57	58	63	68	72	72	72	72	73	74	74	68.4	24	
8	8	75	75	75	74	74	75	75	76	75	71	67	63	59	56	55	54	52	55	65	69	71	73	75	76	76	68.1	24	
9	9	76	75	74	73	74	73	71	72	71	68	70	67	60	61	60	64	66	70	72	76	84	85	86	86	86	76	72.3	24
10	10	88	88	89	91	90	88	91	93	92	91	91	87	82	81	83	82	83	84	89	89	92	92	90	92	93	88.3	24	
11	11	90	90	90	89	90	89	90	91	88	81	83	82	77	78	87	91	92	92	92	93	92	93	92	92	93	88.5	24	
12	12	92	91	90	85	83	78	77	76	71	68	64	57	50	48	45	47	51	62	73	77	80	79	80	80	92	92	71.0	24
13	13	80	79	79	81	92	94	94	95	96	93	82	71	63	60	55	50	50	54	58	63	61	64	68	71	96	73.0	24	
14	14	79	80	80	79	82	82	84	84	83	75	67	60	55	53	54	56	61	67	72	75	79	83	86	87	87	73.5	24	
15	15	89	85	88	88	86	86	86	85	85	85	82	79	81	83	72	71	72	75	71	69	67	66	68	67	89	78.6	24	
16	16	70	73	73	74	75	73	72	73	71	66	62	60	58	56	56	59	67	72	75	76	75	73	72	71	76	68.8	24	
17	17	73	74	74	74	73	73	73	73	70	67	66	64	62	61	61	61	66	68	71	69	70	70	71	73	74	69.0	24	
18	18	74	74	74	73	73	73	74	73	73	68	67	65	61	58	55	51	53	61	71	74	72	72	72	70	74	68.0	24	
19	19	70	69	68	68	67	67	66	66	65	64	63	55	49	45	46	44	43	50	56	63	67	72	73	73	73	61.2	24	
20	20	73	70	73	72	72	71	71	71	69	65	59	52	46	43	43	43	44	49	56	61	65	68	70	71	73	61.5	24	
21	21	71	73	74	75	76	75	75	75	71	63	63	58	52	56	64	66	67	67	68	71	76	78	78	78	78	69.6	24	
22	22	79	78	78	79	79	80	82	83	82	73	67	61	57	55	55	55	55	54	56	57	60	61	65	68	83	67.5	24	
23	23	73	76	75	76	77	75	75	75	72	65	53	49	48	48	47	47	45	49	54	56	58	59	62	64	77	61.6	24	
24	24	64	68	69	69	70	71	71	70	69	62	54	51	48	46	45	44	46	51	57	59	62	65	67	69	71	60.3	24	
25	25	70	70	70	69	67	68	68	68	67	61	53	48	45	43	41	42	43	49	54	61	68	69	69	68	70	59.6	24	
26	26	65	63	61	66	69	78	81	82	82	81	75	70	67	69	65	65	66	64	63	70	76	80	85	84	85	72.0	24	
27	27	82	83	73	68	65	69	69	68	66	66	65	57	51	48	47	47	47	51	53	61	71	71	71	72	83	63.4	24	
28	28	72	67	65	68	69	68	67	68	69	68	63	58	60	63	65	67	60	67	71	68	65	62	67	70	72	66.1	24	
HOURLY MAX		93	92	92	92	92	94	94	95	96	93	91	87	82	83	87	91	92	92	92	93	95	96	96	95				
HOURLY AVG		76.5	76.3	75.9	75.8	76.3	76.5	77.0	77.6	76.2	72.4	68.7	64.3	60.1	59.2	58.3	58.3	60.1	64.6	68.5	71.0	73.3	74.2	75.2	75.8				

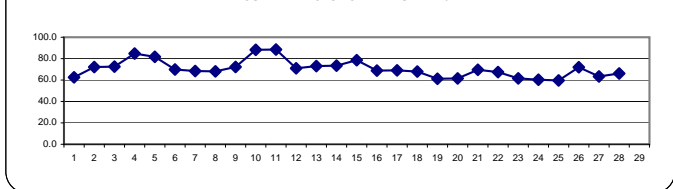
STATUS FLAG CODES

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

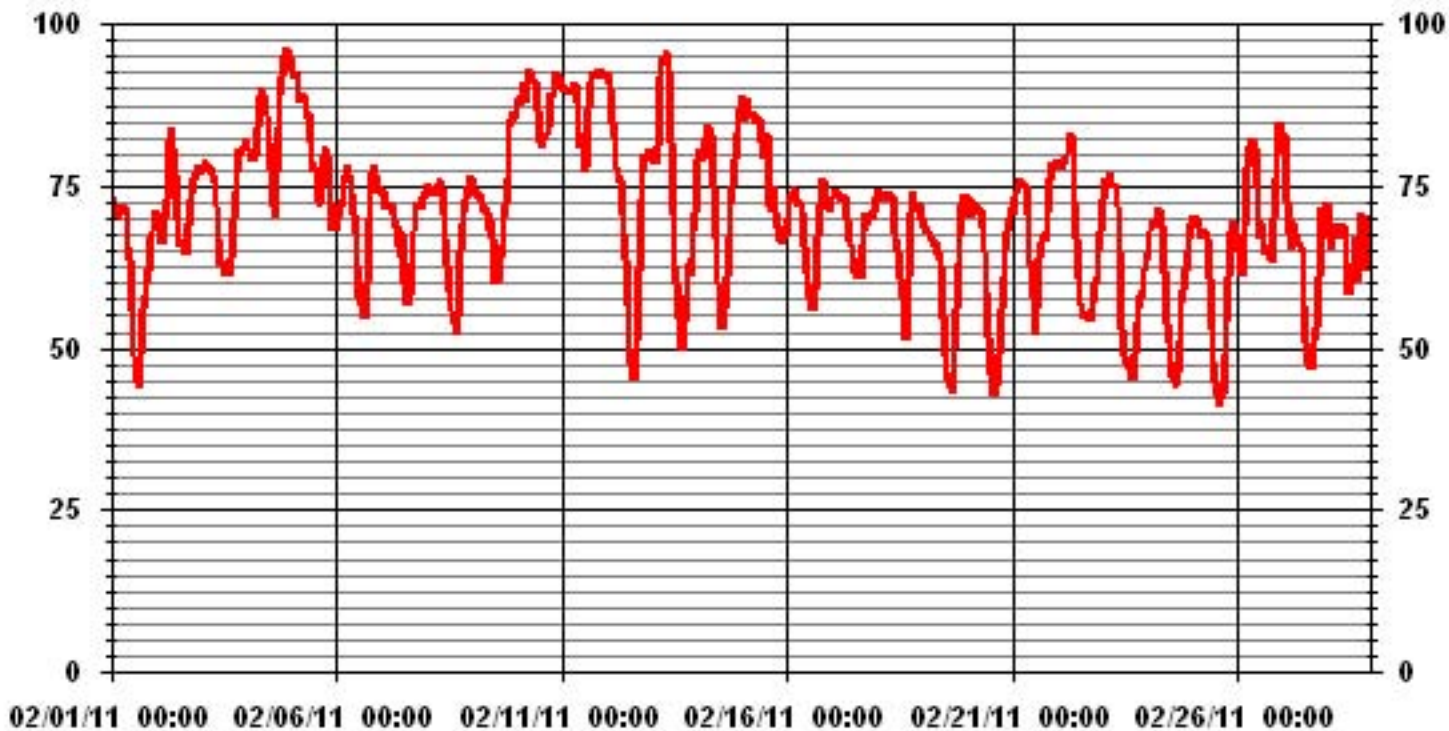
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	96.0	%	@ HOUR(S)	20, 21	ON DAY(S)	4
MAXIMUM 24-HR AVERAGE:	88.5	%			ON DAY(S)	11
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	672	HRS	
STANDARD DEVIATION:	11.75		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	70.49	%	

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA RH %FS

# Vector Wind Speed

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 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	23:00	DAILY	24-HOUR		
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
DAY																														
1		1.1	0.3	0.7	0.5	1.6	1.4	1.9	1.7	1.5	3.1	3.3	3.2	4.4	3.8	3.4	3	3	5.2	4.2	2.1	1.5	2.3	0.9	5.2	1.9	24			
2		0.7	1.7	2.2	3.2	2.8	0.5	0.3	5.3	9.3	9	10.6	11.3	9.3	7.2	9.1	7.2	6.9	7.1	8.1	9.4	10.3	8.6	8.9	10.1	11.3	6.5	24		
3		8.4	9.2	6.1	7	7.3	8.3	8.9	8	8.4	9.2	8.1	10.9	12.3	10	11.9	12	10.1	7.8	9.5	5.7	4.9	6.5	6.5	6.9	12.3	8.3	24		
4		6.8	6.8	5.9	4.9	3.1	2.4	1.4	0.8	1.5	2.6	3.7	1.9	5.1	5.3	5.2	3.3	2.6	5.5	6.7	5.7	5	5.5	5.6	6.7	6.8	1.1	24		
5		6.6	6.8	7.3	7.8	8	7.7	4.1	4.8	6.3	5.8	8.3	9.4	9.7	12.4	11.9	10.8	10.7	10.9	12.9	14.9	12	14.6	13	11.5	14.9	9.5	24		
6		12	9.3	8.2	4.6	5.6	3.3	3	3.6	2.2	4.1	4.8	6.7	8.1	9.3	8.4	7.5	6.8	3	3.6	2.4	0.8	0.7	1.3	0.2	12.0	5.0	24		
7		0.6	0.3	0.5	0.2	0.8	0.4	0.3	1.9	0.2	0.8	0.2	4	4.4	7.2	8.1	8.9	8	7.3	6.5	7.7	8.2	7.4	7.6	9	9.0	4.2	24		
8		9.2	9.3	9	9.1	8.2	8.2	5.6	4.4	5.9	5	7.1	7.6	8	8.8	10.7	11.4	7.8	5.5	5.9	5.8	6.1	5.4	2.8	2	11.4	7.0	24		
9		0.5	0.3	0.2	0.3	0.5	0.2	0.9	0.8	0.2	1.4	4	5.4	4.2	7.5	5.7	5.9	3.6	3.8	3.8	5	3.3	1.5	3.4	3.8	7.5	2.8	24		
10		5.7	3.9	4.4	5.4	2.8	3.3	4.3	5.5	4.7	5.3	7.2	8.7	10	9.1	9.6	10.8	7.4	6.8	6.7	5.2	7	10.2	8.1	4.6	10.8	6.5	24		
11		6.5	7.2	8	7.5	7.8	6.9	4.8	0.7	1.1	1.3	2	4.5	2.2	6	5.4	5	5.6	6.6	7.2	4.9	5.9	4.7	1.9	1.2	8.0	4.8	24		
12		1.9	2.4	3	4.7	5.4	6.8	5.7	6.1	7.1	8.4	8	9.1	8.6	7.7	8.5	6.7	5.1	4.4	1	1.1	1.4	1.8	0.7	1.1	9.1	4.9	24		
13		1.7	3.9	2.7	0.7	1.7	3.9	3.2	5.3	6.6	8.5	13	14.2	15.1	<b>18.2</b>	16.5	15.5	10.3	6.3	4.7	4.6	5.2	2.4	1.8	0.6	<b>18.2</b>	6.9	24		
14		1.9	0.8	1.8	2.4	1	1.2	1.9	1	1.1	3.8	3.3	3.9	4.7	3.5	3	3.3	2.4	1.6	1.4	1.7	1.7	0.8	1.6	2	4.7	2.2	24		
15		2.7	3.2	6.9	10.7	12.1	12.9	9.5	8.9	11.6	11.9	10.6	10.7	8.8	9.9	10.8	11.7	11.5	12.7	11.6	14.2	13.3	9.9	7.6	8.5	14.2	<b>10.1</b>	24		
16		6.4	6.2	6	3.6	4.6	6.6	6.3	4.4	4	4.3	4	4.7	4.7	2.8	4.2	3.4	3.9	4.3	4.1	7.3	9.9	10	10.3	11.1	11.1	5.7	24		
17		10.9	10	10.3	8.6	8.7	7.3	7.3	7.7	7.8	9.2	10.1	8.4	7.3	6.8	5.6	4.8	5.1	2.2	3.7	4.5	5.5	6.9	5.7	3	10.9	7.0	24		
18		2.9	1.8	1.7	2.6	1.8	1.6	0.6	1.2	1.8	1	1.4	5.8	6.2	7.3	6.7	6.4	5.4	3.9	2.1	1	3.7	2.5	0.3	0.4	7.3	2.9	24		
19		0.5	0.5	0.6	0.4	0.4	0.6	3	0.2	0.9	0.8	2.2	1.2	4.4	5.5	5.8	4.9	4.6	4.9	3.4	2.2	2.1	1.2	1.4	2.5	5.8	2.3	24		
20		1.9	1	2.2	3.5	1.3	2.5	11.3	0.6	0.2	3.3	4.4	5.5	5.5	7.6	7.3	8.2	7.1	7.5	8.5	7	4.9	5.6	8.5	9.9	11.3	5.2	24		
21		10.2	7.6	8.2	2.8	2.6	0.9	1.7	0.5	0.8	1.6	5.6	3.7	3.1	3.8	6.9	6.4	3.3	2.9	1.9	0.5	0.5	1.2	0.4	0.9	10.2	3.3	24		
22		0.8	1.1	2.9	5.5	1.6	2.2	6.7	4.8	6.7	14.8	16	14.7	14.4	11.1	10.5	13	10.9	11.3	10.1	6.6	4.8	4.2	5.4	5.4	16.0	7.7	24		
23		6	6.1	5.9	6.1	5.8	5.3	5.7	6.1	7.1	8.7	13.6	14.7	15.7	14.2	15.6	15.1	15.6	11.8	9.3	7.2	7.5	9.1	8.3	7.8	15.7	9.5	24		
24		5.7	7	6.2	5.2	4.8	5.4	6.2	5.1	6.2	7.3	8.7	10.3	9.9	9.8	9.2	8.2	7.9	7.6	6.8	5.7	5.3	5.7	5	4.8	10.3	6.8	24		
25		3.7	2.6	1	0.8	0.8	0.5	0.6	1.7	4.1	7.4	9.6	9.7	9.5	9.6	10.1	8.7	4.7	3	2.4	3.5	3.9	3.7	3.6	10.1	4.4	24			
26		4.6	8.5	6.8	4.9	4.5	3.8	3.6	3	4.5	5.8	9.9	10.9	15.2	15.1	16.7	10.5	7.9	7.4	9.9	8.9	5.5	3.8	4.5	1.4	16.7	7.4	24		
27		1.1	2.8	9	8.7	7.8	3.2	3.7	2.6	5.2	9.5	12.1	12.5	11.9	9.7	9.2	9.9	10.7	7.5	8.3	9.9	10.8	10.7	10.2	11.2	12.5	8.3	24		
28		10.4	14.6	10.9	10.5	8.3	7.9	9	8	6.5	7.6	9.5	9	7.9	6.6	6.5	5.7	6.5	6.3	6.1	7.5	5.9	5.5	5.8	5.8	14.6	7.8	24		
HOURLY MAX		12.0	14.6	10.9	10.7	12.1	12.9	11.3	8.9	11.6	14.8	16.0	14.7	15.7	18.2	16.7	15.5	15.6	12.7	12.9	14.9	13.3	14.6	13.0	11.5					
HOURLY AVG		4.7	4.8	5.0	4.7	4.3	4.1	4.3	3.7	4.3	5.7	7.1	7.9	8.2	8.4	8.7	8.2	7.1	6.2	6.1	5.8	5.6	5.4	5.1	4.9					

### STATUS FLAG CODES

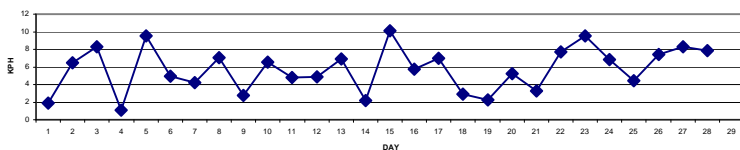
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: November 23, 2010

### MONTHLY SUMMARY

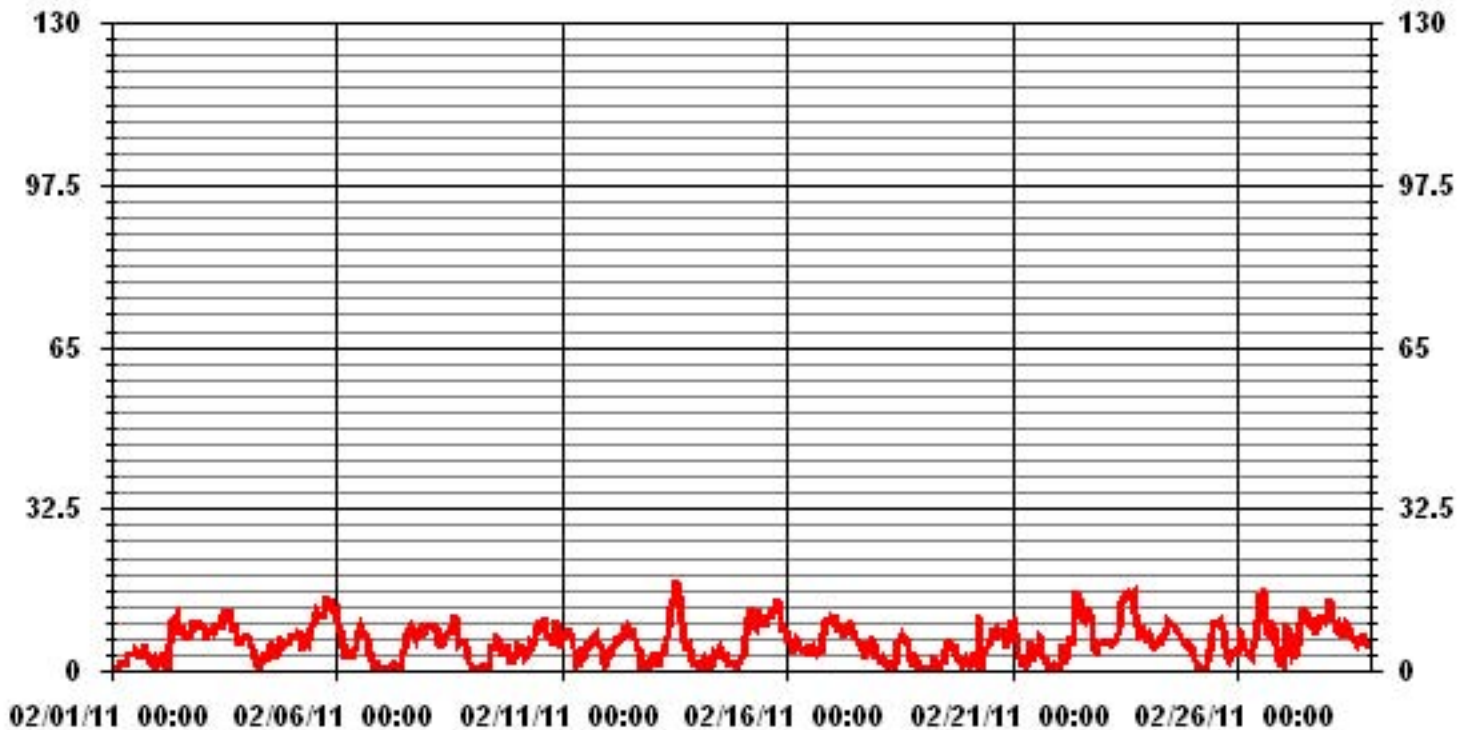
MAXIMUM 1-HR AVERAGE:	18.2	KPH	@ HOUR(S)	13	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	10.1	KPH			ON DAY(S)	15
CALMS (≤ 0 KPH)	2.30	%	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	3.70		MONTHLY AVERAGE:	5.86	KPH	

24 HOUR AVERAGES FOR FEBRUARY 2011





### 01 Hour Averages



— LICA WSP KPH

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 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
DAY	HOUR START	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.
1	5.5	2.6	4.7	2.7	3.8	3.2	4.8	4.3	4.2	8.9	6.4	9.8	7.2	9.7	7.5	6.5	5.8	5.4	8.5	6.8	5.2	3.6	4.9	3.2	9.8	
2	3.5	4.7	5.3	5.2	6.5	2.4	3.3	9.9	11.9	12.1	15.8	15.1	14.6	10.2	14.2	11.1	10.4	10.6	11.9	12.2	13.3	10.9	14.6	12.7	15.8	
3	11.8	14	11.3	10.7	10.3	11.6	11.5	11.7	13.8	13.4	12.3	15.5	20.7	15.6	18.2	15.6	14	11.7	14.8	9.5	7.9	10.2	9.4	9.1	20.7	
4	9.9	9.5	10.5	9.4	5.9	6.2	3.8	3.9	4.5	8.7	6.2	5.2	8.4	8.3	8	5.6	7.2	7.8	10	8.8	8	7.8	9.5	11.1	11.1	
5	9.7	13.1	11.3	12.8	14.7	17.7	7	8	10	8.1	14.2	13.2	15	18.4	17.9	15.9	16.3	15.3	19.5	22.7	19.7	21	19.9	17.2	22.7	
6	19	18.2	13.6	6.7	8.8	7.3	6.6	6.8	4.2	7.1	7.7	10	11.8	13.4	12	11.6	9.4	5.7	5.6	4.9	2.7	2.9	3.2	2.1	19	
7	2.2	3.2	2.6	3.7	3.6	2.5	6.2	4.3	1.4	3.4	3.5	8.5	7.9	11.2	13	12.8	11.9	10.3	8.8	10.9	12.4	10.6	9.5	12.8	13	
8	12.1	13.1	11.8	12.6	11	11.7	8.5	7.4	7.7	7.5	10.6	13.8	13.6	14.5	14.7	15.6	12.7	7.9	9.4	8.3	8.1	7.4	7.2	4.5	15.6	
9	2.1	1.8	1.3	1.3	2.4	6.2	6.2	3	3.8	4.2	8.1	8.4	7.7	11.7	10.1	9.2	6.9	7.1	5.3	7.8	9.5	3.9	6.2	6.4	11.7	
10	8.2	6.7	6.1	8	4.5	5	7.7	9	6.9	9.4	9.7	14.6	15.3	13.6	13.8	17.1	11.3	10.3	9.6	7.7	13.3	13	16.4	6.4	17.1	
11	9.1	9.3	10.6	10.3	10.4	9.5	6.5	4.5	3.3	4	5.3	8.2	5	8.1	8.3	8.2	9.7	10.1	10.7	9.9	8.7	8.8	6	3.3	10.7	
12	4.2	6	5.6	8.2	7.6	11	8.7	8.4	10.6	11.5	12.3	13.8	13.3	12	12.8	10.8	9.3	6.4	3.7	3.3	3.4	3	2.1	3.2	13.8	
13	4.9	7.8	8.3	3.7	5.9	6.5	5.1	7.9	11	14.6	19.8	26.8	25.9	27.5	24.6	26	18.1	9.4	7.3	8.5	8.7	6.1	4.8	3.6	27.5	
14	4.5	3.4	3.2	3.9	2.9	4.2	3.8	3.3	4	7.4	8.6	7.8	8.5	7.9	6.3	5	5.1	3.8	3.1	4.9	4.1	2.9	3.1	5.2	8.6	
15	5.5	8	11.4	17.8	18.5	21.7	13.5	15.1	16.4	18	16.1	15.7	14.9	16	18.3	18.1	15.7	22.3	16.1	19.3	21.5	17.2	13.2	16.3	22.3	
16	9.2	9.2	9.7	6.6	8.3	9.9	10.2	8.3	7.6	7.9	7	9.6	9.7	10.5	8.4	8.1	7.9	7.1	8.5	10.9	15	13.9	15.4	15.9	15.9	
17	16.2	14.7	15	14.4	12.1	12.6	10.2	10.1	12	14.9	15.7	13	11.5	11.4	9.6	9.9	9.4	5.2	7.2	7.4	8.2	11.2	8.6	4.7	16.2	
18	4.5	4.7	2.9	4.6	3.8	4.1	2.7	3.8	4.6	3.7	6.5	9.3	11.2	11.6	11	10.4	8.9	8	3.4	4.8	4.9	6.1	3.7	2.3	11.6	
19	3.5	2.3	2.3	2.3	2.3	6.1	19.9	10.9	4.4	4.1	4.1	3.7	8.2	9.6	12.1	10	8.2	7.9	7.7	5.1	4.3	3.5	5	4.8	19.9	
20	3.7	4.1	4.9	5.8	3.8	6	<b>46.5</b>	4.4	5.2	5.8	8.8	10	10.1	13	13.9	12.6	10.7	12.3	11.9	10.3	6.6	7.7	14	14.2	<b>46.5</b>	
21	15.2	13.4	13	10.4	5.7	4.3	5	2.1	4.3	7.3	10.4	10.1	7.7	10.3	11.3	8.6	6.1	8	4.3	2.7	2	2.5	4.2	6.1	15.2	
22	4.9	4.5	6.6	9.3	4.3	5.2	9.7	6.9	15.2	21.1	22.4	20.5	23.8	18.3	17	23.8	17.6	18.2	16.4	14.9	10.5	7.2	7.6	8.2	23.8	
23	8	8.2	7.7	8	7.4	8	7.7	9.1	11.4	15.2	21.7	21	21.9	20.6	21.3	22.6	21.5	18.1	14.9	10.5	14.3	14.7	12.4	12.3	22.6	
24	10	9.2	8.5	8	6.3	8.8	9.2	8.5	9.3	14.6	14.4	16.6	15.6	13.7	12.9	12	13.5	12.3	11.2	10.3	7.1	8.7	6.6	6.2	16.6	
25	5.3	4.3	2.7	2.5	2.6	3.9	19.5	3	5.1	8.5	11.2	13.2	14.2	14	14.5	13.6	15.5	8.2	6.8	5.5	6	6.7	7.6	6.9	19.5	
26	9.4	12.6	12.4	8.7	8.4	7	5.9	6.6	8.7	9.6	16.4	15.9	24.9	23.5	25.4	16.3	14.5	12.7	15.3	14.7	8.1	6.1	5.9	4.1	25.4	
27	4.9	11.2	14.2	14.9	13	8.3	6.9	4.6	12	14.5	17	16.8	16	13.5	13.4	13.2	16.5	11.7	13.5	15	15.2	15.7	15.3	17.2	17.2	
28	17.1	19.9	18	15.4	12.3	11.1	12.4	13.1	9.5	11.6	14	13.9	11.6	12.9	10.1	8.6	11.4	10.5	10.1	9.5	8	8.4	7.8	8.2	19.9	
PEAK	19.0	19.9	18.0	17.8	18.5	21.7	46.5	15.1	16.4	21.1	22.4	26.8	25.9	27.5	25.4	26.0	21.5	22.3	19.5	22.7	21.5	21.0	19.9	17.2		

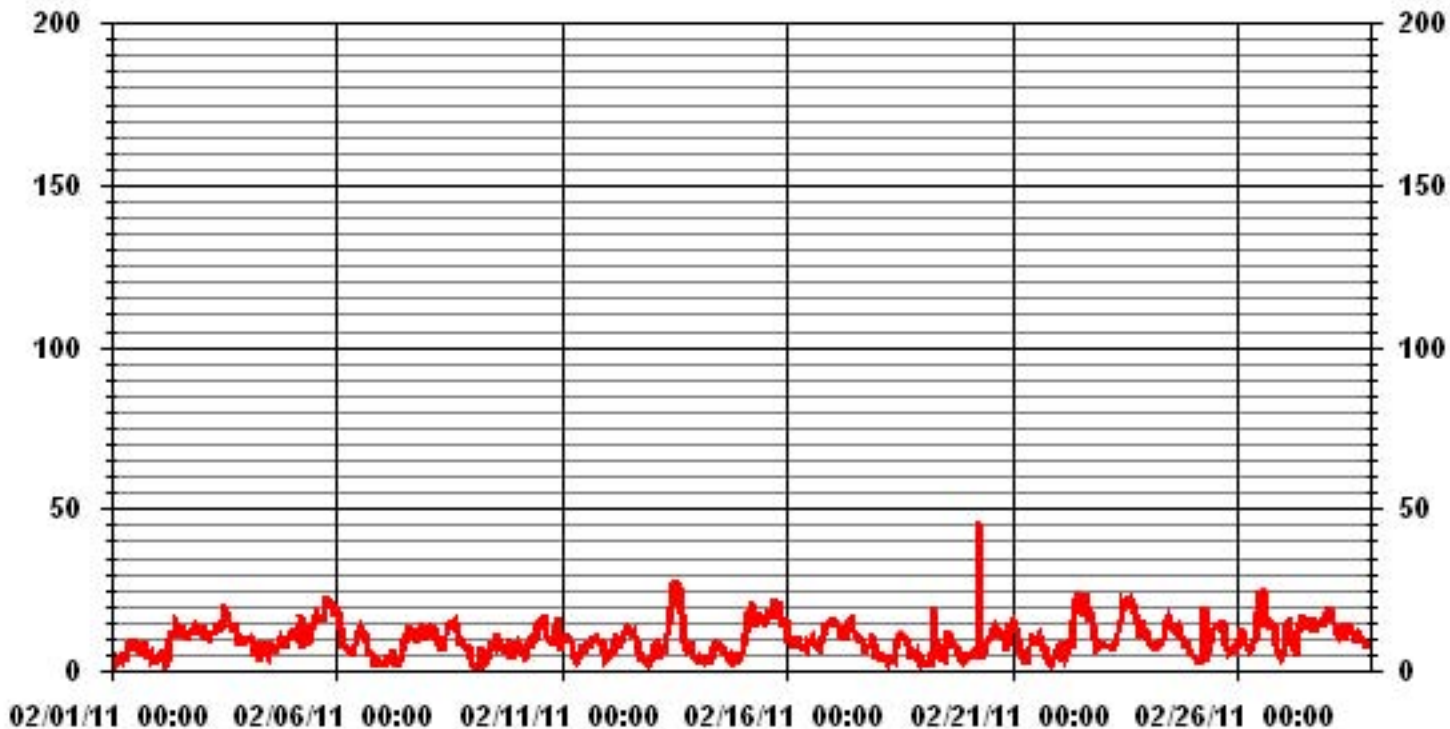
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

MAXIMUM INSTANTANEOUS READING	46.5	KPH	@ HOUR(S)	6
			ON DAY(S)	20

### 01 Hour Averages



— LICA WSMAX KPH

LICA  
WSP / WD Joint Frequency Distribution (Percent)

February 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	1.19	2.82	2.38	1.33	1.33	2.23	5.20	2.67	2.52	3.12	9.22	8.77	4.76	1.63	1.33	1.19	51.78
< 12.0	2.67	4.31	3.42	.00	.00	.00	2.08	.14	.00	.14	6.69	8.77	4.76	1.93	3.27	1.93	40.17
< 20.0	.89	.00	.74	.00	.00	.00	.00	.00	.00	.00	.00	.14	.59	.59	2.08	.59	5.65
< 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	4.76	7.14	6.54	1.33	1.33	2.23	7.29	2.82	2.52	3.27	15.92	17.70	10.11	4.16	6.69	3.72	

Calm : 2.38 %

Total # Operational Hours : 672

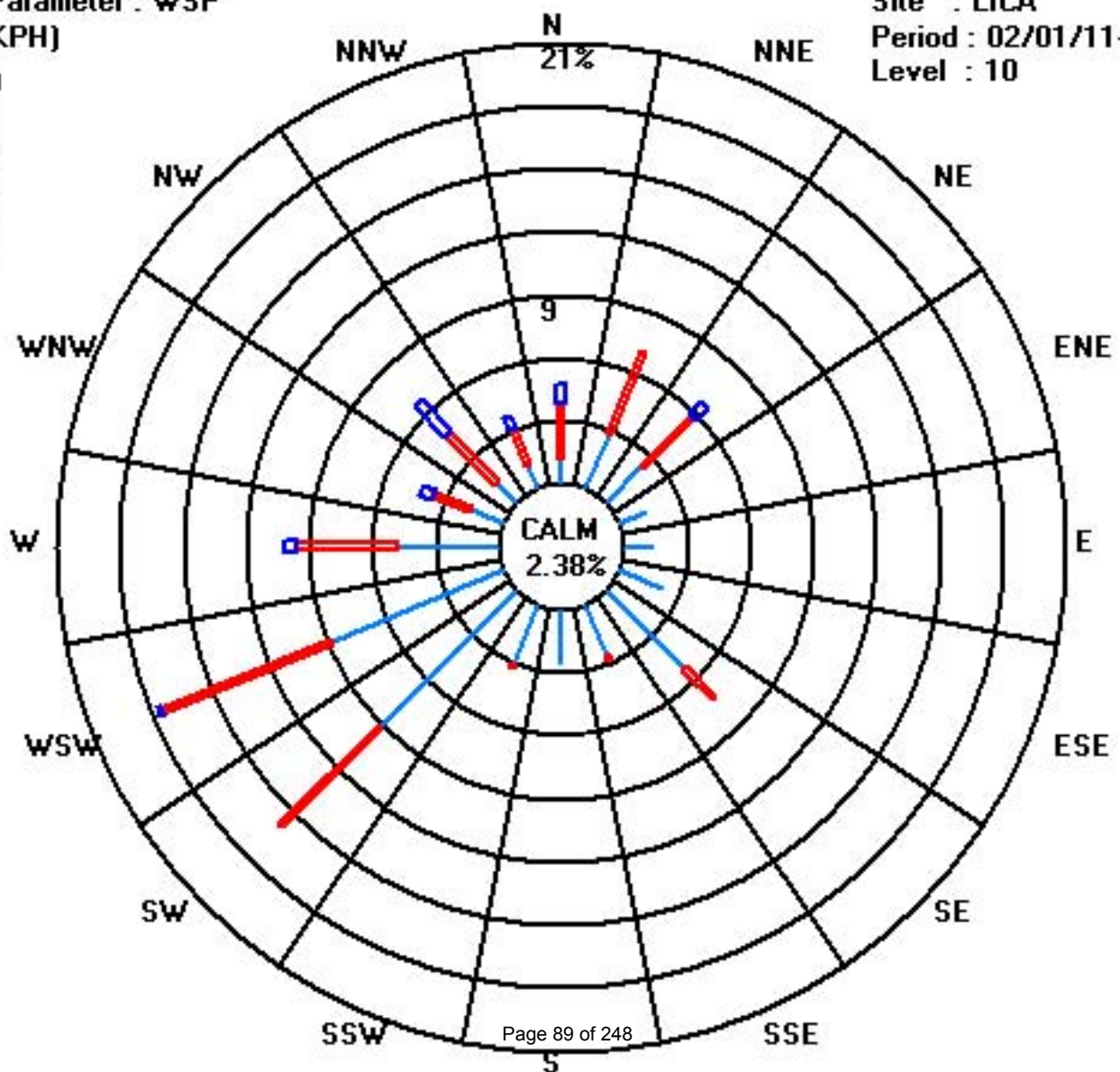
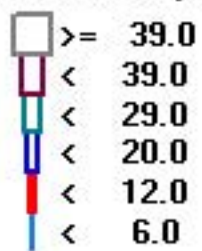
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	8	19	16	9	9	15	35	18	17	21	62	59	32	11	9	8	348
< 12.0	18	29	23				14	1		1	45	59	32	13	22	13	270
< 20.0	6		5									1	4	4	14	4	38
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	32	48	44	9	9	15	49	19	17	22	107	119	68	28	45	25	

Calm : 2.38 %

Total # Operational Hours : 672

Class Limits (KPH)



# Vector Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 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	197	239	8	142	129	121	206	134	194	225	261	170	243	146	164	176	187	199	217	216	211	195	205	259	195	SSW	24	
2	217	252	216	227	237	222	359	240	240	239	246	254	258	254	255	266	262	264	251	250	251	257	254	258	251	WSW	24	
3	261	251	236	236	245	241	239	239	237	233	229	229	243	241	251	263	265	257	250	235	235	239	228	230	243	WSW	24	
4	233	236	225	225	226	210	123	140	94	133	132	186	223	256	289	278	18	2	333	351	10	18	31	33	297	WNW	24	
5	26	15	24	31	21	13	7	4	351	0	343	352	346	340	343	18	11	11	4	7	11	359	2	360	4	N	24	
6	350	354	337	319	308	325	243	245	232	240	235	235	229	227	229	226	233	218	227	232	133	72	230	175	263	W	24	
7	53	119	225	180	228	76	268	238	358	62	254	279	241	230	225	225	232	233	238	244	234	237	234	230	235	SW	24	
8	234	233	234	240	239	240	241	224	237	243	253	260	245	253	250	250	257	243	232	233	227	230	228	229	242	WSW	24	
9	135	81	65	131	58	81	251	137	281	285	259	242	259	230	226	232	230	236	233	228	212	180	259	273	237	SW	24	
10	255	252	240	247	264	237	242	239	240	242	255	255	270	266	260	265	267	263	264	264	274	297	294	253	262	W	24	
11	250	249	256	265	253	252	237	235	165	231	246	231	223	133	134	118	127	127	129	126	136	135	153	166	193	S	24	
12	193	188	206	225	242	240	232	238	244	240	241	245	227	234	233	227	226	251	141	133	119	109	38	82	231	SW	24	
13	33	27	258	83	254	266	257	267	258	256	266	271	283	297	289	273	263	252	229	227	225	213	176	150	269	W	24	
14	106	108	93	53	332	83	73	93	101	143	106	113	112	107	45	20	38	40	47	63	57	51	72	27	80	E	24	
15	26	30	30	37	40	46	42	41	41	43	359	4	356	334	304	309	305	307	311	315	305	299	288	294	348	NNW	24	
16	264	272	283	255	265	230	300	294	246	246	242	245	244	313	50	35	16	34	21	9	8	8	12	19	321	NW	24	
17	11	12	8	6	360	351	341	338	345	12	20	23	30	21	43	13	21	336	329	344	340	356	8	317	4	N	24	
18	277	252	269	258	253	249	337	335	323	29	231	249	231	237	232	230	230	220	218	209	237	239	37	90	243	WSW	24	
19	137	145	255	297	242	259	51	236	254	308	78	15	310	261	154	166	201	207	196	175	146	129	119	131	184	S	24	
20	136	152	127	139	147	127	312	55	131	102	113	123	141	141	155	143	146	135	135	136	130	129	128	128	134	S	24	
21	131	132	130	150	141	181	134	94	150	228	219	232	218	178	263	252	232	149	167	229	233	192	170	186	179	S	24	
22	346	257	249	260	254	279	309	284	278	314	306	305	308	311	280	293	296	310	307	304	299	276	254	271	297	WNW	24	
23	259	260	256	260	248	262	264	267	265	284	313	317	320	322	324	320	324	325	317	311	306	317	310	309	304	WNW	24	
24	284	260	274	268	270	260	268	265	264	286	303	269	272	236	238	241	224	226	228	227	228	232	236	239	254	WSW	24	
25	224	227	164	132	231	124	153	286	288	263	233	235	234	243	238	237	226	181	178	161	142	148	147	186	220	SW	24	
26	200	217	213	183	188	199	206	201	232	261	303	319	331	336	334	331	318	307	304	301	292	279	251	238	293	WNW	24	
27	241	12	23	18	14	19	41	41	33	43	48	44	49	52	45	51	48	54	44	41	33	26	31	30	38	NE	24	
28	38	54	35	27	35	37	40	44	32	35	33	30	27	36	36	22	336	319	336	332	312	286	278	267	19	NNE	24	
HOURLY AVG	350	354	337	319	360	351	359	338	358	314	359	352	356	340	343	331	336	336	336	336	351	340	359	310	360			

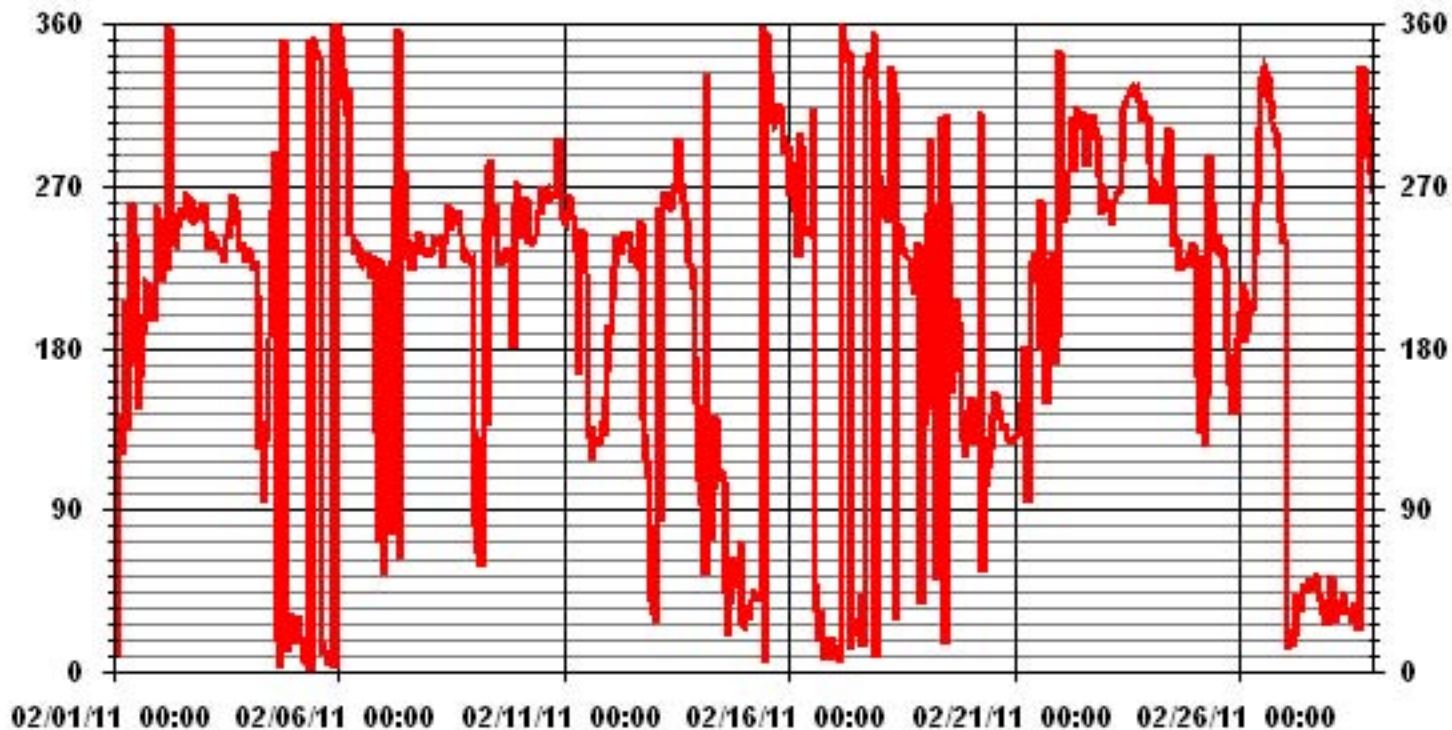
**STATUS FLAG CODES**

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:	672	HRS
STANDARD DEVIATION	97.23		AMD OPERATION UPTIME	100.0	%
			MONTHLY AVERAGE	284	DEG

### 01 Hour Averages



— LICA WDR DEG



# Standard Deviation Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

FEBRUARY 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	70	69	70	68	53	55	55	47	52	42	32	37	47	37	36	33	35	29	17	21	34	32	33	42	
2	34	38	34	18	30	40	65	40	13	16	15	17	20	17	17	19	16	16	14	13	12	15	14	15	
3	16	14	14	16	14	16	16	15	17	17	18	20	18	18	17	17	18	15	13	15	15	14	13	12	
4	13	13	15	18	21	30	26	55	50	39	23	37	23	18	17	22	34	13	12	15	15	18	20	19	
5	18	17	17	18	18	17	15	24	16	15	16	16	17	17	17	18	23	16	18	15	18	17	17	19	
6	16	16	14	17	12	18	28	21	28	19	23	19	18	18	18	17	16	18	12	27	38	47	33	49	
7	69	50	58	55	64	69	59	30	62	39	59	19	26	18	18	16	18	15	13	18	15	15	15	16	
8	15	15	14	15	14	15	15	19	16	18	20	18	18	19	17	15	17	14	16	14	12	12	23	44	
9	44	55	56	60	58	81	61	45	68	63	19	26	30	19	23	18	19	15	13	15	26	42	22	17	
10	13	13	10	13	11	10	14	14	14	16	16	16	18	19	16	18	19	16	16	16	17	15	16	14	
11	12	10	14	16	14	14	11	49	50	53	34	26	45	17	15	19	18	16	14	19	15	33	41	47	
12	31	41	28	17	15	18	16	17	16	18	19	18	19	20	19	18	18	9	37	54	53	23	52	37	
13	38	37	36	59	44	15	16	19	18	17	18	19	19	17	20	19	18	14	16	14	19	32	46	38	
14	22	49	23	15	37	49	18	53	34	24	25	25	22	26	21	16	23	47	31	20	40	60	28	46	
15	27	31	21	18	17	16	16	17	17	18	20	18	17	19	21	16	15	14	13	12	12	16	18	15	
16	16	18	19	16	28	20	16	24	20	23	26	29	25	40	22	31	26	19	24	18	15	16	18	18	
17	15	16	18	14	15	18	17	12	15	18	20	20	22	24	27	28	21	23	21	19	17	18	20	18	
18	18	39	27	29	29	35	65	38	29	55	57	21	27	21	24	24	19	18	21	66	13	41	57	65	
19	63	49	62	44	61	65	77	64	68	56	40	46	16	28	42	40	35	29	36	37	46	47	58	26	
20	37	45	31	20	43	21	55	54	60	30	26	21	30	25	34	28	24	16	14	13	12	11	11	13	
21	14	14	12	39	31	50	44	60	59	77	28	45	44	37	16	15	24	32	40	77	43	26	55	42	
22	50	40	24	14	29	24	12	16	17	13	15	16	16	25	21	19	18	13	13	15	19	18	14	16	
23	14	14	13	14	10	20	22	18	18	19	17	17	17	18	17	16	15	13	14	12	13	13	12	14	
24	16	15	20	20	24	23	22	30	21	20	17	21	19	20	20	19	18	17	18	15	13	15	15	12	
25	12	20	32	45	48	57	75	57	34	28	21	19	20	19	19	18	19	34	35	41	28	28	32	32	
26	34	24	26	32	39	29	27	28	21	19	16	16	14	16	15	14	16	17	14	13	13	19	8	42	
27	40	37	19	18	17	23	21	26	19	17	16	17	19	18	19	17	17	16	17	17	18	19	20	18	
28	18	16	19	18	18	18	17	18	22	19	20	24	23	23	22	21	22	13	15	12	10	17	19	30	

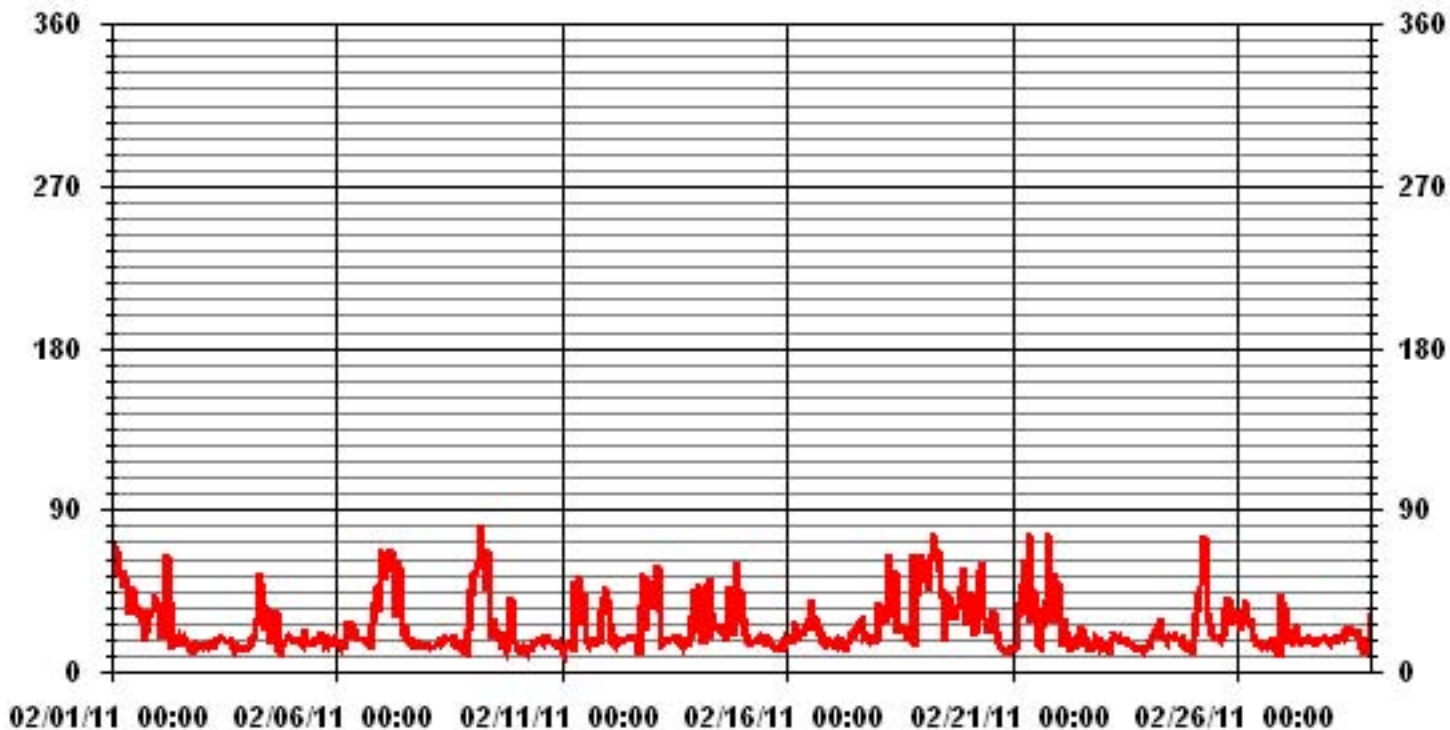
### STATUS FLAG CODES

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: 672 HRS

### 01 Hour Averages



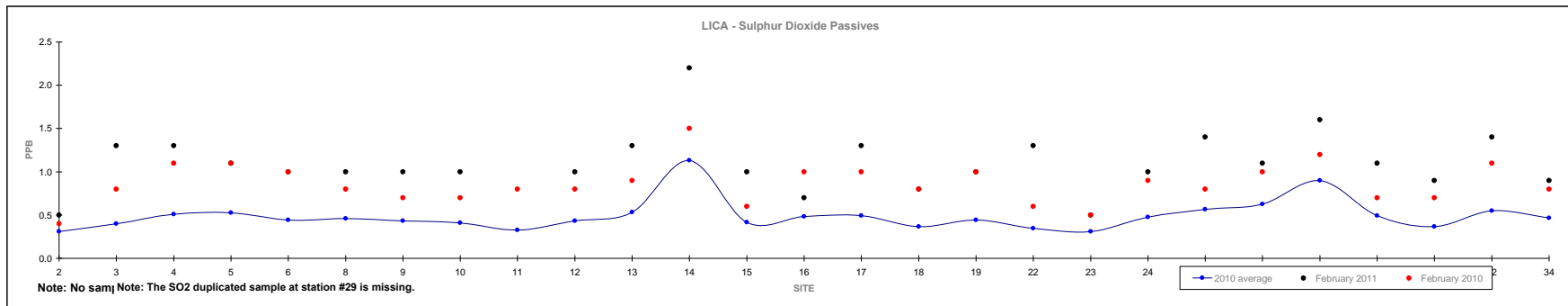
— LICA STDWDIR DEG

# Non-Continuous Monitoring

### Passive Summary Results for February 2011

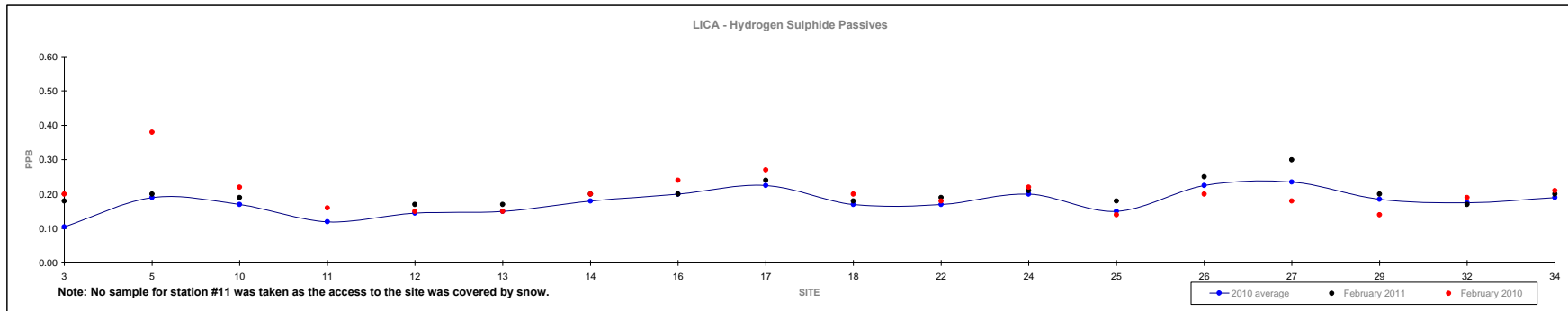
Lakeland Industry & Community Association

	Sulphur Dioxide ppb																												February 2011	
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	25	26	27	28	29	32	34	Reading	Site	
Mean	0.3	0.4	0.5	0.5	0.4	0.5	0.4	0.4	0.3	0.4	0.5	1.1	0.4	0.5	0.5	0.4	0.4	0.3	0.3	0.5	0.6	0.6	0.9	0.5	0.4	0.6	0.5	1.1	-	
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	0.5	#23		
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	2.2	#14	



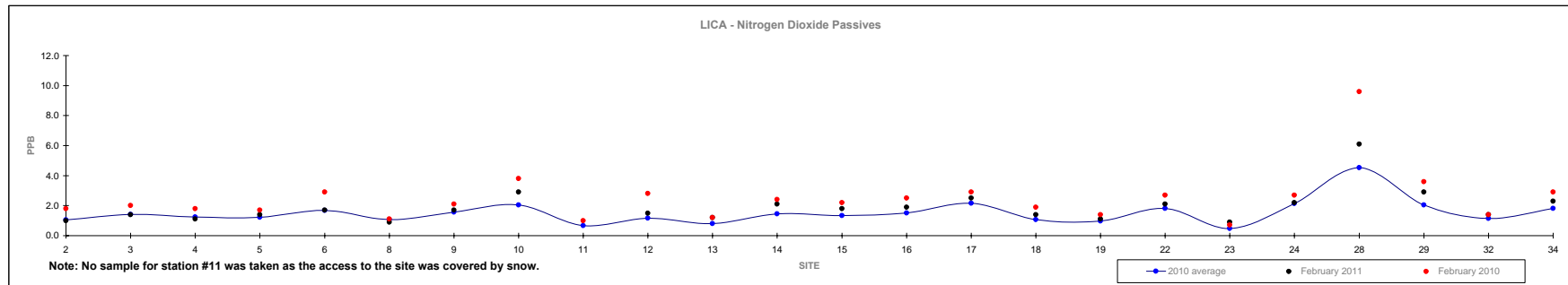
### Passive Summary Results for February 2011 Lakeland Industry & Community Association

	Hydrogen Sulphide ppb																February 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	0.20	-
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	0.17	#3
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	0.30	#27



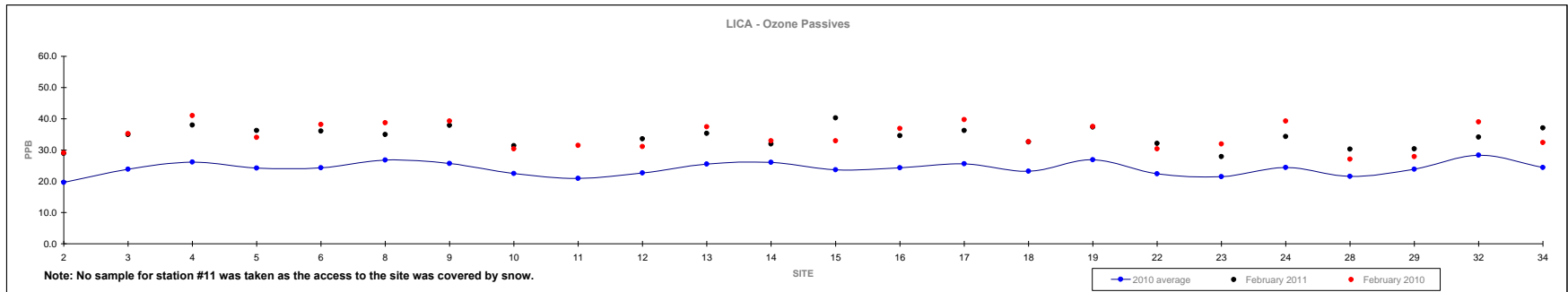
### Passive Summary Results for February 2011 Lakeland Industry & Community Association

	Nitrogen Dioxide ppb																								February 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	1.9	-
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	0.9	#23
Maximum	2.8	3.5	3.1	2.8	3.4	2.8	3.7	3.9	1.5	2.8	1.7	3.4	2.6	3.2	4.5	2.3	2.3	4.4	1.1	4.5	9.6	6.0	3.0	4.6	6.1	#28



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

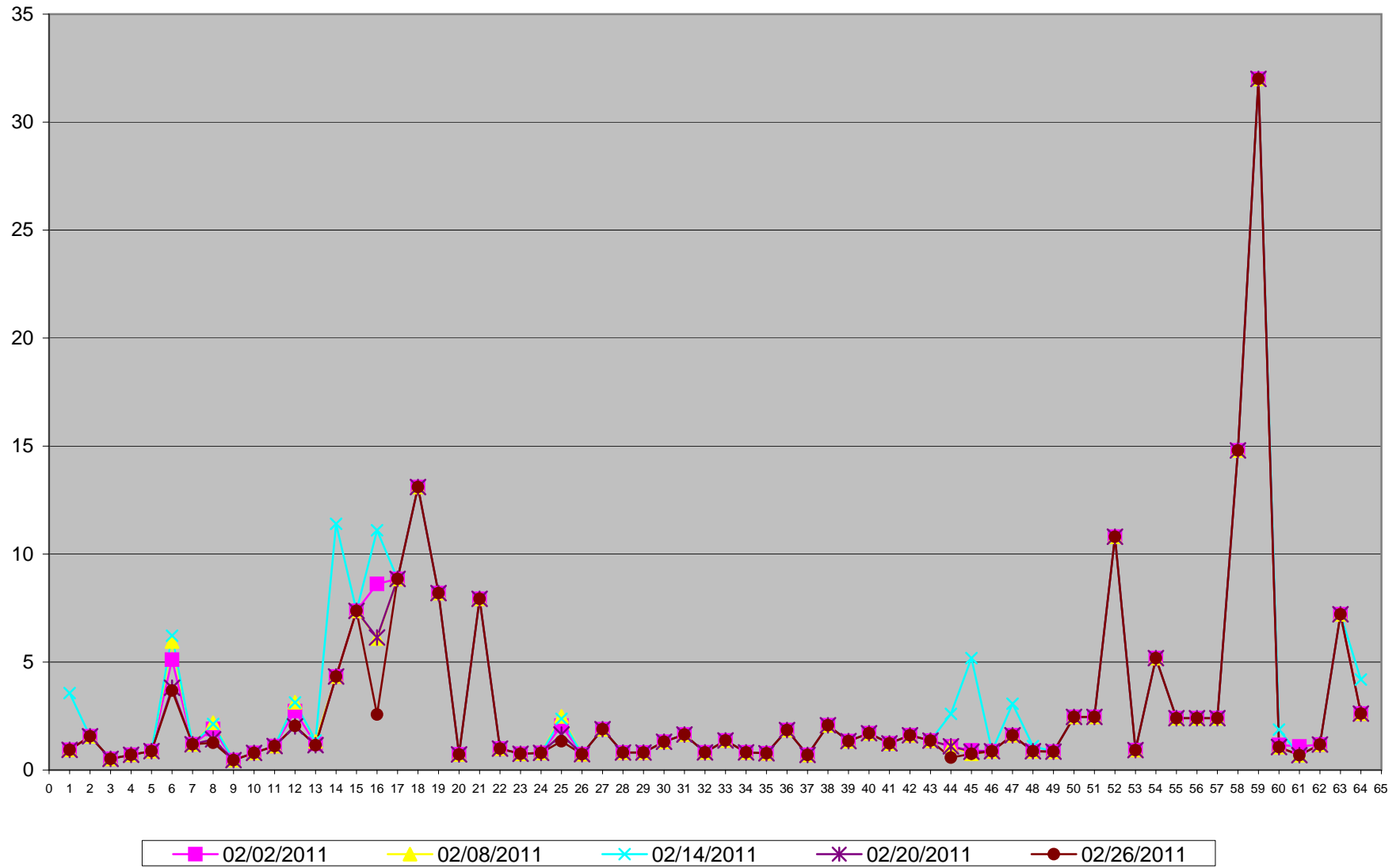
	Ozone ppb																												February 2011	
	2	3	4	5	6	8	9	10	11	12	2010	13	14	15	16	17	18	19	22	23	24	28	29	32	34	Reading	Site			
Mean	19.7	23.8	26.2	24.3	24.3	26.8	25.7	22.4	20.9	22.7	25.5	26.0	23.7	24.3	25.6	23.2	26.8	22.3	21.5	24.4	21.5	23.9	28.4	24.4	34.2	-				
Minimum	12.1	15.3	17.1	15.6	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	27.9	#23				
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	40.3	#15				





# 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)

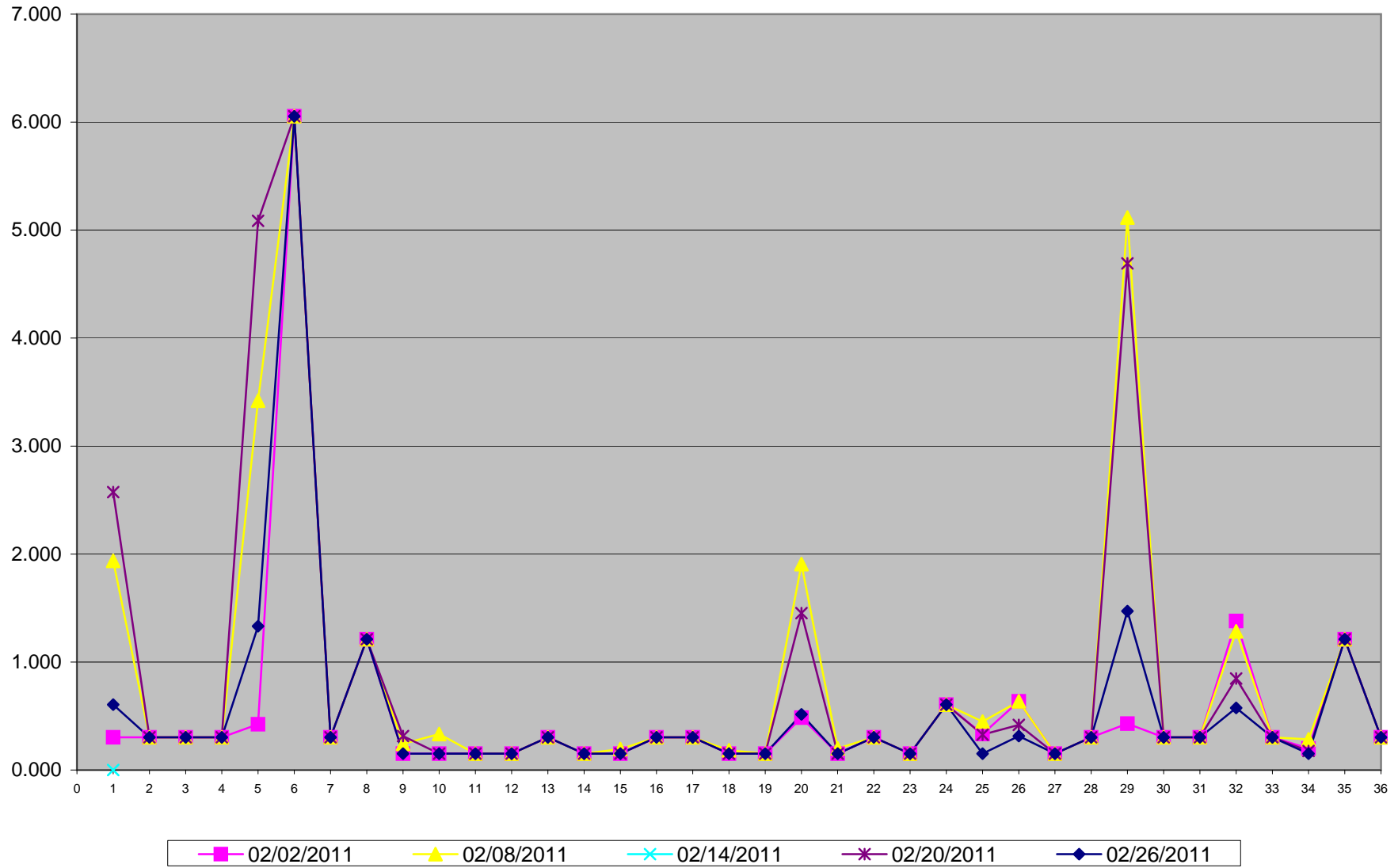
# Polycyclic Aromatic Hydrocarbons

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

PAHs	02/02/2011	02/08/2011	02/14/2011	02/20/2011	02/26/2011
Sample Volume (unit: m3)	330.32	330.34	NA	330.34	330.35
1 1-Methylnaphthalene	0.303	1.937	NA	2.573	0.605
2 1-Methylphenanthrene	0.303	0.303	NA	0.303	0.303
3 2-Chloronaphthalene	0.303	0.303	NA	0.303	0.303
4 2-Methylantracene	0.303	0.303	NA	0.303	0.303
5 2-Methylnaphthalene	0.424	3.421	NA	5.086	1.332
6 3-Methylcholanthrene	6.055	6.054	NA	6.054	6.054
7 7,12-Dimethylbenzo(a)anthracene	0.303	0.303	NA	0.303	0.303
8 9,10-Dimethylantracene	1.211	1.211	NA	1.211	1.211
9 Acenaphthene	0.151	0.242	NA	0.315	0.151
10 Acenaphthylene	0.151	0.333	NA	0.151	0.151
11 Anthracene	0.151	0.151	NA	0.151	0.151
12 Benzo(a)anthracene	0.151	0.151	NA	0.151	0.151
13 Benzo(a)fluorene	0.303	0.303	NA	0.303	0.303
14 Benzo(a)pyrene	0.151	0.151	NA	0.151	0.151
15 Benzo(b)fluoranthene	0.151	0.194	NA	0.151	0.151
16 Benzo(b)fluorene	0.303	0.303	NA	0.303	0.303
17 Benzo(e)pyrene	0.303	0.303	NA	0.303	0.303
18 Benzo(g,h,i)perylene	0.151	0.182	NA	0.151	0.151
19 Benzo(k)fluoranthene	0.151	0.151	NA	0.151	0.151
20 Biphenyl	0.484	1.907	NA	1.453	0.515
21 Chrysene	0.151	0.200	NA	0.151	0.151
22 Coronene	0.303	0.303	NA	0.303	0.303
23 Dibenz(a,h)anthracene	0.151	0.151	NA	0.151	0.151
24 Dibenzo(a,e)pyrene	0.605	0.605	NA	0.605	0.605
25 Fluoranthene	0.333	0.448	NA	0.327	0.151
26 Fluorene	0.636	0.636	NA	0.418	0.315
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	NA	0.151	0.151
28 m-Terphenyl	0.303	0.303	NA	0.303	0.303
29 Naphthalene	0.430	5.116	NA	4.692	1.471
30 o-Terphenyl	0.303	0.303	NA	0.303	0.303
31 Perylene	0.303	0.303	NA	0.303	0.303
32 Phenanthrene	1.380	1.284	NA	0.848	0.575
33 p-Terphenyl	0.303	0.303	NA	0.303	0.303
34 Pyrene	0.200	0.285	NA	0.176	0.151
35 Quinoline	1.211	1.211	NA	1.211	1.211
36 Tetralin	0.303	0.303	NA	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	February 7, 2011	Previous Calibration	January 14, 2011
Company	Lakeland Community and Industry Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	12:48	End Time (MST)	16:26
Reason:	Monthly Calibration		
Barometric Pressure	0.955 atm	Station Temperature	23 Deg C
Cal Gas	51.4 ppm	Cal Gas Expiry date	5/8/2012
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	455 ccm, 29.5 Deg C	456 ccm, 29.3 Deg C	
HVPS / Lamp Setting	-631, 750	-631, 751	
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	5.2, 0.999	5.4, 1.033	

#### Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
4961	38.9	400	387	1.0333
4961	38.9	400	400	0.9997
4980	19.4	199	203	0.9825
4985	14.6	150	152	0.9875
4996	0	0	0	N/A
Sum of Least Squares				0.9954
New Correction Factor				0.9997

#### Before Calibration

#### After Calibration

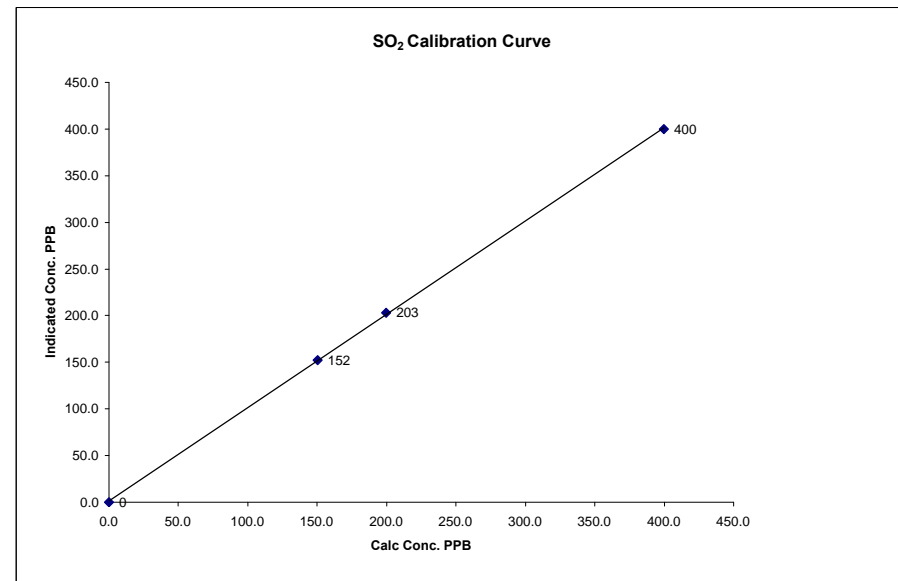
Auto Zero	0.4	0.3
Auto Span	358	366
Sample Lines Connected	YES	
Percent Change from Previous Calibration	-3.2%	

Calibration Performed by: Ting Xyu

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

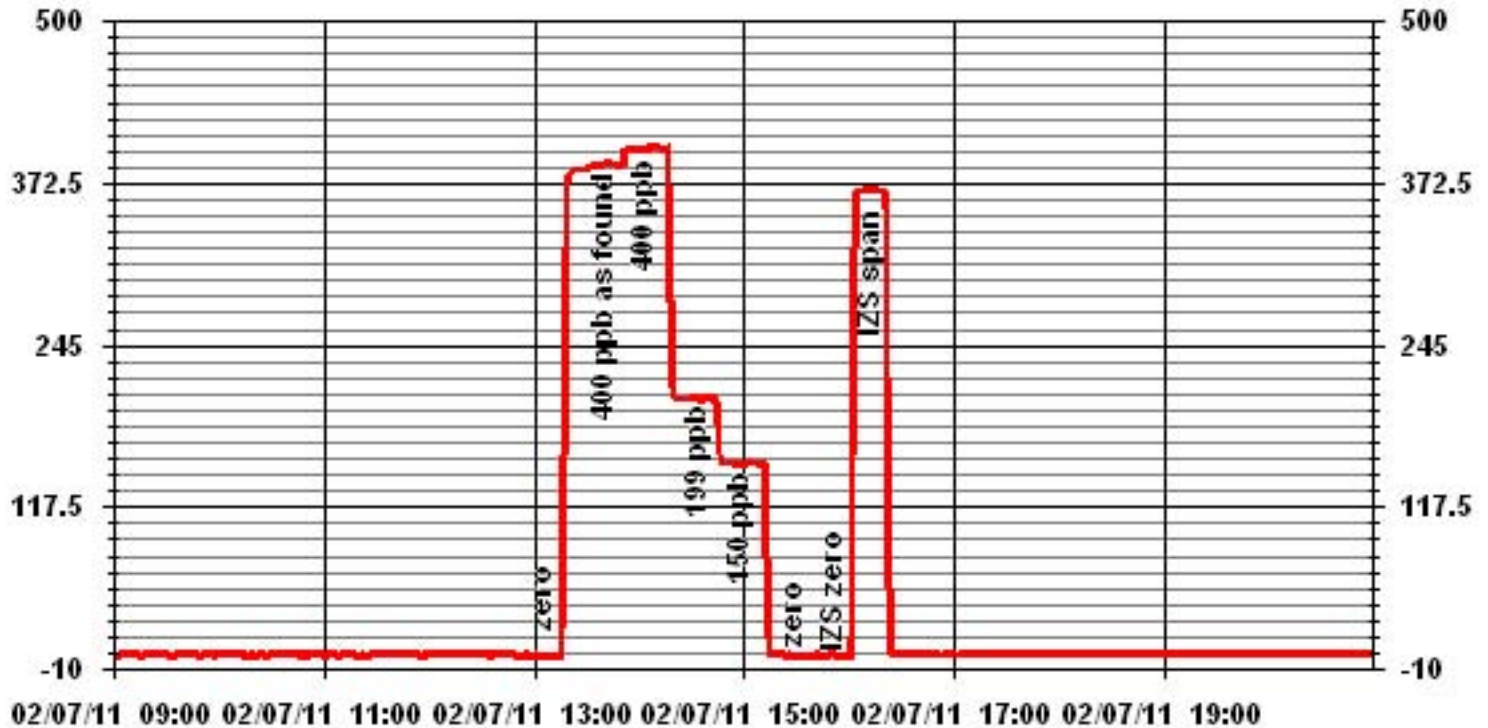
Calibration Date	February 7, 2011
Company	Lakeland Community and Industry Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	12:48
End Time (MST)	16:26

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope (≥ 0.995) (0.85 to 1.15)	Intercept (± 3% F.S.)
0	0	n/a	0.999896	0.999918
150	152	0.9875		
199	203	0.9825		
400	400	0.9997		1.401342



Notes:

### 01 Minute Averages



# Total Reduced Sulphur

**TRS Calibration Report  
Station Information**

Calibration Date	February 8, 2011	Previous Calibration	January 18, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	9:22	End Time (MST)	13:11
Reason:	Post Repair Calibration		
Barometric Pressure	0.954 atm	Station Temperature	22 Deg C
Cal Gas	10.6 ppm	Cal Gas Expiry date	May 12, 2011
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	363 ccm	31.4 Deg C	363 ccm	30.9	Deg C
HVPS / Lamp Setting	-622.7	756	-622.7	757	
PMT / RxCell Temp	OK Deg C	45.2 Deg C	OK Deg C	44.9	Deg C
Converter / IZS Temp	850 Deg C	45.0 Deg C	850 Deg C	45.0	Deg C
Offset / Slope	11.8	1.242	11.4	1.199	

**Calibration Data**

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4997	0	0	0	N/A
4962	37.7	80	82	0.9747
4962	37.7	80	80	0.9991
4980	18.9	40	41	0.9775
4985	10.9	23	24	0.9636
4997	0	0	1	N/A
Sum of Least Squares				0.9927
New Correction Factor				0.9991

**Before Calibration**

**After Calibration**

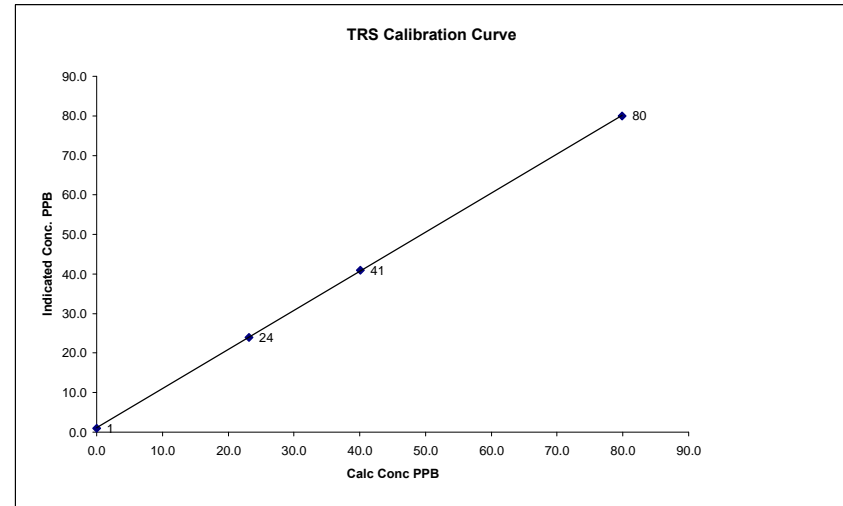
Auto Zero	0.2	0.7
Auto Span	36	36
Sample Lines Connected	YES	
Percent Change from Previous Calibration	2.5%	

Calibration Performed by: Ting Xu

**TRS Calibration Curve**

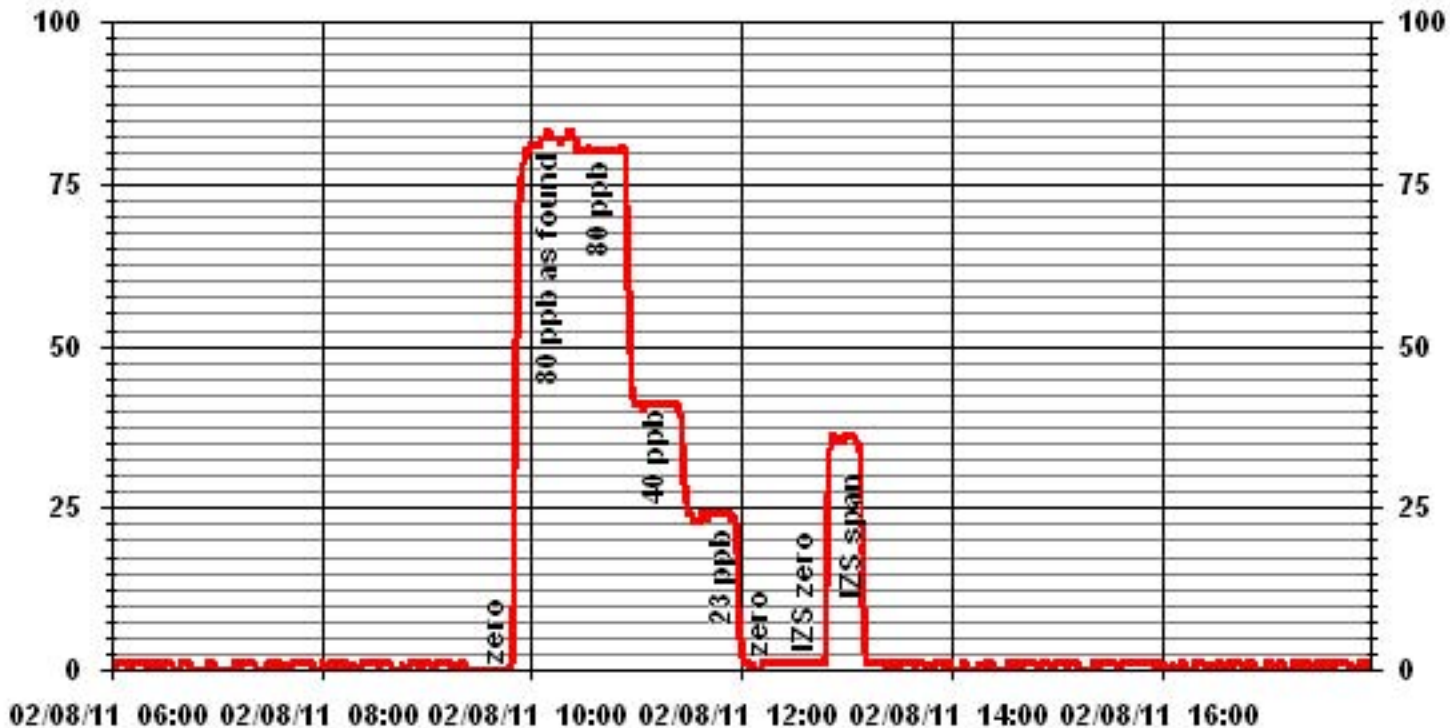
Calibration Date	February 8, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	9:22	End Time (MST)	13:11

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999970
0	1	n/a	Intercept	(± 3% F.S.)	0.988343
23	24	0.9636			1.133975
40	41	0.9775			
80	80	0.9991			



Notes:

### 01 Minute Averages



# Total Hydrocarbons

### THC Calibration Report

#### Station Information

Calibration Date:	February 8, 2011	Previous Calibration	January 14, 2011
Company:	Lakeland Industry and Community Association		
Plant / Location:	LICA1/Cold Lake		
Start Time (MST)	12:36	End Time (MST)	15:45
Reason:	Monthly Calibration		
Barometric Pressure:	0.957 atm	Station Temperature:	22 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
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#### 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	0.0	N/A
1999	70	39.6	40.0	0.9907
2000	35	20.1	19.8	1.0145
2000	20	11.6	11.4	1.0172
2000	0	0.0	0.0	N/A
Correction Factor:				0.9907

#### Percent Change

Previous Calibration Correction Factor:	0.9931
Current Correction Factor Before Span Adjust:	0.9907
Percent Change:	0.3%

#### IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	37.5	37.3
Sample Lines Connected		YES

#### Cylinder Pressures

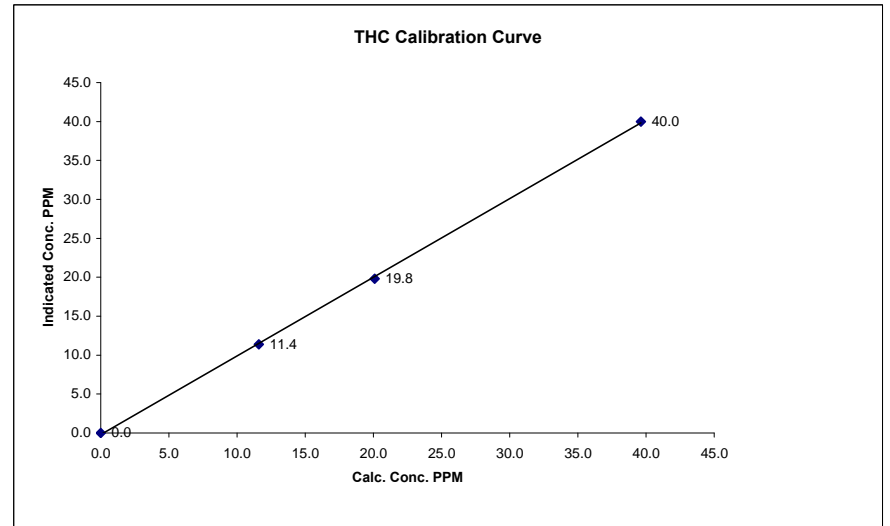
Span	900 psi
Hydrogen	500 psi
Zero Air	32 psi Maxxam-owned API 701 zero air supply with catalytic oxidizer

Calibration Performed by: Ting Xu

### THC Calibration Curve

Calibration Date	February 8, 2011
Company	Lakeland Industry and Community Association
Plant / Location	LICA1/Cold Lake
Start Time (MST)	12:36
End Time (MST)	15:45

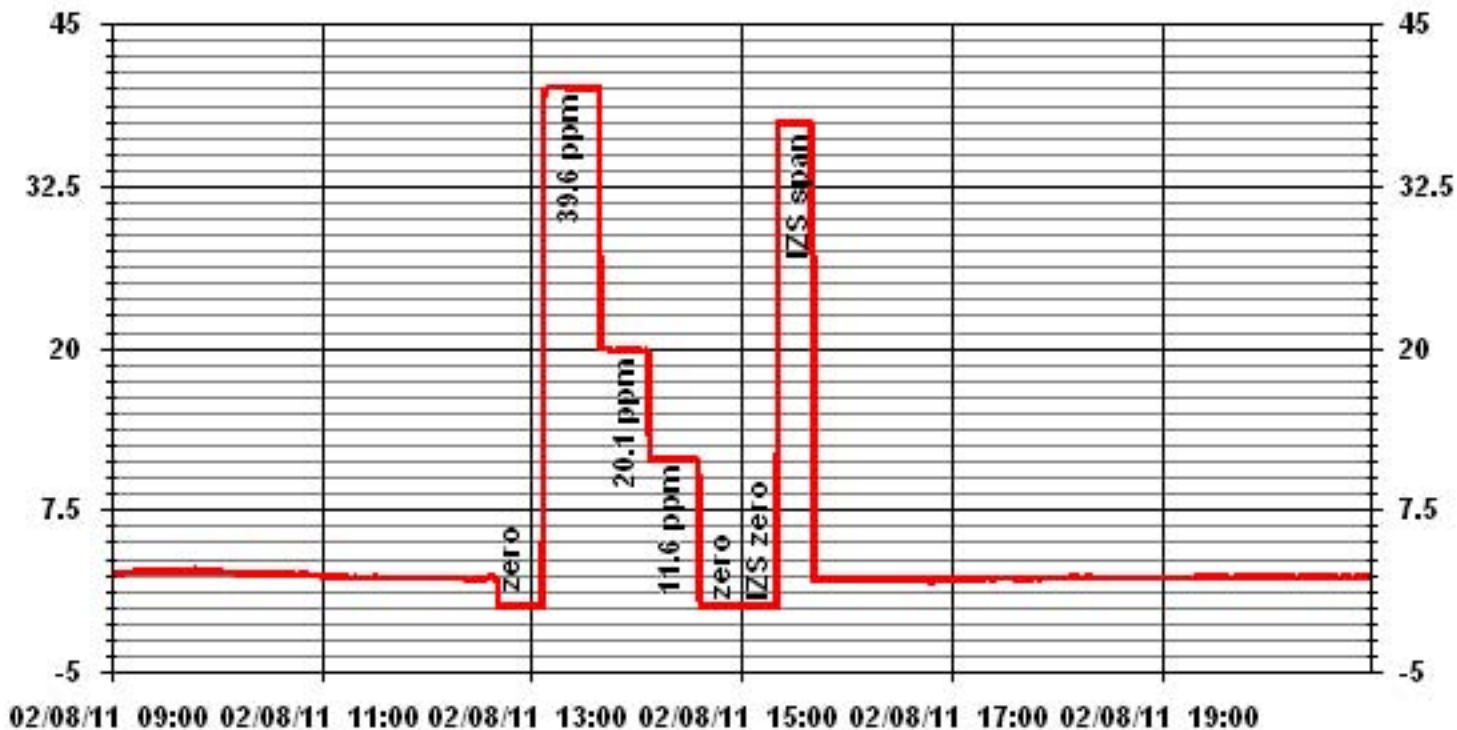
Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999805
0.0	0.0		Intercept	(0.85 to 1.15)	1.010411
11.6	11.4	1.0172		(± 3% F.S.)	-0.213335
20.1	19.8	1.0145			
39.6	40.0	0.9907			



Notes:



### 01 Minute Averages



# Particulate Matter 2.5

**TEOM 1405F Audit**

	<b><u>Station</u></b>		<b><u>Audit Transfer Standard</u></b>
Date:	February 16, 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

	<b><u>Sampler</u></b>		<b><u>Set-up and current Sampler readings</u></b>
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 (%)	30.2%
Firmware Ver.	1.52	K <sub>o</sub> Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	-21.9
		Press (ATM)	0.934

**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	0.37		
<b>Temperature/Pressure</b>			
Measured Temp (± 2 °C)	-22.1	D °C	0.2
Measured Press (± 0.01atm)	0.922	DATM	0.012
<b>Flow Audit</b>			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	2.68%
Measured Main Flow (l/min)	3.04	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	3.09%
Measured Bypass Flow (l/min)	13.63	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:** 11:15      **Finish Time:** 12:35

**Sample Inlet Cleaned:** Yes      **New Filters Installed:** YES  
**New Filter Loading %:** 19.2%

**Comments:**

**Auditor/s:** Ting Xu

# Nitrogen Dioxide

**NOx - NO- NO2 Calibration Report**

**Station Information**

Calibration Date	February 16, 2011	Previous Calibration	January 13, 2011
Company	LICA	Plant/Location	LICA 1 - Cold Lake South
Start Time (MST)	8:47	End Time (MST)	14:28
Reason:	Monthly Calibration		Other
Barometric Pressure	0.934 atm	Station Temperature	22 Deg C
Cal Gas Concentration	NOx 50.8 ppm	NO 50.4 ppm	Cal Gas Expiry date 05-Aug-12
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:	EnviroNics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	3485		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	EnviroNics 6100	S/N :	4760		

**Analyzer Settings**

Before Calibration				After Calibration			
Concentration Range	0 - 500			ppb			
Sample Flow/Conv. Temp	714 ccm	317 Deg C		716 ccm	317.0 Deg C		
Ozone Flow / Vacuum	OK ccm	178.8 "Hg-A		OK ccm	178.8 "Hg-A		
HVPS / A ZERO	-821 Volts	NA MV		-821 Volts	NA MV		
Rx/ Temp / PMT Temp	49.5 Deg C	-2.4 Deg C		50.0 Deg C	-2.5 Deg C		
Box Temp / IZS Temp	26.9 Deg C	OK Deg C		26.6 Deg C	OK Deg C		
Offset	3.7 NOx	3.4 NO		3.8 NOx	3.5 NO		
Slope	1.008 NOx	0.888 NO		1.009 NOx	0.903 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	----	----
4955	39.6	----	403	400	----	396	393	3	1.0171	1.0168
4955	39.6	----	403	400	----	403	400	3	0.9994	0.9990
4973	19.8	----	201	200	----	203	202	1	0.9924	0.9895
4984	9.9	----	101	100	----	103	102	1	0.9777	0.9795
4996	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		
4955	39.6	----	403	400	----	402	399	3	----	----
4955	39.6	350	403	----	339	403	63	340	1.0059	100.30%
4955	39.6	150	403	----	148	403	254	149	1.0137	100.69%
4955	39.6	75	403	----	76	402	326	76	1.0411	100.00%

Linearity	Sum of Least Squares		NOx= 0.997	NO= 0.996	NO2= 0.997
OK?	Yes	No	Correction Factors: NOx= 0.9994	NO= 0.9990	NO2= 1.0059
Average Converter Efficiency= 100.33%					

Before Calibration				After Calibration			
Auto Zero	0.1 NOx	0.1 NO2		0.1 NOx	0.1 NO2		
Auto Span	396 NOx	394 NO2		408 NOx	406 NO2		
Sample Lines Connected YES							
Percent Change from Previous Calibration				NOx -1.8%	NO -1.8%	NO2 0.3%	

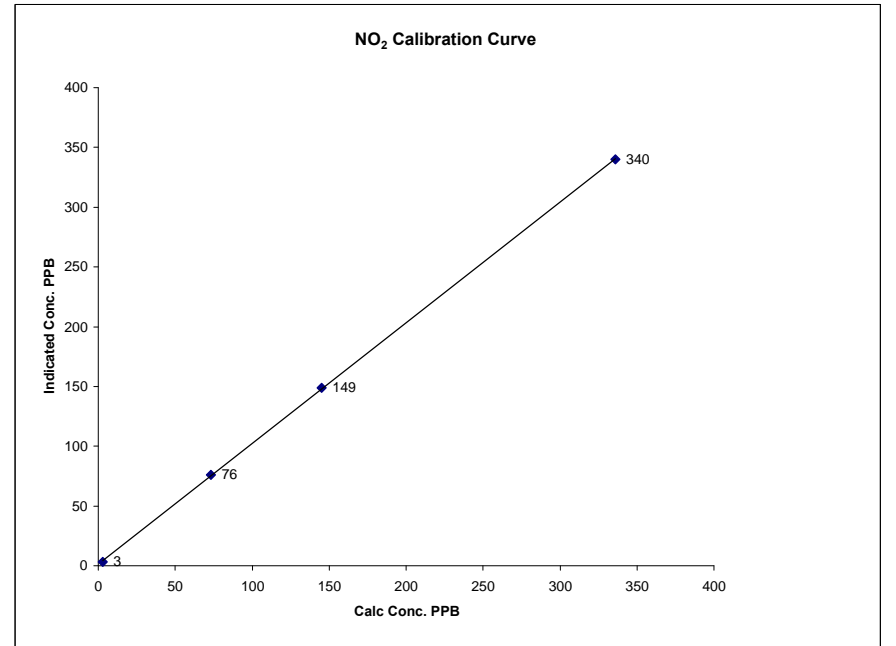
Notes

Calibration Performed by: Ting Xu

**NO2 Calibration Curve**

Calibration Date	February 16, 2011	LICA	
Company		LICA 1 - Cold Lake South	
Plant / Location		LICA 1 - Cold Lake South	
Start Time (MST)	8:47	End Time (MST)	14:28

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	
3	3	N/A	Slope (0.85 to 1.15)	0.999925
73	76	0.9605	Intercept	1.009907
145	149	0.9732		1.37040
336	340	0.9882		

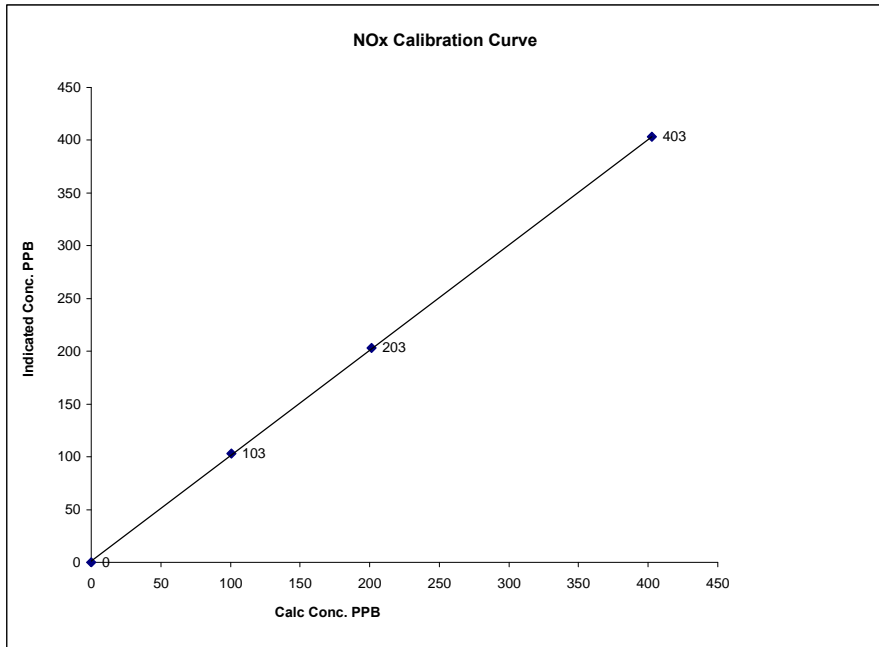


Notes:

### NOx Calibration Curve

Calibration Date February 16, 2011  
 Company LICA  
 Plant / Location LICA 1 - Cold Lake South  
 Start Time (MST) 8:47 End Time (MST) 14:28

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999961
0	0	N/A	Slope	(0.85 to 1.15)	0.999071
101	103	0.9777	Intercept	(± 3% F.S.)	1.17974
201	203	0.9924			
403	403	0.9994			

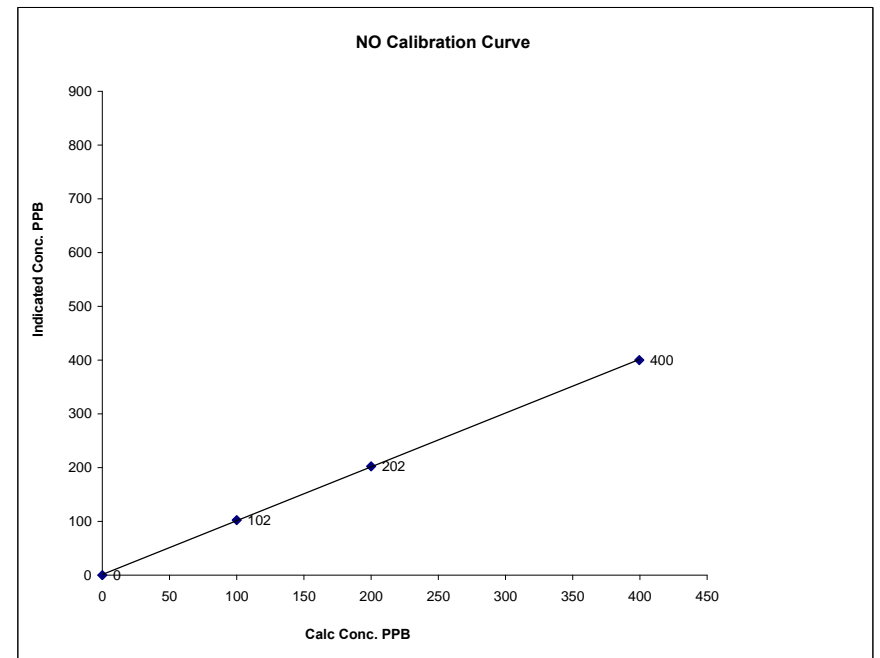


Notes:

### NO Calibration Curve

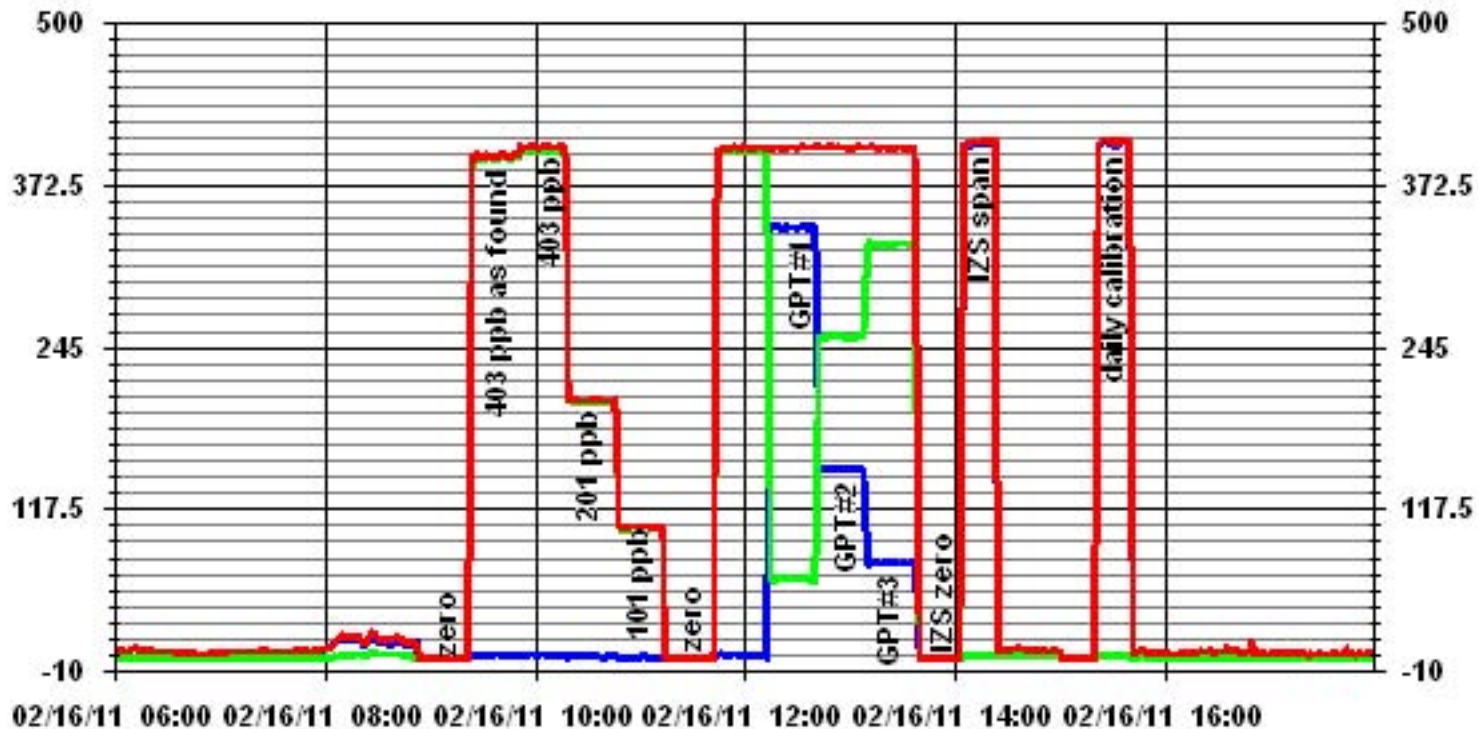
Calibration Date February 16, 2011  
 Company LICA  
 Plant / Location LICA 1 - Cold Lake South  
 Start Time (MST) 8:47 End Time (MST) 14:28

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999957
0	0	N/A	Slope	(0.85 to 1.15)	0.993944
100	102	0.9795	Intercept	(± 3% F.S.)	3.8572
200	202	0.9895			
400	400	0.9990			



Notes:

### 01 Minute Averages



— LICA NOx\_ PPB    
 — LICA NO\_ PPB    
 — LICA NO2\_ PPB

# Ozone



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

#### Station Information

Calibration Date	February 15, 2011	Previous Calibration	January 23, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	11:50	End Time (MST)	14:30
Reason:	Removal Calibration		
Barometric Pressure	0.923 atm	Station Temperature	24 Deg C
DAS Output Voltage	0 - 10 Volts		

#### Equipment Information

Analyzer Make / Model:	API 400A	S/N :	446	Method:	Fluorescent
Calibrator Make / Model:	Enviroics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	3485		

#### Analyzer Settings

	Before Calibration			After Calibration		
Concentration Range	0 - 500 ppb					
Cell A Flow/ Cell B Flow	785 ccm	NA ccm	790 ccm	NA ccm	NA ccm	
Pressure	NA mmHg			NA mmHg		
Bench Lamp Temp	52 Deg C		52 Deg C			
O <sub>3</sub> Lamp/Box Temp	48.1 Deg C	26.3 Deg C	48 Deg C	26.8 Deg C		
Offset / Slope	-5.3	0.961	-5.3	0.961		

#### Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	N/A
4995	350	336	342	0.9825
4995	150	146	148	0.9865
4995	75	73	75	0.9733
4995	0	0	1	N/A
Sum of Least Squares				N/A
New Correction Factor				0.9825

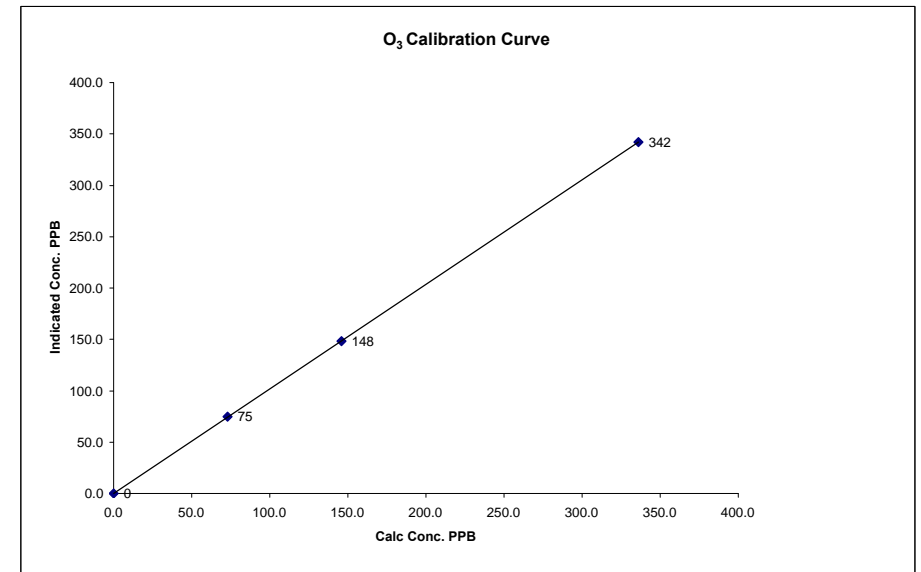
	Before Calibration	After Calibration
Auto Zero	1.59	-
Auto Span	239	-
Sample Lines Connected		YES
Percent Change from Previous Calibration		2.1%

Calibration Performed by: Ting Xu

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

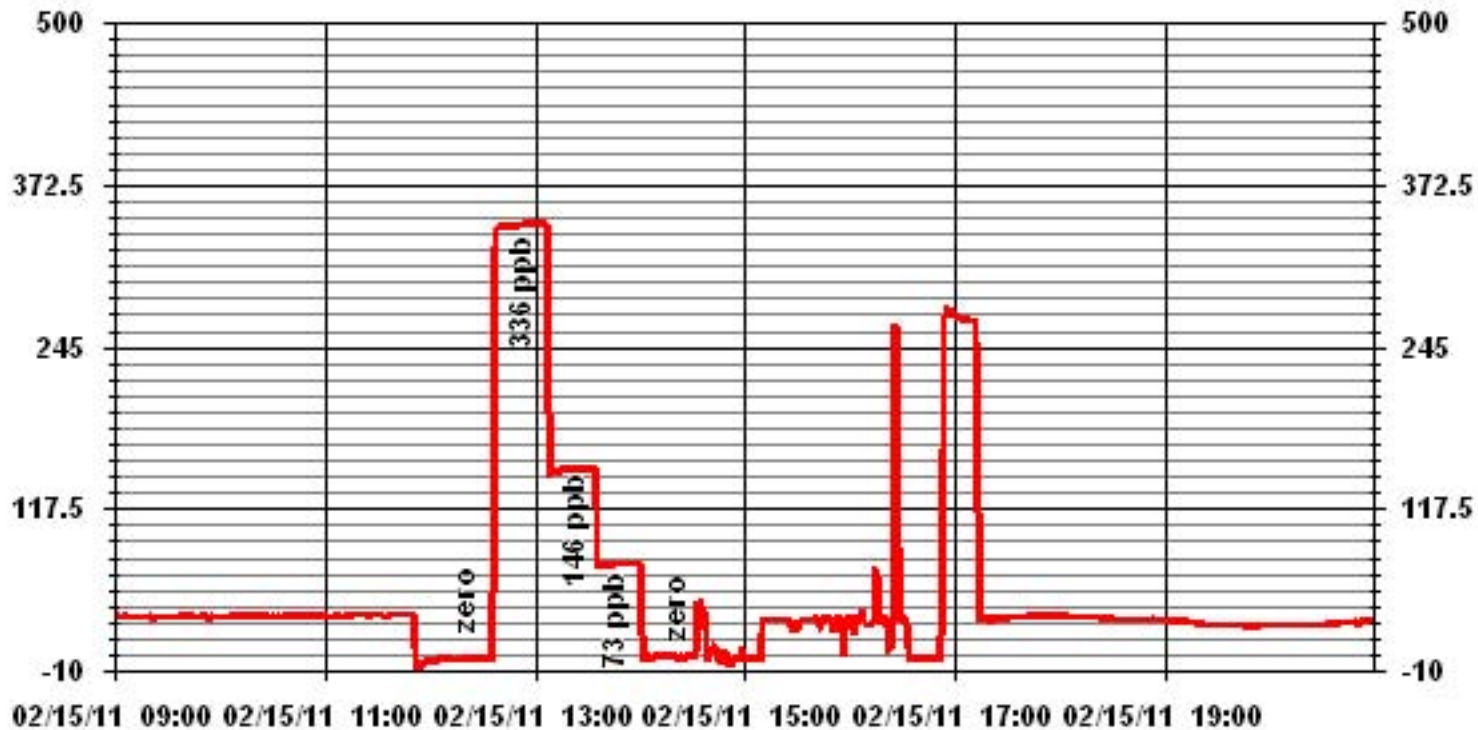
Calibration Date	February 15, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	11:50	End Time (MST)	14:30

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope (≥ 0.995) (0.85 to 1.15)	Intercept (± 3% F.S.)
0	0	n/a	0.999987	1.017055
73	75	0.9733		
146	148	0.9865		
336	342	0.9825		0.133686



Notes:

### 01 Minute Averages



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

#### Station Information

Calibration Date	February 16, 2011	Previous Calibration	-
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	13:46	End Time (MST)	17:43
Reason:	Installation Calibration		
Barometric Pressure	0.932 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:	Enviroics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	3485		

#### Analyzer Settings

	Before Calibration		After Calibration	
	0 - 500		ppb	
Concentration Range	697 ccm	740 ccm	706 ccm	749 ccm
Cell A Flow/ Cell B Flow Pressure	683 mmHg		720 mmHg	
Bench Lamp Temp	53.5 Deg C		698 Deg C	
O <sub>3</sub> Lamp/Box Temp	67.6 Deg C	27.8 Deg C	67.6 Deg C	28.3 Deg C
Offset / Slope	0.1	0.996	0.1	0.996

#### Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
4996	350	336	335	1.0030
4996	150	145	144	1.0069
4996	75	73	72	1.0139
4996	0	0	0	N/A
Sum of Least Squares				N/A
New Correction Factor				1.0030

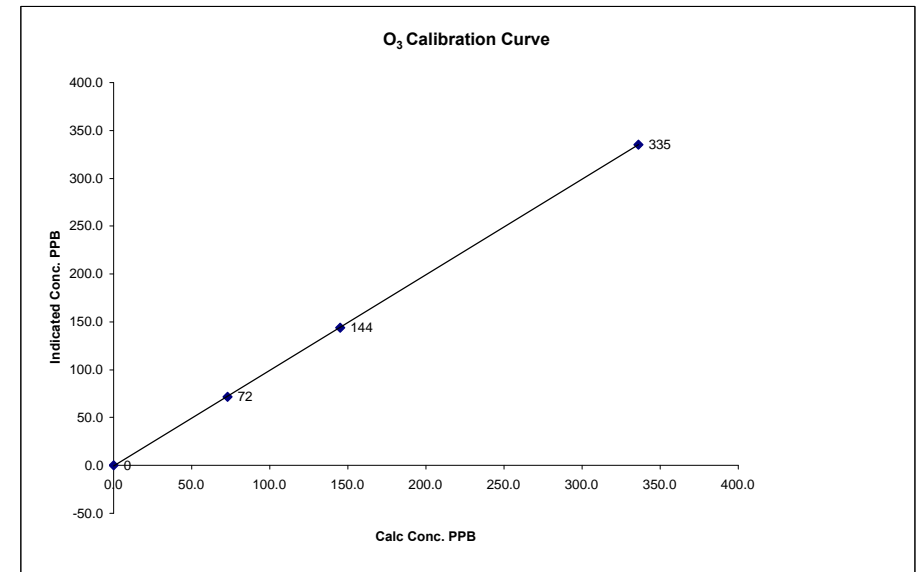
	Before Calibration	After Calibration
Auto Zero	-	-0.003
Auto Span	-	272
Sample Lines Connected		YES
Percent Change from Previous Calibration		-

Calibration Performed by: Ting Xu

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

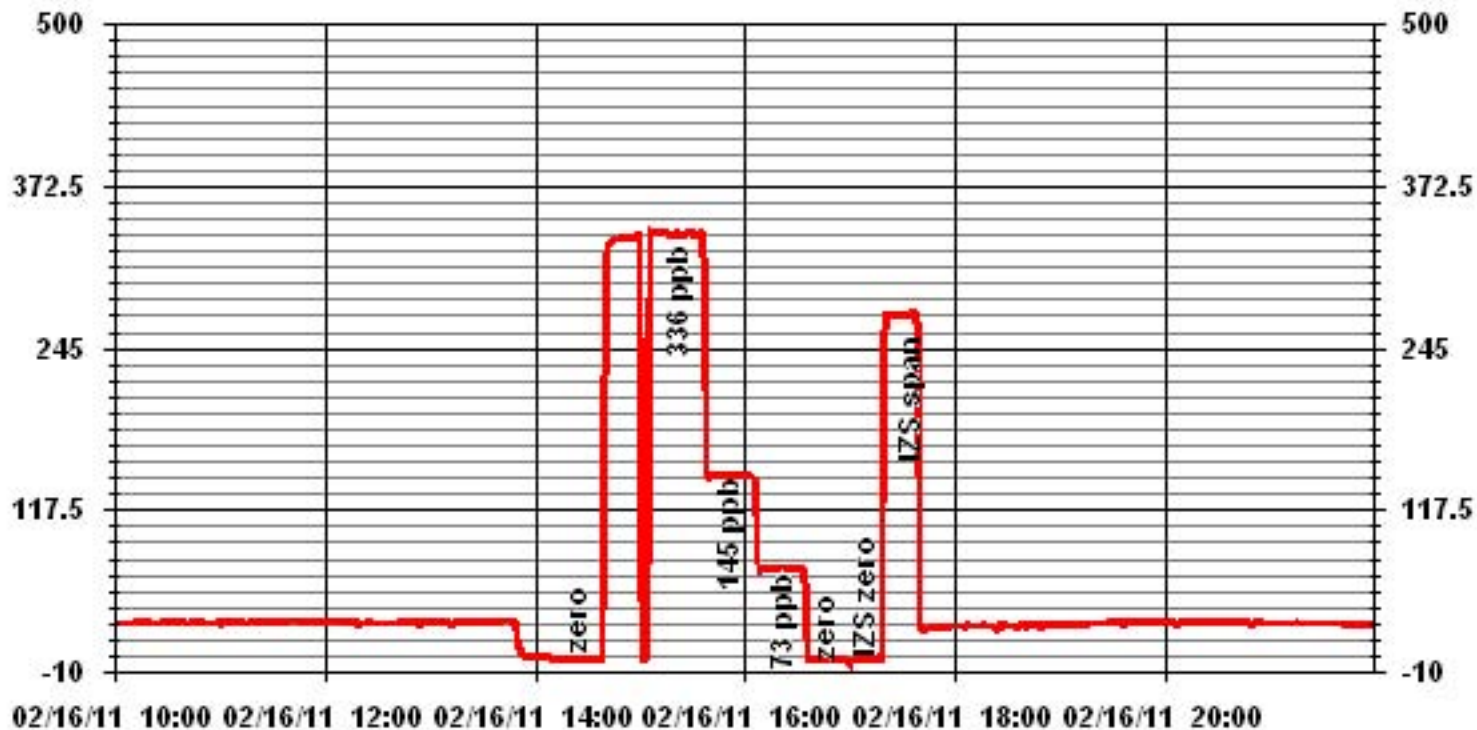
Calibration Date	February 16, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	13:46	End Time (MST)	17:43

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999993
0	0	n/a	Intercept	(± 3% F.S.)	-0.443187
73	72	1.0139			
145	144	1.0069			
336	335	1.0030			



Notes: When did as found span point, the auto daily xcal started. Aborted the daily cal and re-did the span point.

### 01 Minute Averages



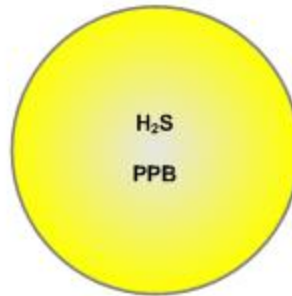
# Passive Bubble Maps

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

FEBRUARY 2011

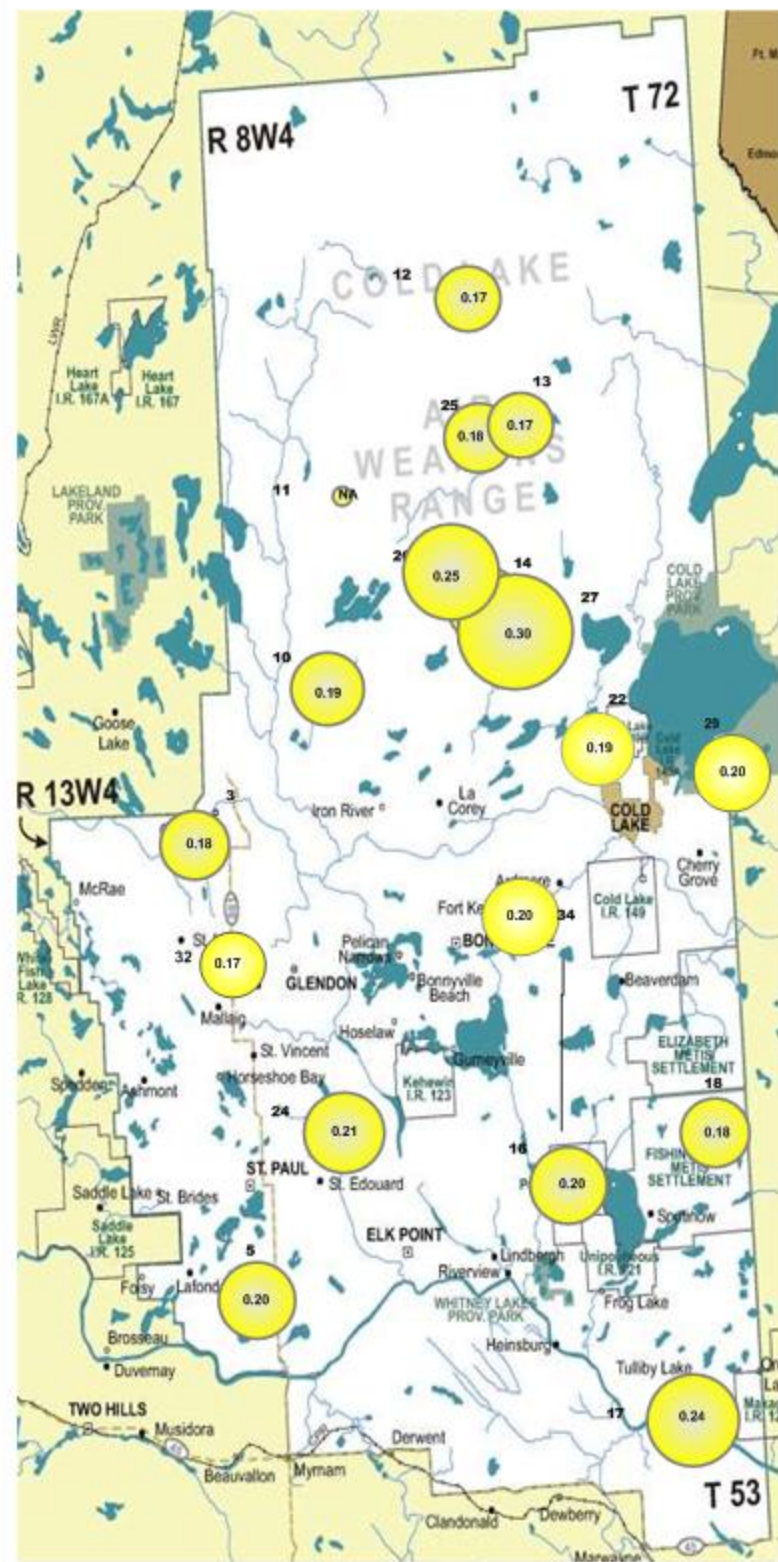
## PASSIVE STATIONS

		DUPLICATE
3 – Therien	0.19 PPB	0.17 PPB
5 – Lake Eliza	0.20 PPB	NA
10 – La Corey	0.19 PPB	NA
11 – Wolf Lake	NA	NA
12 – Foster Creek	0.17 PPB	NA
13 – Primrose	0.19 PPB	0.16 PPB
14 – Maskwa	0.20 PPB	NA
16 – Frog Lake	0.20 PPB	0.20 PPB
17 – Clear Range	0.24 PPB	NA
18 – Fishing Lake	0.18 PPB	0.17 PPB
22 – Cold Lake South	0.19 PPB	NA
24 – Fort George	0.21 PPB	NA
25 – Burnt Lake	0.17 PPB	0.18 PPB
26 – Mahihkan	0.25 PPB	NA
27 – Mahkeses	0.29 PPB	0.30 PPB
29 – Cold Lake South 2	0.20 PPB	NA
32 – St. Lina	0.17 PPB	NA
34 – Portable	0.20 PPB	NA



## Summary

Minimum : 0.17 PPB – Primrose  
 Maximum: 0.30 PPB – Mahkeses  
 Average: 0.19 PPB \*Includes Duplicates





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

FEBRUARY 2011

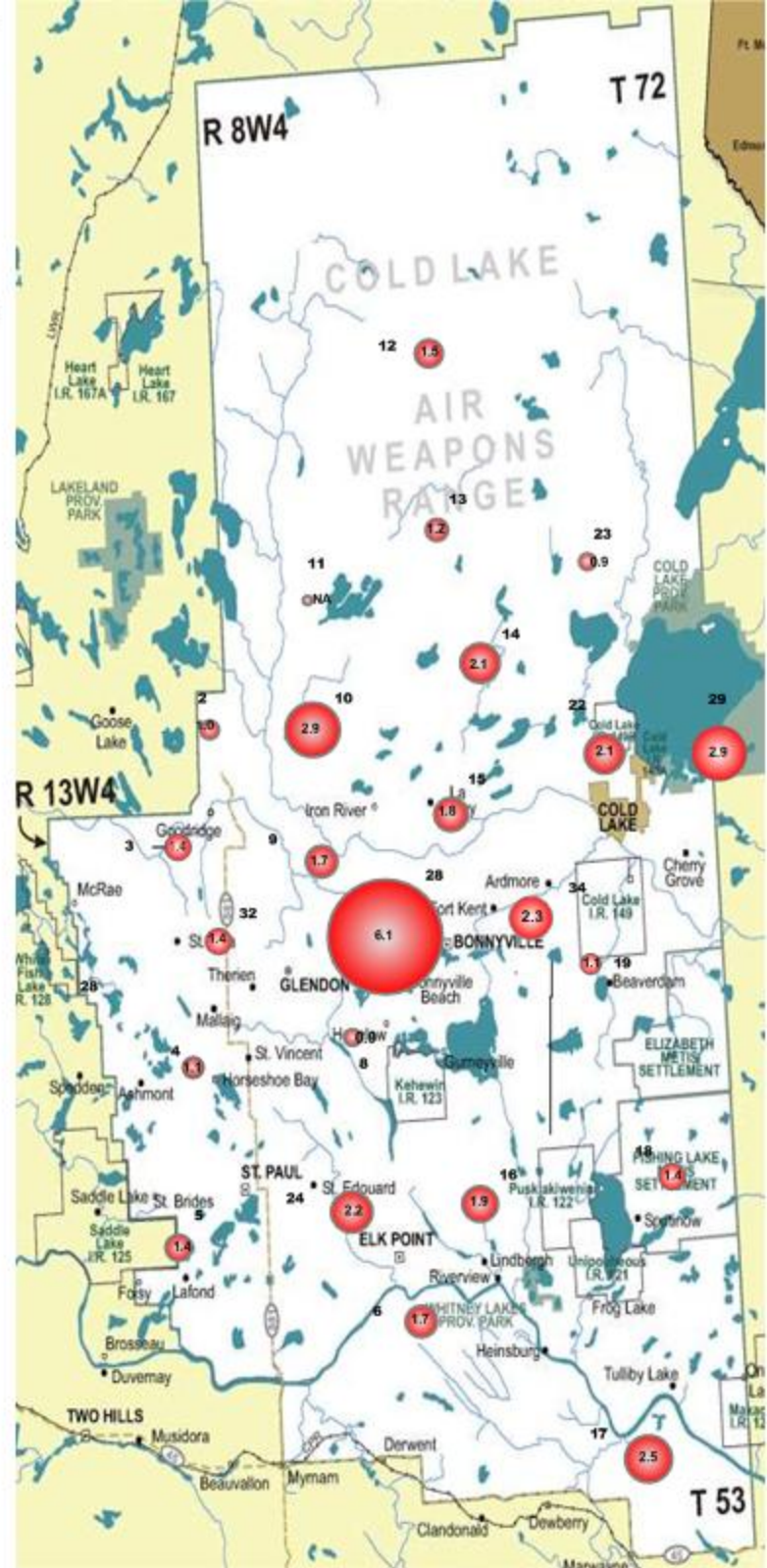
## PASSIVE STATIONS

		DUPLICATE
2 – Sand River	1.1 PPB	0.9 PPB
3 – Therien	1.4 PPB	NA
4 – Flat Lake	1.2 PPB	1.0 PPB
5 – Lake Eliza	1.4 PPB	NA
6 – Telegraph Creek	1.6 PPB	1.7 PPB
8 – Muriel-Kehewin	0.9 PPB	NA
9 – Dupre	1.6 PPB	1.8 PPB
10 – La Corey	2.9 PPB	NA
11 – Wolf Lake	NA	NA
12 – Foster Creek	1.5 PPB	NA
13 – Primrose	1.2 PPB	1.1 PPB
14 – Maskwa	2.1 PPB	NA
15 – Ardmore	1.8 PPB	1.7 PPB
16 – Frog Lake	1.9 PPB	NA
17 – Clear Range	2.5 PPB	2.4 PPB
18 – Fishing Lake	1.4 PPB	NA
19 – Beaverdam	0.9 PPB	1.2 PPB
22 – Cold Lake South	2.1 PPB	NA
23 – Medley-Martineau	0.9 PPB	NA
24 – Fort George	1.9 PPB	2.5 PPB
28 – Town of Bonnyville	6.1 PPB	NA
29 – Cold Lake South 2	3.0 PPB	2.8 PPB
32 – St. Lina	1.4 PPB	NA
34 – Portable	2.3 PPB	NA



## Summary

Minimum : 0.9 PPB – Medley-Martineau  
Maximum: 6.1 PPB – Town of Bonnyville  
Average: 1.9 PPB \*Includes Duplicates

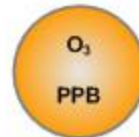


# Lakeland Industry & Community Association O<sub>3</sub> Passive Bubble Map

FEBRUARY 2011

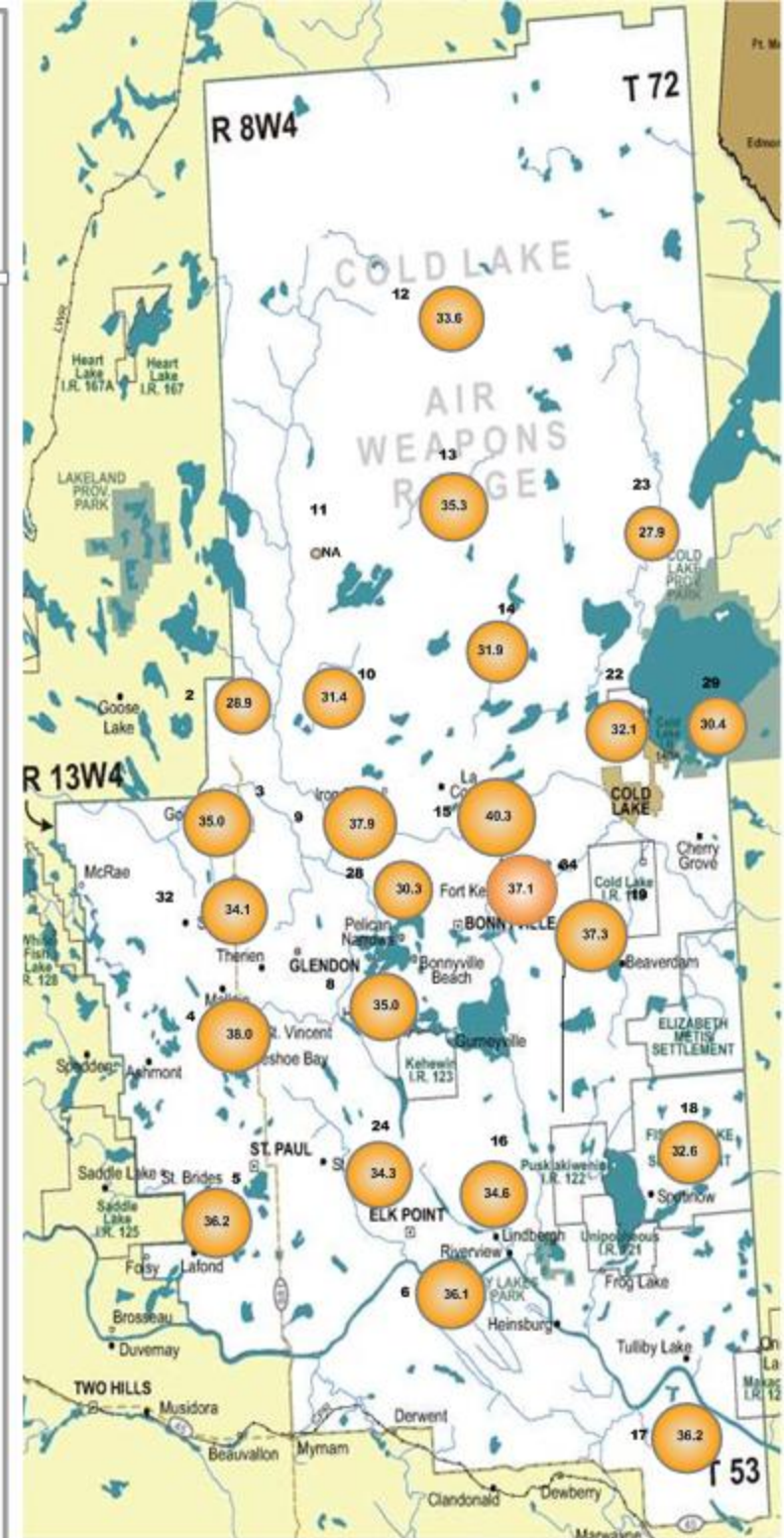
## PASSIVE STATIONS

		DUPLICATE
2 – Sand River	28.8 PPB	28.9 PPB
3 – Therien	35.0 PPB	NA
4 – Flat Lake	38.3 PPB	37.6 PPB
5 – Lake Eliza	36.2 PPB	NA
6 – Telegraph Creek	35.7 PPB	36.5 PPB
8 – Muriel-Kehewin	35.0 PPB	NA
9 – Dupre	36.2 PPB	39.6 PPB
10 – La Corey	31.4 PPB	NA
11 – Wolf Lake	NA	NA
12 – Foster Creek	33.6 PPB	NA
13 – Primrose	33.3 PPB	37.3 PPB
14 – Maskwa	31.9 PPB	NA
15 – Ardmore	39.8 PPB	40.7 PPB
16 – Frog Lake	34.6 PPB	NA
17 – Clear Range	35.5 PPB	36.9 PPB
18 – Fishing Lake	32.6 PPB	NA
19 – Beaverdam	37.5 PPB	37.0 PPB
22 – Cold Lake South	32.1 PPB	NA
23 – Medley-Martineau	27.9 PPB	NA
24 – Fort George	33.9 PPB	34.7 PPB
28 – Town of Bonnyville	30.3 PPB	NA
29 – Cold Lake South 2	31.8 PPB	28.9 PPB
32 – St. Lina	34.1 PPB	NA
34 – Portable	37.1 PPB	NA



## Summary

Minimum : 27.9 PPB –Medley-Martineau  
 Maximum: 40.3 PPB –Ardmore  
 Average: 34.2 PPB \*Includes Duplicates





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

FEBRUARY 2011

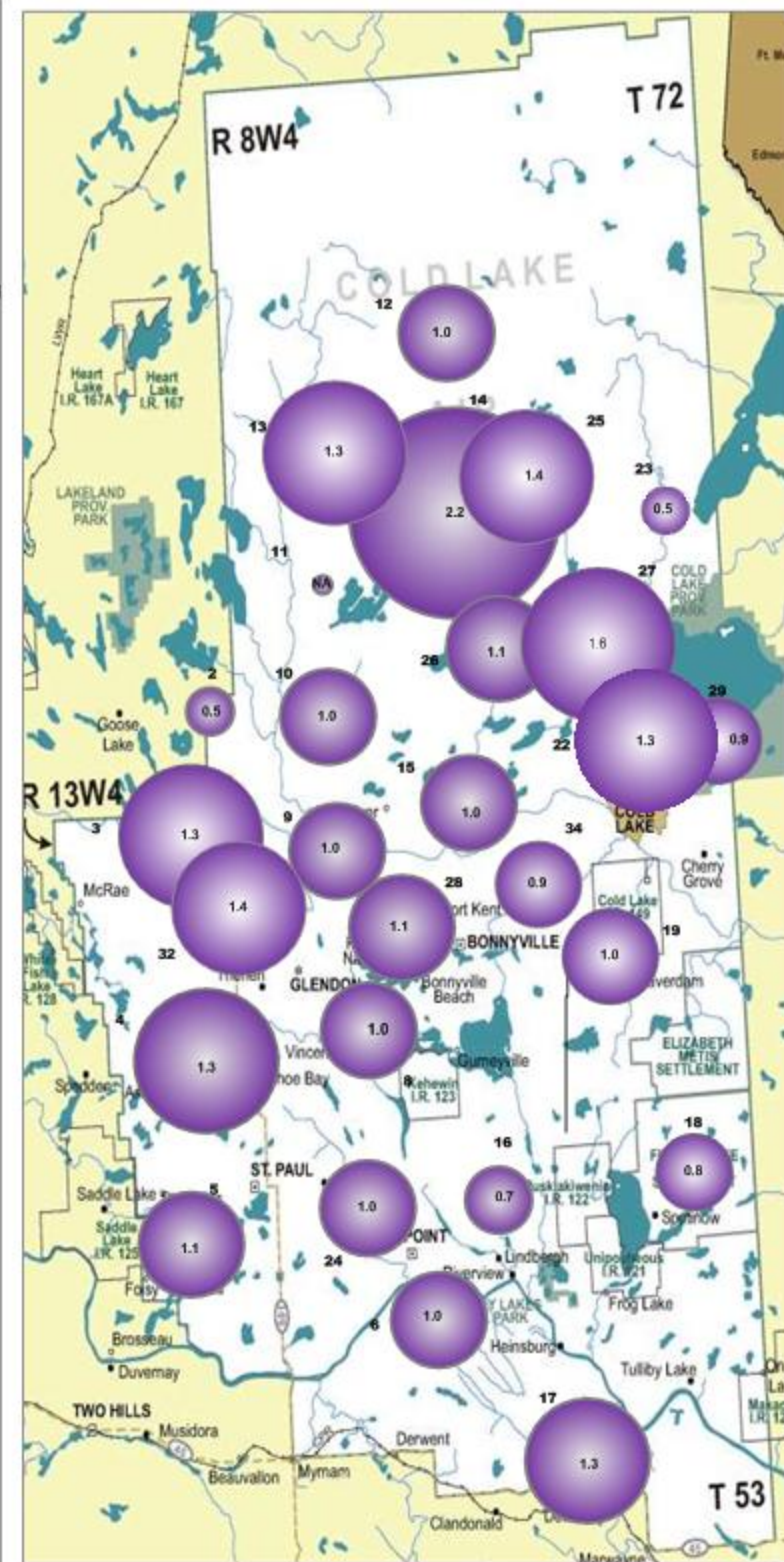
## PASSIVE STATIONS

		DUPLICATE
2 – Sand River	0.4 PPB	0.5 PPB
3 – Therien	1.3 PPB	NA
4 – Flat Lake	1.3 PPB	1.2 PPB
5 – Lake Eliza	1.1 PPB	NA
6 – Telegraph Creek	0.9 PPB	1.1 PPB
8 – Muriel-Kehewin	1.0 PPB	NA
9 – Dupre	1.0 PPB	0.9 PPB
10 – La Corey	1.0 PPB	NA
11 – Wolf Lake	NA	NA
12 – Foster Creek	1.0 PPB	NA
13 – Primrose	1.3 PPB	1.2 PPB
14 – Maskwa	2.2 PPB	NA
15 – Ardmore	1.0 PPB	0.9 PPB
16 – Frog Lake	0.7 PPB	NA
17 – Clear Range	1.3 PPB	1.3 PPB
18 – Fishing Lake	0.8 PPB	NA
19 – Beaverdam	1.0 PPB	1.0 PPB
22 – Cold Lake South	1.3 PPB	NA
23 – Medley-Martineau	0.5 PPB	NA
24 – Fort George	1.0 PPB	0.9 PPB
25 – Burnt Lake	1.4 PPB	NA
26 – Mahikan	1.1 PPB	1.1 PPB
27 – Mahkeses	1.6 PPB	NA
28 – Town of Bonnyville	1.0 PPB	1.1 PPB
29 – Cold Lake South 2	0.9 PPB	NA
32 – St. Lina	1.4 PPB	NA
34 – Portable	0.9 PPB	NA



## Summary

Minimum : 0.5 PPB – Medley-Martineau  
Maximum: 2.2 PPB –Maskwa  
Average: 1.1 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>	01/27/11	10:04	03/01/11	14:57	
2A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/27/11	10:04	03/01/11	14:57	
3	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/27/11	09:08	03/01/11	15:47	
3A (Dup)	H <sub>2</sub> S	01/27/11	09:08	03/01/11	15:47	
4	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/28/11	14:30	03/02/11	15:09	
4A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/28/11	14:30	03/02/11	15:09	
5	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/28/11	13:25	03/02/11	14:20	
5A (Dup)	NA	NA	NA	NA	NA	
6	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/28/11	11:52	03/02/11	12:38	
6A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/28/11	11:52	03/02/11	12:38	
8	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/28/11	15:20	03/02/11	16:11	
8A (Dup)	NA	NA	NA	NA	NA	
9	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/27/11	11:01	02/28/11	14:27	
9A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/27/11	11:01	02/28/11	14:27	
10	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/27/11	12:03	03/01/11	14:02	
10A (Dup)	NA	NA	NA	NA	NA	Could not get into the site to change samples as the road was impassable due to snow.
11	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/27/11	12:59	NA	NA	
11A (Dup)	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/27/11	12:59	NA	NA	
12	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	02/01/11	10:52	03/01/11	12:00	
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>	02/01/11	12:51	03/01/11	09:37	
13A (Dup)	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	02/01/11	12:51	03/01/11	09:37	
14	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	02/01/11	13:45	03/01/11	08:23	
14A (Dup)	NA	NA	NA	NA	NA	
15	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	02/01/11	14:45	02/28/11	11:40	
15A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	02/01/11	14:45	02/28/11	11:40	
16	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/28/11	09:49	03/02/11	10:23	
16A (Dup)	H <sub>2</sub> S	01/28/11	09:49	03/02/11	10:23	

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>	01/28/11	10:58	03/02/11	11:44	
17A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/28/11	10:58	03/02/11	11:44	
18	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/28/11	09:00	03/02/11	09:28	
18A (Dup)	H <sub>2</sub> S	01/28/11	09:00	03/02/11	09:28	
19	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/28/11	07:54	03/02/11	08:20	
19A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/28/11	07:54	03/02/11	08:20	
22	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/31/11	08:15	02/28/11	17:07	
22A (Dup)	NA	NA	NA	NA	NA	
23	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/26/11	12:09	02/28/11	15:46	
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>	01/28/11	12:27	03/02/11	13:19	
24A (Dup)	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/28/11	12:27	03/02/11	13:19	
25	H <sub>2</sub> S/SO <sub>2</sub>	02/01/11	12:15	03/01/11	10:01	
25A (Dup)	H <sub>2</sub> S	02/01/11	12:15	03/01/11	10:01	
26	H <sub>2</sub> S/SO <sub>2</sub>	02/01/11	13:21	03/01/11	08:41	
26A (Dup)	SO <sub>2</sub>	02/01/11	13:21	03/01/11	08:41	
27	H <sub>2</sub> S/SO <sub>2</sub>	02/01/11	14:06	03/01/11	07:47	
27A (Dup)	H <sub>2</sub> S	02/01/11	14:06	03/01/11	07:47	
28	SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/27/11	11:30	02/28/11	13:48	
28A (Dup)	SO <sub>2</sub>	01/27/11	11:30	02/28/11	13:48	
29	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/31/11	08:31	02/28/11	16:52	
29A (Dup)	NO <sub>2</sub> /O <sub>3</sub>	01/31/11	08:31	02/28/11	16:52	
32	H <sub>2</sub> S/SO <sub>2</sub> /NO <sub>2</sub> /O <sub>3</sub>	01/27/11	08:14	03/01/11	16:29	
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>	01/26/11	10:01	02/28/11	13:02	
34A (Dup)	NA	NA	NA	NA	NA	

# Passive Network Laboratory Analysis



Your Project #: 2011/01/27 - 2011/03/01  
Site:LICA

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

**Report Date: 2011/03/11**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B117070**  
**Received: 2011/03/04, 11:18**

Sample Matrix: Air  
# Samples Received: 43

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis 0	23	2011/03/10	2011/03/11	EINDSOP-00150	Tang.Passive H2S in
NO2 Passive Analysis 0	18	2011/03/08	2011/03/11	EINDSOP-00148	Tang Passive NO2 in
NO2 Passive Analysis 0	15	2011/03/09	2011/03/11	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis 0	33	2011/03/10	2011/03/11	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis 0	37	2011/03/09	2011/03/11	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

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

Total cover pages: 1



Maxxam Job #: B117070  
 Report Date: 2011/03/11

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
 Client Project #: 2011/01/27 - 2011/03/01  
 Site Reference: LICA  
 Sampler Initials: SB

**RESULTS OF CHEMICAL ANALYSES OF AIR**

Maxxam ID		AB6931	AB6932	AB6933	AB6934	AB6935		
Sampling Date		2011/01/27 10:04	2011/01/27 10:04	2011/01/27 09:08	2011/01/27 09:08	2011/01/28 14:30		
	<b>Units</b>	<b>2</b>	<b>2A (DUP)</b>	<b>3</b>	<b>3A (DUP)</b>	<b>4</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb			0.19	0.17		0.02	4694767
Calculated NO2	ppb	1.1	0.9	1.4		1.2	0.1	4688906
Calculated O3	ppb	28.8	28.9	35.0		38.3	0.1	4696682
Calculated SO2	ppb	0.4	0.5	1.3		1.3	0.1	4691991
RDL = Reportable Detection Limit								

Maxxam ID		AB6937	AB6938	AB6939	AB6940	AB6941		
Sampling Date		2011/01/28 14:30	2011/01/28 13:25	2011/01/28 11:52	2011/01/28 11:52	2011/01/28 15:20		
	<b>Units</b>	<b>4A (DUP)</b>	<b>5</b>	<b>6</b>	<b>6A (DUP)</b>	<b>8</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb		0.20				0.02	4694767
Calculated NO2	ppb	1.0	1.4	1.6	1.7	0.9	0.1	4688906
Calculated O3	ppb	37.6	36.2	35.7	36.5	35.0	0.1	4696682
Calculated SO2	ppb	1.2	1.1	0.9	1.1	1.0	0.1	4691991
RDL = Reportable Detection Limit								

Maxxam ID		AB6942	AB6943	AB6944	AB6945	AB6946		
Sampling Date		2011/01/27 11:01	2011/01/27 11:01	2011/01/27 12:03	2011/02/01 10:52	2011/02/01 12:51		
	<b>Units</b>	<b>9</b>	<b>9A (DUP)</b>	<b>10</b>	<b>12</b>	<b>13</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb			0.19	0.17	0.19	0.02	4694767
Calculated NO2	ppb	1.6	1.8	2.9	1.5	1.2	0.1	4688906
Calculated O3	ppb	36.2	39.6	31.4	33.6	33.3	0.1	4696682
Calculated SO2	ppb	1.0	0.9	1.0	1.0	1.3	0.1	4691991
RDL = Reportable Detection Limit								



Maxxam Job #: B117070  
Report Date: 2011/03/11

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
Client Project #: 2011/01/27 - 2011/03/01  
Site Reference: LICA  
Sampler Initials: SB

**RESULTS OF CHEMICAL ANALYSES OF AIR**

Maxxam ID		AB6947		AB6948	AB6949	AB6950		
Sampling Date		2011/02/01 12:51		2011/02/01 13:45	2011/02/01 14:45	2011/02/01 14:45		
	<b>Units</b>	<b>13A (DUP)</b>	<b>QC Batch</b>	<b>14</b>	<b>15</b>	<b>15A (DUP)</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb	0.16	4694767	0.20			0.02	4694767
Calculated NO2	ppb	1.1	4688906	2.1	1.8	1.7	0.1	4688906
Calculated O3	ppb	37.3	4696682	31.9	39.8	40.7	0.1	4696684
Calculated SO2	ppb	1.2	4691991	2.2	1.0	0.9	0.1	4691991
RDL = Reportable Detection Limit								

Maxxam ID		AB6951	AB6952	AB6953	AB6954	AB6955		
Sampling Date		2011/01/28 09:49	2011/01/28 09:49	2011/01/28 10:58	2011/01/28 10:58	2011/01/28 09:00		
	<b>Units</b>	<b>16</b>	<b>16A (DUP)</b>	<b>17</b>	<b>17A (DUP)</b>	<b>18</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb	0.20	0.20	0.24		0.18	0.02	4694767
Calculated NO2	ppb	1.9		2.5	2.4	1.4	0.1	4691903
Calculated O3	ppb	34.6		35.5	36.9	32.6	0.1	4696684
Calculated SO2	ppb	0.7		1.3	1.3	0.8	0.1	4692010
RDL = Reportable Detection Limit								

Maxxam ID		AB6957	AB6958	AB6959	AB6960	AB6961		
Sampling Date		2011/01/28 09:00	2011/01/28 07:54	2011/01/28 07:54	2011/01/31 08:15	2011/01/26 12:09		
	<b>Units</b>	<b>18A (DUP)</b>	<b>19</b>	<b>19A (DUP)</b>	<b>22</b>	<b>23</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb	0.17			0.19		0.02	4694767
Calculated NO2	ppb		0.9	1.2	2.1	0.9	0.1	4691903
Calculated O3	ppb		37.5	37.0	32.1	27.9	0.1	4696684
Calculated SO2	ppb		1.0	1.0	1.3	0.5	0.1	4692010
RDL = Reportable Detection Limit								





Maxxam Job #: B117070  
 Report Date: 2011/03/11

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
 Client Project #: 2011/01/27 - 2011/03/01  
 Site Reference: LICA  
 Sampler Initials: SB

**RESULTS OF CHEMICAL ANALYSES OF AIR**

Maxxam ID		AB6962	AB6963	AB6964	AB6965	AB6966		
Sampling Date		2011/01/28 12:27	2011/01/28 12:27	2011/02/01 12:15	2011/02/01 12:15	2011/02/01 13:21		
	<b>Units</b>	<b>24</b>	<b>24A (DUP)</b>	<b>25</b>	<b>25A (DUP)</b>	<b>26</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb	0.21		0.17	0.18	0.25	0.02	4694767
Calculated NO2	ppb	1.9	2.5				0.1	4691903
Calculated O3	ppb	33.9	34.7				0.1	4696684
Calculated SO2	ppb	1.0	0.9	1.4		1.1	0.1	4692010
RDL = Reportable Detection Limit								

Maxxam ID		AB6967	AB6968	AB6969	AB6970	AB6971		
Sampling Date		2011/02/01 13:21	2011/02/01 14:06	2011/02/01 14:06	2011/01/27 11:30	2011/01/27 11:30		
	<b>Units</b>	<b>26A (DUP)</b>	<b>27</b>	<b>27A (DUP)</b>	<b>28</b>	<b>28A (DUP)</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Passive Monitoring</b>								
Calculated H2S	ppb		0.29	0.30			0.02	4694767
Calculated NO2	ppb				6.1		0.1	4691903
Calculated O3	ppb				30.3		0.1	4696684
Calculated SO2	ppb	1.1	1.6		1.0	1.1	0.1	4692010
RDL = Reportable Detection Limit								

Maxxam ID		AB6972	AB6975	AB7711	AB7712		
Sampling Date		2011/01/31 08:31	2011/01/31 08:31	2011/01/27 08:14	2011/01/26 10:01		
	<b>Units</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	0.20		0.17	0.20	0.02	4694767	
Calculated NO2	ppb	3.0	2.8	1.4	2.3	0.1	4691903	
Calculated O3	ppb	31.8	28.9	34.1	37.1	0.1	4696684	
Calculated SO2	ppb	0.9		1.4	0.9	0.1	4692010	
RDL = Reportable Detection Limit								



Maxxam Job #: B117070  
Report Date: 2011/03/11

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
Client Project #: 2011/01/27 - 2011/03/01  
Site Reference: LICA  
Sampler Initials: SB

**General Comments**

Sample # 11 & 11A (DUP) not able to be retrieved due to inaccessability due to snow.

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



LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION  
 Attention: MICHAEL BISAGA  
 Client Project #: 2011/01/27 - 2011/03/01  
 P.O. #:  
 Site Reference: LICA

Quality Assurance Report  
 Maxxam Job Number: PB117070

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4688906 DF4	Calibration Check	Calculated NO2	2011/03/08		98	%	76 - 118
	Spiked Blank	Calculated NO2	2011/03/08		100	%	N/A
	Method Blank	Calculated NO2	2011/03/08	<0.1		ppb	
4691903 DF4	Calibration Check	Calculated NO2	2011/03/09		98	%	76 - 118
	Spiked Blank	Calculated NO2	2011/03/09		100	%	N/A
	Method Blank	Calculated NO2	2011/03/09	<0.1		ppb	
4691991 DF4	Calibration Check	Calculated SO2	2011/03/09		101	%	95 - 105
	Spiked Blank	Calculated SO2	2011/03/09		105	%	N/A
	Method Blank	Calculated SO2	2011/03/09	<0.1		ppb	
4692010 DF4	Calibration Check	Calculated SO2	2011/03/09		101	%	95 - 105
	Spiked Blank	Calculated SO2	2011/03/09		103	%	N/A
	Method Blank	Calculated SO2	2011/03/09	<0.1		ppb	
4694767 TM5	Calibration Check	Calculated H2S	2011/03/10		102	%	80 - 120
	Spiked Blank	Calculated H2S	2011/03/10		100	%	N/A
4696682 OZ	Calibration Check	Calculated O3	2011/03/11		98	%	91 - 107
	Spiked Blank	Calculated O3	2011/03/11		99	%	N/A
	Method Blank	Calculated O3	2011/03/11	<0.1		ppb	
4696684 OZ	Calibration Check	Calculated O3	2011/03/11		100	%	91 - 107
	Spiked Blank	Calculated O3	2011/03/11		95	%	N/A
	Method Blank	Calculated O3	2011/03/11	<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 #: B117070**

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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

=====

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

# **Volatile Organics Laboratory Analysis**

# MAXXAM

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167  
Location: Cold Lake South Canister ID: 7827  
Station ID: Lica 1 Canister Installation Date/Time: Feb 01, 2011 @ 15:25 mst  
Field Sample ID: LICA VOC/ CLS /Feb 02, 11 Canister Removal Date/Time: Feb 03, 2011 @ 8:50 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
02-Feb-11	02/02/2011 0:00	03/02/2011 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 # 06426

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Technician Signiture: Ting Xu



Site: LICA - COLD LAKE SOUTH  
Your C.O.C. #: 06426

**Attention: Michael Bisaga**

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

**Report Date: 2011/02/11**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B115818**

**Received: 2011/02/05, 14:30**

Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/02/10	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/02/10	BRL SOP-00304	EPA TO-15

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

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

**Encryption Key**

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

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

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

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Total cover pages: 1

Maxxam Job #: B115818  
 Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		IO5863	IO5864	
Sampling Date		2011/02/02 00:00	2011/02/02 00:00	
COC Number		06426	06426	
	<b>Units</b>	<b>LICA VOC/CLS/FEB 02, 11</b>	<b>LICA VOC/PORT/FEB 02, 11</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	21	22	2403390
QC Batch = Quality Control Batch				



Maxxam Job #: B115818  
 Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IO5863				
Sampling Date		2011/02/02 00:00				
COC Number		06426				
	<b>Units</b>	<b>LICA VOC/CLS/FEB 02, 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	2403392
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2403392
Propene	ppbv	<0.30	0.30	<0.516	0.516	2403392
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2403392
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2403392
Dichlorodifluoromethane (FREON 12)	ppbv	1.03	0.20	5.11	0.989	2403392
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2403392
Chloromethane	ppbv	0.92	0.30	1.90	0.620	2403392
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2403392
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2403392
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2403392
Trichlorofluoromethane (FREON 11)	ppbv	0.49	0.20	2.73	1.12	2403392
Trichlorotrifluoroethane	ppbv	0.16	0.15	1.21	1.15	2403392
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2403392
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2403392
2-Propanone	ppbv	3.63	0.80	8.62	1.90	2403392
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2403392
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2403392
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2403392
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2403392
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2403392
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2403392
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2403392
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2403392
Methylene Chloride(Dichloromethane)	ppbv	0.59	0.30	2.06	1.04	2403392
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2403392
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2403392
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2403392
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2403392
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2403392
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B115818  
 Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IO5863				
Sampling Date		2011/02/02 00:00				
COC Number		06426				
	<b>Units</b>	<b>LICA VOC/CLS/FEB 02, 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	2403392
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2403392
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2403392
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2403392
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2403392
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2403392
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2403392
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2403392
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2403392
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2403392
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2403392
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2403392
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2403392
Benzene	ppbv	0.34	0.18	1.09	0.575	2403392
Toluene	ppbv	0.24	0.20	0.908	0.753	2403392
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2403392
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2403392
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2403392
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2403392
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2403392
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2403392
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2403392
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2403392
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2403392
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2403392
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2403392
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2403392
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2403392
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2403392
Hexane	ppbv	0.33	0.30	1.16	1.06	2403392
Cyclohexane	ppbv	0.32	0.20	1.09	0.688	2403392
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2403392
QC Batch = Quality Control Batch						

Maxxam Job #: B115818  
 Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IO5863				
Sampling Date		2011/02/02 00:00				
COC Number		06426				
	<b>Units</b>	<b>LICA VOC/CLS/FEB 02, 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	2403392
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2403392
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	71		N/A	N/A	2403392
D5-Chlorobenzene	%	68		N/A	N/A	2403392
Difluorobenzene	%	70		N/A	N/A	2403392
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B115818  
 Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IO5864				
Sampling Date		2011/02/02 00:00				
COC Number		06426				
	<b>Units</b>	<b>LICA VOC/PORT/FEB 02, 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	2403392
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2403392
Propene	ppbv	<0.30	0.30	<0.516	0.516	2403392
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2403392
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2403392
Dichlorodifluoromethane (FREON 12)	ppbv	1.08	0.20	5.36	0.989	2403392
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2403392
Chloromethane	ppbv	0.95	0.30	1.96	0.620	2403392
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2403392
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2403392
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2403392
Trichlorofluoromethane (FREON 11)	ppbv	0.49	0.20	2.77	1.12	2403392
Trichlorotrifluoroethane	ppbv	0.17	0.15	1.29	1.15	2403392
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2403392
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2403392
2-Propanone	ppbv	4.02	0.80	9.55	1.90	2403392
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2403392
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2403392
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2403392
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2403392
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2403392
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2403392
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2403392
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2403392
Methylene Chloride(Dichloromethane)	ppbv	0.61	0.30	2.10	1.04	2403392
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2403392
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2403392
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2403392
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2403392
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2403392
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B115818  
 Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IO5864				
Sampling Date		2011/02/02 00:00				
COC Number		06426				
	<b>Units</b>	<b>LICA VOC/PORT/FEB 02, 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	2403392
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2403392
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2403392
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2403392
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2403392
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2403392
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2403392
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2403392
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2403392
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2403392
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2403392
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2403392
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2403392
Benzene	ppbv	0.32	0.18	1.02	0.575	2403392
Toluene	ppbv	0.21	0.20	0.786	0.753	2403392
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2403392
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2403392
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2403392
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2403392
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2403392
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2403392
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2403392
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2403392
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2403392
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2403392
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2403392
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2403392
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2403392
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2403392
Hexane	ppbv	0.46	0.30	1.63	1.06	2403392
Cyclohexane	ppbv	0.42	0.20	1.44	0.688	2403392
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2403392
QC Batch = Quality Control Batch						

Maxxam Job #: B115818  
 Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IO5864				
Sampling Date		2011/02/02 00:00				
COC Number		06426				
	<b>Units</b>	<b>LICA VOC/PORT/FEB 02, 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	2403392
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2403392
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	67		N/A	N/A	2403392
D5-Chlorobenzene	%	65		N/A	N/A	2403392
Difluorobenzene	%	67		N/A	N/A	2403392
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B115818  
 Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

### Test Summary

**Maxxam ID** IO5863  
**Sample ID** LICA VOC/CLS/FEB 02, 11  
**Matrix** AIR  
**Collected** 2011/02/02  
**Shipped**  
**Received** 2011/02/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2403390	N/A	2011/02/10	MMU
Volatile Organics in Air (TO-15)	GC/MS	2403392	N/A	2011/02/10	MMU

**Maxxam ID** IO5864  
**Sample ID** LICA VOC/PORT/FEB 02, 11  
**Matrix** AIR  
**Collected** 2011/02/02  
**Shipped**  
**Received** 2011/02/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2403390	N/A	2011/02/10	MMU
Volatile Organics in Air (TO-15)	GC/MS	2403392	N/A	2011/02/10	MMU

Maxxam Job #: B115818  
Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

**GENERAL COMMENTS**

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



Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

Quality Assurance Report  
 Maxxam Job Number: GB115818

QA/QC Batch			Date Analyzed					
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2403392	MMU	Spiked Blank	2011/02/10		101	%	60 - 140	
		Bromochloromethane	2011/02/10		102	%	60 - 140	
		D5-Chlorobenzene	2011/02/10		103	%	60 - 140	
		Difluorobenzene	2011/02/10		88	%	70 - 130	
		2,2,4-Trimethylpentane	2011/02/10		84	%	70 - 130	
		Carbon Disulfide	2011/02/10		83	%	70 - 130	
		Propene	2011/02/10		94	%	70 - 130	
		Vinyl Acetate	2011/02/10		98	%	70 - 130	
		Vinyl Bromide	2011/02/10		94	%	70 - 130	
		Dichlorodifluoromethane (FREON 12)	2011/02/10		94	%	70 - 130	
		1,2-Dichlorotetrafluoroethane	2011/02/10		101	%	70 - 130	
		Chloromethane	2011/02/10		88	%	70 - 130	
		Vinyl Chloride	2011/02/10		91	%	70 - 130	
		Chloroethane	2011/02/10		88	%	70 - 130	
		1,3-Butadiene	2011/02/10		95	%	70 - 130	
		Trichlorofluoromethane (FREON 11)	2011/02/10		89	%	70 - 130	
		Trichlorotrifluoroethane	2011/02/10		90	%	70 - 130	
		Ethanol	2011/02/10		88	%	70 - 130	
		2-propanol	2011/02/10		93	%	70 - 130	
		2-Propanone	2011/02/10		97	%	70 - 130	
		Methyl Ethyl Ketone (2-Butanone)	2011/02/10		84	%	70 - 130	
		Methyl Isobutyl Ketone	2011/02/10		94	%	70 - 130	
		Methyl Butyl Ketone (2-Hexanone)	2011/02/10		100	%	70 - 130	
		Methyl t-butyl ether (MTBE)	2011/02/10		129	%	70 - 130	
		Ethyl Acetate	2011/02/10		90	%	70 - 130	
		1,1-Dichloroethylene	2011/02/10		94	%	70 - 130	
		cis-1,2-Dichloroethylene	2011/02/10		93	%	70 - 130	
		trans-1,2-Dichloroethylene	2011/02/10		129	%	70 - 130	
		Methylene Chloride(Dichloromethane)	2011/02/10		79	%	70 - 130	
		Chloroform	2011/02/10		94	%	70 - 130	
		Carbon Tetrachloride	2011/02/10		95	%	70 - 130	
		1,1-Dichloroethane	2011/02/10		95	%	70 - 130	
		1,2-Dichloroethane	2011/02/10		92	%	70 - 130	
		Ethylene Dibromide	2011/02/10		94	%	70 - 130	
		1,1,1-Trichloroethane	2011/02/10		94	%	70 - 130	
		1,1,2-Trichloroethane	2011/02/10		93	%	70 - 130	
		1,1,2,2-Tetrachloroethane	2011/02/10		89	%	70 - 130	
		cis-1,3-Dichloropropene	2011/02/10		96	%	70 - 130	
		trans-1,3-Dichloropropene	2011/02/10		97	%	70 - 130	
		1,2-Dichloropropane	2011/02/10		89	%	70 - 130	
		Bromomethane	2011/02/10		90	%	70 - 130	
		Bromoform	2011/02/10		108	%	70 - 130	
		Bromodichloromethane	2011/02/10		91	%	70 - 130	
		Dibromochloromethane	2011/02/10		99	%	70 - 130	
		Heptane	2011/02/10		85	%	70 - 130	
		Trichloroethylene	2011/02/10		93	%	70 - 130	
		Tetrachloroethylene	2011/02/10		98	%	70 - 130	
		Benzene	2011/02/10		91	%	70 - 130	
		Toluene	2011/02/10		96	%	70 - 130	
		Ethylbenzene	2011/02/10		96	%	70 - 130	
		p+m-Xylene	2011/02/10		94	%	70 - 130	
		o-Xylene	2011/02/10		92	%	70 - 130	
		Styrene	2011/02/10		99	%	70 - 130	
		1,3,5-Trimethylbenzene	2011/02/10		96	%	70 - 130	
		1,2,4-Trimethylbenzene	2011/02/10		96	%	70 - 130	
		4-ethyltoluene	2011/02/10		94	%	70 - 130	

Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

## Quality Assurance Report (Continued)

Maxxam Job Number: GB115818

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2403392 MMU	Spiked Blank	Chlorobenzene	2011/02/10		91	%	70 - 130
		Benzyl chloride	2011/02/10		104	%	70 - 130
		1,3-Dichlorobenzene	2011/02/10		92	%	70 - 130
		1,4-Dichlorobenzene	2011/02/10		89	%	70 - 130
		1,2-Dichlorobenzene	2011/02/10		93	%	70 - 130
		1,2,4-Trichlorobenzene	2011/02/10		81	%	70 - 130
		Hexachlorobutadiene	2011/02/10		89	%	70 - 130
		Hexane	2011/02/10		84	%	70 - 130
		Cyclohexane	2011/02/10		93	%	70 - 130
		Tetrahydrofuran	2011/02/10		96	%	70 - 130
		1,4-Dioxane	2011/02/10		99	%	70 - 130
	Method Blank	Bromochloromethane	2011/02/10		109	%	60 - 140
		D5-Chlorobenzene	2011/02/10		104	%	60 - 140
		Difluorobenzene	2011/02/10		111	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/10	<0.20		ppbv	
		Carbon Disulfide	2011/02/10	<0.50		ppbv	
		Propene	2011/02/10	<0.30		ppbv	
		Vinyl Acetate	2011/02/10	<0.20		ppbv	
		Vinyl Bromide	2011/02/10	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/02/10	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/02/10	<0.17		ppbv	
		Chloromethane	2011/02/10	<0.30		ppbv	
		Vinyl Chloride	2011/02/10	<0.18		ppbv	
		Chloroethane	2011/02/10	<0.30		ppbv	
		1,3-Butadiene	2011/02/10	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/02/10	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/02/10	<0.15		ppbv	
		Ethanol	2011/02/10	<2.3		ppbv	
		2-propanol	2011/02/10	<3.0		ppbv	
		2-Propanone	2011/02/10	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/02/10	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/02/10	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/02/10	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/02/10	<0.20		ppbv	
		Ethyl Acetate	2011/02/10	<2.2		ppbv	
		1,1-Dichloroethylene	2011/02/10	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/02/10	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/02/10	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/02/10	0.64, RDL=0.30		ppbv	
		Chloroform	2011/02/10	<0.15		ppbv	
		Carbon Tetrachloride	2011/02/10	<0.30		ppbv	
		1,1-Dichloroethane	2011/02/10	<0.20		ppbv	
		1,2-Dichloroethane	2011/02/10	<0.20		ppbv	
		Ethylene Dibromide	2011/02/10	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/02/10	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/02/10	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/02/10	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/02/10	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/02/10	<0.17		ppbv	
		1,2-Dichloropropane	2011/02/10	<0.40		ppbv	
		Bromomethane	2011/02/10	<0.18		ppbv	
		Bromoform	2011/02/10	<0.20		ppbv	
		Bromodichloromethane	2011/02/10	<0.20		ppbv	
		Dibromochloromethane	2011/02/10	<0.20		ppbv	
		Heptane	2011/02/10	<0.30		ppbv	

Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

### Quality Assurance Report (Continued)

Maxxam Job Number: GB115818

QA/QC Batch				Date Analyzed				
Num Init	QC Type	Parameter		yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2403392	MMU	Method Blank	Trichloroethylene	2011/02/10	<0.30		ppbv	
			Tetrachloroethylene	2011/02/10	<0.20		ppbv	
			Benzene	2011/02/10	<0.18		ppbv	
			Toluene	2011/02/10	<0.20		ppbv	
			Ethylbenzene	2011/02/10	<0.20		ppbv	
			p+m-Xylene	2011/02/10	<0.37		ppbv	
			o-Xylene	2011/02/10	<0.20		ppbv	
			Styrene	2011/02/10	<0.20		ppbv	
			1,3,5-Trimethylbenzene	2011/02/10	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2011/02/10	<0.50		ppbv	
			4-ethyltoluene	2011/02/10	<2.2		ppbv	
			Chlorobenzene	2011/02/10	<0.20		ppbv	
			Benzyl chloride	2011/02/10	<1.0		ppbv	
			1,3-Dichlorobenzene	2011/02/10	<0.40		ppbv	
			1,4-Dichlorobenzene	2011/02/10	<0.40		ppbv	
			1,2-Dichlorobenzene	2011/02/10	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2011/02/10	<2.0		ppbv	
			Hexachlorobutadiene	2011/02/10	<3.0		ppbv	
			Hexane	2011/02/10	<0.30		ppbv	
			Cyclohexane	2011/02/10	<0.20		ppbv	
			Tetrahydrofuran	2011/02/10	<0.40		ppbv	
			1,4-Dioxane	2011/02/10	<2.0		ppbv	
			Xylene (Total)	2011/02/10	<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: 7800  
Station ID: Lica 1 Canister Installation Date/Time: Feb 07, 2011 @ 12:49 mst  
Field Sample ID: LICA VOC/ CLS /Feb 08, 11 Canister Removal Date/Time: Feb 09, 2011 @ 8:45 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
08-Feb-11	08/02/2011 0:00	09/02/2011 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 # 06705

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Technician Signiture: Ting Xu

Site: LICA - COLD LAKE SOUTH  
Your C.O.C. #: 06705

**Attention: Michael Bisaga**

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

**Report Date: 2011/02/15**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B118504**

**Received: 2011/02/11, 09:35**

Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/02/11	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/02/11	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 #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		IQ0087	IQ0088	
Sampling Date		2011/02/08 00:00	2011/02/08 00:00	
COC Number		06705	06705	
	<b>Units</b>	<b>LICA VOC/CLS/FEB08,11 #7800</b>	<b>LICA VOC/PORT/FEB08,11 #7822</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	22	22	2405263

QC Batch = Quality Control Batch

Maxxam Job #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0087				
Sampling Date		2011/02/08 00:00				
COC Number		06705				
	<b>Units</b>	<b>LICA VOC/CLS/FEB08,11 #7800</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	2405286
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2405286
Propene	ppbv	<0.30	0.30	<0.516	0.516	2405286
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2405286
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2405286
Dichlorodifluoromethane (FREON 12)	ppbv	1.20	0.20	5.95	0.989	2405286
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2405286
Chloromethane	ppbv	1.06	0.30	2.19	0.620	2405286
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2405286
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2405286
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2405286
Trichlorofluoromethane (FREON 11)	ppbv	0.56	0.20	3.14	1.12	2405286
Trichlorotrifluoroethane	ppbv	0.17	0.15	1.32	1.15	2405286
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2405286
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2405286
2-Propanone	ppbv	2.56	0.80	6.09	1.90	2405286
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2405286
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2405286
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2405286
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2405286
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2405286
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2405286
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2405286
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2405286
Methylene Chloride(Dichloromethane)	ppbv	0.71	0.30	2.48	1.04	2405286
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2405286
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2405286
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2405286
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2405286
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2405286

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0087				
Sampling Date		2011/02/08 00:00				
COC Number		06705				
	<b>Units</b>	<b>LICA VOC/CLS/FEB08,11 #7800</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	2405286
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2405286
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2405286
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2405286
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2405286
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2405286
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2405286
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2405286
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2405286
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2405286
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2405286
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2405286
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2405286
Benzene	ppbv	0.35	0.18	1.11	0.575	2405286
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2405286
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2405286
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2405286
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2405286
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2405286
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2405286
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2405286
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2405286
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2405286
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2405286
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2405286
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2405286
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2405286
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2405286
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2405286
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2405286
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2405286
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2405286

QC Batch = Quality Control Batch



Maxxam Job #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0087				
Sampling Date		2011/02/08 00:00				
COC Number		06705				
	<b>Units</b>	<b>LICA VOC/CLS/FEB08,11 #7800</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	2405286
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2405286
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	74		N/A	N/A	2405286
D5-Chlorobenzene	%	70		N/A	N/A	2405286
Difluorobenzene	%	73		N/A	N/A	2405286

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

Maxxam Job #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0088				
Sampling Date		2011/02/08 00:00				
COC Number		06705				
	<b>Units</b>	<b>LICA VOC/PORT/FEB08,11 #7822</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	2405286
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2405286
Propene	ppbv	<0.30	0.30	<0.516	0.516	2405286
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2405286
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2405286
Dichlorodifluoromethane (FREON 12)	ppbv	1.23	0.20	6.10	0.989	2405286
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2405286
Chloromethane	ppbv	1.12	0.30	2.30	0.620	2405286
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2405286
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2405286
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2405286
Trichlorofluoromethane (FREON 11)	ppbv	0.59	0.20	3.33	1.12	2405286
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2405286
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2405286
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2405286
2-Propanone	ppbv	3.21	0.80	7.64	1.90	2405286
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2405286
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2405286
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2405286
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2405286
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2405286
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2405286
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2405286
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2405286
Methylene Chloride(Dichloromethane)	ppbv	0.68	0.30	2.38	1.04	2405286
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2405286
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2405286
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2405286
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2405286
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2405286

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0088				
Sampling Date		2011/02/08 00:00				
COC Number		06705				
	<b>Units</b>	<b>LICA VOC/PORT/FEB08,11 #7822</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	2405286
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2405286
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2405286
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2405286
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2405286
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2405286
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2405286
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2405286
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2405286
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2405286
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2405286
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2405286
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2405286
Benzene	ppbv	0.32	0.18	1.02	0.575	2405286
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2405286
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2405286
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2405286
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2405286
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2405286
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2405286
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2405286
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2405286
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2405286
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2405286
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2405286
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2405286
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2405286
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2405286
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2405286
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2405286
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2405286
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2405286

QC Batch = Quality Control Batch

Maxxam Job #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0088				
Sampling Date		2011/02/08 00:00				
COC Number		06705				
	<b>Units</b>	<b>LICA VOC/PORT/FEB08,11 #7822</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	2405286
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2405286
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	72		N/A	N/A	2405286
D5-Chlorobenzene	%	68		N/A	N/A	2405286
Difluorobenzene	%	71		N/A	N/A	2405286
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

### Test Summary

**Maxxam ID** IQ0087  
**Sample ID** LICA VOC/CLS/FEB08,11 #7800  
**Matrix** AIR  
**Collected** 2011/02/08  
**Shipped**  
**Received** 2011/02/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2405263	N/A	2011/02/11	MMU
Volatile Organics in Air (TO-15)	GC/MS	2405286	N/A	2011/02/11	MMU

**Maxxam ID** IQ0088  
**Sample ID** LICA VOC/PORT/FEB08,11 #7822  
**Matrix** AIR  
**Collected** 2011/02/08  
**Shipped**  
**Received** 2011/02/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2405263	N/A	2011/02/11	MMU
Volatile Organics in Air (TO-15)	GC/MS	2405286	N/A	2011/02/11	MMU

Maxxam Job #: B118504  
Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

**GENERAL COMMENTS**

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

Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

Quality Assurance Report  
 Maxxam Job Number: GB118504

QA/QC Batch			Date Analyzed					
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2405286	MMU	Spiked Blank						
		Bromochloromethane	2011/02/11		110	%	60 - 140	
		D5-Chlorobenzene	2011/02/11		108	%	60 - 140	
		Difluorobenzene	2011/02/11		112	%	60 - 140	
		2,2,4-Trimethylpentane	2011/02/11		102	%	70 - 130	
		Carbon Disulfide	2011/02/11		101	%	70 - 130	
		Propene	2011/02/11		96	%	70 - 130	
		Vinyl Acetate	2011/02/11		111	%	70 - 130	
		Vinyl Bromide	2011/02/11		110	%	70 - 130	
		Dichlorodifluoromethane (FREON 12)	2011/02/11		108	%	70 - 130	
		1,2-Dichlorotetrafluoroethane	2011/02/11		118	%	70 - 130	
		Chloromethane	2011/02/11		106	%	70 - 130	
		Vinyl Chloride	2011/02/11		109	%	70 - 130	
		Chloroethane	2011/02/11		105	%	70 - 130	
		1,3-Butadiene	2011/02/11		112	%	70 - 130	
		Trichlorofluoromethane (FREON 11)	2011/02/11		105	%	70 - 130	
		Trichlorotrifluoroethane	2011/02/11		104	%	70 - 130	
		Ethanol	2011/02/11		91	%	70 - 130	
		2-propanol	2011/02/11		103	%	70 - 130	
		2-Propanone	2011/02/11		117	%	70 - 130	
		Methyl Ethyl Ketone (2-Butanone)	2011/02/11		98	%	70 - 130	
		Methyl Isobutyl Ketone	2011/02/11		101	%	70 - 130	
		Methyl Butyl Ketone (2-Hexanone)	2011/02/11		102	%	70 - 130	
		Methyl t-butyl ether (MTBE)	2011/02/11		148 (1)	%	70 - 130	
		Ethyl Acetate	2011/02/11		104	%	70 - 130	
		1,1-Dichloroethylene	2011/02/11		107	%	70 - 130	
		cis-1,2-Dichloroethylene	2011/02/11		109	%	70 - 130	
		trans-1,2-Dichloroethylene	2011/02/11		142 (1)	%	70 - 130	
		Methylene Chloride(Dichloromethane)	2011/02/11		94	%	70 - 130	
		Chloroform	2011/02/11		108	%	70 - 130	
		Carbon Tetrachloride	2011/02/11		106	%	70 - 130	
		1,1-Dichloroethane	2011/02/11		112	%	70 - 130	
		1,2-Dichloroethane	2011/02/11		109	%	70 - 130	
		Ethylene Dibromide	2011/02/11		101	%	70 - 130	
		1,1,1-Trichloroethane	2011/02/11		106	%	70 - 130	
		1,1,2-Trichloroethane	2011/02/11		100	%	70 - 130	
		1,1,2,2-Tetrachloroethane	2011/02/11		98	%	70 - 130	
		cis-1,3-Dichloropropene	2011/02/11		107	%	70 - 130	
		trans-1,3-Dichloropropene	2011/02/11		111	%	70 - 130	
		1,2-Dichloropropane	2011/02/11		101	%	70 - 130	
		Bromomethane	2011/02/11		101	%	70 - 130	
		Bromoform	2011/02/11		121	%	70 - 130	
		Bromodichloromethane	2011/02/11		105	%	70 - 130	
		Dibromochloromethane	2011/02/11		107	%	70 - 130	
		Heptane	2011/02/11		100	%	70 - 130	
		Trichloroethylene	2011/02/11		94	%	70 - 130	
		Tetrachloroethylene	2011/02/11		102	%	70 - 130	
		Benzene	2011/02/11		101	%	70 - 130	
		Toluene	2011/02/11		102	%	70 - 130	
		Ethylbenzene	2011/02/11		103	%	70 - 130	
		p+m-Xylene	2011/02/11		103	%	70 - 130	
		o-Xylene	2011/02/11		101	%	70 - 130	
		Styrene	2011/02/11		101	%	70 - 130	
		1,3,5-Trimethylbenzene	2011/02/11		99	%	70 - 130	
		1,2,4-Trimethylbenzene	2011/02/11		99	%	70 - 130	
		4-ethyltoluene	2011/02/11		101	%	70 - 130	

Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

## Quality Assurance Report (Continued)

Maxxam Job Number: GB118504

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2405286 MMU	Spiked Blank	Chlorobenzene	2011/02/11		95	%	70 - 130
		Benzyl chloride	2011/02/11		111	%	70 - 130
		1,3-Dichlorobenzene	2011/02/11		94	%	70 - 130
		1,4-Dichlorobenzene	2011/02/11		92	%	70 - 130
		1,2-Dichlorobenzene	2011/02/11		92	%	70 - 130
		1,2,4-Trichlorobenzene	2011/02/11		84	%	70 - 130
		Hexachlorobutadiene	2011/02/11		95	%	70 - 130
		Hexane	2011/02/11		99	%	70 - 130
		Cyclohexane	2011/02/11		102	%	70 - 130
		Tetrahydrofuran	2011/02/11		108	%	70 - 130
		1,4-Dioxane	2011/02/11		100	%	70 - 130
	Method Blank	Bromochloromethane	2011/02/11		119	%	60 - 140
		D5-Chlorobenzene	2011/02/11		111	%	60 - 140
		Difluorobenzene	2011/02/11		121	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/11	<0.20		ppbv	
		Carbon Disulfide	2011/02/11	<0.50		ppbv	
		Propene	2011/02/11	<0.30		ppbv	
		Vinyl Acetate	2011/02/11	<0.20		ppbv	
		Vinyl Bromide	2011/02/11	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/02/11	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/02/11	<0.17		ppbv	
		Chloromethane	2011/02/11	<0.30		ppbv	
		Vinyl Chloride	2011/02/11	<0.18		ppbv	
		Chloroethane	2011/02/11	<0.30		ppbv	
		1,3-Butadiene	2011/02/11	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/02/11	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/02/11	<0.15		ppbv	
		Ethanol	2011/02/11	<2.3		ppbv	
		2-propanol	2011/02/11	<3.0		ppbv	
		2-Propanone	2011/02/11	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/02/11	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/02/11	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/02/11	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/02/11	<0.20		ppbv	
		Ethyl Acetate	2011/02/11	<2.2		ppbv	
		1,1-Dichloroethylene	2011/02/11	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/02/11	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/02/11	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/02/11	0.66, RDL=0.30		ppbv	
		Chloroform	2011/02/11	<0.15		ppbv	
		Carbon Tetrachloride	2011/02/11	<0.30		ppbv	
		1,1-Dichloroethane	2011/02/11	<0.20		ppbv	
		1,2-Dichloroethane	2011/02/11	<0.20		ppbv	
		Ethylene Dibromide	2011/02/11	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/02/11	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/02/11	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/02/11	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/02/11	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/02/11	<0.17		ppbv	
		1,2-Dichloropropane	2011/02/11	<0.40		ppbv	
		Bromomethane	2011/02/11	<0.18		ppbv	
		Bromoform	2011/02/11	<0.20		ppbv	
		Bromodichloromethane	2011/02/11	<0.20		ppbv	
		Dibromochloromethane	2011/02/11	<0.20		ppbv	
		Heptane	2011/02/11	<0.30		ppbv	



Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

## Quality Assurance Report (Continued)

Maxxam Job Number: GB118504

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2405286	MMU	Method Blank					
		Trichloroethylene	2011/02/11	<0.30		ppbv	
		Tetrachloroethylene	2011/02/11	<0.20		ppbv	
		Benzene	2011/02/11	<0.18		ppbv	
		Toluene	2011/02/11	<0.20		ppbv	
		Ethylbenzene	2011/02/11	<0.20		ppbv	
		p+m-Xylene	2011/02/11	<0.37		ppbv	
		o-Xylene	2011/02/11	<0.20		ppbv	
		Styrene	2011/02/11	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/02/11	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/02/11	<0.50		ppbv	
		4-ethyltoluene	2011/02/11	<2.2		ppbv	
		Chlorobenzene	2011/02/11	<0.20		ppbv	
		Benzyl chloride	2011/02/11	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/02/11	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/02/11	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/02/11	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/02/11	<2.0		ppbv	
		Hexachlorobutadiene	2011/02/11	<3.0		ppbv	
		Hexane	2011/02/11	<0.30		ppbv	
		Cyclohexane	2011/02/11	<0.20		ppbv	
		Tetrahydrofuran	2011/02/11	<0.40		ppbv	
		1,4-Dioxane	2011/02/11	<2.0		ppbv	
		Xylene (Total)	2011/02/11	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/02/11	NC		%	25
		Carbon Disulfide	2011/02/11	NC		%	25
		Propene	2011/02/11	NC		%	25
		Vinyl Acetate	2011/02/11	NC		%	25
		Vinyl Bromide	2011/02/11	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/02/11	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/02/11	NC		%	25
		Chloromethane	2011/02/11	NC		%	25
		Vinyl Chloride	2011/02/11	NC		%	25
		Chloroethane	2011/02/11	NC		%	25
		1,3-Butadiene	2011/02/11	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/02/11	NC		%	25
		Trichlorotrifluoroethane	2011/02/11	NC		%	25
		Ethanol	2011/02/11	NC		%	25
		2-propanol	2011/02/11	NC		%	25
		2-Propanone	2011/02/11	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/02/11	NC		%	25
		Methyl Isobutyl Ketone	2011/02/11	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/02/11	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/02/11	NC		%	25
		Ethyl Acetate	2011/02/11	NC		%	25
		1,1-Dichloroethylene	2011/02/11	NC		%	25
		cis-1,2-Dichloroethylene	2011/02/11	NC		%	25
		trans-1,2-Dichloroethylene	2011/02/11	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/02/11	NC		%	25
		Chloroform	2011/02/11	NC		%	25
		Carbon Tetrachloride	2011/02/11	NC		%	25
		1,1-Dichloroethane	2011/02/11	NC		%	25
		1,2-Dichloroethane	2011/02/11	NC		%	25
		Ethylene Dibromide	2011/02/11	NC		%	25

Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

## Quality Assurance Report (Continued)

Maxxam Job Number: GB118504

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2405286 MMU	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/02/11	NC		%	25
		1,1,2-Trichloroethane	2011/02/11	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/02/11	NC		%	25
		cis-1,3-Dichloropropene	2011/02/11	NC		%	25
		trans-1,3-Dichloropropene	2011/02/11	NC		%	25
		1,2-Dichloropropane	2011/02/11	NC		%	25
		Bromomethane	2011/02/11	NC		%	25
		Bromoform	2011/02/11	NC		%	25
		Bromodichloromethane	2011/02/11	NC		%	25
		Dibromochloromethane	2011/02/11	NC		%	25
		Heptane	2011/02/11	NC		%	25
		Trichloroethylene	2011/02/11	NC		%	25
		Tetrachloroethylene	2011/02/11	NC		%	25
		Benzene	2011/02/11	NC		%	25
		Toluene	2011/02/11	NC		%	25
		Ethylbenzene	2011/02/11	NC		%	25
		p+m-Xylene	2011/02/11	NC		%	25
		o-Xylene	2011/02/11	NC		%	25
		Styrene	2011/02/11	NC		%	25
		1,3,5-Trimethylbenzene	2011/02/11	NC		%	25
		1,2,4-Trimethylbenzene	2011/02/11	NC		%	25
		4-ethyltoluene	2011/02/11	NC		%	25
		Chlorobenzene	2011/02/11	NC		%	25
		Benzyl chloride	2011/02/11	NC		%	25
		1,3-Dichlorobenzene	2011/02/11	NC		%	25
		1,4-Dichlorobenzene	2011/02/11	NC		%	25
		1,2-Dichlorobenzene	2011/02/11	NC		%	25
		1,2,4-Trichlorobenzene	2011/02/11	NC		%	25
		Hexachlorobutadiene	2011/02/11	NC		%	25
		Hexane	2011/02/11	NC		%	25
		Cyclohexane	2011/02/11	NC		%	25
		Tetrahydrofuran	2011/02/11	NC		%	25
		1,4-Dioxane	2011/02/11	NC		%	25
		Xylene (Total)	2011/02/11	NC		%	25

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

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

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

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

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

# MAXXAM

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167  
Location: Cold Lake South Canister ID: 7850  
Station ID: Lica 1 Canister Installation Date/Time: Feb 11, 2011 @ 16:21 mst  
Field Sample ID: LICA VOC/ CLS /Feb 14, 11 Canister Removal Date/Time: Feb 15, 2011 @ 8:25 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
14-Feb-11	14/02/2011 0:00	15/02/2011 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 # 06740

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Technician Signiture: Ting Xu

Your C.O.C. #: 06740

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

Report Date: 2011/02/25

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B121372****Received: 2011/02/17, 09:26**Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/02/22	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/02/22	BRL SOP-00304	EPA TO-15

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

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

## Encryption Key

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

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

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

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Total cover pages: 1

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Maxxam Job #: B121372  
 Report Date: 2011/02/25

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		IR2445	IR2446	
Sampling Date		2011/02/14	2011/02/14	
		00:00	00:00	
COC Number		06740	06740	
	<b>Units</b>	<b>LICAVOC/CLS/FEB14,11</b>	<b>LICAVOC/PORT/FEB14,11</b>	<b>QC Batch</b>
		<b>#7850</b>	<b>#7817</b>	

<b>Volatile Organics</b>				
Pressure on Receipt	psig	22	22	2412540

QC Batch = Quality Control Batch

Maxxam Job #: B121372  
 Report Date: 2011/02/25

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

Maxxam ID		IR2445				
Sampling Date		2011/02/14 00:00				
COC Number		06740				
	<b>Units</b>	<b>LICAVOC/CLS/FEB14,11 #7850</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	0.76	0.20	3.56	0.934	2412398
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2412398
Propene	ppbv	<0.30	0.30	<0.516	0.516	2412398
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2412398
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2412398
Dichlorodifluoromethane (FREON 12)	ppbv	1.26	0.20	6.22	0.989	2412398
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2412398
Chloromethane	ppbv	1.03	0.30	2.13	0.620	2412398
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2412398
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2412398
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2412398
Trichlorofluoromethane (FREON 11)	ppbv	0.56	0.20	3.13	1.12	2412398
Trichlorotrifluoroethane	ppbv	0.18	0.15	1.37	1.15	2412398
Ethanol	ppbv	6.0	2.3	11.4	4.33	2412398
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2412398
2-Propanone	ppbv	4.66	0.80	11.1	1.90	2412398
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2412398
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2412398
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2412398
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2412398
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2412398
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2412398
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2412398
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2412398
Methylene Chloride(Dichloromethane)	ppbv	0.68	0.30	2.37	1.04	2412398
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2412398
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2412398
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2412398
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2412398
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2412398
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2412398

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B121372  
 Report Date: 2011/02/25

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

Maxxam ID		IR2445				
Sampling Date		2011/02/14 00:00				
COC Number		06740				
	<b>Units</b>	<b>LICAVOC/CLS/FEB14,11 #7850</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2412398
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2412398
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2412398
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2412398
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2412398
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2412398
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2412398
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2412398
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2412398
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2412398
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2412398
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2412398
Benzene	ppbv	0.82	0.18	2.60	0.575	2412398
Toluene	ppbv	1.38	0.20	5.18	0.753	2412398
Ethylbenzene	ppbv	0.20	0.20	0.876	0.868	2412398
p+m-Xylene	ppbv	0.71	0.37	3.07	1.61	2412398
o-Xylene	ppbv	0.26	0.20	1.11	0.868	2412398
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2412398
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2412398
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2412398
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2412398
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2412398
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2412398
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2412398
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2412398
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2412398
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2412398
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2412398
Hexane	ppbv	0.53	0.30	1.87	1.06	2412398
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2412398
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2412398
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2412398
Xylene (Total)	ppbv	0.96	0.60	4.19	2.61	2412398
QC Batch = Quality Control Batch						

Maxxam Job #: B121372  
 Report Date: 2011/02/25

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

Maxxam ID		IR2445				
Sampling Date		2011/02/14 00:00				
COC Number		06740				
	<b>Units</b>	<b>LICAVOC/CLS/FEB14,11 #7850</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	69		N/A	N/A	2412398
D5-Chlorobenzene	%	67		N/A	N/A	2412398
Difluorobenzene	%	69		N/A	N/A	2412398

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



Maxxam Job #: B121372  
 Report Date: 2011/02/25

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

Maxxam ID		IR2446				
Sampling Date		2011/02/14 00:00				
COC Number		06740				
	<b>Units</b>	<b>LICAVOC/PORT/FEB14,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		<b>#7817</b>				

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2412398
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2412398
Propene	ppbv	<0.30	0.30	<0.516	0.516	2412398
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2412398
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2412398
Dichlorodifluoromethane (FREON 12)	ppbv	1.23	0.20	6.09	0.989	2412398
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2412398
Chloromethane	ppbv	0.97	0.30	2.00	0.620	2412398
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2412398
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2412398
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2412398
Trichlorofluoromethane (FREON 11)	ppbv	0.52	0.20	2.94	1.12	2412398
Trichlorotrifluoroethane	ppbv	0.15	0.15	1.16	1.15	2412398
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2412398
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2412398
2-Propanone	ppbv	<0.80	0.80	<1.90	1.90	2412398
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2412398
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2412398
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2412398
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2412398
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2412398
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2412398
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2412398
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2412398
Methylene Chloride(Dichloromethane)	ppbv	0.63	0.30	2.17	1.04	2412398
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2412398
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2412398
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2412398
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2412398
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2412398
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2412398

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B121372  
 Report Date: 2011/02/25

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

Maxxam ID		IR2446				
Sampling Date		2011/02/14 00:00				
COC Number		06740				
	<b>Units</b>	<b>LICAVOC/PORT/FEB14,11 #7817</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2412398
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2412398
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2412398
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2412398
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2412398
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2412398
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2412398
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2412398
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2412398
Heptane	ppbv	0.74	0.30	3.04	1.23	2412398
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2412398
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2412398
Benzene	ppbv	0.34	0.18	1.10	0.575	2412398
Toluene	ppbv	0.37	0.20	1.38	0.753	2412398
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2412398
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2412398
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2412398
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2412398
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2412398
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2412398
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2412398
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2412398
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2412398
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2412398
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2412398
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2412398
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2412398
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2412398
Hexane	ppbv	1.41	0.30	4.96	1.06	2412398
Cyclohexane	ppbv	1.98	0.20	6.82	0.688	2412398
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2412398
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2412398
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2412398
QC Batch = Quality Control Batch						

Maxxam Job #: B121372  
 Report Date: 2011/02/25

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

Maxxam ID		IR2446				
Sampling Date		2011/02/14 00:00				
COC Number		06740				
	<b>Units</b>	<b>LICAVOC/PORT/FEB14,11 #7817</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	70		N/A	N/A	2412398
D5-Chlorobenzene	%	67		N/A	N/A	2412398
Difluorobenzene	%	69		N/A	N/A	2412398

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

Maxxam Job #: B121372  
 Report Date: 2011/02/25

### Test Summary

**Maxxam ID** IR2445  
**Sample ID** LICAVOC/CLS/FEB14,11 #7850  
**Matrix** AIR  
**Collected** 2011/02/14  
**Shipped**  
**Received** 2011/02/17

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2412540	N/A	2011/02/22	DVO
Volatile Organics in Air (TO-15)	GC/MS	2412398	N/A	2011/02/22	DVO

**Maxxam ID** IR2446  
**Sample ID** LICAVOC/PORT/FEB14,11 #7817  
**Matrix** AIR  
**Collected** 2011/02/14  
**Shipped**  
**Received** 2011/02/17

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2412540	N/A	2011/02/22	DVO
Volatile Organics in Air (TO-15)	GC/MS	2412398	N/A	2011/02/22	DVO

Maxxam Job #: B121372  
Report Date: 2011/02/25

**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: GB121372

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2412398 DVO	Spiked Blank	Bromochloromethane	2011/02/22		101	%	60 - 140
		D5-Chlorobenzene	2011/02/22		101	%	60 - 140
		Difluorobenzene	2011/02/22		103	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/22		97	%	70 - 130
		Carbon Disulfide	2011/02/22		93	%	70 - 130
		Propene	2011/02/22		89	%	70 - 130
		Vinyl Acetate	2011/02/22		100	%	70 - 130
		Vinyl Bromide	2011/02/22		107	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/02/22		95	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/02/22		110	%	70 - 130
		Chloromethane	2011/02/22		94	%	70 - 130
		Vinyl Chloride	2011/02/22		100	%	70 - 130
		Chloroethane	2011/02/22		96	%	70 - 130
		1,3-Butadiene	2011/02/22		103	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/02/22		98	%	70 - 130
		Trichlorotrifluoroethane	2011/02/22		100	%	70 - 130
		Ethanol	2011/02/22		86	%	70 - 130
		2-propanol	2011/02/22		91	%	70 - 130
		2-Propanone	2011/02/22		106	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/02/22		80	%	70 - 130
		Methyl Isobutyl Ketone	2011/02/22		83	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/02/22		78	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/02/22		106	%	70 - 130
		Ethyl Acetate	2011/02/22		97	%	70 - 130
		1,1-Dichloroethylene	2011/02/22		103	%	70 - 130
		cis-1,2-Dichloroethylene	2011/02/22		103	%	70 - 130
		trans-1,2-Dichloroethylene	2011/02/22		106	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/02/22		87	%	70 - 130
		Chloroform	2011/02/22		103	%	70 - 130
		Carbon Tetrachloride	2011/02/22		101	%	70 - 130
		1,1-Dichloroethane	2011/02/22		97	%	70 - 130
		1,2-Dichloroethane	2011/02/22		101	%	70 - 130
		Ethylene Dibromide	2011/02/22		102	%	70 - 130
		1,1,1-Trichloroethane	2011/02/22		101	%	70 - 130
		1,1,2-Trichloroethane	2011/02/22		102	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/02/22		97	%	70 - 130
		cis-1,3-Dichloropropene	2011/02/22		104	%	70 - 130
		trans-1,3-Dichloropropene	2011/02/22		111	%	70 - 130
		1,2-Dichloropropane	2011/02/22		96	%	70 - 130
		Bromomethane	2011/02/22		97	%	70 - 130
		Bromoform	2011/02/22		121	%	70 - 130
		Bromodichloromethane	2011/02/22		98	%	70 - 130
		Dibromochloromethane	2011/02/22		105	%	70 - 130
		Heptane	2011/02/22		93	%	70 - 130
		Trichloroethylene	2011/02/22		96	%	70 - 130
		Tetrachloroethylene	2011/02/22		106	%	70 - 130
		Benzene	2011/02/22		100	%	70 - 130
		Toluene	2011/02/22		105	%	70 - 130
		Ethylbenzene	2011/02/22		105	%	70 - 130
		p+m-Xylene	2011/02/22		103	%	70 - 130
		o-Xylene	2011/02/22		101	%	70 - 130
		Styrene	2011/02/22		90	%	70 - 130
		1,3,5-Trimethylbenzene	2011/02/22		98	%	70 - 130
		1,2,4-Trimethylbenzene	2011/02/22		99	%	70 - 130
		4-ethyltoluene	2011/02/22		102	%	70 - 130

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB121372

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2412398 DVO	Spiked Blank	Chlorobenzene	2011/02/22		99	%	70 - 130
		Benzyl chloride	2011/02/22		112	%	70 - 130
		1,3-Dichlorobenzene	2011/02/22		105	%	70 - 130
		1,4-Dichlorobenzene	2011/02/22		101	%	70 - 130
		1,2-Dichlorobenzene	2011/02/22		100	%	70 - 130
		1,2,4-Trichlorobenzene	2011/02/22		98	%	70 - 130
		Hexachlorobutadiene	2011/02/22		93	%	70 - 130
		Hexane	2011/02/22		97	%	70 - 130
		Cyclohexane	2011/02/22		104	%	70 - 130
		Tetrahydrofuran	2011/02/22		105	%	70 - 130
		1,4-Dioxane	2011/02/22		100	%	70 - 130
	Method Blank	Bromochloromethane	2011/02/22		106	%	60 - 140
		D5-Chlorobenzene	2011/02/22		102	%	60 - 140
		Difluorobenzene	2011/02/22		107	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/22	<0.20		ppbv	
		Carbon Disulfide	2011/02/22	<0.50		ppbv	
		Propene	2011/02/22	<0.30		ppbv	
		Vinyl Acetate	2011/02/22	<0.20		ppbv	
		Vinyl Bromide	2011/02/22	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/02/22	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/02/22	<0.17		ppbv	
		Chloromethane	2011/02/22	<0.30		ppbv	
		Vinyl Chloride	2011/02/22	<0.18		ppbv	
		Chloroethane	2011/02/22	<0.30		ppbv	
		1,3-Butadiene	2011/02/22	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/02/22	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/02/22	<0.15		ppbv	
		Ethanol	2011/02/22	<2.3		ppbv	
		2-propanol	2011/02/22	<3.0		ppbv	
		2-Propanone	2011/02/22	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/02/22	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/02/22	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/02/22	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/02/22	<0.20		ppbv	
		Ethyl Acetate	2011/02/22	<2.2		ppbv	
		1,1-Dichloroethylene	2011/02/22	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/02/22	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/02/22	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/02/22	0.64, RDL=0.30		ppbv	
		Chloroform	2011/02/22	<0.15		ppbv	
		Carbon Tetrachloride	2011/02/22	<0.30		ppbv	
		1,1-Dichloroethane	2011/02/22	<0.20		ppbv	
		1,2-Dichloroethane	2011/02/22	<0.20		ppbv	
		Ethylene Dibromide	2011/02/22	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/02/22	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/02/22	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/02/22	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/02/22	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/02/22	<0.17		ppbv	
		1,2-Dichloropropane	2011/02/22	<0.40		ppbv	
		Bromomethane	2011/02/22	<0.18		ppbv	
		Bromoform	2011/02/22	<0.20		ppbv	
		Bromodichloromethane	2011/02/22	<0.20		ppbv	
		Dibromochloromethane	2011/02/22	<0.20		ppbv	
		Heptane	2011/02/22	<0.30		ppbv	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB121372

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2412398	DVO	Method Blank					
		Trichloroethylene	2011/02/22	<0.30		ppbv	
		Tetrachloroethylene	2011/02/22	<0.20		ppbv	
		Benzene	2011/02/22	<0.18		ppbv	
		Toluene	2011/02/22	<0.20		ppbv	
		Ethylbenzene	2011/02/22	<0.20		ppbv	
		p+m-Xylene	2011/02/22	<0.37		ppbv	
		o-Xylene	2011/02/22	<0.20		ppbv	
		Styrene	2011/02/22	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/02/22	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/02/22	<0.50		ppbv	
		4-ethyltoluene	2011/02/22	<2.2		ppbv	
		Chlorobenzene	2011/02/22	<0.20		ppbv	
		Benzyl chloride	2011/02/22	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/02/22	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/02/22	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/02/22	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/02/22	<2.0		ppbv	
		Hexachlorobutadiene	2011/02/22	<3.0		ppbv	
		Hexane	2011/02/22	<0.30		ppbv	
		Cyclohexane	2011/02/22	<0.20		ppbv	
		Tetrahydrofuran	2011/02/22	<0.40		ppbv	
		1,4-Dioxane	2011/02/22	<2.0		ppbv	
		Xylene (Total)	2011/02/22	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/02/22	NC		%	25
		Carbon Disulfide	2011/02/22	NC		%	25
		Propene	2011/02/22	NC		%	25
		Vinyl Acetate	2011/02/22	NC		%	25
		Vinyl Bromide	2011/02/22	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/02/22	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/02/22	NC		%	25
		Chloromethane	2011/02/22	NC		%	25
		Vinyl Chloride	2011/02/22	NC		%	25
		Chloroethane	2011/02/22	NC		%	25
		1,3-Butadiene	2011/02/22	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/02/22	NC		%	25
		Trichlorotrifluoroethane	2011/02/22	NC		%	25
		Ethanol	2011/02/22	NC		%	25
		2-propanol	2011/02/22	NC		%	25
		2-Propanone	2011/02/22	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/02/22	NC		%	25
		Methyl Isobutyl Ketone	2011/02/22	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/02/22	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/02/22	NC		%	25
		Ethyl Acetate	2011/02/22	NC		%	25
		1,1-Dichloroethylene	2011/02/22	NC		%	25
		cis-1,2-Dichloroethylene	2011/02/22	0.8		%	25
		trans-1,2-Dichloroethylene	2011/02/22	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/02/22	NC		%	25
		Chloroform	2011/02/22	NC		%	25
		Carbon Tetrachloride	2011/02/22	NC		%	25
		1,1-Dichloroethane	2011/02/22	NC		%	25
		1,2-Dichloroethane	2011/02/22	NC		%	25
		Ethylene Dibromide	2011/02/22	NC		%	25



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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB121372

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2412398 DVO	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/02/22	NC		%	25
		1,1,2-Trichloroethane	2011/02/22	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/02/22	NC		%	25
		cis-1,3-Dichloropropene	2011/02/22	NC		%	25
		trans-1,3-Dichloropropene	2011/02/22	NC		%	25
		1,2-Dichloropropane	2011/02/22	NC		%	25
		Bromomethane	2011/02/22	NC		%	25
		Bromoform	2011/02/22	NC		%	25
		Bromodichloromethane	2011/02/22	NC		%	25
		Dibromochloromethane	2011/02/22	NC		%	25
		Heptane	2011/02/22	NC		%	25
		Trichloroethylene	2011/02/22	0.4		%	25
		Tetrachloroethylene	2011/02/22	NC		%	25
		Benzene	2011/02/22	NC		%	25
		Toluene	2011/02/22	6.1		%	25
		Ethylbenzene	2011/02/22	NC		%	25
		p+m-Xylene	2011/02/22	NC		%	25
		o-Xylene	2011/02/22	NC		%	25
		Styrene	2011/02/22	NC		%	25
		1,3,5-Trimethylbenzene	2011/02/22	NC		%	25
		1,2,4-Trimethylbenzene	2011/02/22	NC		%	25
		4-ethyltoluene	2011/02/22	NC		%	25
		Chlorobenzene	2011/02/22	NC		%	25
		Benzyl chloride	2011/02/22	NC		%	25
		1,3-Dichlorobenzene	2011/02/22	NC		%	25
		1,4-Dichlorobenzene	2011/02/22	NC		%	25
		1,2-Dichlorobenzene	2011/02/22	NC		%	25
		1,2,4-Trichlorobenzene	2011/02/22	NC		%	25
		Hexachlorobutadiene	2011/02/22	NC		%	25
		Hexane	2011/02/22	NC		%	25
		Cyclohexane	2011/02/22	NC		%	25
		Tetrahydrofuran	2011/02/22	NC		%	25
		1,4-Dioxane	2011/02/22	NC		%	25
		Xylene (Total)	2011/02/22	NC		%	25

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

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

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

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



Your C.O.C. #: 06775

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

Report Date: 2011/03/03

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B124486****Received: 2011/02/24, 09:30**Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/02/25	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/02/25	BRL SOP-00304	EPA TO-15

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

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

**Encryption Key**

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

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

=====

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

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Total cover pages: 1

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Maxxam Job #: B124486  
 Report Date: 2011/03/03

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		IS6321	IS6322	
Sampling Date		2011/02/20	2011/02/20	
COC Number		06775	06775	
	<b>Units</b>	<b>LICA VOC\CLS\ FEB 20,11 - 7815</b>	<b>LICA VOC\PORT\FEB 20,11 - 7837</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	21	22	2416841
QC Batch = Quality Control Batch				

Maxxam Job #: B124486  
 Report Date: 2011/03/03

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

Maxxam ID		IS6321			IS6322				
Sampling Date		2011/02/20			2011/02/20				
COC Number		06775			06775				
	<b>Units</b>	<b>LICA VOC\CLS\ FEB 20,11 - 7815</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>LICA VOC\PORT\FEB 20,11 - 7837</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	2416983
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2416983
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2416983
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2416983
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2416983
Dichlorodifluoromethane (FREON 12)	ppbv	0.77	3.81	0.989	0.77	0.20	3.80	0.989	2416983
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2416983
Chloromethane	ppbv	0.69	1.42	0.620	0.72	0.30	1.48	0.620	2416983
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2416983
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2416983
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2416983
Trichlorofluoromethane (FREON 11)	ppbv	0.36	2.02	1.12	0.36	0.20	2.03	1.12	2416983
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2416983
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2416983
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2416983
2-Propanone	ppbv	2.59	6.14	1.90	2.89	0.80	6.86	1.90	2416983
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2416983
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2416983
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2416983
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2416983
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2416983
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2416983
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2416983
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2416983
Methylene Chloride(Dichloromethane)	ppbv	0.47	1.64	1.04	0.48	0.30	1.66	1.04	2416983
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2416983
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2416983
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2416983
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2416983
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2416983

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B124486  
 Report Date: 2011/03/03

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

Maxxam ID		IS6321			IS6322				
Sampling Date		2011/02/20			2011/02/20				
COC Number		06775			06775				
	Units	LICA VOC\CLS\ FEB 20,11 - 7815	ug/m3	DL (ug/m3)	LICA VOC\PORT\FEB 20,11 - 7837	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2416983
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2416983
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2416983
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2416983
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2416983
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2416983
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2416983
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2416983
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2416983
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2416983
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2416983
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2416983
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2416983
Benzene	ppbv	0.34	1.10	0.575	0.30	0.18	0.951	0.575	2416983
Toluene	ppbv	0.22	0.845	0.753	<0.20	0.20	<0.753	0.753	2416983
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2416983
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2416983
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2416983
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2416983
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2416983
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2416983
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2416983
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2416983
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2416983
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2416983
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2416983
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2416983
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2416983
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2416983
Hexane	ppbv	<0.30	<1.06	1.06	0.31	0.30	1.11	1.06	2416983
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.34	0.20	1.16	0.688	2416983
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2416983
QC Batch = Quality Control Batch									

Maxxam Job #: B124486  
 Report Date: 2011/03/03

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

Maxxam ID		IS6321			IS6322				
Sampling Date		2011/02/20			2011/02/20				
COC Number		06775			06775				
	<b>Units</b>	<b>LICA VOC\CLS\ FEB 20,11 - 7815</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>LICA VOC\PORT\FEB 20,11 - 7837</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2416983
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2416983
<b>Surrogate Recovery (%)</b>									
Bromochloromethane	%	81	N/A	N/A	80		N/A	N/A	2416983
D5-Chlorobenzene	%	81	N/A	N/A	80		N/A	N/A	2416983
Difluorobenzene	%	82	N/A	N/A	81		N/A	N/A	2416983

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

Maxxam Job #: B124486  
 Report Date: 2011/03/03

**Test Summary**

**Maxxam ID** IS6321 **Collected** 2011/02/20  
**Sample ID** LICA VOC\CLS\FEB 20,11 - 7815 **Shipped**  
**Matrix** AIR **Received** 2011/02/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2416841	N/A	2011/02/25	LSY
Volatile Organics in Air (TO-15)	GC/MS	2416983	N/A	2011/02/25	LSY

**Maxxam ID** IS6322 **Collected** 2011/02/20  
**Sample ID** LICA VOC\PORT\FEB 20,11 - 7837 **Shipped**  
**Matrix** AIR **Received** 2011/02/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2416841	N/A	2011/02/25	LSY
Volatile Organics in Air (TO-15)	GC/MS	2416983	N/A	2011/02/25	LSY



Maxxam Job #: B124486  
Report Date: 2011/03/03

**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: GB124486

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2416983 LSY	Spiked Blank	Bromochloromethane	2011/02/25		99	%	60 - 140
		D5-Chlorobenzene	2011/02/25		98	%	60 - 140
		Difluorobenzene	2011/02/25		101	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/25		99	%	70 - 130
		Carbon Disulfide	2011/02/25		94	%	70 - 130
		Propene	2011/02/25		89	%	70 - 130
		Vinyl Acetate	2011/02/25		98	%	70 - 130
		Vinyl Bromide	2011/02/25		103	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/02/25		101	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/02/25		116	%	70 - 130
		Chloromethane	2011/02/25		99	%	70 - 130
		Vinyl Chloride	2011/02/25		100	%	70 - 130
		Chloroethane	2011/02/25		99	%	70 - 130
		1,3-Butadiene	2011/02/25		85	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/02/25		100	%	70 - 130
		Trichlorotrifluoroethane	2011/02/25		100	%	70 - 130
		Ethanol	2011/02/25		71	%	70 - 130
		2-propanol	2011/02/25		91	%	70 - 130
		2-Propanone	2011/02/25		100	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/02/25		97	%	70 - 130
		Methyl Isobutyl Ketone	2011/02/25		94	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/02/25		94	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/02/25		100	%	70 - 130
		Ethyl Acetate	2011/02/25		98	%	70 - 130
		1,1-Dichloroethylene	2011/02/25		97	%	70 - 130
		cis-1,2-Dichloroethylene	2011/02/25		96	%	70 - 130
		trans-1,2-Dichloroethylene	2011/02/25		99	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/02/25		88	%	70 - 130
		Chloroform	2011/02/25		101	%	70 - 130
		Carbon Tetrachloride	2011/02/25		103	%	70 - 130
		1,1-Dichloroethane	2011/02/25		99	%	70 - 130
		1,2-Dichloroethane	2011/02/25		98	%	70 - 130
		Ethylene Dibromide	2011/02/25		97	%	70 - 130
		1,1,1-Trichloroethane	2011/02/25		98	%	70 - 130
		1,1,2-Trichloroethane	2011/02/25		99	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/02/25		91	%	70 - 130
		cis-1,3-Dichloropropene	2011/02/25		100	%	70 - 130
		trans-1,3-Dichloropropene	2011/02/25		97	%	70 - 130
		1,2-Dichloropropane	2011/02/25		97	%	70 - 130
		Bromomethane	2011/02/25		94	%	70 - 130
		Bromoform	2011/02/25		112	%	70 - 130
		Bromodichloromethane	2011/02/25		103	%	70 - 130
		Dibromochloromethane	2011/02/25		110	%	70 - 130
		Heptane	2011/02/25		96	%	70 - 130
		Trichloroethylene	2011/02/25		97	%	70 - 130
		Tetrachloroethylene	2011/02/25		98	%	70 - 130
		Benzene	2011/02/25		98	%	70 - 130
		Toluene	2011/02/25		98	%	70 - 130
		Ethylbenzene	2011/02/25		99	%	70 - 130
		p+m-Xylene	2011/02/25		97	%	70 - 130
		o-Xylene	2011/02/25		98	%	70 - 130
		Styrene	2011/02/25		95	%	70 - 130
		1,3,5-Trimethylbenzene	2011/02/25		87	%	70 - 130
		1,2,4-Trimethylbenzene	2011/02/25		83	%	70 - 130
		4-ethyltoluene	2011/02/25		93	%	70 - 130

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB124486

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2416983 LSY	Spiked Blank	Chlorobenzene	2011/02/25		98	%	70 - 130
		Benzyl chloride	2011/02/25		84	%	70 - 130
		1,3-Dichlorobenzene	2011/02/25		85	%	70 - 130
		1,4-Dichlorobenzene	2011/02/25		85	%	70 - 130
		1,2-Dichlorobenzene	2011/02/25		80	%	70 - 130
		1,2,4-Trichlorobenzene	2011/02/25		82	%	70 - 130
		Hexachlorobutadiene	2011/02/25		100	%	70 - 130
		Hexane	2011/02/25		98	%	70 - 130
		Cyclohexane	2011/02/25		97	%	70 - 130
		Tetrahydrofuran	2011/02/25		96	%	70 - 130
		1,4-Dioxane	2011/02/25		89	%	70 - 130
	Method Blank	Bromochloromethane	2011/02/25		89	%	60 - 140
		D5-Chlorobenzene	2011/02/25		88	%	60 - 140
		Difluorobenzene	2011/02/25		91	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/25	<0.20		ppbv	
		Carbon Disulfide	2011/02/25	<0.50		ppbv	
		Propene	2011/02/25	<0.30		ppbv	
		Vinyl Acetate	2011/02/25	<0.20		ppbv	
		Vinyl Bromide	2011/02/25	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/02/25	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/02/25	<0.17		ppbv	
		Chloromethane	2011/02/25	<0.30		ppbv	
		Vinyl Chloride	2011/02/25	<0.18		ppbv	
		Chloroethane	2011/02/25	<0.30		ppbv	
		1,3-Butadiene	2011/02/25	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/02/25	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/02/25	<0.15		ppbv	
		Ethanol	2011/02/25	<2.3		ppbv	
		2-propanol	2011/02/25	<3.0		ppbv	
		2-Propanone	2011/02/25	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/02/25	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/02/25	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/02/25	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/02/25	<0.20		ppbv	
		Ethyl Acetate	2011/02/25	<2.2		ppbv	
		1,1-Dichloroethylene	2011/02/25	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/02/25	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/02/25	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/02/25	0.41, RDL=0.30		ppbv	
		Chloroform	2011/02/25	<0.15		ppbv	
		Carbon Tetrachloride	2011/02/25	<0.30		ppbv	
		1,1-Dichloroethane	2011/02/25	<0.20		ppbv	
		1,2-Dichloroethane	2011/02/25	<0.20		ppbv	
		Ethylene Dibromide	2011/02/25	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/02/25	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/02/25	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/02/25	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/02/25	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/02/25	<0.17		ppbv	
		1,2-Dichloropropane	2011/02/25	<0.40		ppbv	
		Bromomethane	2011/02/25	<0.18		ppbv	
		Bromoform	2011/02/25	<0.20		ppbv	
		Bromodichloromethane	2011/02/25	<0.20		ppbv	
		Dibromochloromethane	2011/02/25	<0.20		ppbv	
		Heptane	2011/02/25	<0.30		ppbv	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB124486

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2416983 LSY	Method Blank	Trichloroethylene	2011/02/25	<0.30		ppbv	
		Tetrachloroethylene	2011/02/25	<0.20		ppbv	
		Benzene	2011/02/25	<0.18		ppbv	
		Toluene	2011/02/25	<0.20		ppbv	
		Ethylbenzene	2011/02/25	<0.20		ppbv	
		p+m-Xylene	2011/02/25	<0.37		ppbv	
		o-Xylene	2011/02/25	<0.20		ppbv	
		Styrene	2011/02/25	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/02/25	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/02/25	<0.50		ppbv	
		4-ethyltoluene	2011/02/25	<2.2		ppbv	
		Chlorobenzene	2011/02/25	<0.20		ppbv	
		Benzyl chloride	2011/02/25	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/02/25	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/02/25	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/02/25	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/02/25	<2.0		ppbv	
		Hexachlorobutadiene	2011/02/25	<3.0		ppbv	
		Hexane	2011/02/25	<0.30		ppbv	
		Cyclohexane	2011/02/25	<0.20		ppbv	
		Tetrahydrofuran	2011/02/25	<0.40		ppbv	
		1,4-Dioxane	2011/02/25	<2.0		ppbv	
		Xylene (Total)	2011/02/25	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/02/25	NC		%	25
		Carbon Disulfide	2011/02/25	NC		%	25
		Propene	2011/02/25	NC		%	25
		Vinyl Acetate	2011/02/25	NC		%	25
		Vinyl Bromide	2011/02/25	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/02/25	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/02/25	NC		%	25
		Chloromethane	2011/02/25	NC		%	25
		Vinyl Chloride	2011/02/25	NC		%	25
		Chloroethane	2011/02/25	NC		%	25
		1,3-Butadiene	2011/02/25	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/02/25	NC		%	25
		Trichlorotrifluoroethane	2011/02/25	NC		%	25
		Ethanol	2011/02/25	NC		%	25
		2-propanol	2011/02/25	NC		%	25
		2-Propanone	2011/02/25	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/02/25	NC		%	25
		Methyl Isobutyl Ketone	2011/02/25	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/02/25	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/02/25	NC		%	25
		Ethyl Acetate	2011/02/25	NC		%	25
		1,1-Dichloroethylene	2011/02/25	NC		%	25
		cis-1,2-Dichloroethylene	2011/02/25	NC		%	25
		trans-1,2-Dichloroethylene	2011/02/25	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/02/25	NC		%	25
		Chloroform	2011/02/25	NC		%	25
		Carbon Tetrachloride	2011/02/25	NC		%	25
		1,1-Dichloroethane	2011/02/25	NC		%	25
		1,2-Dichloroethane	2011/02/25	NC		%	25
		Ethylene Dibromide	2011/02/25	NC		%	25

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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB124486

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2416983 LSY	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/02/25	NC		%	25
		1,1,2-Trichloroethane	2011/02/25	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/02/25	NC		%	25
		cis-1,3-Dichloropropene	2011/02/25	NC		%	25
		trans-1,3-Dichloropropene	2011/02/25	NC		%	25
		1,2-Dichloropropane	2011/02/25	NC		%	25
		Bromomethane	2011/02/25	NC		%	25
		Bromoform	2011/02/25	NC		%	25
		Bromodichloromethane	2011/02/25	NC		%	25
		Dibromochloromethane	2011/02/25	NC		%	25
		Heptane	2011/02/25	NC		%	25
		Trichloroethylene	2011/02/25	NC		%	25
		Tetrachloroethylene	2011/02/25	NC		%	25
		Benzene	2011/02/25	NC		%	25
		Toluene	2011/02/25	NC		%	25
		Ethylbenzene	2011/02/25	NC		%	25
		p+m-Xylene	2011/02/25	NC		%	25
		o-Xylene	2011/02/25	NC		%	25
		Styrene	2011/02/25	NC		%	25
		1,3,5-Trimethylbenzene	2011/02/25	NC		%	25
		1,2,4-Trimethylbenzene	2011/02/25	NC		%	25
		4-ethyltoluene	2011/02/25	NC		%	25
		Chlorobenzene	2011/02/25	NC		%	25
		Benzyl chloride	2011/02/25	NC		%	25
		1,3-Dichlorobenzene	2011/02/25	NC		%	25
		1,4-Dichlorobenzene	2011/02/25	NC		%	25
		1,2-Dichlorobenzene	2011/02/25	NC		%	25
		1,2,4-Trichlorobenzene	2011/02/25	NC		%	25
		Hexachlorobutadiene	2011/02/25	NC		%	25
		Hexane	2011/02/25	NC		%	25
		Cyclohexane	2011/02/25	NC		%	25
		Tetrahydrofuran	2011/02/25	NC		%	25
		1,4-Dioxane	2011/02/25	NC		%	25
		Xylene (Total)	2011/02/25	NC		%	25

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

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

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

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

# MAXXAM

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167  
Location: Cold Lake South Canister ID: 7866  
Station ID: Lica 1 Canister Installation Date/Time: Feb 25, 2011 @ 8:25 mst  
Field Sample ID: LICA VOC/ CLS /Feb 26, 11 Canister Removal Date/Time: Feb 28, 2011 @ 9:35 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
26-Feb-11	26/02/2011 0:00	27/02/2011 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	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 # 06642

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Technician Signiture: Ting Xu

Your C.O.C. #: 06642

**Attention: Michael Bisaga**Maxxam Analytics  
2608 6A Ave.  
Cold Lake, AB  
CANADA T9M 2C7**Report Date: 2011/03/10****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B127520****Received: 2011/03/02, 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	2011/03/08	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/03/08	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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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 #: B127520  
 Report Date: 2011/03/10

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		IU0522	IU0523	
Sampling Date		2011/02/26 00:00	2011/02/26 00:00	
COC Number		06642	06642	
	<b>Units</b>	<b>LICA VOC\CLS\FEB 26,11</b>	<b>LICA VOC\PORT\FEB 26,11</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	20	21	2423759

QC Batch = Quality Control Batch



Maxxam Job #: B127520  
 Report Date: 2011/03/10

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

Maxxam ID		IU0522				
Sampling Date		2011/02/26 00:00				
COC Number		06642				
	<b>Units</b>	<b>LICA VOC\CLS\FEB 26,11</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	2424055
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2424055
Propene	ppbv	<0.30	0.30	<0.516	0.516	2424055
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2424055
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2424055
Dichlorodifluoromethane (FREON 12)	ppbv	0.74	0.20	3.68	0.989	2424055
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2424055
Chloromethane	ppbv	0.61	0.30	1.26	0.620	2424055
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2424055
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2424055
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2424055
Trichlorofluoromethane (FREON 11)	ppbv	0.36	0.20	2.04	1.12	2424055
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2424055
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2424055
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2424055
2-Propanone	ppbv	1.08	0.80	2.57	1.90	2424055
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2424055
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2424055
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2424055
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2424055
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2424055
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2424055
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2424055
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2424055
Methylene Chloride(Dichloromethane)	ppbv	0.38	0.30	1.33	1.04	2424055
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2424055
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2424055
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2424055
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2424055
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2424055
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B127520  
 Report Date: 2011/03/10

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

Maxxam ID		IU0522				
Sampling Date		2011/02/26 00:00				
COC Number		06642				
	<b>Units</b>	<b>LICA VOC\CLS\FEB 26,11</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	2424055
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2424055
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2424055
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2424055
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2424055
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2424055
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2424055
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2424055
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2424055
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2424055
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2424055
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2424055
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2424055
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2424055
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2424055
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2424055
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2424055
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2424055
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2424055
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2424055
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2424055
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2424055
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2424055
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2424055
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2424055
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2424055
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2424055
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2424055
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2424055
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2424055
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2424055
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2424055

QC Batch = Quality Control Batch

Maxxam Job #: B127520  
 Report Date: 2011/03/10

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

Maxxam ID		IU0522				
Sampling Date		2011/02/26 00:00				
COC Number		06642				
	<b>Units</b>	<b>LICA VOC\CLS\FEB 26,11</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	2424055
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2424055
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	71		N/A	N/A	2424055
D5-Chlorobenzene	%	68		N/A	N/A	2424055
Difluorobenzene	%	72		N/A	N/A	2424055
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B127520  
 Report Date: 2011/03/10

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

Maxxam ID		IU0523				
Sampling Date		2011/02/26 00:00				
COC Number		06642				
	<b>Units</b>	<b>LICA VOC\PORT\FEB 26,11</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	2424055
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2424055
Propene	ppbv	<0.30	0.30	<0.516	0.516	2424055
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2424055
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2424055
Dichlorodifluoromethane (FREON 12)	ppbv	0.70	0.20	3.48	0.989	2424055
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2424055
Chloromethane	ppbv	0.61	0.30	1.26	0.620	2424055
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2424055
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2424055
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2424055
Trichlorofluoromethane (FREON 11)	ppbv	0.37	0.20	2.07	1.12	2424055
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2424055
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2424055
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2424055
2-Propanone	ppbv	1.34	0.80	3.17	1.90	2424055
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2424055
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2424055
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2424055
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2424055
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2424055
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2424055
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2424055
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2424055
Methylene Chloride(Dichloromethane)	ppbv	0.35	0.30	1.22	1.04	2424055
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2424055
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2424055
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2424055
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2424055
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2424055
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B127520  
 Report Date: 2011/03/10

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

Maxxam ID		IU0523				
Sampling Date		2011/02/26 00:00				
COC Number		06642				
	<b>Units</b>	<b>LICA VOC\PORT\FEB 26,11</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	2424055
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2424055
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2424055
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2424055
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2424055
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2424055
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2424055
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2424055
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2424055
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2424055
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2424055
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2424055
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2424055
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2424055
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2424055
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2424055
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2424055
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2424055
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2424055
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2424055
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2424055
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2424055
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2424055
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2424055
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2424055
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2424055
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2424055
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2424055
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2424055
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2424055
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2424055
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2424055
QC Batch = Quality Control Batch						

Maxxam Job #: B127520  
 Report Date: 2011/03/10

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

Maxxam ID		IU0523				
Sampling Date		2011/02/26 00:00				
COC Number		06642				
	<b>Units</b>	<b>LICA</b> <b>VOC\PORT\FEB</b> <b>26,11</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	2424055
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2424055
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	69		N/A	N/A	2424055
D5-Chlorobenzene	%	65		N/A	N/A	2424055
Difluorobenzene	%	69		N/A	N/A	2424055
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B127520  
 Report Date: 2011/03/10

### Test Summary

**Maxxam ID** IU0522 **Collected** 2011/02/26  
**Sample ID** LICA VOC\CLS\FEB 26,11 **Shipped**  
**Matrix** AIR **Received** 2011/03/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2423759	N/A	2011/03/08	S_S
Volatile Organics in Air (TO-15)	GC/MS	2424055	N/A	2011/03/08	S_S

**Maxxam ID** IU0523 **Collected** 2011/02/26  
**Sample ID** LICA VOC\PORT\FEB 26,11 **Shipped**  
**Matrix** AIR **Received** 2011/03/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2423759	N/A	2011/03/08	S_S
Volatile Organics in Air (TO-15)	GC/MS	2424055	N/A	2011/03/08	S_S

Maxxam Job #: B127520  
Report Date: 2011/03/10

**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: GB127520

QA/QC Batch			Date Analyzed					
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2424055 S_S	Spiked Blank	Bromochloromethane	2011/03/08		105	%	60 - 140	
		D5-Chlorobenzene	2011/03/08		111	%	60 - 140	
		Difluorobenzene	2011/03/08		107	%	60 - 140	
		2,2,4-Trimethylpentane	2011/03/08		97	%	70 - 130	
		Carbon Disulfide	2011/03/08		95	%	70 - 130	
		Propene	2011/03/08		90	%	70 - 130	
		Vinyl Acetate	2011/03/08		103	%	70 - 130	
		Vinyl Bromide	2011/03/08		109	%	70 - 130	
		Dichlorodifluoromethane (FREON 12)	2011/03/08		115	%	70 - 130	
		1,2-Dichlorotetrafluoroethane	2011/03/08		131 (1)	%	70 - 130	
		Chloromethane	2011/03/08		113	%	70 - 130	
		Vinyl Chloride	2011/03/08		109	%	70 - 130	
		Chloroethane	2011/03/08		109	%	70 - 130	
		1,3-Butadiene	2011/03/08		108	%	70 - 130	
		Trichlorofluoromethane (FREON 11)	2011/03/08		118	%	70 - 130	
		Trichlorotrifluoroethane	2011/03/08		108	%	70 - 130	
		Ethanol	2011/03/08		105	%	70 - 130	
		2-propanol	2011/03/08		100	%	70 - 130	
		2-Propanone	2011/03/08		130	%	70 - 130	
		Methyl Ethyl Ketone (2-Butanone)	2011/03/08		112	%	70 - 130	
		Methyl Isobutyl Ketone	2011/03/08		100	%	70 - 130	
		Methyl Butyl Ketone (2-Hexanone)	2011/03/08		101	%	70 - 130	
		Methyl t-butyl ether (MTBE)	2011/03/08		105	%	70 - 130	
		Ethyl Acetate	2011/03/08		100	%	70 - 130	
		1,1-Dichloroethylene	2011/03/08		108	%	70 - 130	
		cis-1,2-Dichloroethylene	2011/03/08		105	%	70 - 130	
		trans-1,2-Dichloroethylene	2011/03/08		104	%	70 - 130	
		Methylene Chloride(Dichloromethane)	2011/03/08		96	%	70 - 130	
		Chloroform	2011/03/08		111	%	70 - 130	
		Carbon Tetrachloride	2011/03/08		111	%	70 - 130	
		1,1-Dichloroethane	2011/03/08		105	%	70 - 130	
		1,2-Dichloroethane	2011/03/08		115	%	70 - 130	
		Ethylene Dibromide	2011/03/08		105	%	70 - 130	
		1,1,1-Trichloroethane	2011/03/08		113	%	70 - 130	
		1,1,2-Trichloroethane	2011/03/08		103	%	70 - 130	
		1,1,2,2-Tetrachloroethane	2011/03/08		95	%	70 - 130	
		cis-1,3-Dichloropropene	2011/03/08		107	%	70 - 130	
		trans-1,3-Dichloropropene	2011/03/08		108	%	70 - 130	
		1,2-Dichloropropane	2011/03/08		100	%	70 - 130	
		Bromomethane	2011/03/08		108	%	70 - 130	
		Bromoform	2011/03/08		102	%	70 - 130	
		Bromodichloromethane	2011/03/08		111	%	70 - 130	
		Dibromochloromethane	2011/03/08		111	%	70 - 130	
		Heptane	2011/03/08		99	%	70 - 130	
		Trichloroethylene	2011/03/08		102	%	70 - 130	
		Tetrachloroethylene	2011/03/08		104	%	70 - 130	
		Benzene	2011/03/08		102	%	70 - 130	
		Toluene	2011/03/08		103	%	70 - 130	
		Ethylbenzene	2011/03/08		101	%	70 - 130	
		p+m-Xylene	2011/03/08		100	%	70 - 130	
		o-Xylene	2011/03/08		101	%	70 - 130	
		Styrene	2011/03/08		90	%	70 - 130	
		1,3,5-Trimethylbenzene	2011/03/08		98	%	70 - 130	
		1,2,4-Trimethylbenzene	2011/03/08		94	%	70 - 130	
		4-ethyltoluene	2011/03/08		99	%	70 - 130	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB127520

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2424055 S_S	Spiked Blank	Chlorobenzene	2011/03/08		97	%	70 - 130
		Benzyl chloride	2011/03/08		97	%	70 - 130
		1,3-Dichlorobenzene	2011/03/08		89	%	70 - 130
		1,4-Dichlorobenzene	2011/03/08		91	%	70 - 130
		1,2-Dichlorobenzene	2011/03/08		90	%	70 - 130
		1,2,4-Trichlorobenzene	2011/03/08		85	%	70 - 130
		Hexachlorobutadiene	2011/03/08		91	%	70 - 130
		Hexane	2011/03/08		100	%	70 - 130
		Cyclohexane	2011/03/08		98	%	70 - 130
		Tetrahydrofuran	2011/03/08		99	%	70 - 130
		1,4-Dioxane	2011/03/08		102	%	70 - 130
	Method Blank	Bromochloromethane	2011/03/08		112	%	60 - 140
		D5-Chlorobenzene	2011/03/08		109	%	60 - 140
		Difluorobenzene	2011/03/08		116	%	60 - 140
		2,2,4-Trimethylpentane	2011/03/08	<0.20		ppbv	
		Carbon Disulfide	2011/03/08	<0.50		ppbv	
		Propene	2011/03/08	<0.30		ppbv	
		Vinyl Acetate	2011/03/08	<0.20		ppbv	
		Vinyl Bromide	2011/03/08	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/03/08	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/03/08	<0.17		ppbv	
		Chloromethane	2011/03/08	<0.30		ppbv	
		Vinyl Chloride	2011/03/08	<0.18		ppbv	
		Chloroethane	2011/03/08	<0.30		ppbv	
		1,3-Butadiene	2011/03/08	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/03/08	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/03/08	<0.15		ppbv	
		Ethanol	2011/03/08	<2.3		ppbv	
		2-propanol	2011/03/08	<3.0		ppbv	
		2-Propanone	2011/03/08	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/03/08	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/03/08	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/03/08	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/03/08	<0.20		ppbv	
		Ethyl Acetate	2011/03/08	<2.2		ppbv	
		1,1-Dichloroethylene	2011/03/08	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/03/08	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/03/08	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/03/08	0.31, RDL=0.30		ppbv	
		Chloroform	2011/03/08	<0.15		ppbv	
		Carbon Tetrachloride	2011/03/08	<0.30		ppbv	
		1,1-Dichloroethane	2011/03/08	<0.20		ppbv	
		1,2-Dichloroethane	2011/03/08	<0.20		ppbv	
		Ethylene Dibromide	2011/03/08	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/03/08	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/03/08	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/03/08	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/03/08	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/03/08	<0.17		ppbv	
		1,2-Dichloropropane	2011/03/08	<0.40		ppbv	
		Bromomethane	2011/03/08	<0.18		ppbv	
		Bromoform	2011/03/08	<0.20		ppbv	
		Bromodichloromethane	2011/03/08	<0.20		ppbv	
		Dibromochloromethane	2011/03/08	<0.20		ppbv	
		Heptane	2011/03/08	<0.30		ppbv	

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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB127520

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2424055 S_S	Method Blank	Trichloroethylene	2011/03/08	<0.30		ppbv	
		Tetrachloroethylene	2011/03/08	<0.20		ppbv	
		Benzene	2011/03/08	<0.18		ppbv	
		Toluene	2011/03/08	<0.20		ppbv	
		Ethylbenzene	2011/03/08	<0.20		ppbv	
		p+m-Xylene	2011/03/08	<0.37		ppbv	
		o-Xylene	2011/03/08	<0.20		ppbv	
		Styrene	2011/03/08	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/03/08	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/03/08	<0.50		ppbv	
		4-ethyltoluene	2011/03/08	<2.2		ppbv	
		Chlorobenzene	2011/03/08	<0.20		ppbv	
		Benzyl chloride	2011/03/08	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/03/08	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/03/08	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/03/08	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/03/08	<2.0		ppbv	
		Hexachlorobutadiene	2011/03/08	<3.0		ppbv	
		Hexane	2011/03/08	<0.30		ppbv	
		Cyclohexane	2011/03/08	<0.20		ppbv	
		Tetrahydrofuran	2011/03/08	<0.40		ppbv	
		1,4-Dioxane	2011/03/08	<2.0		ppbv	
		Xylene (Total)	2011/03/08	<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.

# **Polycyclic Aromatic Hydrocarbons Laboratory Analysis**

## Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica  
 Location: Cold Lake South  
 Station ID: Lica1  
 Field Sample ID: LICA PUF/CLS/Feb 02,11

Puf+ s/n: 100-1020  
 Motor s/n: 1138  
 Installation Date/Time: Feb 01, 2011 @ 15:45 mst  
 Removal Date/Time: Feb 03, 2011 @ 9:01 mst

Date and Time Information			
Sample Date	Start Time (MST)		Elapsed Time (Hours)
02-Feb-11	02/02/2011 0:00	03/02/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
31-Jan-11	03-Feb-11	16-Feb-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	-4.2	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# 06637  
GB0H2741 PUFF # 1  
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Feb 02, 11  
- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 06637

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

Report Date: 2011/02/15

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B115780****Received: 2011/02/05, 10:15**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/02/09	2011/02/11	BRL SOP-00201	CARB429(ARBM1,M2)mod

## Encryption Key

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

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

=====

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Total cover pages: 1

Page 1 of 7

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Maxxam Job #: B115780  
 Report Date: 2011/02/15

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

Maxxam ID		IO5700	IO5701		
Sampling Date		2011/02/02 00:00	2011/02/02 00:00		
COC Number		06637	06637		
	<b>Units</b>	<b>LICA PUF/CLS/FEB 02,11</b>	<b>LICA PUF/PORT/FEB 02,11</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2401060
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2401060
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2401060
2-Methylantracene	ug	<0.10	<0.10	0.10	2401060
2-Methylnaphthalene	ug	0.14	0.10	0.10	2401060
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2401060
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2401060
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2401060
Acenaphthene	ug	<0.050	<0.050	0.050	2401060
Acenaphthylene	ug	<0.050	<0.050	0.050	2401060
Anthracene	ug	<0.050	<0.050	0.050	2401060
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2401060
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2401060
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2401060
Benzo(b)fluoranthene	ug	<0.050	0.074	0.050	2401060
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2401060
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2401060
Benzo(g,h,i)perylene	ug	<0.050	0.056	0.050	2401060
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2401060
Biphenyl	ug	0.16	0.15	0.10	2401060
Chrysene	ug	<0.050	0.062	0.050	2401060
Coronene	ug	<0.10	<0.10	0.10	2401060
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2401060
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2401060
Fluoranthene	ug	0.110	0.256	0.050	2401060
Fluorene	ug	0.210	0.212	0.050	2401060
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2401060
m-Terphenyl	ug	<0.10	<0.10	0.10	2401060
Naphthalene	ug	0.142	0.140	0.072	2401060
o-Terphenyl	ug	<0.10	<0.10	0.10	2401060
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					

Maxxam Job #: B115780  
 Report Date: 2011/02/15

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

Maxxam ID		IO5700	IO5701		
Sampling Date		2011/02/02 00:00	2011/02/02 00:00		
COC Number		06637	06637		
	<b>Units</b>	<b>LICA PUF/CLS/FEB 02,11</b>	<b>LICA PUF/PORT/FEB 02,11</b>	<b>RDL</b>	<b>QC Batch</b>

Perylene	ug	<0.10	<0.10	0.10	2401060
Phenanthrene	ug	0.456	0.594	0.050	2401060
p-Terphenyl	ug	<0.10	<0.10	0.10	2401060
Pyrene	ug	0.066	0.134	0.050	2401060
Quinoline	ug	<0.40	<0.40	0.40	2401060
Tetralin	ug	<0.10	<0.10	0.10	2401060
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	62	70		2401060
D10-Fluoranthene	%	84	88		2401060
D10-Fluorene (FS)	%	21 (1)	25 (1)		2401060
D10-Phenanthrene	%	78	82		2401060
D12-Benzo(a)anthracene	%	94	96		2401060
D12-Benzo(a)pyrene	%	94	96		2401060
D12-Benzo(b)fluoranthene	%	88	90		2401060
D12-Benzo(ghi)perylene	%	88	92		2401060
D12-Benzo(k)fluoranthene	%	84	86		2401060
D12-Chrysene	%	80	80		2401060
D12-Indeno(1,2,3-cd)pyrene	%	90	94		2401060
D12-Perylene	%	86	90		2401060
D14-Dibenzo(a,h)anthracene	%	90	92		2401060
D14-Terphenyl (FS)	%	83	87		2401060
D8-Acenaphthylene	%	72	76		2401060
D8-Naphthalene	%	58	70		2401060

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 #: B115780  
 Report Date: 2011/02/15

**Test Summary**

**Maxxam ID** IO5700 **Collected** 2011/02/02  
**Sample ID** LICA PUF/CLS/FEB 02,11 **Shipped**  
**Matrix** PUF AND FILTER **Received** 2011/02/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2401060	2011/02/09	2011/02/11	WZ

**Maxxam ID** IO5701 **Collected** 2011/02/02  
**Sample ID** LICA PUF/PORT/FEB 02,11 **Shipped**  
**Matrix** PUF AND FILTER **Received** 2011/02/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2401060	2011/02/09	2011/02/11	WZ

Maxxam Job #: B115780  
Report Date: 2011/02/15

#### GENERAL COMMENTS

PAHMS-F

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

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

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

Sample IO5700-01: PAHMS-F

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

Sample IO5701-01: 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: GB115780

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2401060 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/02/11		72	%	50 - 150
		D10-Fluoranthene	2011/02/11		84	%	50 - 150
		D10-Phenanthrene	2011/02/11		80	%	50 - 150
		D12-Benzo(a)anthracene	2011/02/11		96	%	50 - 150
		D12-Benzo(a)pyrene	2011/02/11		100	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/02/11		90	%	50 - 150
		D12-Benzo(ghi)perylene	2011/02/11		88	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/02/11		84	%	50 - 150
		D12-Chrysene	2011/02/11		80	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/02/11		90	%	50 - 150
		D12-Perylene	2011/02/11		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/02/11		88	%	50 - 150
		RPD	D8-Acenaphthylene	2011/02/11		76	%
	D8-Naphthalene		2011/02/11		74	%	50 - 150
	RPD	Acenaphthene	2011/02/11		71	%	60 - 130
		Acenaphthene	2011/02/11	2.4		%	50
	Spiked Blank	Acenaphthylene	2011/02/11		75	%	60 - 130
		Acenaphthylene	2011/02/11	3.6		%	50
	Spiked Blank	Anthracene	2011/02/11		70	%	60 - 130
		Anthracene	2011/02/11	1.1		%	50
	Spiked Blank	Benzo(a)anthracene	2011/02/11		83	%	60 - 130
		Benzo(a)anthracene	2011/02/11	0.6		%	50
	Spiked Blank	Benzo(a)pyrene	2011/02/11		81	%	60 - 130
		Benzo(a)pyrene	2011/02/11	0.6		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/02/11		81	%	60 - 130
		Benzo(b)fluoranthene	2011/02/11	0.3		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/02/11		82	%	60 - 130
		Benzo(g,h,i)perylene	2011/02/11	0.6		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/02/11		83	%	60 - 130
		Benzo(k)fluoranthene	2011/02/11	1.2		%	50
	Spiked Blank	Chrysene	2011/02/11		78	%	60 - 130
		Chrysene	2011/02/11	0.6		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/02/11		83	%	60 - 130
		Dibenz(a,h)anthracene	2011/02/11	2.4		%	50
	Spiked Blank	Fluoranthene	2011/02/11		78	%	60 - 130
		Fluoranthene	2011/02/11	2.6		%	50
	Spiked Blank	Fluorene	2011/02/11		72	%	60 - 130
		Fluorene	2011/02/11	1.4		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/02/11		83	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/02/11	1.2		%	50
Spiked Blank	Naphthalene	2011/02/11		85	%	60 - 130	
	Naphthalene	2011/02/11	15.1		%	50	
Spiked Blank	Phenanthrene	2011/02/11		73	%	60 - 130	
	Phenanthrene	2011/02/11	2.8		%	50	
Spiked Blank	Pyrene	2011/02/11		80	%	60 - 130	
	Pyrene	2011/02/11	1.6		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/02/11		76	%	50 - 150	
	D10-Fluoranthene	2011/02/11		90	%	50 - 150	
	D10-Phenanthrene	2011/02/11		84	%	50 - 150	
	D12-Benzo(a)anthracene	2011/02/11		100	%	50 - 150	
	D12-Benzo(a)pyrene	2011/02/11		106	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/02/11		92	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/02/11		92	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/02/11		88	%	50 - 150	
	D12-Chrysene	2011/02/11		82	%	50 - 150	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB115780

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2401060 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/02/11		96	%	50 - 150
		D12-Perylene	2011/02/11		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/02/11		92	%	50 - 150
		D8-Acenaphthylene	2011/02/11		80	%	50 - 150
		D8-Naphthalene	2011/02/11		74	%	50 - 150
		1-Methylnaphthalene	2011/02/11	<0.10		ug	
		1-Methylphenanthrene	2011/02/11	<0.10		ug	
		2-Chloronaphthalene	2011/02/11	<0.10		ug	
		2-Methylanthracene	2011/02/11	<0.10		ug	
		2-Methylnaphthalene	2011/02/11	<0.10		ug	
		3-Methylcholanthrene	2011/02/11	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/02/11	<0.10		ug	
		9,10-Dimethylanthracene	2011/02/11	<0.40		ug	
		Acenaphthene	2011/02/11	<0.050		ug	
		Acenaphthylene	2011/02/11	<0.050		ug	
		Anthracene	2011/02/11	<0.050		ug	
		Benzo(a)anthracene	2011/02/11	<0.050		ug	
		Benzo(a)fluorene	2011/02/11	<0.10		ug	
		Benzo(a)pyrene	2011/02/11	<0.050		ug	
		Benzo(b)fluoranthene	2011/02/11	<0.050		ug	
		Benzo(b)fluorene	2011/02/11	<0.10		ug	
		Benzo(e)pyrene	2011/02/11	<0.10		ug	
		Benzo(g,h,i)perylene	2011/02/11	0.050, RDL=0.050		ug	
		Benzo(k)fluoranthene	2011/02/11	<0.050		ug	
		Biphenyl	2011/02/11	<0.10		ug	
		Chrysene	2011/02/11	<0.050		ug	
		Coronene	2011/02/11	<0.10		ug	
		Dibenz(a,h)anthracene	2011/02/11	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/02/11	<0.20		ug	
		Fluoranthene	2011/02/11	<0.050		ug	
		Fluorene	2011/02/11	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/02/11	<0.050		ug	
		m-Terphenyl	2011/02/11	<0.10		ug	
		Naphthalene	2011/02/11	<0.072		ug	
		o-Terphenyl	2011/02/11	<0.10		ug	
		Perylene	2011/02/11	<0.10		ug	
		Phenanthrene	2011/02/11	<0.050		ug	
		p-Terphenyl	2011/02/11	<0.10		ug	
		Pyrene	2011/02/11	<0.050		ug	
		Quinoline	2011/02/11	<0.40		ug	
		Tetralin	2011/02/11	<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.

## Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica  
 Location: Cold Lake South  
 Station ID: Lica1  
 Field Sample ID: LICA PUF/CLS/Feb 08,11

Puf+ s/n: 100-1020  
 Motor s/n: 1138  
 Installation Date/Time: Feb 07, 2011 @ 13:00 mst  
 Removal Date/Time: Feb 09, 2011 @ 8:56 mst

Date and Time Information			
Sample Date	Start Time (MST)		Elapsed Time (Hours)
08-Feb-11	08/02/2011 0:00	09/02/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
03-Feb-11	09-Feb-11	16-Feb-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> )
726	229	-17.4	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# 06706  
GB113181 PUFF # 1  
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Feb 08, 11  
- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu



Site: LICA - COLD LAKE SOUTH  
Your C.O.C. #: 06706

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

**Report Date: 2011/02/17**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B118668**  
**Received: 2011/02/11, 08:31**

Sample Matrix: PUF AND FILTER  
# Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/02/14	2011/02/15	BRL SOP-00201	CARB429(ARBM1,M2)mod
PAH's in Air (CARB429mod)	1	2011/02/14	2011/02/16	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 #: B118668  
 Report Date: 2011/02/17

Lakeland Industry &amp; Community Assoc.

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0855	IQ0856	IQ0857		
Sampling Date		2011/02/08 00:00	2011/02/08 00:00	2011/02/08 00:00		
COC Number		06706	06706	06706		
	<b>Units</b>	<b>LICA</b>	<b>LICA</b>	<b>102MM</b>	<b>RDL</b>	<b>QC Batch</b>
		<b>PUFF/QFF/CLS/FEB08,11</b>	<b>PUFF/QFF/PORT/FEB08,11</b>			

<b>Semivolatile Organics</b>						
1-Methylnaphthalene	ug	0.64	0.28	<0.10	0.10	2404930
1-Methylphenanthrene	ug	<0.10	<0.10	<0.10	0.10	2404930
2-Chloronaphthalene	ug	<0.10	<0.10	<0.10	0.10	2404930
2-Methylantracene	ug	<0.10	<0.10	<0.10	0.10	2404930
2-Methylnaphthalene	ug	1.13	0.45	<0.10	0.10	2404930
3-Methylcholanthrene	ug	<2.0	<2.0	<2.0	2.0	2404930
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	<0.10	0.10	2404930
9,10-Dimethylantracene	ug	<0.40	<0.40	<0.40	0.40	2404930
Acenaphthene	ug	0.080	0.054	<0.050	0.050	2404930
Acenaphthylene	ug	0.110	0.054	<0.050	0.050	2404930
Anthracene	ug	<0.050	<0.050	<0.050	0.050	2404930
Benzo(a)anthracene	ug	<0.050	<0.050	<0.050	0.050	2404930
Benzo(a)fluorene	ug	<0.10	<0.10	<0.10	0.10	2404930
Benzo(a)pyrene	ug	<0.050	<0.050	<0.050	0.050	2404930
Benzo(b)fluoranthene	ug	0.064	0.056	<0.050	0.050	2404930
Benzo(b)fluorene	ug	<0.10	<0.10	<0.10	0.10	2404930
Benzo(e)pyrene	ug	<0.10	<0.10	<0.10	0.10	2404930
Benzo(g,h,i)perylene	ug	0.060	0.054	<0.050	0.050	2404930
Benzo(k)fluoranthene	ug	<0.050	<0.050	<0.050	0.050	2404930
Biphenyl	ug	0.63	0.39	<0.10	0.10	2404930
Chrysene	ug	0.066	0.082	<0.050	0.050	2404930
Coronene	ug	<0.10	<0.10	<0.10	0.10	2404930
Dibenz(a,h)anthracene	ug	<0.050	<0.050	<0.050	0.050	2404930
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	<0.20	0.20	2404930
Fluoranthene	ug	0.148	0.214	<0.050	0.050	2404930
Fluorene	ug	0.210	0.156	<0.050	0.050	2404930
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	<0.050	0.050	2404930
m-Terphenyl	ug	<0.10	<0.10	<0.10	0.10	2404930
Naphthalene	ug	1.69	1.10	<0.072	0.072	2404930
o-Terphenyl	ug	<0.10	<0.10	<0.10	0.10	2404930
Perylene	ug	<0.10	<0.10	<0.10	0.10	2404930

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B118668  
 Report Date: 2011/02/17

Lakeland Industry &amp; Community Assoc.

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0855	IQ0856	IQ0857		
Sampling Date		2011/02/08 00:00	2011/02/08 00:00	2011/02/08 00:00		
COC Number		06706	06706	06706		
	<b>Units</b>	<b>LICA</b>	<b>LICA</b>	<b>102MM</b>	<b>RDL</b>	<b>QC Batch</b>
		<b>PUFF/QFF/CLS/FEB08,11</b>	<b>PUFF/QFF/PORT/FEB08,11</b>			

Phenanthrene	ug	0.424	0.400	<0.050	0.050	2404930
p-Terphenyl	ug	<0.10	<0.10	<0.10	0.10	2404930
Pyrene	ug	0.094	0.122	<0.050	0.050	2404930
Quinoline	ug	<0.40	<0.40	<0.40	0.40	2404930
Tetralin	ug	<0.10	<0.10	<0.10	0.10	2404930
<b>Surrogate Recovery (%)</b>						
D10-2-Methylnaphthalene	%	62	66	80		2404930
D10-Fluoranthene	%	88	88	82		2404930
D10-Fluorene (FS)	%	60	68			2404930
D10-Phenanthrene	%	80	80	78		2404930
D12-Benzo(a)anthracene	%	96	94	86		2404930
D12-Benzo(a)pyrene	%	94	100	86		2404930
D12-Benzo(b)fluoranthene	%	90	88	88		2404930
D12-Benzo(ghi)perylene	%	92	92	88		2404930
D12-Benzo(k)fluoranthene	%	86	88	88		2404930
D12-Chrysene	%	80	82	88		2404930
D12-Indeno(1,2,3-cd)pyrene	%	94	94	90		2404930
D12-Perylene	%	90	88	88		2404930
D14-Dibenzo(a,h)anthracene	%	92	92	88		2404930
D14-Terphenyl (FS)	%	86	86			2404930
D8-Acenaphthylene	%	68	68	84		2404930
D8-Naphthalene	%	64	64	80		2404930

QC Batch = Quality Control Batch



Maxxam Job #: B118668  
 Report Date: 2011/02/17

Lakeland Industry & Community Assoc.

Project name: LICA - COLD LAKE SOUTH

### Test Summary

**Maxxam ID** IQ0855 **Collected** 2011/02/08  
**Sample ID** LICA PUFF/QFF/CLS/FEB08,11 **Shipped**  
**Matrix** PUF AND FILTER **Received** 2011/02/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2404930	2011/02/14	2011/02/15	JIW

**Maxxam ID** IQ0856 **Collected** 2011/02/08  
**Sample ID** LICA PUFF/QFF/PORT/FEB08,11 **Shipped**  
**Matrix** PUF AND FILTER **Received** 2011/02/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2404930	2011/02/14	2011/02/15	JIW

**Maxxam ID** IQ0857 **Collected** 2011/02/08  
**Sample ID** 102MM **Shipped**  
**Matrix** PUF AND FILTER **Received** 2011/02/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2404930	2011/02/14	2011/02/16	JIW

**GENERAL COMMENTS**

PAHMS-F(WS:2404930)

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

Benzo(g,h,i)perylene positive found in Blank. Samples should be considered to be possibly contaminated to the level found in the Blank.

Not calibrated for Benzo(b)Anthracene, Picene, Dibenzo(a,c) anthracene and Triphenylene. An estimated mdl for each of these compounds is 0.1ug.

Sample IQ0855-01: PAHMS-F(WS:2404930)

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene and Triphenylene with Chrysene each would have a value below estimated mdl.

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

Sample IQ0856-01: PAHMS-F(WS:2404930)

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene and Triphenylene with Chrysene each would have a value below estimated mdl.

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

Sample IQ0857-01: PAHMS-F(WS:2404930)

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene and Triphenylene with Chrysene each would have a value below estimated mdl.

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

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

Lakeland Industry & Community Assoc.  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

Quality Assurance Report  
 Maxxam Job Number: GB118668

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2404930 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/02/15		68	%	50 - 150
		D10-Fluoranthene	2011/02/15		88	%	50 - 150
		D10-Phenanthrene	2011/02/15		80	%	50 - 150
		D12-Benzo(a)anthracene	2011/02/15		92	%	50 - 150
		D12-Benzo(a)pyrene	2011/02/15		100	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/02/15		88	%	50 - 150
		D12-Benzo(ghi)perylene	2011/02/15		88	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/02/15		84	%	50 - 150
		D12-Chrysene	2011/02/15		80	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/02/15		92	%	50 - 150
		D12-Perylene	2011/02/15		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/02/15		90	%	50 - 150
		D8-Acenaphthylene	2011/02/15		72	%	50 - 150
		D8-Naphthalene	2011/02/15		68	%	50 - 150
		Acenaphthene	2011/02/15		68	%	60 - 130
	RPD	Acenaphthene	2011/02/15	3.3		%	50
	Spiked Blank	Acenaphthylene	2011/02/15		70	%	60 - 130
	RPD	Acenaphthylene	2011/02/15	4.2		%	50
	Spiked Blank	Anthracene	2011/02/15		74	%	60 - 130
	RPD	Anthracene	2011/02/15	3.1		%	50
	Spiked Blank	Benzo(a)anthracene	2011/02/15		80	%	60 - 130
	RPD	Benzo(a)anthracene	2011/02/15	1.9		%	50
	Spiked Blank	Benzo(a)pyrene	2011/02/15		78	%	60 - 130
	RPD	Benzo(a)pyrene	2011/02/15	1		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/02/15		80	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/02/15	0.6		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/02/15		81	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/02/15	4.5		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/02/15		86	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/02/15	0.3		%	50
	Spiked Blank	Chrysene	2011/02/15		76	%	60 - 130
	RPD	Chrysene	2011/02/15	2.0		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/02/15		82	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/02/15	4.5		%	50
	Spiked Blank	Fluoranthene	2011/02/15		82	%	60 - 130
	RPD	Fluoranthene	2011/02/15	0.3		%	50
	Spiked Blank	Fluorene	2011/02/15		70	%	60 - 130
	RPD	Fluorene	2011/02/15	4.9		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/02/15		82	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/02/15	3.6		%	50
	Spiked Blank	Naphthalene	2011/02/15		73	%	60 - 130
	RPD	Naphthalene	2011/02/15	7.6		%	50
	Spiked Blank	Phenanthrene	2011/02/15		73	%	60 - 130
	RPD	Phenanthrene	2011/02/15	3.4		%	50
	Spiked Blank	Pyrene	2011/02/15		86	%	60 - 130
	RPD	Pyrene	2011/02/15	0		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/02/15		70	%	50 - 150
		D10-Fluoranthene	2011/02/15		84	%	50 - 150
		D10-Phenanthrene	2011/02/15		76	%	50 - 150
		D12-Benzo(a)anthracene	2011/02/15		94	%	50 - 150
		D12-Benzo(a)pyrene	2011/02/15		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/02/15		88	%	50 - 150
		D12-Benzo(ghi)perylene	2011/02/15		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/02/15		86	%	50 - 150
		D12-Chrysene	2011/02/15		82	%	50 - 150

Lakeland Industry & Community Assoc.  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

## Quality Assurance Report (Continued)

Maxxam Job Number: GB118668

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2404930 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/02/15		90	%	50 - 150
		D12-Perylene	2011/02/15		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/02/15		86	%	50 - 150
		D8-Acenaphthylene	2011/02/15		76	%	50 - 150
		D8-Naphthalene	2011/02/15		68	%	50 - 150
		1-Methylnaphthalene	2011/02/15	<0.10		ug	
		1-Methylphenanthrene	2011/02/15	<0.10		ug	
		2-Chloronaphthalene	2011/02/15	<0.10		ug	
		2-Methylantracene	2011/02/15	<0.10		ug	
		2-Methylnaphthalene	2011/02/15	<0.10		ug	
		3-Methylcholanthrene	2011/02/15	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/02/15	<0.10		ug	
		9,10-Dimethylantracene	2011/02/15	<0.40		ug	
		Acenaphthene	2011/02/15	<0.050		ug	
		Acenaphthylene	2011/02/15	<0.050		ug	
		Anthracene	2011/02/15	<0.050		ug	
		Benzo(a)anthracene	2011/02/15	<0.050		ug	
		Benzo(a)fluorene	2011/02/15	<0.10		ug	
		Benzo(a)pyrene	2011/02/15	<0.050		ug	
		Benzo(b)fluoranthene	2011/02/15	<0.050		ug	
		Benzo(b)fluorene	2011/02/15	<0.10		ug	
		Benzo(e)pyrene	2011/02/15	<0.10		ug	
		Benzo(g,h,i)perylene	2011/02/15	0.056, RDL=0.050		ug	
		Benzo(k)fluoranthene	2011/02/15	<0.050		ug	
		Biphenyl	2011/02/15	<0.10		ug	
		Chrysene	2011/02/15	<0.050		ug	
		Coronene	2011/02/15	<0.10		ug	
		Dibenz(a,h)anthracene	2011/02/15	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/02/15	<0.20		ug	
		Fluoranthene	2011/02/15	<0.050		ug	
		Fluorene	2011/02/15	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/02/15	<0.050		ug	
		m-Terphenyl	2011/02/15	<0.10		ug	
		Naphthalene	2011/02/15	<0.072		ug	
		o-Terphenyl	2011/02/15	<0.10		ug	
		Perylene	2011/02/15	<0.10		ug	
		Phenanthrene	2011/02/15	<0.050		ug	
		p-Terphenyl	2011/02/15	<0.10		ug	
		Pyrene	2011/02/15	<0.050		ug	
		Quinoline	2011/02/15	<0.40		ug	
		Tetralin	2011/02/15	<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.

## Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica  
 Location: Cold Lake South  
 Station ID: Lica1  
 Field Sample ID: LICA PUF/CLS/Feb 20,11

Puf+ s/n: 100-1020  
 Motor s/n: 1138  
 Installation Date/Time: Feb 18, 2011 @ 10:59 mst  
 Removal Date/Time: Feb 22, 2011 @ 10:35 mst

Date and Time Information			
Sample Date	Start Time (MST)		Elapsed Time (Hours)
20-Feb-11	20/02/2011 0:00	21/02/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
17-Feb-11	22-Feb-11	03-Mar-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> )
719	229	-23.2	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# 06776  
GB114730 PUFF # 1  
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Feb 20, 11  
- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 06776

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

Report Date: 2011/03/02

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B124780****Received: 2011/02/24, 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	2011/02/25	2011/03/01	BRL SOP-00201	CARB429(ARBM1,M2)mod

## Encryption Key

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

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

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Total cover pages: 1

Maxxam Job #: B124780  
 Report Date: 2011/03/02

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

Maxxam ID		IS7614	IS7615		
Sampling Date		2011/02/20	2011/02/20		
COC Number		06776	06776		
	<b>Units</b>	<b>LICA</b>	<b>LICA</b>	<b>RDL</b>	<b>QC Batch</b>
		<b>PUFF+QFF/CLS/FEB</b>	<b>PUFF+QFF/PORT/FEB20,11</b>		
		<b>20,11</b>			

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	0.85	0.45	0.10	2414900
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2414900
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2414900
2-Methylanthracene	ug	<0.10	<0.10	0.10	2414900
2-Methylnaphthalene	ug	1.68	0.72	0.10	2414900
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2414900
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2414900
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	2414900
Acenaphthene	ug	0.104	<0.050	0.050	2414900
Acenaphthylene	ug	<0.050	<0.050	0.050	2414900
Anthracene	ug	<0.050	<0.050	0.050	2414900
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2414900
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2414900
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2414900
Benzo(b)fluoranthene	ug	0.050	<0.050	0.050	2414900
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2414900
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2414900
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2414900
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2414900
Biphenyl	ug	0.48	0.45	0.10	2414900
Chrysene	ug	<0.050	<0.050	0.050	2414900
Coronene	ug	<0.10	<0.10	0.10	2414900
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2414900
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2414900
Fluoranthene	ug	0.108	0.116	0.050	2414900
Fluorene	ug	0.138	0.178	0.050	2414900
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2414900
m-Terphenyl	ug	<0.10	<0.10	0.10	2414900
Naphthalene	ug	1.55	0.996	0.072	2414900
o-Terphenyl	ug	<0.10	<0.10	0.10	2414900
Perylene	ug	<0.10	<0.10	0.10	2414900

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B124780  
 Report Date: 2011/03/02

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

Maxxam ID		IS7614	IS7615		
Sampling Date		2011/02/20	2011/02/20		
COC Number		06776	06776		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/FEB 20,11</b>	<b>LICA PUFF+QFF/PORT/FEB20,11</b>	<b>RDL</b>	<b>QC Batch</b>

Phenanthrene	ug	0.280	0.352	0.050	2414900
p-Terphenyl	ug	<0.10	<0.10	0.10	2414900
Pyrene	ug	0.058	0.060	0.050	2414900
Quinoline	ug	<0.40	<0.40	0.40	2414900
Tetralin	ug	<0.10	<0.10	0.10	2414900
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	60	60		2414900
D10-Fluoranthene	%	88	88		2414900
D10-Fluorene (FS)	%	69	71		2414900
D10-Phenanthrene	%	78	78		2414900
D12-Benzo(a)anthracene	%	90	92		2414900
D12-Benzo(a)pyrene	%	84	86		2414900
D12-Benzo(b)fluoranthene	%	94	94		2414900
D12-Benzo(ghi)perylene	%	94	94		2414900
D12-Benzo(k)fluoranthene	%	76	76		2414900
D12-Chrysene	%	76	78		2414900
D12-Indeno(1,2,3-cd)pyrene	%	98	100		2414900
D12-Perylene	%	80	82		2414900
D14-Dibenzo(a,h)anthracene	%	100	104		2414900
D14-Terphenyl (FS)	%	87	90		2414900
D8-Acenaphthylene	%	64	66		2414900
D8-Naphthalene	%	58	56		2414900

QC Batch = Quality Control Batch



Maxxam Job #: B124780  
 Report Date: 2011/03/02

### Test Summary

<b>Maxxam ID</b>	IS7614	<b>Collected</b>	2011/02/20
<b>Sample ID</b>	LICA PUFF+QFF/CLS/FEB 20,11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/02/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2414900	2011/02/25	2011/03/01	JIW

<b>Maxxam ID</b>	IS7615	<b>Collected</b>	2011/02/20
<b>Sample ID</b>	LICA PUFF+QFF/PORT/FEB20,11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/02/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2414900	2011/02/25	2011/03/01	JIW

Maxxam Job #: B124780  
Report Date: 2011/03/02

#### GENERAL COMMENTS

PAHMS-F(WS:2414900)

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

Low recovery of Benzo(a)pyrene in Spike and low recovery of Naphthalene, Acenaphthylene, Acenaphthene and Fluorene in Spike:dup due to relatively low level in Method Spike.

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

Not calibrated for Benzo(b)Anthracene, Picene, Dibenzo(a,c) anthracene and Triphenylene. An estimated mdl for each of these compounds is 0.1ug.

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene and Triphenylene with Chrysene each would have a value below estimated mdl.

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

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

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

Quality Assurance Report  
 Maxxam Job Number: GB124780

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2414900 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/02/28		66	%	50 - 150
		D10-Fluoranthene	2011/02/28		80	%	50 - 150
		D10-Phenanthrene	2011/02/28		72	%	50 - 150
		D12-Benzo(a)anthracene	2011/02/28		84	%	50 - 150
		D12-Benzo(a)pyrene	2011/02/28		80	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/02/28		86	%	50 - 150
		D12-Benzo(ghi)perylene	2011/02/28		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/02/28		72	%	50 - 150
		D12-Chrysene	2011/02/28		74	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/02/28		92	%	50 - 150
		D12-Perylene	2011/02/28		78	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/02/28		94	%	50 - 150
		D8-Acenaphthylene	2011/02/28		64	%	50 - 150
		D8-Naphthalene	2011/02/28		64	%	50 - 150
		Acenaphthene	2011/02/28		62	%	60 - 130
	RPD	Acenaphthene	2011/03/01	8.8		%	50
	Spiked Blank	Acenaphthylene	2011/02/28		62	%	60 - 130
	RPD	Acenaphthylene	2011/03/01	10.1		%	50
	Spiked Blank	Anthracene	2011/02/28		63	%	60 - 130
	RPD	Anthracene	2011/03/01	0.4		%	50
	Spiked Blank	Benzo(a)anthracene	2011/02/28		73	%	60 - 130
	RPD	Benzo(a)anthracene	2011/03/01	6.3		%	50
	Spiked Blank	Benzo(a)pyrene	2011/02/28		60 (1)	%	60 - 130
	RPD	Benzo(a)pyrene	2011/03/01	8.5		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/02/28		72	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/03/01	8.0		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/02/28		74	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/03/01	5.2		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/02/28		70	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/03/01	6.5		%	50
	Spiked Blank	Chrysene	2011/02/28		71	%	60 - 130
	RPD	Chrysene	2011/03/01	6.1		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/02/28		78	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/03/01	5.6		%	50
	Spiked Blank	Fluoranthene	2011/02/28		74	%	60 - 130
	RPD	Fluoranthene	2011/03/01	4.7		%	50
	Spiked Blank	Fluorene	2011/02/28		62	%	60 - 130
	RPD	Fluorene	2011/03/01	6.7		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/02/28		75	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/03/01	6.4		%	50
	Spiked Blank	Naphthalene	2011/02/28		64	%	60 - 130
	RPD	Naphthalene	2011/03/01	12.1		%	50
	Spiked Blank	Phenanthrene	2011/02/28		65	%	60 - 130
	RPD	Phenanthrene	2011/03/01	1.9		%	50
	Spiked Blank	Pyrene	2011/02/28		72	%	60 - 130
	RPD	Pyrene	2011/03/01	5.4		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/03/01		60	%	50 - 150
		D10-Fluoranthene	2011/03/01		86	%	50 - 150
		D10-Phenanthrene	2011/03/01		70	%	50 - 150
		D12-Benzo(a)anthracene	2011/03/01		90	%	50 - 150
		D12-Benzo(a)pyrene	2011/03/01		84	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/03/01		90	%	50 - 150
		D12-Benzo(ghi)perylene	2011/03/01		90	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/03/01		78	%	50 - 150
		D12-Chrysene	2011/03/01		78	%	50 - 150

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB124780

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2414900 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/03/01		96	%	50 - 150
		D12-Perylene	2011/03/01		82	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/03/01		98	%	50 - 150
		D8-Acenaphthylene	2011/03/01		60	%	50 - 150
		D8-Naphthalene	2011/03/01		58	%	50 - 150
		1-Methylnaphthalene	2011/03/01	<0.10		ug	
		1-Methylphenanthrene	2011/03/01	<0.10		ug	
		2-Chloronaphthalene	2011/03/01	<0.10		ug	
		2-Methylantracene	2011/03/01	<0.10		ug	
		2-Methylnaphthalene	2011/03/01	<0.10		ug	
		3-Methylcholanthrene	2011/03/01	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/03/01	<0.10		ug	
		9,10-Dimethylantracene	2011/03/01	<0.40		ug	
		Acenaphthene	2011/03/01	<0.050		ug	
		Acenaphthylene	2011/03/01	<0.050		ug	
		Anthracene	2011/03/01	<0.050		ug	
		Benzo(a)anthracene	2011/03/01	<0.050		ug	
		Benzo(a)fluorene	2011/03/01	<0.10		ug	
		Benzo(a)pyrene	2011/03/01	<0.050		ug	
		Benzo(b)fluoranthene	2011/03/01	<0.050		ug	
		Benzo(b)fluorene	2011/03/01	<0.10		ug	
		Benzo(e)pyrene	2011/03/01	<0.10		ug	
		Benzo(g,h,i)perylene	2011/03/01	<0.050		ug	
		Benzo(k)fluoranthene	2011/03/01	<0.050		ug	
		Biphenyl	2011/03/01	<0.10		ug	
		Chrysene	2011/03/01	<0.050		ug	
		Coronene	2011/03/01	<0.10		ug	
		Dibenz(a,h)anthracene	2011/03/01	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/03/01	<0.20		ug	
		Fluoranthene	2011/03/01	<0.050		ug	
		Fluorene	2011/03/01	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/03/01	<0.050		ug	
		m-Terphenyl	2011/03/01	<0.10		ug	
		Naphthalene	2011/03/01	0.102, RDL=0.072		ug	
		o-Terphenyl	2011/03/01	<0.10		ug	
		Perylene	2011/03/01	<0.10		ug	
		Phenanthrene	2011/03/01	<0.050		ug	
		p-Terphenyl	2011/03/01	<0.10		ug	
		Pyrene	2011/03/01	<0.050		ug	
		Quinoline	2011/03/01	<0.40		ug	
		Tetralin	2011/03/01	<0.10		ug	

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

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

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

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

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

## Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica  
 Location: Cold Lake South  
 Station ID: Lica1  
 Field Sample ID: LICA PUF/CLS/Feb 26,11

Puf+ s/n: 100-1020  
 Motor s/n: 1138  
 Installation Date/Time: Feb 25, 2011 @ 8:40 mst  
 Removal Date/Time: Feb 28, 2011 @ 9:48 mst

Date and Time Information			
Sample Date	Start Time (MST)		Elapsed Time (Hours)
26-Feb-11	26/02/2011 0:00	27/02/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
24-Feb-11	28-Feb-11	15-Mar-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> )
697	229	-8.3	330.35

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

Comments: COC# 06643  
GB119532 PUFF # 1  
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Feb 26, 11  
- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 06643

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

Report Date: 2011/03/10

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B128004****Received: 2011/03/02, 09:10**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/03/05	2011/03/07	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

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Maxxam Job #: B128004  
 Report Date: 2011/03/10

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

Maxxam ID		IU2500	IU2501		
Sampling Date		2011/02/26	2011/02/26		
COC Number		06643	06643		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/FEB 26, 11</b>	<b>LICA PUFF+QFF/PORT/FEB 26, 11</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	0.20	0.10	0.10	2422100
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2422100
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2422100
2-Methylantracene	ug	<0.10	<0.10	0.10	2422100
2-Methylnaphthalene	ug	0.44	0.18	0.10	2422100
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2422100
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2422100
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2422100
Acenaphthene	ug	<0.050	<0.050	0.050	2422100
Acenaphthylene	ug	<0.050	<0.050	0.050	2422100
Anthracene	ug	<0.050	<0.050	0.050	2422100
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2422100
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2422100
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2422100
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2422100
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2422100
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2422100
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2422100
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2422100
Biphenyl	ug	0.17	0.20	0.10	2422100
Chrysene	ug	<0.050	<0.050	0.050	2422100
Coronene	ug	<0.10	<0.10	0.10	2422100
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2422100
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2422100
Fluoranthene	ug	<0.050	0.068	0.050	2422100
Fluorene	ug	0.104	0.124	0.050	2422100
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2422100
m-Terphenyl	ug	<0.10	<0.10	0.10	2422100
Naphthalene	ug	0.486	0.256	0.072	2422100
o-Terphenyl	ug	<0.10	<0.10	0.10	2422100
Perylene	ug	<0.10	<0.10	0.10	2422100

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B128004  
 Report Date: 2011/03/10

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

Maxxam ID		IU2500	IU2501		
Sampling Date		2011/02/26	2011/02/26		
COC Number		06643	06643		
	Units	LICA PUFF+QFF/CLS/FEB 26, 11	LICA PUFF+QFF/PORT/FEB 26, 11	RDL	QC Batch
Phenanthrene	ug	0.190	0.294	0.050	2422100
p-Terphenyl	ug	<0.10	<0.10	0.10	2422100
Pyrene	ug	<0.050	<0.050	0.050	2422100
Quinoline	ug	<0.40	<0.40	0.40	2422100
Tetralin	ug	<0.10	<0.10	0.10	2422100
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	70	68		2422100
D10-Fluoranthene	%	86	90		2422100
D10-Fluorene (FS)	%	67	69		2422100
D10-Phenanthrene	%	78	80		2422100
D12-Benzo(a)anthracene	%	102	96		2422100
D12-Benzo(a)pyrene	%	92	94		2422100
D12-Benzo(b)fluoranthene	%	90	90		2422100
D12-Benzo(ghi)perylene	%	94	104		2422100
D12-Benzo(k)fluoranthene	%	86	88		2422100
D12-Chrysene	%	86	80		2422100
D12-Indeno(1,2,3-cd)pyrene	%	94	104		2422100
D12-Perylene	%	90	94		2422100
D14-Dibenzo(a,h)anthracene	%	94	106		2422100
D14-Terphenyl (FS)	%	83	89		2422100
D8-Acenaphthylene	%	72	72		2422100
D8-Naphthalene	%	68	66		2422100
QC Batch = Quality Control Batch					



Maxxam Job #: B128004  
 Report Date: 2011/03/10

**Test Summary**

<b>Maxxam ID</b>	IU2500	<b>Collected</b>	2011/02/26
<b>Sample ID</b>	LICA PUFF+QFF/CLS/FEB 26, 11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/03/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2422100	2011/03/05	2011/03/07	WZ

<b>Maxxam ID</b>	IU2501	<b>Collected</b>	2011/02/26
<b>Sample ID</b>	LICA PUFF+QFF/PORT/FEB 26, 11	<b>Shipped</b>	
<b>Matrix</b>	PUF AND FILTER	<b>Received</b>	2011/03/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2422100	2011/03/05	2011/03/07	WZ

Maxxam Job #: B128004  
Report Date: 2011/03/10

#### GENERAL COMMENTS

PAHMM5-TR

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

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

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

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

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

Quality Assurance Report  
 Maxxam Job Number: GB128004

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2422100 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/03/07		84	%	50 - 150
		D10-Fluoranthene	2011/03/07		92	%	50 - 150
		D10-Phenanthrene	2011/03/07		86	%	50 - 150
		D12-Benzo(a)anthracene	2011/03/07		96	%	50 - 150
		D12-Benzo(a)pyrene	2011/03/07		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/03/07		90	%	50 - 150
		D12-Benzo(ghi)perylene	2011/03/07		104	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/03/07		88	%	50 - 150
		D12-Chrysene	2011/03/07		82	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/03/07		104	%	50 - 150
		D12-Perylene	2011/03/07		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/03/07		108	%	50 - 150
		D8-Acenaphthylene	2011/03/07		82	%	50 - 150
		D8-Naphthalene	2011/03/07		82	%	50 - 150
		Acenaphthene	2011/03/07		78	%	60 - 130
	RPD	Acenaphthene	2011/03/07	3.3		%	50
	Spiked Blank	Acenaphthylene	2011/03/07		78	%	60 - 130
	RPD	Acenaphthylene	2011/03/07	2.6		%	50
	Spiked Blank	Anthracene	2011/03/07		72	%	60 - 130
	RPD	Anthracene	2011/03/07	3.4		%	50
	Spiked Blank	Benzo(a)anthracene	2011/03/07		78	%	60 - 130
	RPD	Benzo(a)anthracene	2011/03/07	1.9		%	50
	Spiked Blank	Benzo(a)pyrene	2011/03/07		71	%	60 - 130
	RPD	Benzo(a)pyrene	2011/03/07	0.4		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/03/07		74	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/03/07	1.4		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/03/07		81	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/03/07	1.9		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/03/07		78	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/03/07	0.3		%	50
	Spiked Blank	Chrysene	2011/03/07		77	%	60 - 130
	RPD	Chrysene	2011/03/07	1.6		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/03/07		81	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/03/07	3.4		%	50
	Spiked Blank	Fluoranthene	2011/03/07		84	%	60 - 130
	RPD	Fluoranthene	2011/03/07	4.6		%	50
	Spiked Blank	Fluorene	2011/03/07		77	%	60 - 130
	RPD	Fluorene	2011/03/07	4.3		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/03/07		82	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/03/07	3.1		%	50
Spiked Blank	Naphthalene	2011/03/07		78	%	60 - 130	
RPD	Naphthalene	2011/03/07	2.9		%	50	
Spiked Blank	Phenanthrene	2011/03/07		77	%	60 - 130	
RPD	Phenanthrene	2011/03/07	4.0		%	50	
Spiked Blank	Pyrene	2011/03/07		78	%	60 - 130	
RPD	Pyrene	2011/03/07	3.6		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/03/07		82	%	50 - 150	
	D10-Fluoranthene	2011/03/07		92	%	50 - 150	
	D10-Phenanthrene	2011/03/07		84	%	50 - 150	
	D12-Benzo(a)anthracene	2011/03/07		94	%	50 - 150	
	D12-Benzo(a)pyrene	2011/03/07		96	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/03/07		92	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/03/07		104	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/03/07		86	%	50 - 150	
	D12-Chrysene	2011/03/07		80	%	50 - 150	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB128004

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2422100 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/03/07		106	%	50 - 150
		D12-Perylene	2011/03/07		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/03/07		108	%	50 - 150
		D8-Acenaphthylene	2011/03/07		82	%	50 - 150
		D8-Naphthalene	2011/03/07		80	%	50 - 150
		1-Methylnaphthalene	2011/03/07	<0.10		ug	
		1-Methylphenanthrene	2011/03/07	<0.10		ug	
		2-Chloronaphthalene	2011/03/07	<0.10		ug	
		2-Methylanthracene	2011/03/07	<0.10		ug	
		2-Methylnaphthalene	2011/03/07	<0.10		ug	
		3-Methylcholanthrene	2011/03/07	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/03/07	<0.10		ug	
		9,10-Dimethylanthracene	2011/03/07	<0.40		ug	
		Acenaphthene	2011/03/07	<0.050		ug	
		Acenaphthylene	2011/03/07	<0.050		ug	
		Anthracene	2011/03/07	<0.050		ug	
		Benzo(a)anthracene	2011/03/07	<0.050		ug	
		Benzo(a)fluorene	2011/03/07	<0.10		ug	
		Benzo(a)pyrene	2011/03/07	<0.050		ug	
		Benzo(b)fluoranthene	2011/03/07	<0.050		ug	
		Benzo(b)fluorene	2011/03/07	<0.10		ug	
		Benzo(e)pyrene	2011/03/07	<0.10		ug	
		Benzo(g,h,i)perylene	2011/03/07	<0.050		ug	
		Benzo(k)fluoranthene	2011/03/07	<0.050		ug	
		Biphenyl	2011/03/07	<0.10		ug	
		Chrysene	2011/03/07	<0.050		ug	
		Coronene	2011/03/07	<0.10		ug	
		Dibenz(a,h)anthracene	2011/03/07	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/03/07	<0.20		ug	
		Fluoranthene	2011/03/07	<0.050		ug	
		Fluorene	2011/03/07	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/03/07	<0.050		ug	
		m-Terphenyl	2011/03/07	<0.10		ug	
		Naphthalene	2011/03/07	<0.072		ug	
		o-Terphenyl	2011/03/07	<0.10		ug	
		Perylene	2011/03/07	<0.10		ug	
		Phenanthrene	2011/03/07	<0.050		ug	
		p-Terphenyl	2011/03/07	<0.10		ug	
		Pyrene	2011/03/07	<0.050		ug	
		Quinoline	2011/03/07	<0.40		ug	
		Tetralin	2011/03/07	<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  
February 2011

Prepared By:



March 21, 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: February 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 – February 2011

LICA MASKWA SITE						MAXIMUM VALUES						OPERATIONAL TIME (PERCENT)	
						OBJECTIVES			EXCEEDENCES		MONTHLY AVERAGE		1-HOUR
PARAMETER	1-HR	24-HR	1-HR	24-HR	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING			DAY
SO2 (PPB)	172	48	0	0	1.15	21	23	4	7.5	297(WNW)	4.3	22	99.7
H2S (PPB)	10	3	0	0	0.08	1	VAR	VAR	VAR	VAR	0.5	26	99.7
THC (PPM)	-	-	-	-	2.22	3.3	1	0	6.2	209(SSW)	2.6	21	99.7
NOx (PPB)	-	-	-	-	5.51	60	9	14	8.5	201(SSW)	16.7	9	100.0
NO (PPB)	-	-	-	-	0.91	18	9	12	1.3	283(W)	3.1	9	100.0
NO <sub>2</sub> (PPB)	212	106	0	0	4.58	17	13	7	6.5	285(WNW)	10.3	9	100.0
VECTOR WS (KPH)	-	-	-	-	5.86	14.5	13	11	-	284(WNW)	8.5	5	100.0
VECTOR WD (DEGREES)	-	-	-	-	277(W)	-	-	-	-	-	-	-	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	65.77	89	4, 13	VAR	VAR	VAR	83.5	11	100.0
TEMPERATURE (DEG C)	-	-	-	-	-13.40	8.1	12	13	6.6	221(SW)	2.3	3	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	938	962	1	0, 1	6.2, 4.8	209(SSW), 214(SSW)	958.3	6	100.0
PRECIPITATION (MM)	-	-	-	-	0.02	1.2	13	3	1.8	86(E)	3.8	13	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. Following the as found points on February 9<sup>th</sup>, the sample pump was rebuilt, and a UV lamp calibration was performed. A multi-points calibration was performed on February 10<sup>th</sup>. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information. The 24-hour objective was changed from 57 ppb to 48 ppb on February 15<sup>th</sup> as per Alberta Environment guidelines.

#### Hydrogen Sulphide (PPB)

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

No operational issue was observed during the month. Following the as found points on February 9<sup>th</sup>, the sample pump was rebuilt, and the SO<sub>2</sub> scrubber bead was replaced. A multi-points calibration was performed on February 10<sup>th</sup>. 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 the month. Following the as found points on February 9<sup>th</sup>, the zero air supply pump was rebuilt, the diaphragm and valves on the internal pump in the analyzer was replaced, and the cut-in/cut-out pressures on the zero air supply was set. A multi-points calibration was performed on February 10<sup>th</sup>. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

# General Monthly Summary

## AQM STATION – LICA – Maskwa

### **Nitrogen Dioxide (PPB)**

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

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

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

- System make / model - Met One 50.5H, S/N: H10703

The wind system is reported as vector wind speed and vector wind direction. 7 hours of data for wind speed maximum were invalidated this month as they went full scale. It is likely due to frost. Due to the severe weather condition, the scheduled wind system calibration event was postponed. It will be re-scheduled in March.

### **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 February 10<sup>th</sup>.

# Continuous Monitoring

# Monthly Summaries, Graphs & Wind Roses

# Sulphur Dioxide



**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA**  
**FEBRUARY 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	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	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	IZS	0	1	1	1	1	1	1	3	1.7	24
2	1	1	2	2	2	2	2	1	0	1	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	2	0.6	24
3	0	0	0	0	0	1	0	1	1	1	1	0	0	0	0	IZS	1	0	0	0	0	1	1	0	1	0.3	24	
4	0	1	1	1	1	1	1	0	0	0	1	1	2	1	IZS	3	0	0	0	0	0	0	0	1	3	0.7	24	
5	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	
6	0	0	0	0	1	1	19	11	1	2	8	11	IZS	6	3	2	0	0	0	0	0	0	0	0	19	2.8	24	
7	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	1	1	1	1	0	0	0	0	1	0.2	24	
8	0	0	1	0	0	0	7	9	1	5	IZS	8	1	2	4	0	0	0	0	0	0	0	0	0	9	1.7	24	
9	0	0	1	0	0	0	0	0	0	IZS	1	3	C	M	M	C	C	C	1	1	1	1	1	1	1	3	0.6	22
10	1	3	3	1	1	1	1	1	IZS	C	C	C	C	0	0	C	0	0	0	0	0	2	1	6	6	1.2	24	
11	5	0	0	0	0	0	0	IZS	0	2	1	3	2	2	2	1	1	2	1	1	1	1	1	1	5	1.2	24	
12	1	1	1	1	2	2	IZS	0	0	0	1	1	0	0	0	1	1	1	1	1	1	1	0	0	2	0.7	24	
13	0	0	1	1	0	IZS	5	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0.8	24	
14	0	0	0	0	IZS	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0.1	24	
15	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	10	3	0	13	14	7	14	4	7	10	14	3.6	24	
16	1	0	IZS	3	1	1	0	0	0	0	4	1	1	1	0	0	0	0	0	0	0	0	1	3	4	0.7	24	
17	2	IZS	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	
18	IZS	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	2	1	1	0	0	0	0	0	IZS	2	0.3	24
19	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	3	2	1	IZS	2	3	0.5	24	
20	3	2	1	1	2	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	IZS	1	1	3	1.3	24	
21	1	2	3	3	2	2	2	2	2	2	2	2	1	1	2	2	2	2	1	1	IZS	1	1	1	3	1.7	24	
22	1	2	1	2	1	3	4	5	5	7	8	3	3	3	6	5	12	1	3	IZS	0	8	5	10	12	4.3	24	
23	17	9	9	2	21	2	0	0	2	0	0	0	0	0	1	0	0	0	IZS	0	0	1	0	1	21	2.8	24	
24	2	3	1	0	1	0	0	0	0	1	2	6	1	2	2	1	1	IZS	0	0	0	0	0	1	6	1.0	24	
25	1	0	0	0	0	0	1	1	1	2	2	2	2	2	2	2	IZS	1	1	1	1	1	1	1	2	1.1	24	
26	1	1	1	0	1	1	1	1	1	5	1	1	0	1	0	IZS	0	5	5	0	0	0	0	0	5	1.1	24	
27	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	IZS	1	1	0	0	0	0	0	0	1	0.2	24	
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	12	0	1	12	0.6	24
HOURLY MAX	17	9	9	3	21	3	19	11	5	7	8	11	3	6	10	5	12	13	14	7	14	12	7	10				
HOURLY AVG	1.4	1.0	1.0	0.7	1.4	0.7	1.7	1.7	0.7	1.2	1.3	2.0	0.7	1.0	1.5	1.0	1.0	1.2	1.1	0.7	0.9	1.3	0.8	1.5				

**STATUS FLAG CODES**

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

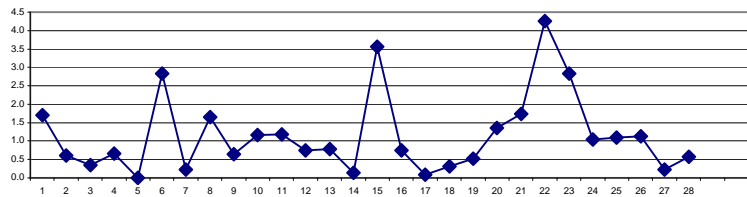
OBJECTIVE LIMIT:

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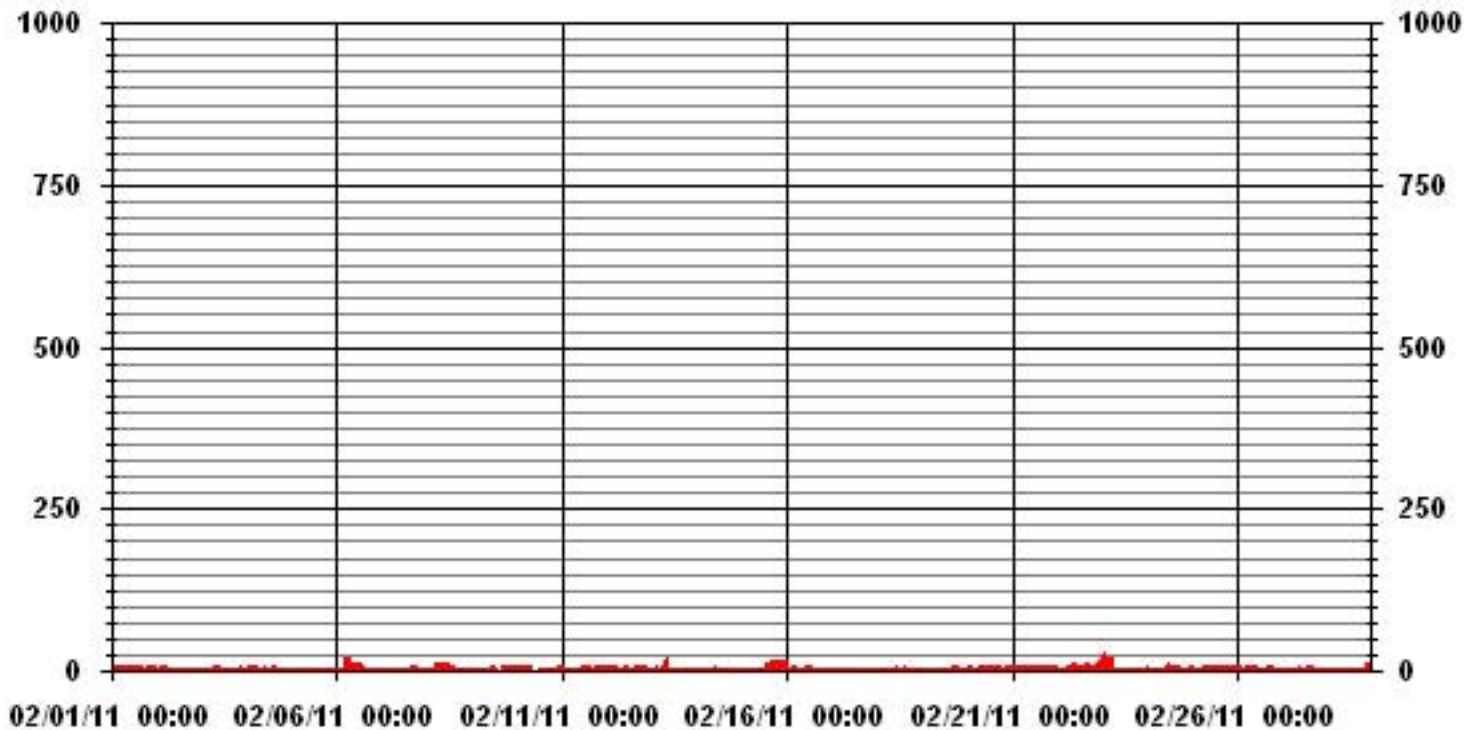
**MONTHLY SUMMARY**

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	298
MAXIMUM 1-HR AVERAGE:	21 PPB @ HOUR(S) 4 ON DAY(S) 23
MAXIMUM 24-HR AVERAGE:	4.3 PPB ON DAY(S) 22
IZS CALIBRATION TIME:	29 HRS
OPERATIONAL TIME:	670 HRS
MONTHLY CALIBRATION TIME:	9 HRS
AMD OPERATION UPTIME:	99.7 %
STANDARD DEVIATION:	2.37
MONTHLY AVERAGE:	1.15 PPB

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA30 SO2\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

FEBRUARY 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		2	2	3	3	3	3	3	3	3	2	3	3	2	2	2	2	2	IZS	1	1	1	1	1	1	1	3	2.1	24
2		2	2	3	3	3	4	3	2	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	4	1.6	24
3		1	1	1	2	1	2	1	1	4	2	2	1	1	1	1	IZS	5	1	1	1	1	2	1	1	5	1.5	24	
4		1	1	1	1	1	2	1	1	1	1	1	2	2	2	IZS	25	0	1	1	0	1	1	1	1	25	2.1	24	
5		1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	1	1	0.6	24
6		0	0	1	1	2	1	57	48	1	15	23	50	IZS	17	12	10	1	1	1	1	1	0	0	0	57	10.6	24	
7		0	0	0	0	0	0	0	0	0	1	1	IZS	3	1	1	1	1	1	1	2	1	1	1	1	3	0.7	24	
8		1	1	1	1	1	1	20	21	3	33	IZS	18	7	6	17	1	0	0	0	0	1	1	1	1	33	5.9	24	
9		1	1	1	1	1	1	1	1	1	IZS	2	6	C	M	M	C	C	C	1	1	1	1	1	3	6	1.5	22	
10		3	6	5	2	1	1	1	1	IZS	C	C	C	0	0	C	0	1	1	0	1	9	9	18	18	3.3	24		
11		17	1	0	0	0	0	0	IZS	1	10	3	8	3	4	3	1	2	5	3	1	1	1	1	1	17	2.9	24	
12		1	2	2	2	3	3	IZS	0	1	1	2	2	1	1	1	1	1	1	2	1	2	2	1	1	3	1.5	24	
13		1	1	3	2	1	IZS	19	31	1	0	0	0	2	2	0	0	0	0	0	0	1	1	0	0	31	2.8	24	
14		0	0	0	1	IZS	0	0	0	0	0	2	1	1	1	2	1	1	1	0	0	0	0	0	0	2	0.5	24	
15		0	0	0	IZS	1	1	0	0	0	0	0	0	0	3	36	14	4	29	35	18	21	19	16	17	36	9.3	24	
16		9	1	IZS	15	7	9	4	4	0	1	2	15	6	3	1	1	1	0	0	0	0	1	2	4	15	3.7	24	
17		4	IZS	1	1	1	1	1	1	0	0	0	1	2	0	0	1	0	0	0	0	0	0	0	0	4	0.6	24	
18		IZS	0	1	0	0	0	0	0	0	3	3	2	1	1	1	2	2	2	1	0	0	0	0	0	IZS	3	0.9	24
19		0	0	0	0	0	0	0	0	0	0	0	2	2	0	1	1	2	2	3	3	3	2	IZS	2	3	1.0	24	
20		3	3	2	2	2	2	2	3	2	2	1	1	2	2	1	1	1	1	1	2	3	IZS	2	2	3	1.9	24	
21		2	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	IZS	1	2	2	3	2.2	24
22		1	4	3	5	1	4	6	22	22	26	31	16	12	11	32	31	30	7	21	IZS	0	23	16	35	35	15.6	24	
23		32	32	33	4	34	10	1	0	11	2	0	2	1	0	17	6	2	2	IZS	0	0	1	1	7	34	8.6	24	
24		12	8	7	1	4	0	0	1	1	3	10	26	6	8	8	4	3	IZS	0	0	1	1	1	1	26	4.6	24	
25		1	1	1	0	1	1	1	1	2	3	3	3	3	2	3	3	IZS	1	1	2	2	2	1	2	3	1.7	24	
26		2	1	1	1	1	1	1	1	19	6	1	1	1	1	1	IZS	2	26	30	0	0	0	0	1	30	4.3	24	
27		1	0	0	0	0	0	0	0	0	1	1	0	0	1	IZS	1	2	1	1	0	0	0	0	0	2	0.4	24	
28		0	0	0	0	0	0	0	0	0	0	0	1	0	IZS	0	2	1	0	0	0	17	30	9	10	30	3.0	24	
HOURLY MAX		32	32	33	15	34	10	57	48	22	33	31	50	12	17	36	31	30	29	35	18	21	30	16	35				
HOURLY AVG		3.6	2.7	2.7	1.9	2.7	1.9	4.6	5.4	2.2	5.0	3.8	6.3	2.5	2.9	5.8	4.6	2.6	3.4	4.0	1.3	2.2	3.7	2.5	4.2				

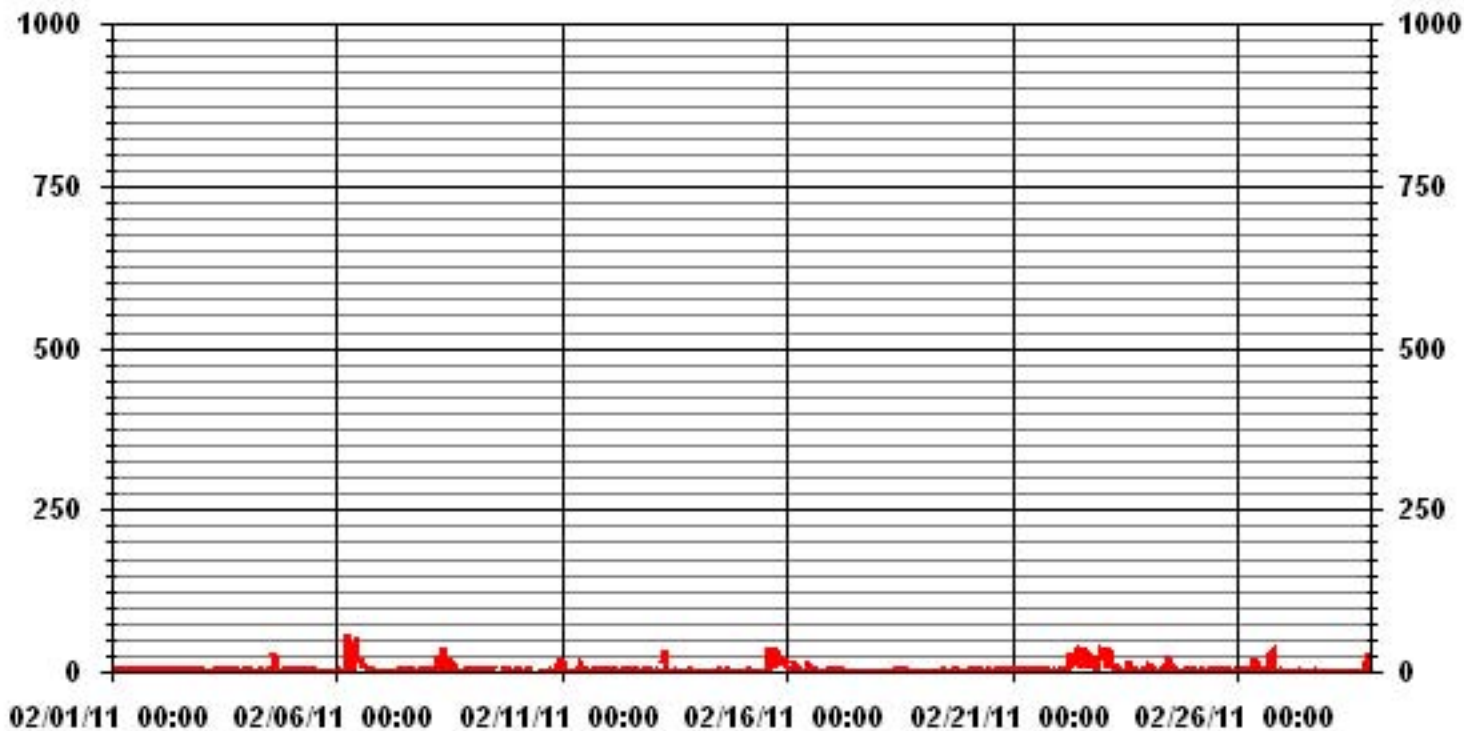
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	471					
MAXIMUM INSTANTANEOUS VALUE:	57	PPB	@ HOUR(S)	6	ON DAY(S)	6
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	670	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	7.20					

### 01 Hour Averages



— LICA30 SO2MAX PPB

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

February 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	8.70	9.33	3.63	.79	1.58	1.42	1.89	3.00	5.22	18.19	12.97	2.84	8.86	6.48	8.86	6.01	99.84
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	.00	.15
< 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	8.70	9.33	3.63	.79	1.58	1.42	1.89	3.00	5.22	18.19	12.97	2.84	8.86	6.64	8.86	6.01	

Calm : .00 %

Total # Operational Hours : 632

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	55	59	23	5	10	9	12	19	33	115	82	18	56	41	56	38	631
< 60														1			1
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	55	59	23	5	10	9	12	19	33	115	82	18	56	42	56	38	

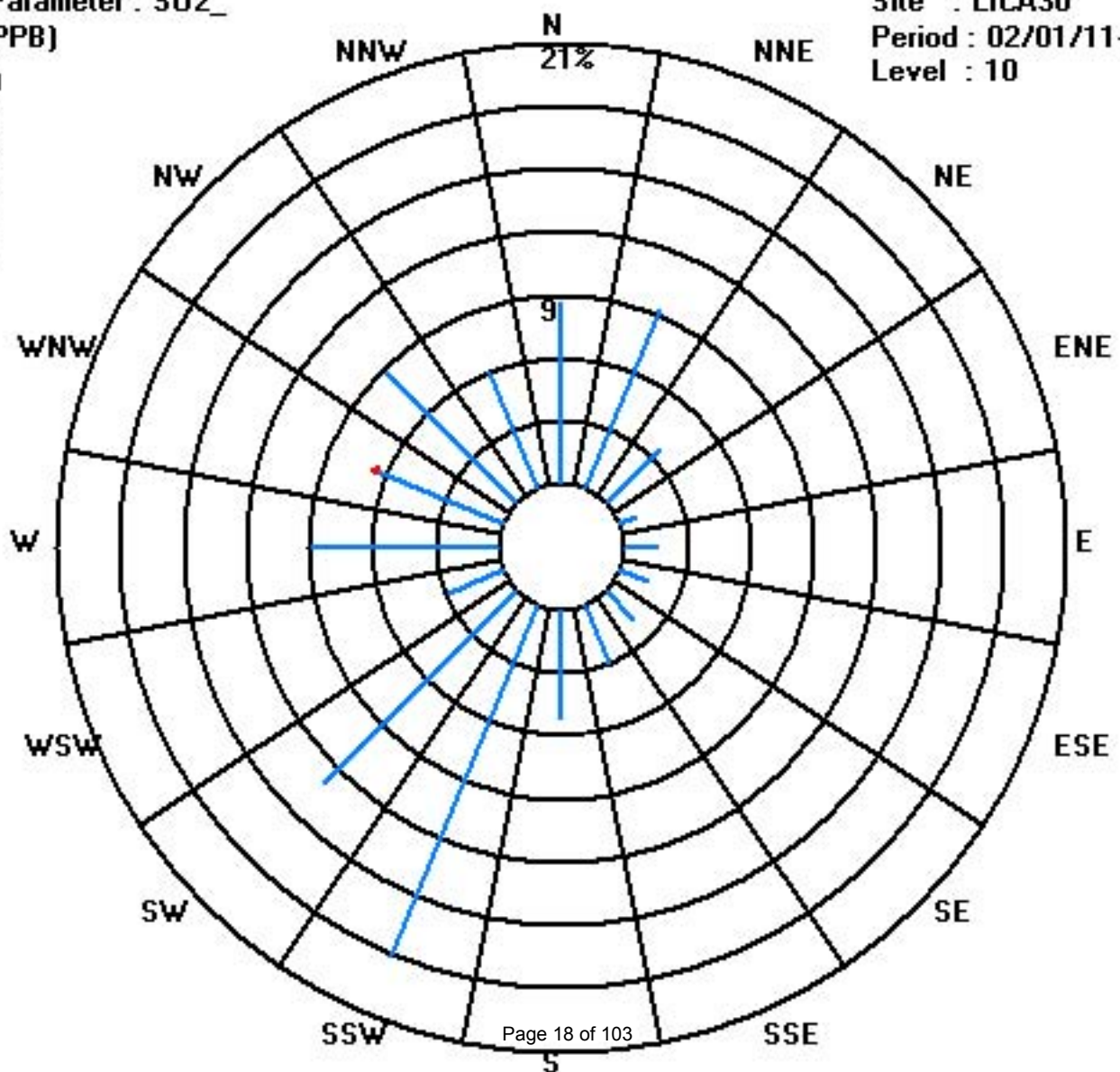
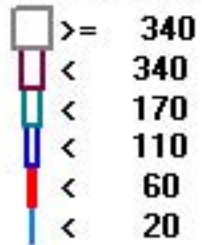
Calm : .00 %

Total # Operational Hours : 632

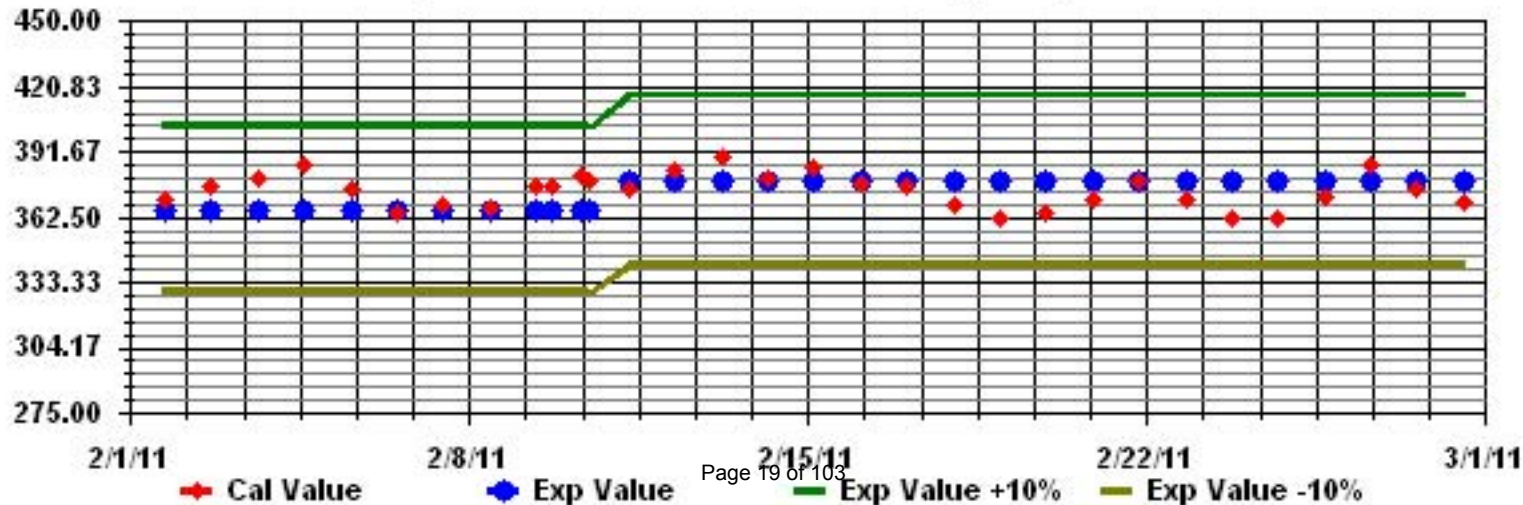
Class Limits (PPB)

Period : 02/01/11-02/28/11

Level : 10



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



# Hydrogen Sulphide



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

FEBRUARY 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 MAX.	24-HOUR AVG.	RDGS.
DAY	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
	5	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	0.0	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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	22
	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	1	0.2	24
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
	13	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	1	0.2	24
	16	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
	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	1	0.2	24
	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	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	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	1	0.1	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	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
HOURLY MAX		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0		
HOURLY AVG		0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	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	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

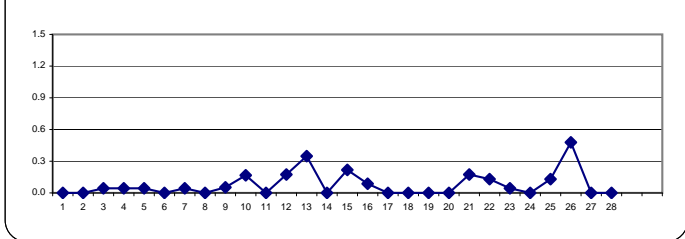
OBJECTIVE LIMIT:

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

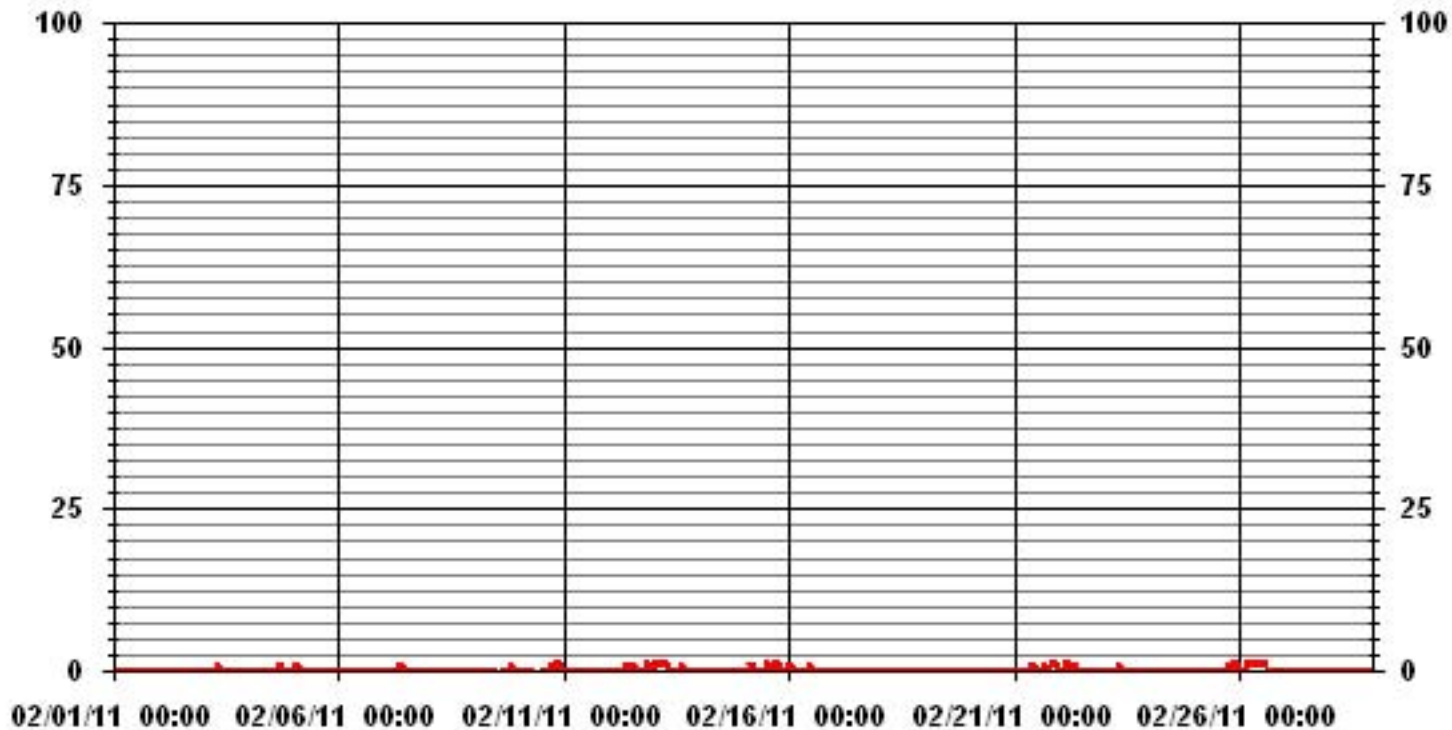
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	49
MAXIMUM 1-HR AVERAGE:	1 PPB @ HOUR(S) VAR ON DAY(S) VAR
MAXIMUM 24-HR AVERAGE:	0.5 PPB ON DAY(S) VAR-VARIOUS
IZS CALIBRATION TIME:	29 HRS
MONTHLY CALIBRATION TIME:	7 HRS
OPERATIONAL TIME:	670 HRS
AMD OPERATION UPTIME:	99.7 %
STANDARD DEVIATION:	0.27
MONTHLY AVERAGE:	0.08 PPB

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA30 H2S\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

FEBRUARY 2011

## HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

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

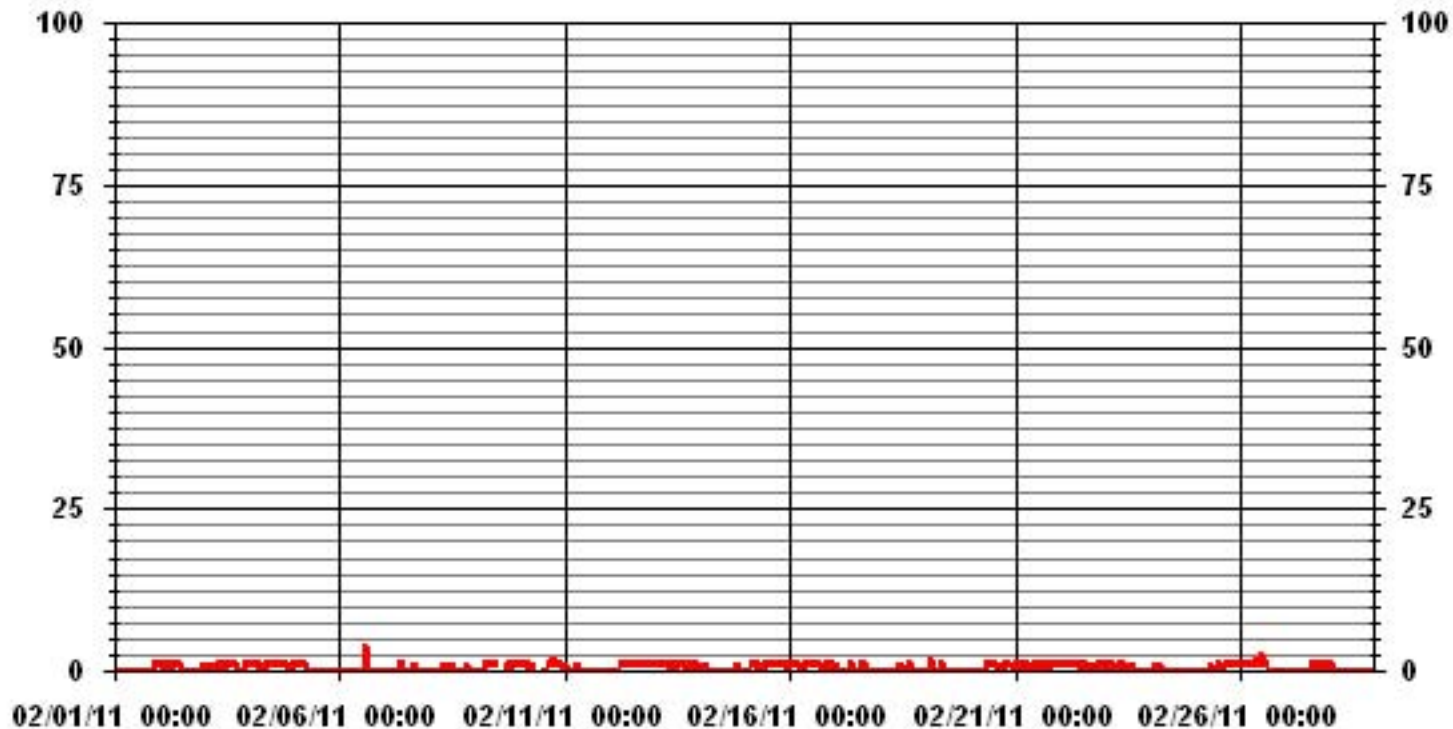
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	249					
MAXIMUM INSTANTANEOUS VALUE:	4	PPB	@ HOUR(S)	14	ON DAY(S)	6
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	670	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	0.53					

### 01 Hour Averages



— LICA30 H2S MAX PPB

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

February 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	8.67	9.30	3.62	.78	1.57	1.41	1.89	2.99	5.20	18.29	13.09	2.83	8.83	6.62	8.83	5.99	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	8.67	9.30	3.62	.78	1.57	1.41	1.89	2.99	5.20	18.29	13.09	2.83	8.83	6.62	8.83	5.99	

Calm : .00 %

Total # Operational Hours : 634

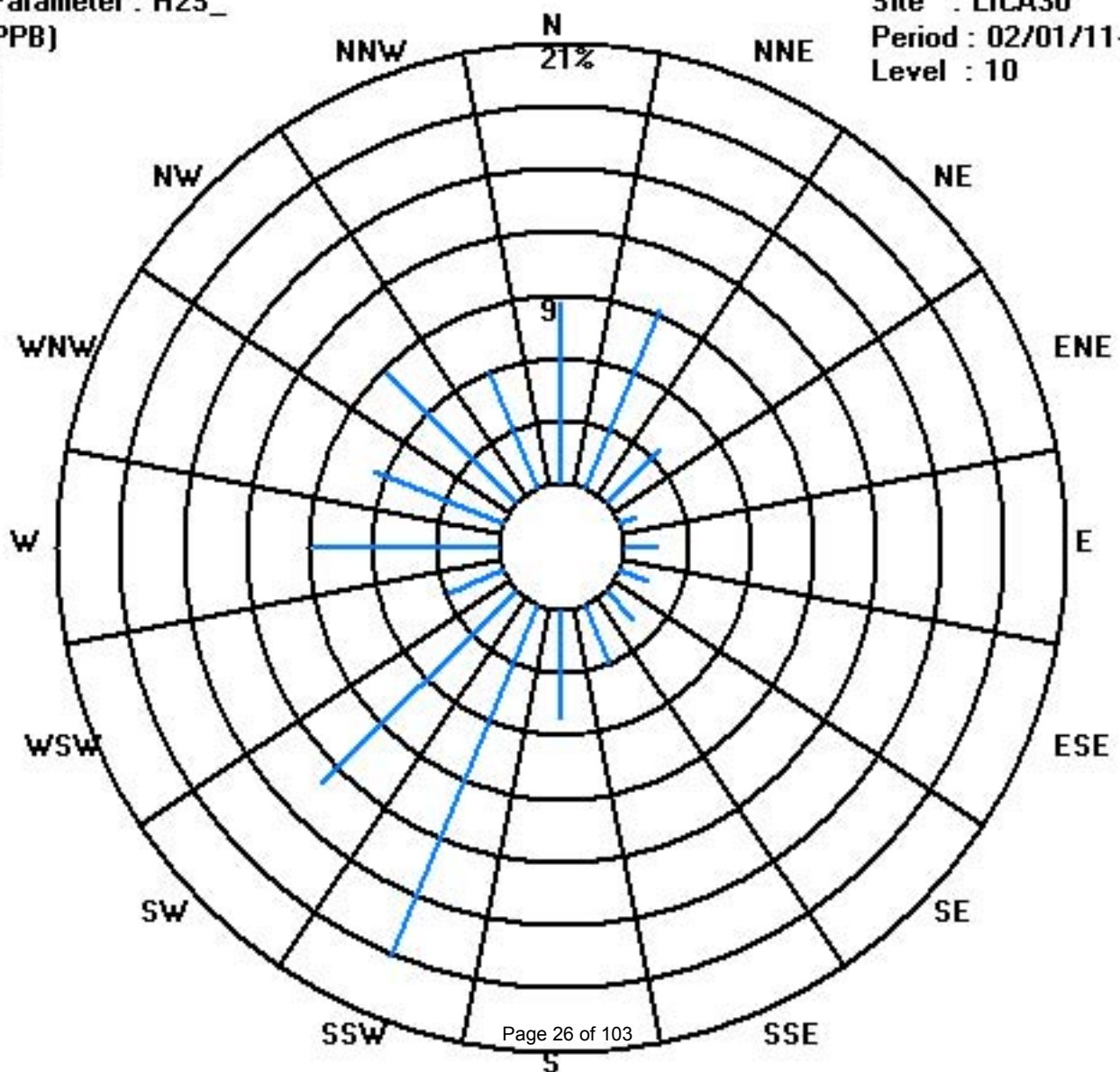
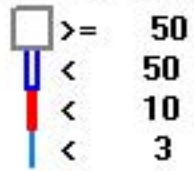
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	55	59	23	5	10	9	12	19	33	116	83	18	56	42	56	38	634
< 10																	
< 50																	
>= 50																	
Totals	55	59	23	5	10	9	12	19	33	116	83	18	56	42	56	38	

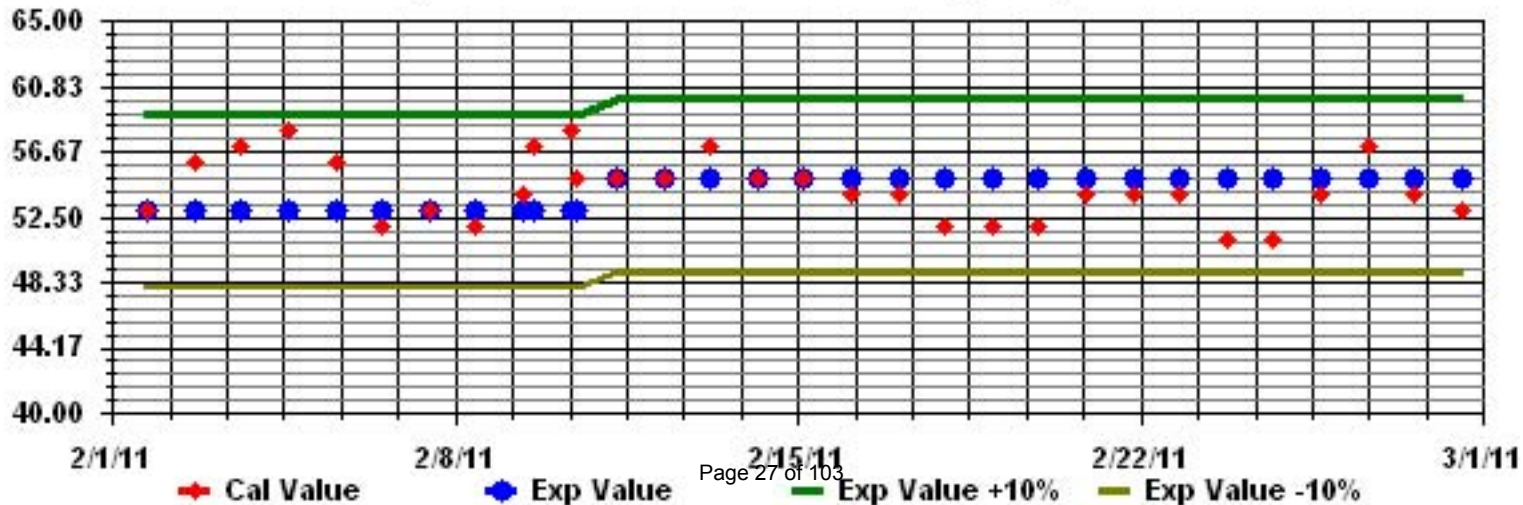
Calm : .00 %

Total # Operational Hours : 634

Class Limits (PPB)



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



# Total Hydrocarbons



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

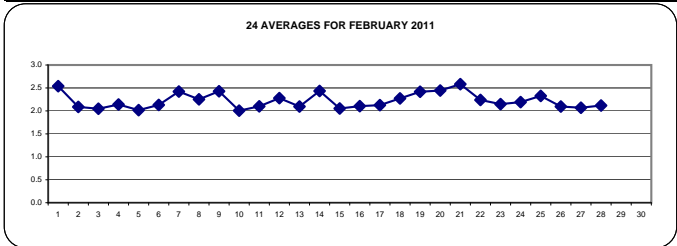
FEBRUARY 2011

TOTAL HYDROCARBONS hourly averages in ppm

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

STATUS FLAG CODES

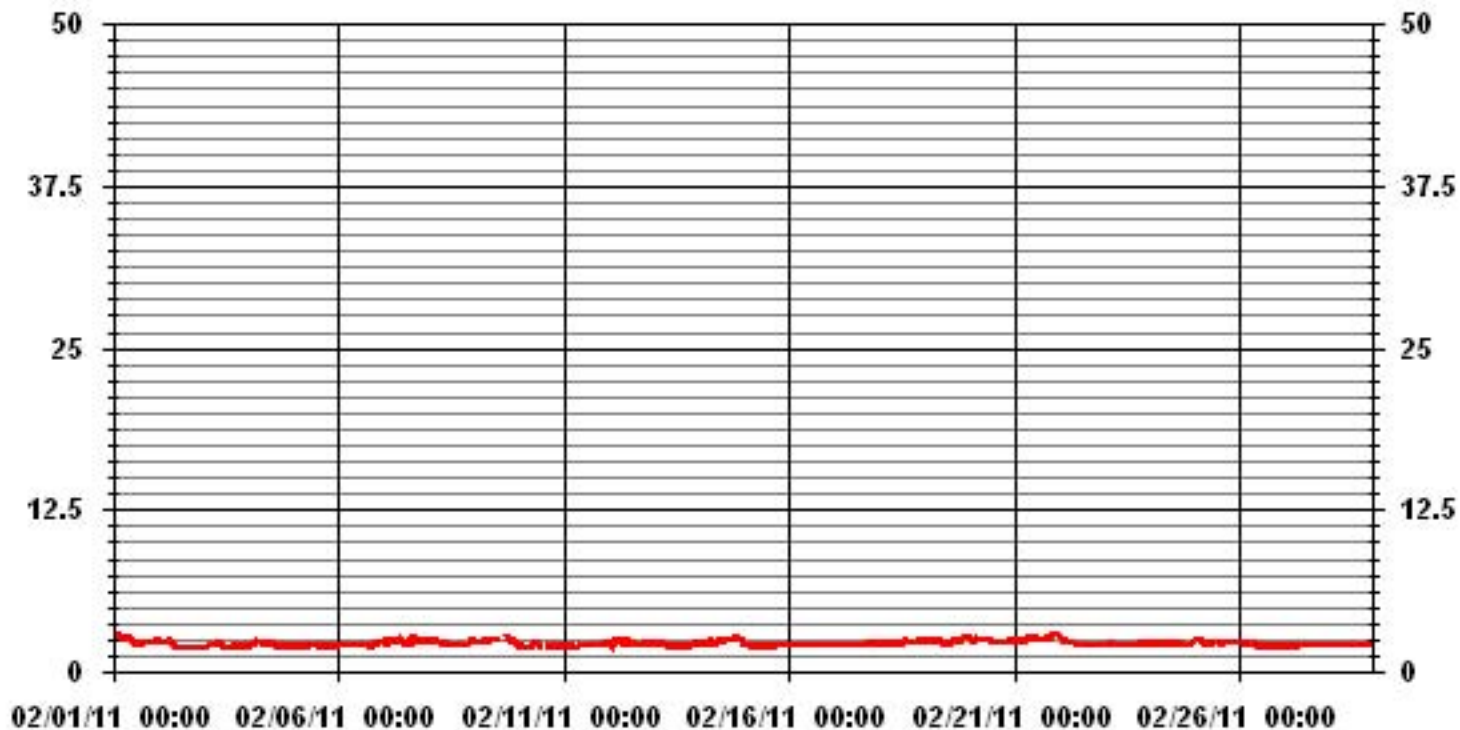
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	634
MAXIMUM 1-HR AVERAGE:	3.3 PPM @ HOUR(S) 0 ON DAY(S) 1
MAXIMUM 24-HR AVERAGE:	2.6 PPM ON DAY(S) 21
	VAR- VARIOUS
IZS CALIBRATION TIME:	29 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	0.21
OPERATIONAL TIME:	670 HRS
AMD OPERATION UPTIME:	99.7 %
MONTHLY AVERAGE:	2.22 PPM

### 01 Hour Averages



— LICA30 THC PPM

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

FEBRUARY 2011

## TOTAL HYDROCARBONS MAX    instantaneous maximum in ppr

MST

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

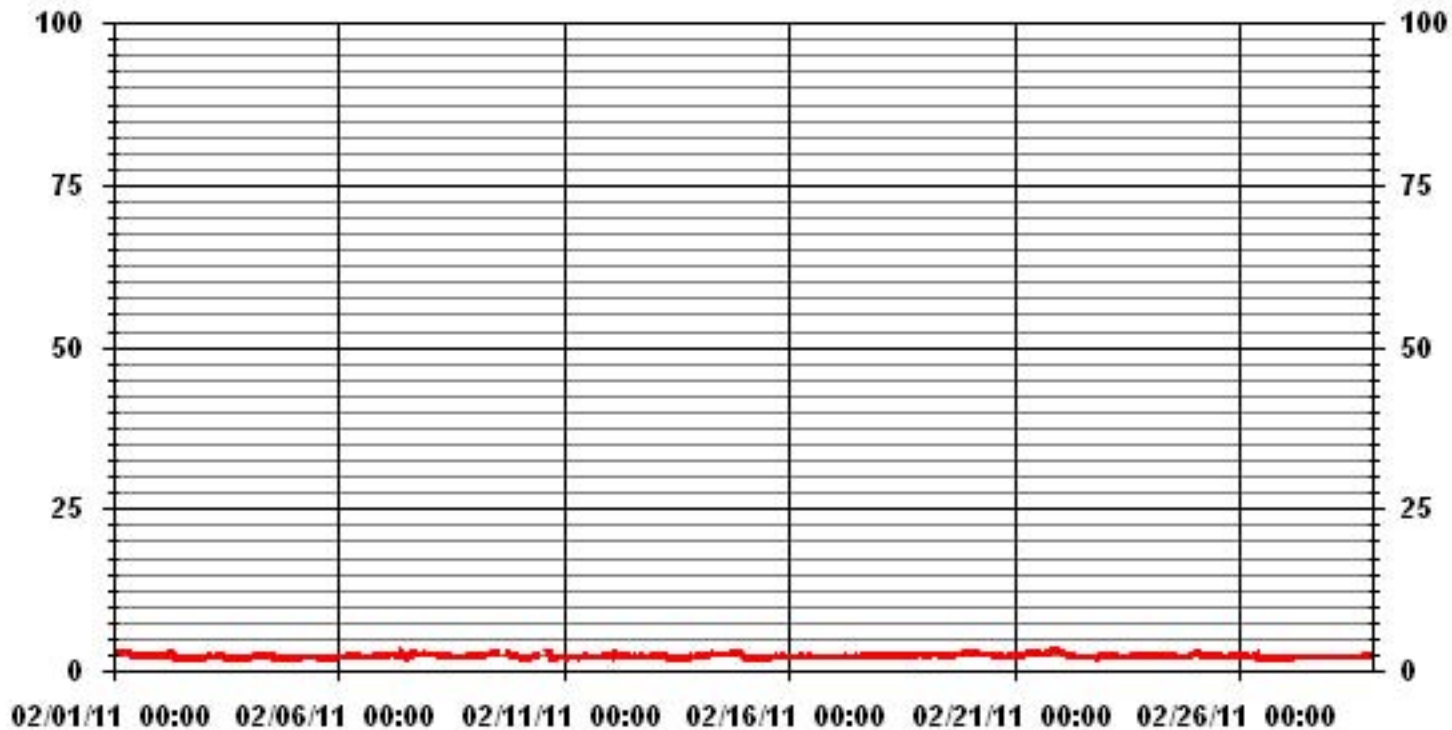
**STATUS FLAG CODES**

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:	633					
MAXIMUM INSTANTANEOUS VALUE:	3.4	PPM	@ HOUR(S)	0	ON DAY(S)	1
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	670 HRS		
MONTHLY CALIBRATION TIME:	8 HRS					
STANDARD DEVIATION:	0.23					

### 01 Hour Averages



— LICA30 THCMAX PPM

LICA30  
 THC / WDR Joint Frequency Distribution (Percent)

February 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	8.67	9.30	3.62	.78	1.57	1.41	1.89	2.99	5.20	17.98	13.09	2.99	8.35	6.78	8.83	5.99	99.52
< 10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.15	.00	.15	.00	.00	.00	.47
< 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	8.67	9.30	3.62	.78	1.57	1.41	1.89	2.99	5.20	18.13	13.24	2.99	8.51	6.78	8.83	5.99	

Calm : .00 %

Total # Operational Hours : 634

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	55	59	23	5	10	9	12	19	33	114	83	19	53	43	56	38	631
< 10.0										1	1		1				3
< 50.0																	
>= 50.0																	
Totals	55	59	23	5	10	9	12	19	33	115	84	19	54	43	56	38	

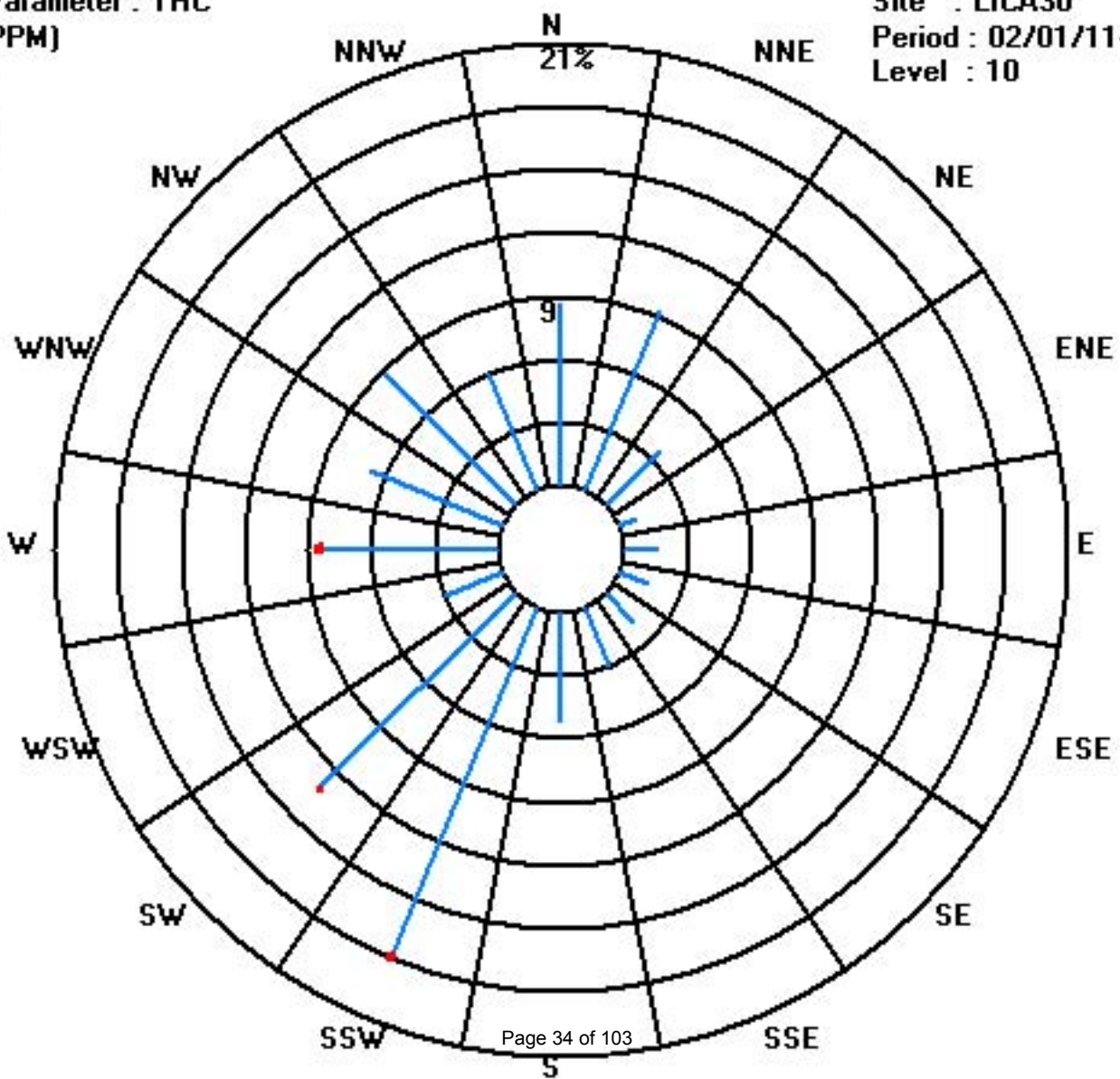
Calm : .00 %

Total # Operational Hours : 634

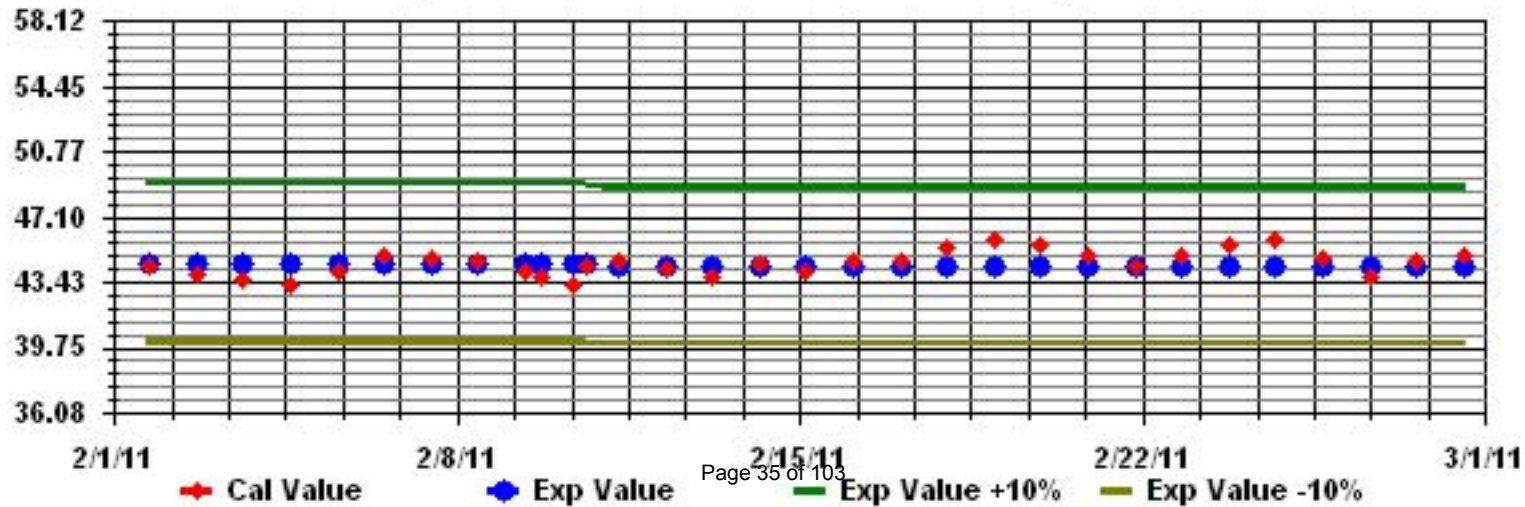
Class Limits (PPM)

Period : 02/01/11-02/28/11

Level : 10



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



# Nitrogen Dioxide



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

FEBRUARY 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		14	14	14	14	12	12	13	14	12	9	7	6	5	5	5	6	7	IZS	6	6	8	8	10	11	14	14	9.5	24
2		10	10	13	14	14	14	17	16	9	4	2	1	1	1	0	1	IZS	1	0	0	1	1	1	0	17	5.7	24	
3		0	2	3	5	2	4	5	6	8	6	4	5	1	0	0	IZS	5	1	0	0	0	3	1	0	8	2.7	24	
4		0	2	2	3	6	6	4	11	6	8	7	6	5	6	IZS	4	1	2	2	2	0	0	0	0	11	3.6	24	
5		0	0	0	0	0	1	1	1	1	2	2	2	1	IZS	1	0	0	0	0	0	0	0	0	0	2	0.5	24	
6		1	0	0	1	2	1	11	7	2	2	5	4	IZS	3	2	3	1	1	1	2	2	3	4	4	11	2.7	24	
7		5	5	3	3	3	3	3	7	9	13	14	IZS	2	1	1	5	8	9	6	6	7	7	7	6	14	5.8	24	
8		7	6	6	6	6	5	13	16	16	14	IZS	6	3	3	4	1	1	1	1	1	2	3	6	7	16	5.8	24	
9		7	6	8	8	8	10	11	12	16	IZS	11	9	13	9	10	13	15	15	13	12	10	9	8	5	16	10.3	24	
10		5	14	16	1	0	0	2	6	IZS	C	C	C	C	C	C	C	3	3	7	4	5	12	8	14	16	6.3	24	
11		10	5	2	2	3	3	5	IZS	4	10	2	5	4	5	3	3	2	6	3	1	2	2	4	4	10	3.9	24	
12		3	5	3	7	11	12	IZS	8	7	7	6	6	5	4	4	5	7	5	6	5	8	7	5	4	12	6.1	24	
13		4	3	4	5	4	IZS	12	17	4	1	1	1	2	2	1	1	1	1	1	1	4	6	4	3	17	3.6	24	
14		4	5	4	4	IZS	2	4	2	2	2	5	4	5	5	5	4	6	6	6	5	4	3	2	2	6	4.0	24	
15		1	0	0	IZS	1	1	1	2	2	2	1	1	2	1	7	3	2	12	13	7	12	8	10	10	13	4.3	24	
16		4	2	IZS	4	1	3	6	4	2	3	2	5	3	2	2	3	3	2	2	1	1	2	3	3	6	2.7	24	
17		3	IZS	2	2	2	2	3	2	2	2	1	1	2	1	2	2	2	2	2	3	3	2	2	2	2	3	2.0	24
18		IZS	3	6	6	5	6	6	7	7	6	6	5	3	4	5	5	5	5	5	5	6	7	8	IZS	8	5.5	24	
19		7	9	12	10	11	10	9	10	12	9	4	2	1	1	2	3	5	6	10	11	10	7	IZS	6	12	7.3	24	
20		5	5	4	5	5	4	4	4	4	2	2	2	2	1	1	2	2	3	3	3	4	IZS	4	3	5	3.2	24	
21		3	4	4	4	4	4	8	7	4	3	4	4	5	5	5	6	8	9	10	10	IZS	10	10	11	11	6.2	24	
22		11	12	10	9	7	5	6	9	5	6	6	2	3	3	4	5	10	2	2	IZS	0	7	5	9	12	6.0	24	
23		14	7	10	7	16	5	4	6	9	1	1	0	0	1	1	1	1	1	IZS	1	1	3	2	3	16	4.1	24	
24		4	4	2	2	2	2	2	2	2	2	2	3	1	2	2	3	3	IZS	2	2	3	3	6	9	9	2.8	24	
25		10	9	7	6	7	7	8	9	7	5	5	5	9	6	5	6	IZS	8	11	12	11	11	12	12	12	8.2	24	
26		10	7	6	7	4	4	5	8	8	8	2	1	1	1	1	IZS	1	4	3	0	0	0	1	10	3.6	24		
27		5	1	0	0	0	2	0	5	4	1	1	0	0	0	0	IZS	1	2	2	3	2	1	0	0	5	1.3	24	
28		0	0	0	0	0	0	0	0	0	0	0	0	1	IZS	1	2	2	1	1	1	3	7	4	4	7	1.2	24	
HOURLY MAX		14	14	16	14	16	14	17	17	16	14	14	9	13	9	10	13	15	15	13	12	12	12	14					
HOURLY AVG		5.4	5.2	5.2	5.0	5.0	4.7	6.0	7.4	6.1	4.9	4.0	3.3	3.1	2.8	3.0	3.5	4.0	4.2	4.4	3.8	4.0	4.9	4.7	4.9				

### STATUS FLAG CODES

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

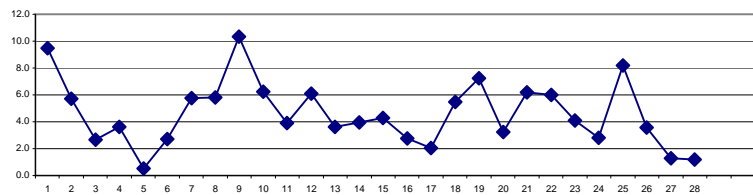
### OBJECTIVE LIMIT:

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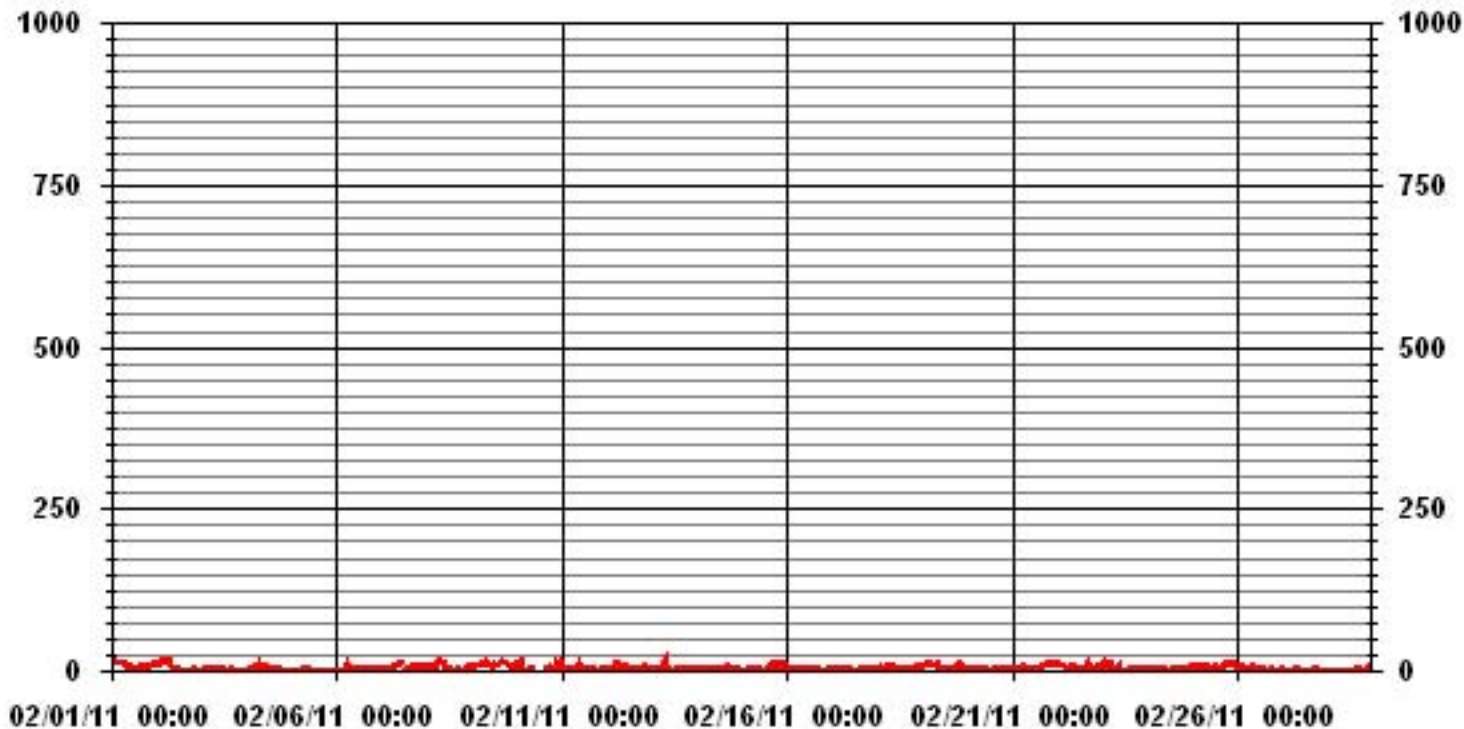
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	570					
MAXIMUM 1-HR AVERAGE:	17	PPB	@ HOUR(S)	7	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	10.3	PPB			ON DAY(S)	9
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	3.83		MONTHLY AVERAGE:	4.58	PPB	

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA30 IIO2\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

FEBRUARY 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	15	15	15	14	14	13	15	16	13	11	8	7	6	6	6	7	8	IZS	7	7	9	9	11	11	16	10.6	24
2	11	11	15	16	16	18	33	24	16	7	3	2	2	2	1	2	IZS	2	2	1	1	2	3	1	33	8.3	24
3	1	4	8	7	3	6	7	7	21	10	7	8	2	1	1	IZS	13	2	2	1	1	6	4	1	21	5.3	24
4	1	3	3	5	7	8	5	15	11	10	10	9	7	7	IZS	18	2	3	4	3	1	1	0	1	18	5.8	24
5	1	1	1	1	1	1	2	2	2	2	4	4	2	IZS	18	0	2	1	0	0	0	0	0	0	18	2.0	24
6	1	1	1	2	3	1	31	27	4	6	11	12	IZS	10	6	7	2	2	2	3	3	4	6	5	31	6.5	24
7	6	6	4	4	4	4	5	12	12	15	21	IZS	8	2	2	13	10	11	8	9	8	8	8	7	21	8.1	24
8	8	7	7	6	7	7	22	23	21	19	IZS	32	5	13	9	2	11	2	2	1	3	6	7	8	32	9.9	24
9	8	8	10	9	9	11	15	17	18	IZS	20	13	16	14	12	16	16	22	14	14	13	10	9	10	22	13.2	24
10	15	25	25	5	0	1	5	9	IZS	C	C	C	C	C	C	C	5	9	10	7	10	20	20	25	25	11.9	24
11	22	14	2	3	4	4	19	IZS	10	26	9	16	6	6	5	4	4	10	8	2	3	2	10	7	26	8.5	24
12	4	6	4	10	15	15	IZS	9	8	9	7	8	6	5	5	6	10	6	6	7	9	8	6	5	15	7.6	24
13	5	4	6	6	5	IZS	20	27	12	2	2	2	4	4	2	2	2	3	2	2	7	7	5	4	27	5.9	24
14	8	7	5	5	IZS	3	8	6	2	4	8	7	7	7	7	7	7	8	7	7	5	4	3	3	8	5.9	24
15	2	1	1	IZS	2	2	3	3	3	3	2	2	3	3	15	10	5	24	22	13	19	15	16	14	24	8.0	24
16	9	7	IZS	13	5	10	11	10	4	4	3	10	5	4	3	4	4	3	3	2	2	3	4	4	13	5.5	24
17	4	IZS	3	2	2	3	4	4	3	3	2	2	3	2	3	3	2	3	3	3	4	3	3	3	4	2.9	24
18	IZS	5	8	8	6	7	7	9	9	8	10	7	5	5	6	7	6	7	6	6	7	11	11	IZS	11	7.3	24
19	9	11	16	12	15	13	10	26	17	13	5	3	2	2	18	4	6	7	17	15	13	8	IZS	7	26	10.8	24
20	6	6	5	6	6	6	5	5	5	3	3	2	2	2	2	2	4	7	6	5	6	IZS	4	4	7	4.4	24
21	4	5	5	5	4	4	11	10	5	4	5	5	6	6	7	7	10	10	12	12	IZS	11	11	13	13	7.5	24
22	13	14	11	13	9	6	9	17	17	20	17	12	10	9	13	13	23	6	14	IZS	0	18	14	21	23	13.0	24
23	23	24	25	11	23	10	7	20	15	3	2	1	1	1	8	4	3	3	IZS	2	4	4	3	7	25	8.9	24
24	9	7	6	3	4	3	3	4	4	3	5	6	10	4	4	6	5	IZS	3	4	4	5	10	11	11	5.3	24
25	11	10	8	8	8	8	9	10	9	6	6	6	86	48	6	7	IZS	10	12	12	13	13	14	14	86	14.5	24
26	11	8	7	11	5	5	8	11	11	15	5	3	2	2	2	IZS	15	20	22	1	1	0	1	5	22	7.4	24
27	27	4	0	1	1	30	2	11	10	3	2	1	1	1	IZS	2	2	3	4	3	3	0	0	0	30	4.8	24
28	0	0	0	0	0	0	0	1	1	1	1	1	2	IZS	1	5	5	2	2	2	9	13	9	9	13	2.8	24
HOURLY MAX	27	25	25	16	23	30	33	27	21	26	21	32	86	48	18	18	23	24	22	15	19	20	20	25			
HOURLY AVG	8.7	7.9	7.4	6.9	6.6	7.4	10.2	12.4	9.7	8.1	6.8	7.0	8.0	6.6	6.5	6.3	7.0	7.2	7.4	5.3	5.9	7.1	7.1	7.4			

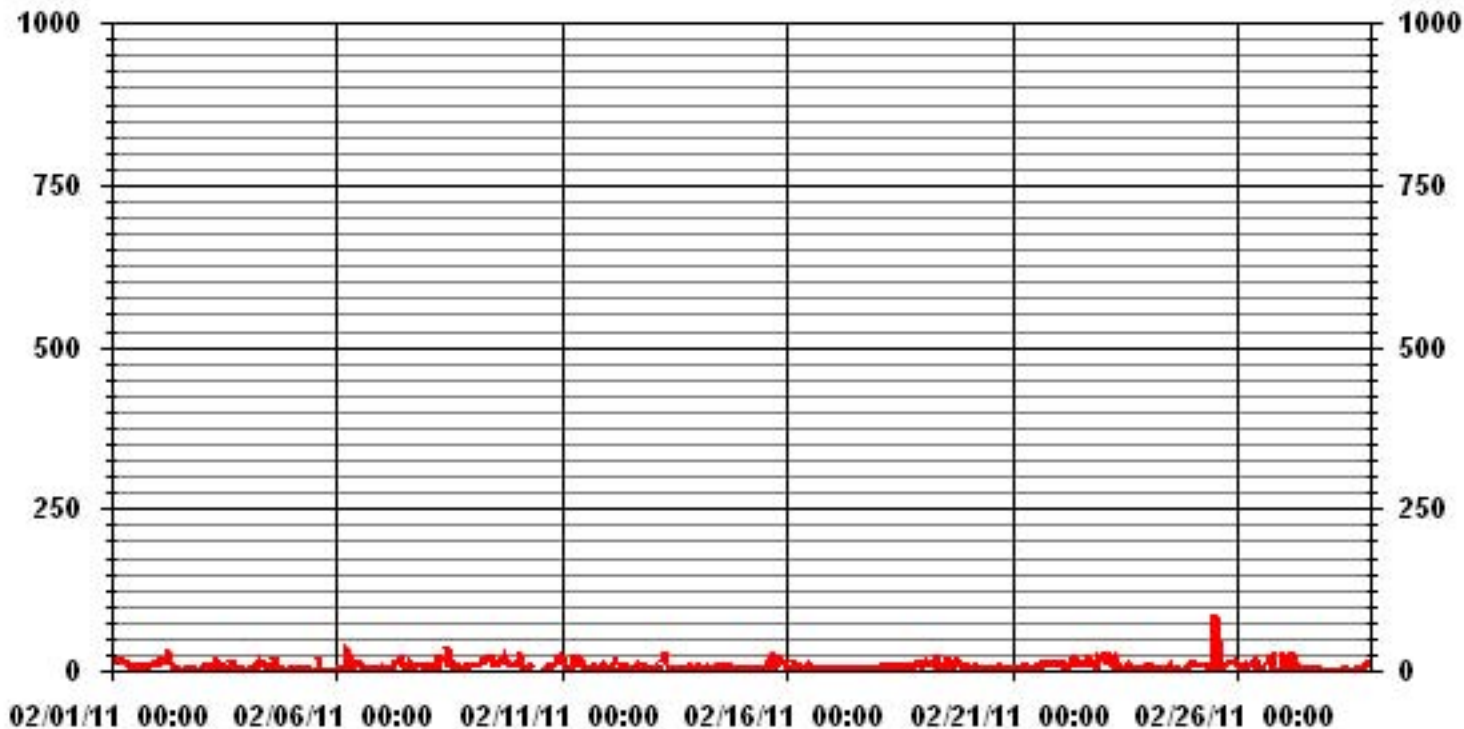
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	614					
MAXIMUM INSTANTANEOUS VALUE:	86	PPB	@ HOUR(S)	12	ON DAY(S)	25
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	6.94					

### 01 Hour Averages



— LICA30 HO2MAX PPB

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

February 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	8.64	9.27	3.61	.78	1.57	1.41	1.88	2.98	5.18	18.71	13.05	2.83	8.49	6.76	8.80	5.97	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	8.64	9.27	3.61	.78	1.57	1.41	1.88	2.98	5.18	18.71	13.05	2.83	8.49	6.76	8.80	5.97	

Calm : .00 %

Total # Operational Hours : 636

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	55	59	23	5	10	9	12	19	33	119	83	18	54	43	56	38	636
< 110																	
< 210																	
>= 210																	
Totals	55	59	23	5	10	9	12	19	33	119	83	18	54	43	56	38	

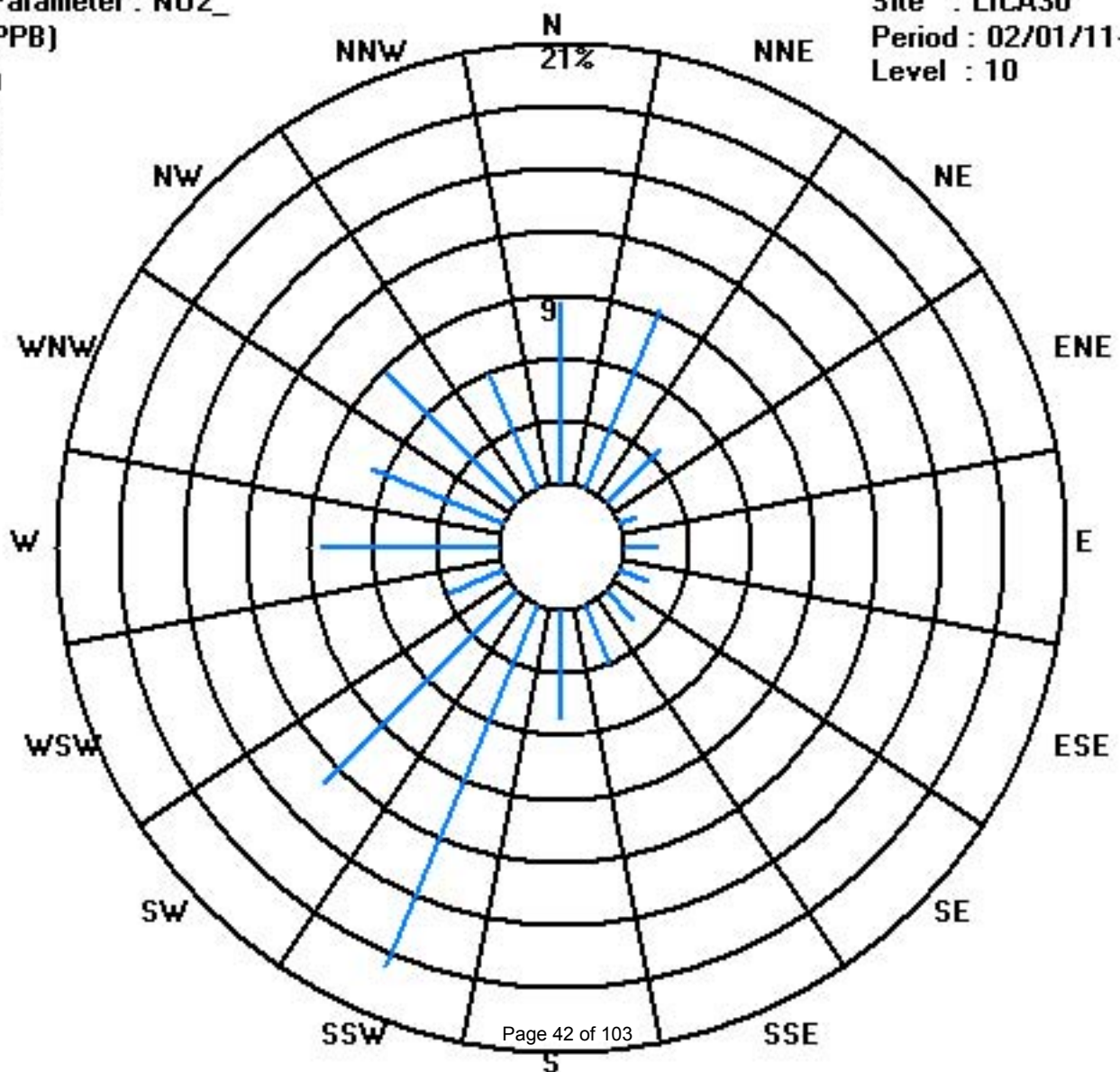
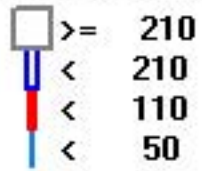
Calm : .00 %

Total # Operational Hours : 636

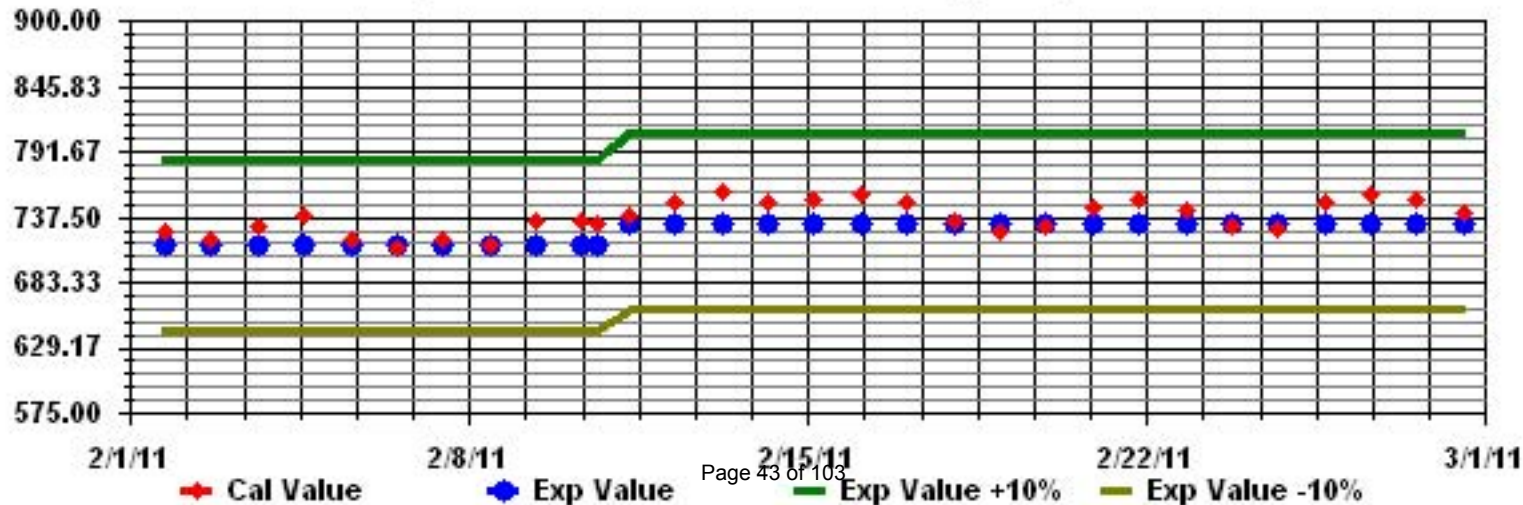
Class Limits (PPB)

Period : 02/01/11-02/28/11

Level : 10



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



# Nitric Oxide



# LAKELAND INDUSTRY & COMMUNITY ASSOICATION - MASKWA

FEBRUARY 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	1	0	1	0	1	1	1	1	1	3	3	3	2	2	1	1	1	IZS	0	1	0	1	1	1	1	3	1.2	24
2	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	IZS	0	0	0	0	0	0	0	0	1	0.3	24
3	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	IZS	1	0	0	0	0	0	0	0	0	1	0.2	24
4	0	0	0	0	0	0	0	0	0	1	2	2	3	2	IZS	1	0	0	0	0	0	0	0	0	0	3	0.5	24
5	0	0	0	0	0	0	0	0	0	0	1	1	0	0	IZS	2	0	0	0	0	0	0	0	0	0	2	0.2	24
6	0	0	0	0	0	0	4	2	0	1	3	3	IZS	3	1	1	0	0	0	0	0	0	0	0	0	4	0.8	24
7	0	0	0	0	0	0	0	1	2	12	17	IZS	2	1	1	2	1	1	0	0	0	0	0	0	0	17	1.7	24
8	0	0	0	0	0	0	2	2	3	7	IZS	5	2	2	2	0	0	0	0	0	0	0	0	0	0	7	1.1	24
9	0	0	0	0	0	0	0	1	5	IZS	10	10	18	9	8	6	3	1	0	0	0	0	0	0	0	18	3.1	24
10	0	0	0	0	0	0	0	0	IZS	C	C	C	C	C	C	C	1	0	0	0	0	1	1	3	3	0.4	24	
11	2	0	0	0	0	0	0	0	IZS	1	8	1	3	2	2	1	0	0	0	0	0	0	0	0	0	8	0.9	24
12	0	0	0	0	0	0	IZS	0	1	2	3	4	3	2	2	1	1	0	0	0	0	0	0	0	4	0.8	24	
13	0	0	0	0	0	IZS	3	6	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	6	0.4	24
14	0	0	0	0	IZS	0	0	0	0	1	2	2	2	2	2	1	1	0	0	0	0	0	0	0	0	2	0.6	24
15	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	5	1	0	5	5	2	4	1	2	2	5	1.2	24	
16	0	0	IZS	1	0	0	0	0	0	1	1	3	2	1	1	1	0	0	0	0	0	0	0	0	0	3	0.5	24
17	0	IZS	0	0	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.2	24
18	IZS	0	0	0	0	0	0	0	2	2	5	5	3	3	3	3	1	1	0	0	0	1	0	IZS	5	1.3	24	
19	0	1	0	1	0	1	0	2	12	12	3	2	1	1	2	2	1	1	1	1	1	1	1	0	12	2.0	24	
20	0	0	1	0	0	0	0	0	1	1	2	1	1	1	1	1	0	0	0	0	0	IZS	0	0	2	0.5	24	
21	0	0	0	0	0	0	0	1	1	2	2	3	2	2	2	2	2	1	0	0	IZS	0	1	0	3	0.9	24	
22	0	0	0	0	0	0	0	2	2	4	4	2	2	2	3	5	1	1	IZS	0	2	1	2	5	1.5	24		
23	3	2	2	1	5	1	1	1	3	1	1	1	0	1	1	1	1	IZS	0	0	0	0	0	0	5	1.2	24	
24	0	0	0	0	0	0	0	0	0	1	1	3	0	1	1	1	0	IZS	1	0	0	0	1	1	3	0.5	24	
25	1	0	0	1	0	0	1	1	3	4	5	6	7	5	3	3	IZS	1	1	1	0	1	1	1	7	2.0	24	
26	0	0	0	0	0	0	0	0	1	3	1	1	0	0	0	IZS	1	1	1	0	0	0	0	0	3	0.4	24	
27	1	0	0	0	0	1	0	1	1	1	1	0	1	1	IZS	1	1	1	0	1	0	0	0	0	1	0.5	24	
28	0	0	0	0	0	0	0	0	0	0	1	1	1	IZS	1	1	1	0	0	0	1	3	1	1	3	0.5	24	
HOURLY MAX	3	2	2	1	5	1	4	6	12	12	17	10	18	9	8	6	5	5	5	2	4	3	2	3				
HOURLY AVG	0.3	0.1	0.1	0.1	0.2	0.1	0.5	0.8	1.5	2.7	2.7	2.4	2.1	1.8	1.7	1.3	0.9	0.6	0.4	0.2	0.2	0.4	0.3	0.4				

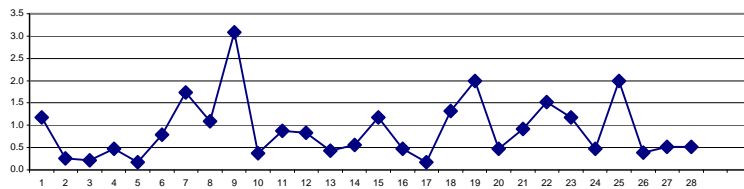
### STATUS FLAG CODES

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

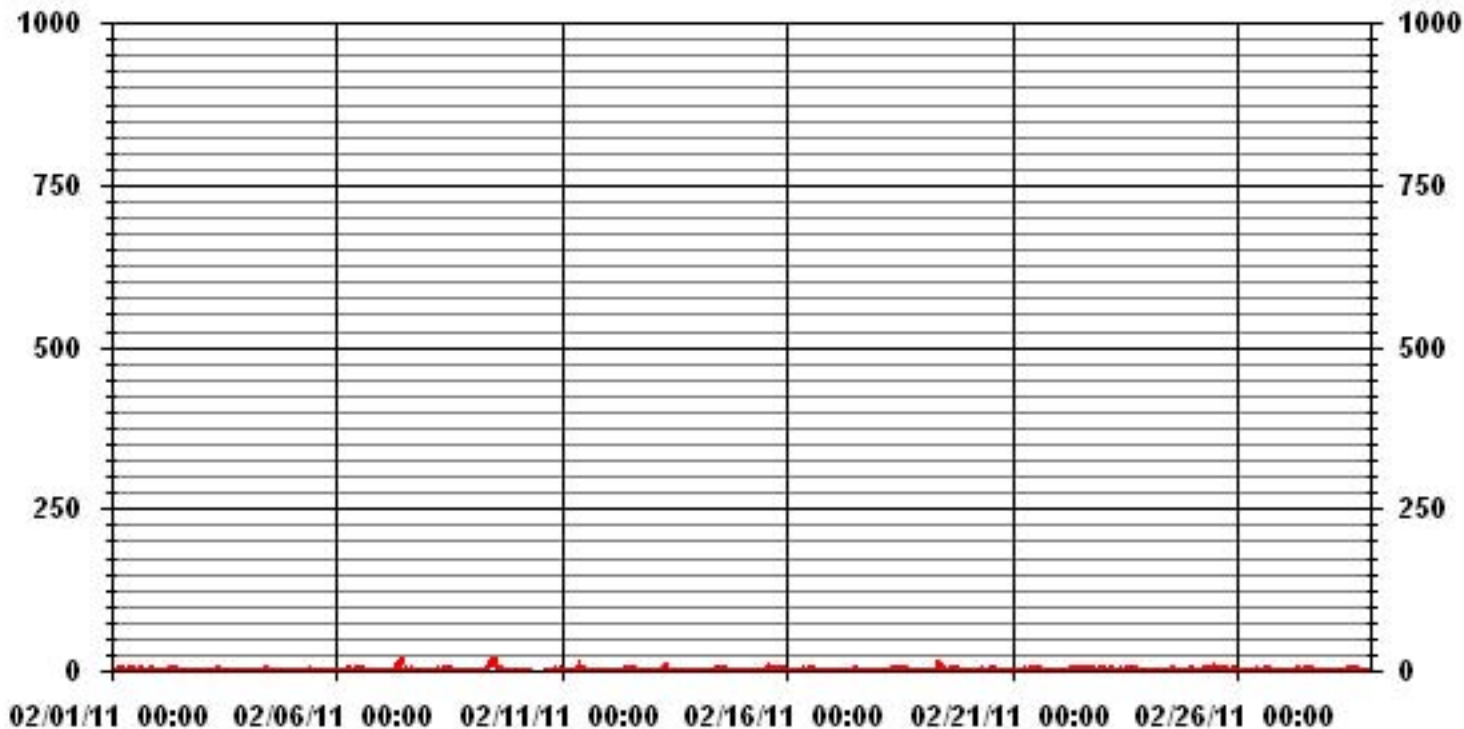
### MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	267					
MAXIMUM 1-HR AVERAGE:	18	PPB	@ HOUR(S)	12	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	3.1	PPB			ON DAY(S)	9
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	1.84		MONTHLY AVERAGE:	0.91	PPB	

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA30 NO\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

FEBRUARY 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	2	3	4	4	4	3	3	2	2	1	IZS	1	1	1	1	1	1	1	4	1.8	24
2	1	1	1	1	1	1	45	10	2	3	1	1	1	1	1	1	IZS	1	1	1	1	1	1	0	45	3.4	24	
3	0	1	0	1	0	0	1	1	14	2	2	3	1	1	0	IZS	3	0	1	0	1	1	0	0	14	1.4	24	
4	1	0	0	0	1	1	0	1	2	2	5	3	4	3	IZS	5	1	1	0	0	0	0	0	0	5	1.3	24	
5	1	1	1	1	0	1	0	0	1	1	2	1	1	IZS	24	1	2	0	1	1	1	0	0	1	24	1.8	24	
6	1	1	1	0	1	1	17	12	2	4	7	10	IZS	8	4	3	1	1	1	1	1	1	1	1	17	3.5	24	
7	1	1	1	1	1	1	1	4	5	18	28	IZS	7	2	1	8	2	1	1	1	1	1	1	1	28	3.9	24	
8	1	1	1	1	1	1	4	4	6	11	IZS	42	3	38	6	0	4	1	1	1	1	1	1	1	42	5.7	24	
9	1	1	1	1	1	1	2	2	9	IZS	33	18	25	19	9	8	8	5	1	1	1	1	1	1	33	6.5	24	
10	1	2	1	1	1	1	1	1	IZS	C	C	C	C	C	C	C	2	1	1	1	1	5	6	9	9	2.2	24	
11	6	1	0	1	1	1	12	IZS	4	44	4	21	3	3	1	1	1	0	0	0	0	0	1	1	44	4.7	24	
12	0	1	1	1	1	1	IZS	2	1	4	4	6	4	3	2	2	2	1	1	1	0	1	0	0	6	1.7	24	
13	1	0	0	1	1	IZS	32	18	3	1	1	1	3	3	1	1	1	1	0	1	1	0	0	32	3.1	24		
14	1	0	1	0	IZS	1	1	1	1	2	4	4	4	4	3	2	1	0	0	1	1	1	1	1	4	1.5	24	
15	1	1	0	IZS	1	1	1	1	1	1	0	0	1	2	16	5	1	16	15	5	9	6	5	4	16	4.0	24	
16	2	1	IZS	4	2	1	1	2	2	3	2	7	3	2	2	1	1	1	0	1	1	1	1	1	7	1.8	24	
17	1	IZS	1	1	1	1	1	1	1	2	1	1	2	2	3	1	1	1	1	1	1	1	1	1	3	1.2	24	
18	IZS	1	1	1	1	1	1	2	3	4	9	7	5	4	4	4	2	1	1	1	1	1	1	1	IZS	9	2.5	24
19	1	1	1	1	1	2	1	24	22	21	4	4	2	2	21	3	2	2	1	1	1	1	1	IZS	1	24	5.2	24
20	1	1	1	1	1	1	1	1	2	2	3	2	2	2	2	2	1	1	1	1	1	IZS	1	1	3	1.4	24	
21	1	1	1	1	1	1	1	1	2	3	3	4	3	3	3	2	3	1	1	1	1	IZS	1	1	1	4	1.7	24
22	1	1	1	1	1	1	2	8	7	14	13	8	7	5	8	10	13	2	5	IZS	1	3	3	6	14	5.3	24	
23	7	8	9	2	9	2	2	19	8	2	2	2	1	1	7	3	2	2	IZS	0	1	0	0	1	19	3.9	24	
24	1	1	1	0	0	0	0	3	2	3	6	8	4	4	4	4	1	IZS	1	1	1	1	3	1	8	2.2	24	
25	1	1	1	1	1	1	1	2	4	6	6	7	37	24	4	4	IZS	2	1	1	1	2	1	1	37	4.8	24	
26	1	1	1	1	1	1	1	4	4	7	3	1	1	1	1	IZS	17	5	6	0	1	1	1	1	17	2.7	24	
27	14	1	1	1	1	32	1	3	4	2	2	1	2	2	IZS	2	2	1	1	1	1	1	1	1	32	3.4	24	
28	1	1	1	1	1	1	1	1	1	1	2	2	1	IZS	2	3	3	1	1	1	4	6	2	2	6	1.7	24	
HOURLY MAX	14	8	9	4	9	32	45	24	22	44	33	42	37	38	24	10	17	16	15	5	9	6	6	9				
HOURLY AVG	1.9	1.2	1.1	1.0	1.2	2.1	4.9	4.8	4.3	6.4	5.8	6.5	5.0	5.7	5.2	3.1	3.0	1.9	1.7	0.9	1.3	1.5	1.3	1.4				

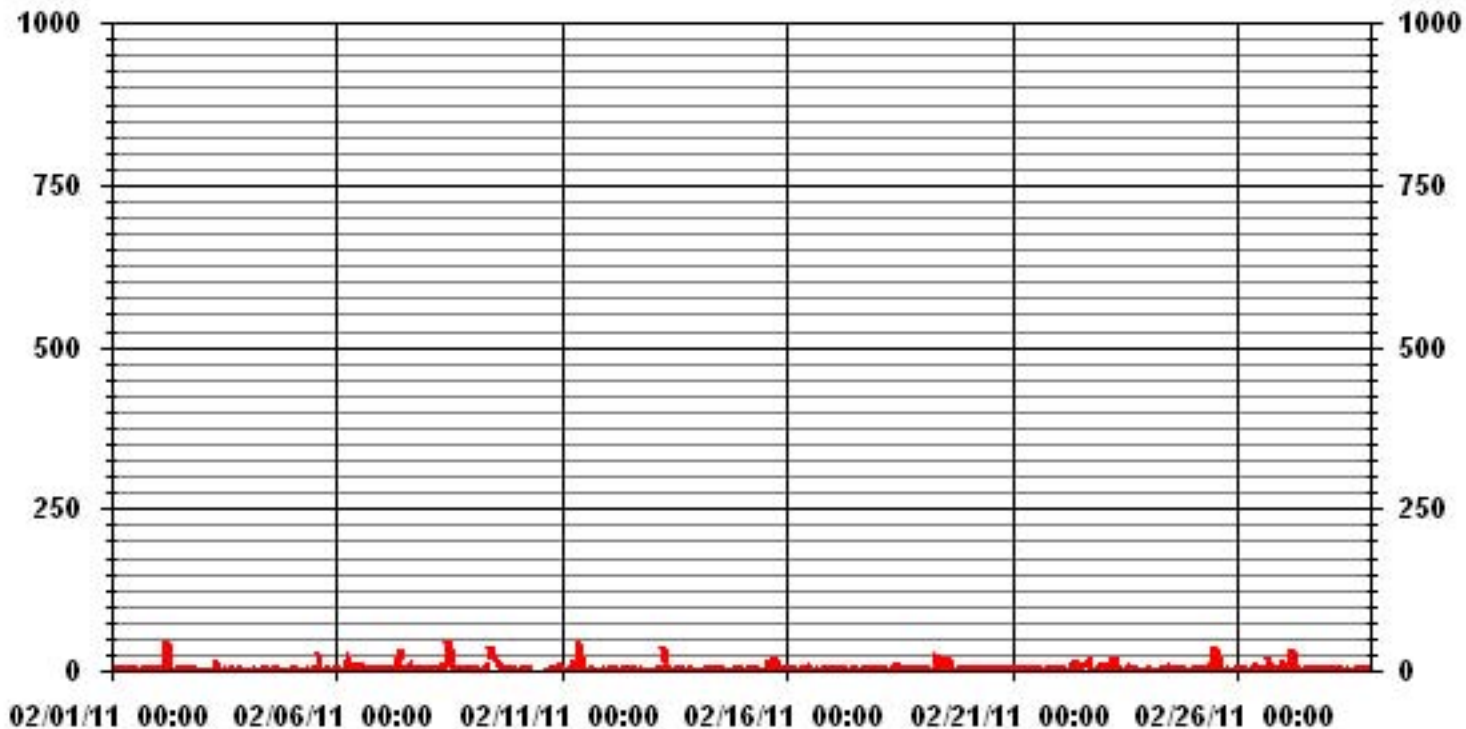
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	578				
MAXIMUM INSTANTANEOUS VALUE:	45	PPB	@ HOUR(S)	6	ON DAY(S) 2
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS
MONTHLY CALIBRATION TIME:	7	HRS			
STANDARD DEVIATION:	5.54				

### 01 Hour Averages



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

February 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	8.64	9.27	3.61	.78	1.57	1.41	1.88	2.98	5.18	18.71	13.05	2.83	8.49	6.76	8.80	5.97	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	8.64	9.27	3.61	.78	1.57	1.41	1.88	2.98	5.18	18.71	13.05	2.83	8.49	6.76	8.80	5.97	

Calm : .00 %

Total # Operational Hours : 636

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	55	59	23	5	10	9	12	19	33	119	83	18	54	43	56	38	636
< 110																	
< 210																	
>= 210																	
Totals	55	59	23	5	10	9	12	19	33	119	83	18	54	43	56	38	

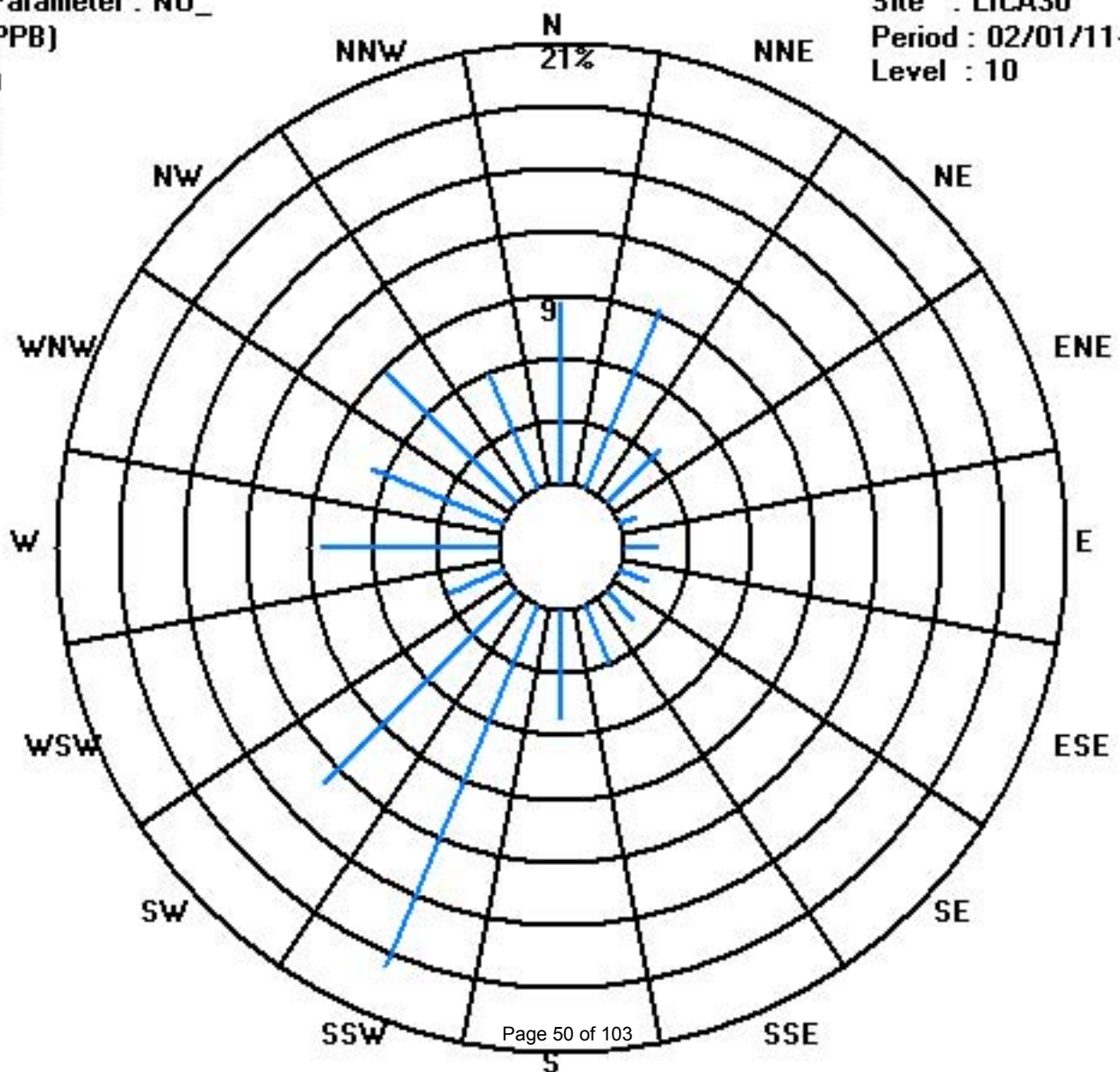
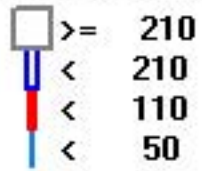
Calm : .00 %

Total # Operational Hours : 636

Class Limits (PPB)

Period : 02/01/11-02/28/11

Level : 10



# Oxides of Nitrogen

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA**  
**FEBRUARY 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	15	14	14	14	13	13	14	15	13	12	9	8	7	7	6	7	7	<b>IZS</b>	6	7	8	9	10	11	15	10.4	24	
2	10	11	13	15	14	15	18	17	10	5	2	1	1	1	1	1	<b>IZS</b>	1	1	0	1	1	1	0	18	6.1	24	
3	0	2	3	5	2	4	5	6	10	8	6	6	1	0	0	<b>IZS</b>	7	2	1	1	1	5	2	1	10	3.4	24	
4	1	3	3	4	7	7	5	12	8	10	10	9	9	9	<b>IZS</b>	5	1	2	2	2	0	0	0	0	12	4.7	24	
5	0	0	0	0	0	1	1	1	1	2	3	3	1	<b>IZS</b>	3	0	0	0	0	0	0	0	0	0	3	0.7	24	
6	1	0	0	1	2	1	15	9	2	4	9	7	<b>IZS</b>	6	3	4	1	1	1	2	3	3	4	4	15	3.6	24	
7	5	5	3	3	4	3	3	8	11	25	31	<b>IZS</b>	5	2	2	7	9	10	6	7	8	7	7	6	31	7.7	24	
8	7	6	6	6	6	5	14	19	19	21	<b>IZS</b>	12	6	6	6	2	2	1	1	2	4	6	7	21	7.2	24		
9	7	7	9	9	8	10	11	13	21	<b>IZS</b>	21	19	30	19	<b>60</b>	46	18	16	14	12	11	9	8	5	<b>60</b>	<b>16.7</b>	24	
10	6	14	16	1	0	0	2	6	<b>IZS</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	2	3	6	3	4	12	8	16	16	6.2	24	
11	11	4	1	2	2	2	4	<b>IZS</b>	5	18	4	9	7	7	4	3	3	6	3	1	2	2	5	4	18	4.7	24	
12	3	5	3	7	11	12	<b>IZS</b>	9	8	10	9	10	8	6	6	6	8	5	6	5	8	7	5	4	12	7.0	24	
13	4	3	4	6	4	<b>IZS</b>	15	22	3	1	0	1	1	1	0	0	0	1	0	0	3	5	3	2	22	3.4	24	
14	3	4	3	3	<b>IZS</b>	2	4	3	2	3	7	6	7	8	7	6	7	6	6	5	4	3	3	2	8	4.5	24	
15	1	0	0	<b>IZS</b>	1	1	1	1	3	2	2	1	1	2	2	12	5	2	17	18	8	16	9	12	12	18	5.6	24
16	4	2	<b>IZS</b>	3	1	3	6	3	1	3	2	7	3	2	2	2	3	1	1	0	0	1	2	2	7	2.3	24	
17	2	<b>IZS</b>	1	1	1	1	2	3	2	1	0	0	1	1	2	1	1	1	1	2	2	1	0	1	3	1.2	24	
18	<b>IZS</b>	3	6	7	6	6	6	7	9	8	11	10	6	7	8	8	6	6	5	5	6	8	8	<b>IZS</b>	11	6.9	24	
19	8	9	12	11	12	10	9	12	25	21	7	5	2	2	4	5	6	7	10	12	10	7	<b>IZS</b>	6	25	9.2	24	
20	6	5	5	5	6	4	4	5	5	4	4	3	3	2	2	2	3	3	3	4	<b>IZS</b>	4	3	6	3.8	24		
21	3	4	4	4	4	4	9	7	5	5	6	6	7	8	7	8	10	10	11	11	<b>IZS</b>	9	9	10	11	7.0	24	
22	11	11	9	8	6	5	5	9	6	9	9	3	4	3	6	7	14	1	2	<b>IZS</b>	0	8	6	11	14	6.7	24	
23	16	9	12	8	21	6	5	7	12	1	1	1	0	0	2	1	2	1	<b>IZS</b>	0	1	2	1	2	21	4.8	24	
24	3	3	2	1	2	1	1	2	2	2	3	6	1	2	3	4	2	<b>IZS</b>	2	2	3	3	6	9	9	2.8	24	
25	11	9	7	7	7	7	8	9	9	9	10	11	16	11	9	9	<b>IZS</b>	9	11	12	12	11	13	12	16	10.0	24	
26	10	8	6	7	4	4	5	9	9	11	3	2	1	2	1	<b>IZS</b>	1	5	4	0	0	0	1	11	4.0	24		
27	6	1	0	0	0	3	0	6	5	2	2	0	1	1	<b>IZS</b>	3	3	3	4	4	2	1	1	0	6	2.1	24	
28	1	0	1	0	0	0	1	0	1	1	1	2	2	<b>IZS</b>	1	3	3	1	1	1	3	10	4	4	10	1.8	24	
HOURLY MAX	16	14	16	15	21	15	18	22	25	25	31	19	30	19	60	46	18	17	18	12	16	12	13	16				
HOURLY AVG	5.7	5.3	5.3	5.1	5.3	4.8	6.4	8.2	7.6	7.6	6.6	5.7	5.1	4.6	6.3	5.8	4.6	4.6	4.7	3.9	4.2	5.1	4.7	5.0				

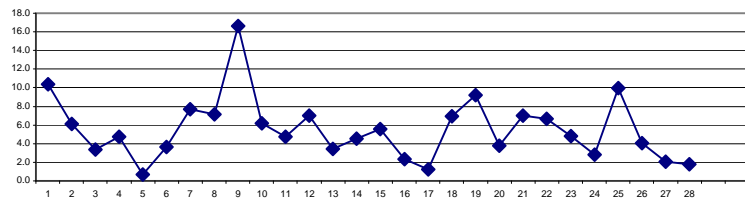
**STATUS FLAG CODES**

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**

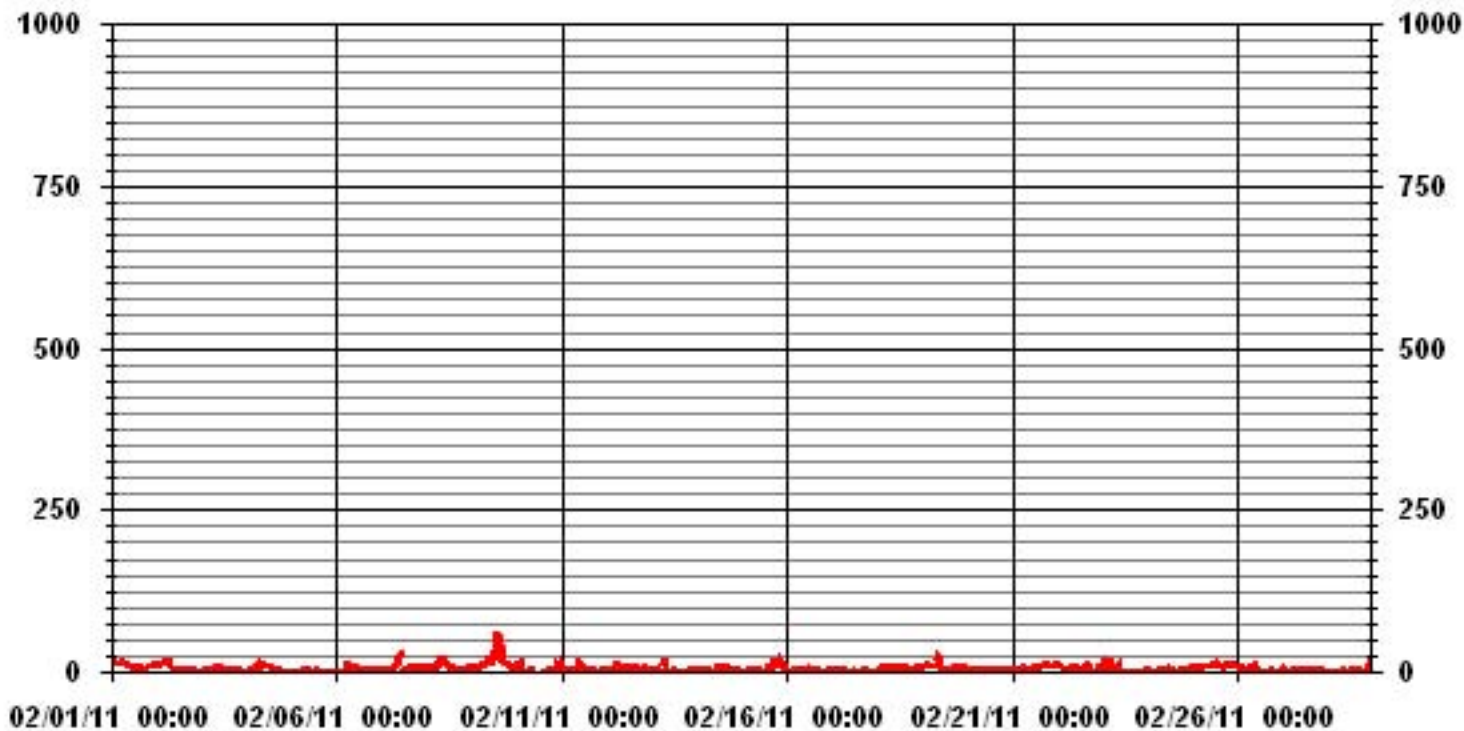
NUMBER OF NON-ZERO READINGS:	577					
MAXIMUM 1-HR AVERAGE:	60	PPB	@ HOUR(S)	14	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	16.7	PPB			ON DAY(S)	9
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	5.53		MONTHLY AVERAGE	5.51	PPB	

**24 HOUR AVERAGES FOR FEBRUARY 2011**





### 01 Hour Averages



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

FEBRUARY 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	15	15	15	15	14	14	15	17	15	13	11	10	8	8	8	9	8	IZS	7	8	9	10	11	12	17	11.6	24
2	11	12	15	16	16	18	69	29	18	9	4	2	2	3	2	3	IZS	2	1	1	1	2	3	1	69	10.4	24
3	1	4	8	7	2	6	8	8	31	12	9	10	3	2	1	IZS	15	3	3	2	2	7	5	2	31	6.6	24
4	2	4	4	6	8	9	6	17	14	12	15	13	11	11	IZS	23	2	3	4	3	1	1	0	1	23	7.4	24
5	1	1	1	1	1	1	2	2	2	3	6	5	3	IZS	41	0	4	1	1	0	0	0	0	0	41	3.3	24
6	1	1	1	1	3	1	48	39	5	10	18	22	IZS	18	9	10	2	2	2	3	3	4	6	5	48	9.3	24
7	6	7	4	4	4	4	5	15	14	32	48	IZS	15	3	3	21	11	12	8	9	9	8	8	7	48	11.2	24
8	8	8	7	6	7	6	24	27	23	29	IZS	74	8	49	15	3	15	2	2	2	3	6	8	8	74	14.8	24
9	8	8	10	9	10	11	15	19	27	IZS	47	31	40	33	440	481	23	25	15	14	13	10	9	11	481	56.9	24
10	15	25	25	5	0	1	5	10	IZS	C	C	C	C	C	C	C	6	9	10	6	10	24	25	32	32	13.0	24
11	26	13	1	3	3	4	29	IZS	13	67	13	37	9	9	6	5	4	11	8	2	3	2	10	7	67	12.4	24
12	5	6	5	10	16	15	IZS	11	9	13	11	14	9	8	7	8	12	6	7	7	9	8	6	5	16	9.0	24
13	5	4	6	6	5	IZS	48	44	12	2	1	2	6	6	1	2	2	2	0	1	6	7	4	3	48	7.6	24
14	7	6	4	4	IZS	3	8	7	3	6	12	10	11	12	9	9	8	8	7	7	6	4	3	3	12	6.8	24
15	2	1	1	IZS	2	1	3	3	4	4	2	2	4	4	31	15	6	40	37	18	27	21	21	18	40	11.6	24
16	11	7	IZS	15	5	10	10	11	4	5	4	15	7	4	3	4	4	2	2	1	1	2	3	3	15	5.8	24
17	3	IZS	2	1	1	1	3	3	3	3	1	1	3	2	4	3	2	2	2	3	3	2	1	2	4	2.2	24
18	IZS	5	9	8	7	8	7	10	12	11	19	14	9	9	10	11	7	8	6	6	7	11	12	IZS	19	9.4	24
19	9	11	16	13	15	14	10	48	37	33	9	6	4	4	37	6	8	8	17	15	14	8	IZS	7	48	15.2	24
20	6	7	5	6	6	6	5	6	6	5	5	4	3	3	3	3	4	7	6	5	6	IZS	5	4	7	5.0	24
21	4	4	5	5	5	4	12	11	6	7	8	8	8	9	9	8	12	11	13	12	IZS	10	10	12	13	8.4	24
22	12	13	10	13	8	5	10	24	23	32	28	19	15	13	20	22	34	6	17	IZS	1	21	16	27	34	16.9	24
23	29	31	34	13	32	12	7	35	23	4	3	3	2	1	14	6	5	4	IZS	1	4	3	3	7	35	12.0	24
24	10	8	7	2	4	3	2	5	4	5	10	13	13	8	8	9	5	IZS	4	4	4	5	11	11	13	6.7	24
25	11	11	8	8	8	8	10	11	12	11	12	12	106	70	10	10	IZS	11	13	13	13	14	14	15	106	17.9	24
26	12	9	7	12	5	5	8	12	15	22	8	3	2	3	2	IZS	32	25	28	0	1	1	0	5	32	9.4	24
27	38	4	0	0	1	57	3	14	13	4	4	1	2	2	IZS	4	4	4	5	4	4	1	1	1	57	7.4	24
28	2	1	1	1	1	1	1	2	2	2	3	3	3	IZS	3	7	7	2	2	2	13	18	10	10	18	4.2	24
HOURLY MAX	38	31	34	16	32	57	69	48	37	67	48	74	106	70	440	481	34	40	37	18	27	24	25	32			
HOURLY AVG	9.6	8.4	7.8	7.0	7.0	8.4	13.8	16.3	13.0	13.7	12.0	12.8	11.8	11.8	27.8	27.3	9.3	8.3	8.4	5.5	6.4	7.8	7.6	8.1			

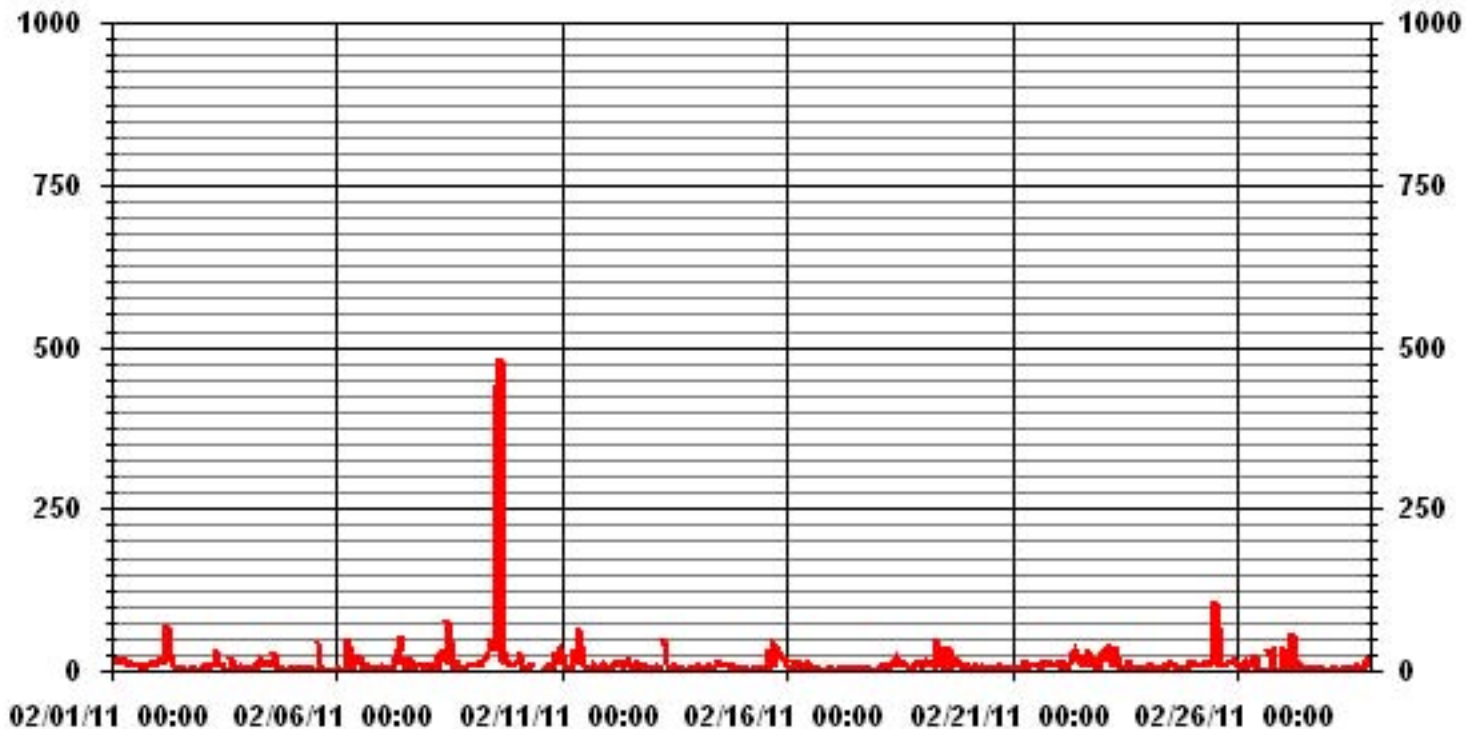
### STATUS FLAG CODES

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:	623		
MAXIMUM INSTANTANEOUS VALUE:	481 PPB @ HOUR(S) 15 ON DAY(S) 9		
IZS CALIBRATION TIME:	29 HRS	OPERATIONAL TIME:	672 HRS
MONTHLY CALIBRATION TIME:	7 HRS		
STANDARD DEVIATION:	27.50		

### 01 Hour Averages



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

February 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	8.64	9.27	3.61	.78	1.57	1.41	1.88	2.98	5.18	18.55	13.05	2.83	8.49	6.76	8.80	5.97	99.84
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	.00	.00	.00	.00	.00	.15
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	8.64	9.27	3.61	.78	1.57	1.41	1.88	2.98	5.18	18.71	13.05	2.83	8.49	6.76	8.80	5.97	

Calm : .00 %

Total # Operational Hours : 636

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	55	59	23	5	10	9	12	19	33	118	83	18	54	43	56	38	635
< 110										1							1
< 210																	
>= 210																	
Totals	55	59	23	5	10	9	12	19	33	119	83	18	54	43	56	38	

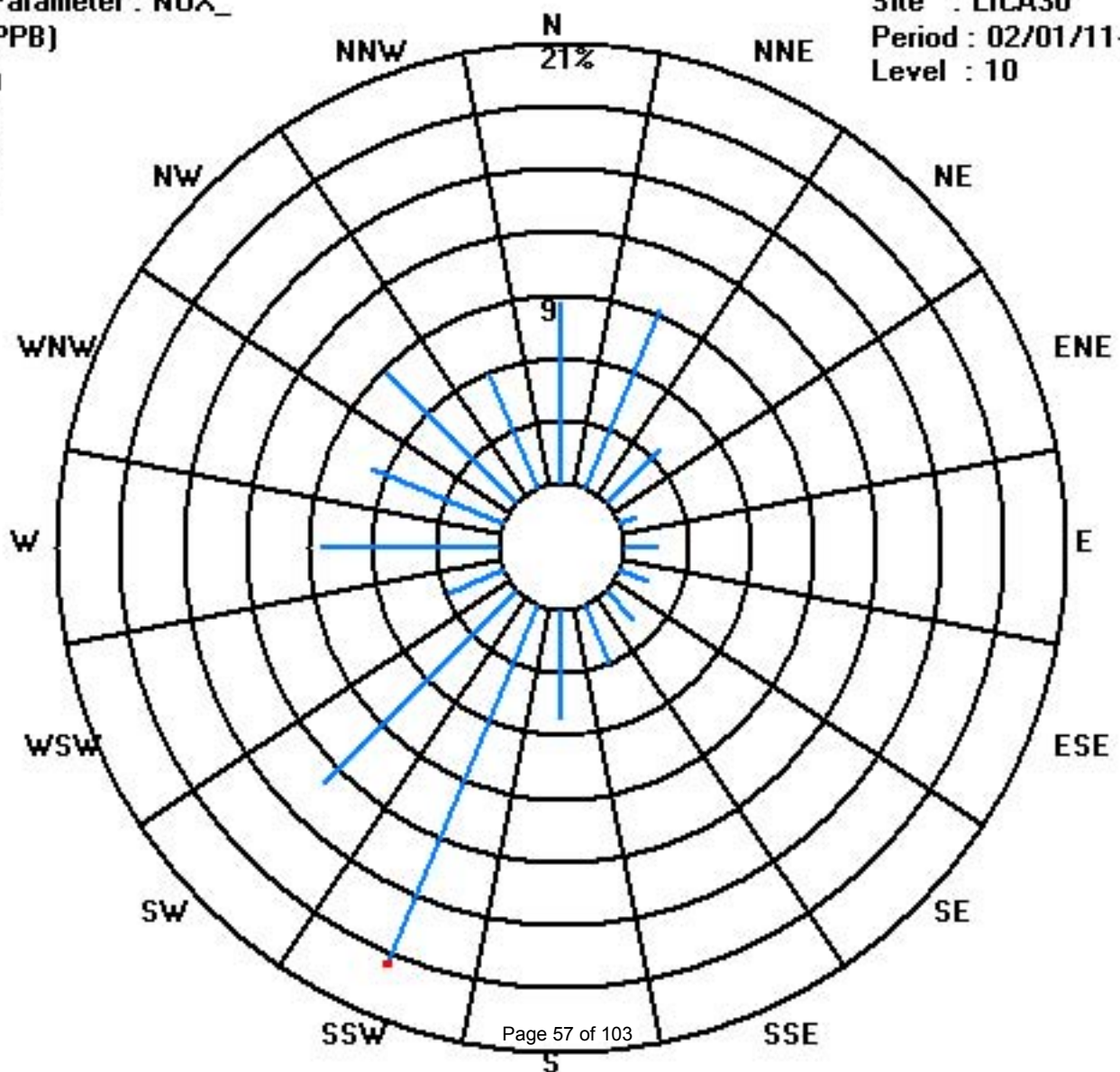
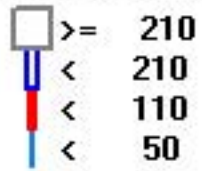
Calm : .00 %

Total # Operational Hours : 636

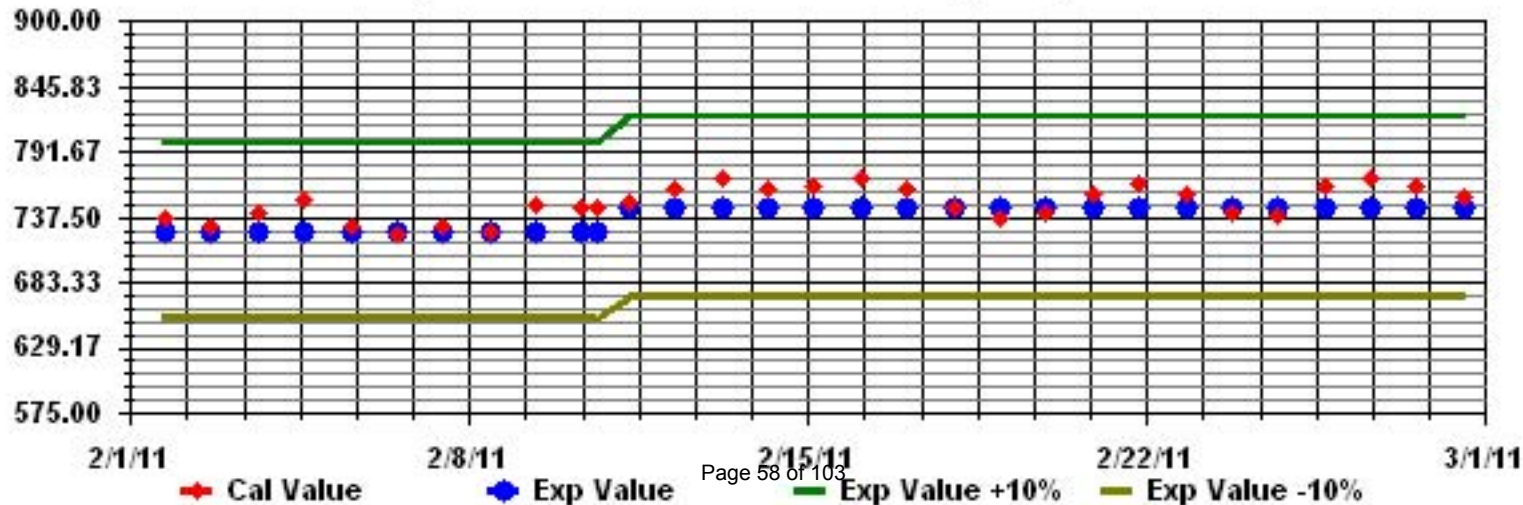
Class Limits (PPB)

Period : 02/01/11-02/28/11

Level : 10



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



# Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

FEBRUARY 2011

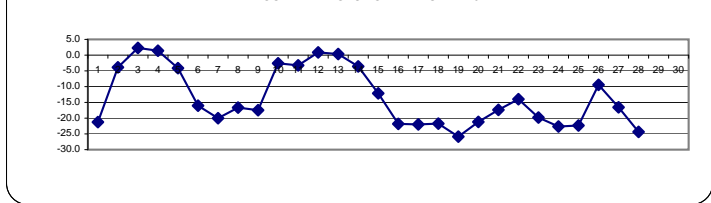
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR		
DAY	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	-26.6	-27.1	-26.6	-26.6	-26.3	-26.4	-26.7	-26.5	-26.6	-24.2	-21.5	-19.7	-17.6	-16	-15.2	-15.2	-16.2	-17	-17.4	-17.7	-18.1	-18.2	-18.2	-18.4	-15.2	-21.3	24
2	2	-18.3	-18	-15.9	-14.5	-13.1	-11.5	-11.9	-11.2	-7.7	-2.1	1.1	2.8	3.6	4.4	4.6	4.6	4.2	3.1	1.8	0.9	0.4	0.3	-0.4	0.1	4.6	-3.9	24
3	3	0.1	-0.4	-0.7	-1	-0.8	-0.4	0.5	0.7	0.7	2.6	4.2	5.2	7.8	7.2	6.7	6.5	4.9	3.3	1.9	1.7	2.1	1.8	0.7	-0.3	7.8	<b>2.3</b>	24
4	4	-0.6	-1.1	-1.1	-1.4	-1	-0.6	-0.4	-0.4	0	0.8	1.6	2.6	4.9	5.6	6.6	5.9	4.4	3.1	2.4	1.7	0.5	0.2	0.1	0	6.6	1.4	24
5	5	-0.1	-0.3	-0.3	-0.4	-0.8	-1.3	-1.8	-2	-2.1	-1.8	-1.1	-1.1	-1.4	-1.8	-2.9	-3.8	-4.6	-6	-7.7	-9.2	-10.2	-11.3	-12.7	-14.3	-0.1	-4.1	24
6	6	-15	-15.7	-16.3	-17.2	-18.3	-19	-19.2	-19.2	-19	-15.9	-13.1	-10.8	-8.7	-7.9	-7.7	-8.2	-11.2	-15	-17.6	-17.8	-20.9	-22.6	-23.7	-24.9	-7.7	-16.0	24
7	7	-26.1	-26.8	-27.3	-28.1	-28.4	-29	-29.2	-29.4	-28.2	-21.2	-14.5	-11.9	-10.5	-9.8	-8.7	-10.2	-13.5	-15.5	-16.5	-17.4	-18.4	-19.1	-20.3	-20.6	-8.7	-20.0	24
8	8	-21.5	-21.5	-22	-23.2	-24.5	-23.9	-23.3	-21.8	-21	-16.9	-13.6	-11.1	-9.5	-8	-8.1	-9.1	-11.6	-13	-14.1	-14.4	-15.1	-16.4	-17.5	-18.4	-8.0	-16.6	24
9	9	-19.8	-20.4	-21.1	-24	-25.6	-27	-27.5	-28.2	-27.1	-21.1	-18.1	-14	-10.4	-10.7	-12.6	-12.3	-13	-13.3	-13.8	-13.5	-12.8	-12.4	-11.4	-9.3	-9.3	-17.5	24
10	10	-7	-5.9	-5.6	-5.8	-5.3	-4.9	-5.2	-5.6	-4.5	-3.7	-2.8	-1.3	-0.5	0.3	0.6	-0.2	-0.5	-1.1	-0.9	-0.7	-0.4	-0.3	-1	0.6	-2.6	24	
11	11	-2.1	-3.3	-4	-4.6	-4.9	-5.9	-6.1	-7.4	-7.6	-4.1	-1.7	-1.4	-1.8	-1.2	-1.1	-1.5	-2	-2.4	-2.4	-2.3	-2.5	-3.1	-2.7	-1.9	-1.1	-3.3	24
12	12	-1.8	-1.2	-0.4	-1.7	-2.2	-1.4	-2.2	-2.5	-2	-1	1.9	5	6.7	<b>8.1</b>	8	7.4	5	2.3	0.4	-1.7	-0.6	-0.9	-2.1	-2.1	<b>8.1</b>	0.9	24
13	13	-2.2	-1.9	-1.3	-1.6	-1.5	-1.3	-0.5	0	0.3	1.2	2.5	3	3.8	4	4.7	4.9	3.1	1	-0.2	-0.7	-1.2	-2.1	-2.5	-3.1	4.9	0.4	24
14	14	-3.8	-4.6	-5.7	-5.7	-6.7	-7.4	-7.1	-8	-7.6	-4	-0.8	1.3	4.3	5.2	4.9	2.5	0.4	-2.6	-4.1	-4.8	-6.4	-7.4	-8.7	-9	5.2	-3.6	24
15	15	-7.6	-6.2	-5.8	-6.4	-7.8	-9.4	-11	-11.5	-11.7	-11.6	-10.7	-10.2	-10	-10	-8.6	-9.5	-12	-13.9	-16.4	-18.6	-19.7	-20.3	-20.8	-21.4	-5.8	-12.1	24
16	16	-22.3	-22.8	-23.2	-23.9	-24.6	-25.2	-25.9	-25.9	-24.2	-21.2	-19	-20.5	-19.8	-19.4	-19	-19.1	-19.4	-19.7	-20	-20.6	-21.9	-22.1	-21.8	-22	-19.0	-21.8	24
17	17	-22.2	-22.7	-23	-23.1	-23.2	-23.7	-24.5	-24.9	-24.7	-22.9	-22.5	-21.4	-19.3	-18.8	-18	-19	-19.8	-21.2	-21.9	-21.7	-22.2	-22.2	-22.1	-22.5	-18.0	-22.0	24
18	18	-23.6	-23.8	-24.5	-24.4	-23.4	-23.1	-23	-22.9	-22.2	-20.8	-17.2	-14.8	-14	-14.9	-15.7	-16.6	-18.5	-20.4	-22.4	-23.9	-24.9	-26.9	-29.3	-30.7	-14.0	-21.7	24
19	19	-31.7	-32.3	-33.2	-33.8	-34.8	-35.6	-36.6	-33.1	-25.8	-21.3	-18.5	-17.9	-16.5	-16.1	-16.5	-17.8	-20.3	-21.8	-22.7	-23.9	-24.5	-25	-24.8	-16.1	-25.9	24	
20	20	-25.1	-25.4	-25.5	-26.4	-26.5	-26.4	-26.3	-25.9	-24.3	-22.4	-20.5	-17.7	-15.3	-13.4	-13.4	-14.1	-15.3	-17.4	-19.5	-20.7	-21.4	-21.9	-21.9	-21.9	-13.4	-21.2	24
21	21	-22	-22.5	-22.6	-22.9	-22.5	-22.8	-23.8	-23.1	-21.9	-19.6	-17	-15.5	-14	-13.1	-12.7	-12.6	-13.7	-13.7	-14	-14	-14	-13.3	-14.8	-12.1	-17.4	24	
22	22	-16.3	-16.6	-15.9	-14.7	-14.9	-13.6	-13.1	-13.4	-12.9	-12.9	-12.9	-12.1	-11.8	-11.2	-11.5	-11.8	-12.5	-13.8	-14.5	-14.7	-15.3	-15.5	-16.5	-17.4	-11.2	-14.0	24
23	23	-18.2	-19.2	-19.9	-20.7	-21.3	-21.9	-23.7	-24.1	-21.3	-18.9	-17.8	-16.8	-15.8	-15.2	-15.6	-16.4	-17.1	-19.1	-20.5	-21.3	-21.9	-22.5	-22.9	-23.3	-15.2	-19.8	24
24	24	-23.7	-24.1	-24.7	-25.3	-25.7	-26.4	-26.7	-26.8	-25.6	-23.2	-20.6	-18.6	-17.5	-16.1	-15.6	-15.6	-16.9	-20.4	-22.2	-23.8	-25	-25.8	-26.3	-27.2	-15.6	-22.7	24
25	25	-27.7	-28.6	-28.5	-28.7	-29.6	-29.6	-29.5	-29.2	-26.9	-24	-21.3	-19	-17.9	-16.1	-16.2	-16.1	-16.8	-18.2	-19.4	-19.6	-19	-18.6	-18.1	-17.5	-16.1	-22.3	24
26	26	-16.8	-16.5	-15.7	-14.7	-14.2	-13.8	-13.3	-12.8	-11.5	-8.5	-5.9	-5	-4.8	-4.7	-4.3	-3.3	-3.4	-4.3	-5.2	-6.9	-7.8	-8.9	-11.1	-12.8	-3.3	-9.4	24
27	27	-13.4	-11.8	-12.5	-14.9	-17	-17.6	-17.7	-18.3	-15.7	-15.1	-15.3	-15.9	-15.1	-14.6	-14.6	-15	-15.8	-17.3	-18.2	-18.9	-19.5	-20.3	-21.1	-21.8	-11.8	-16.6	24
28	28	-22.5	-23.3	-24.4	-25.6	-26.4	-26.6	-26.5	-26.3	-25.7	-24.7	-23.5	-22.4	-22.5	-22	-21.8	-21.6	-21.9	-22.4	-23.4	-25.1	-25.3	-25.5	-26.9	-28.5	-21.6	-24.4	24
HOURLY MAX		0.1	-0.3	-0.3	-0.4	-0.8	-0.4	0.5	0.7	0.7	2.6	4.2	5.2	7.8	8.1	8.0	7.4	5.0	3.3	2.4	1.7	2.1	1.8	0.7	0.1			
HOURLY AVG		-15.6	-15.9	-16.0	-16.5	-16.8	-17.0	-17.2	-17.3	-16.2	-13.7	-11.5	-10.0	-8.8	-8.1	-8.0	-8.4	-9.6	-11.2	-12.4	-13.2	-13.8	-14.3	-14.9	-15.4			

STATUS FLAG CODES

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

24 HOUR AVERAGES FOR FEBRUARY 2011

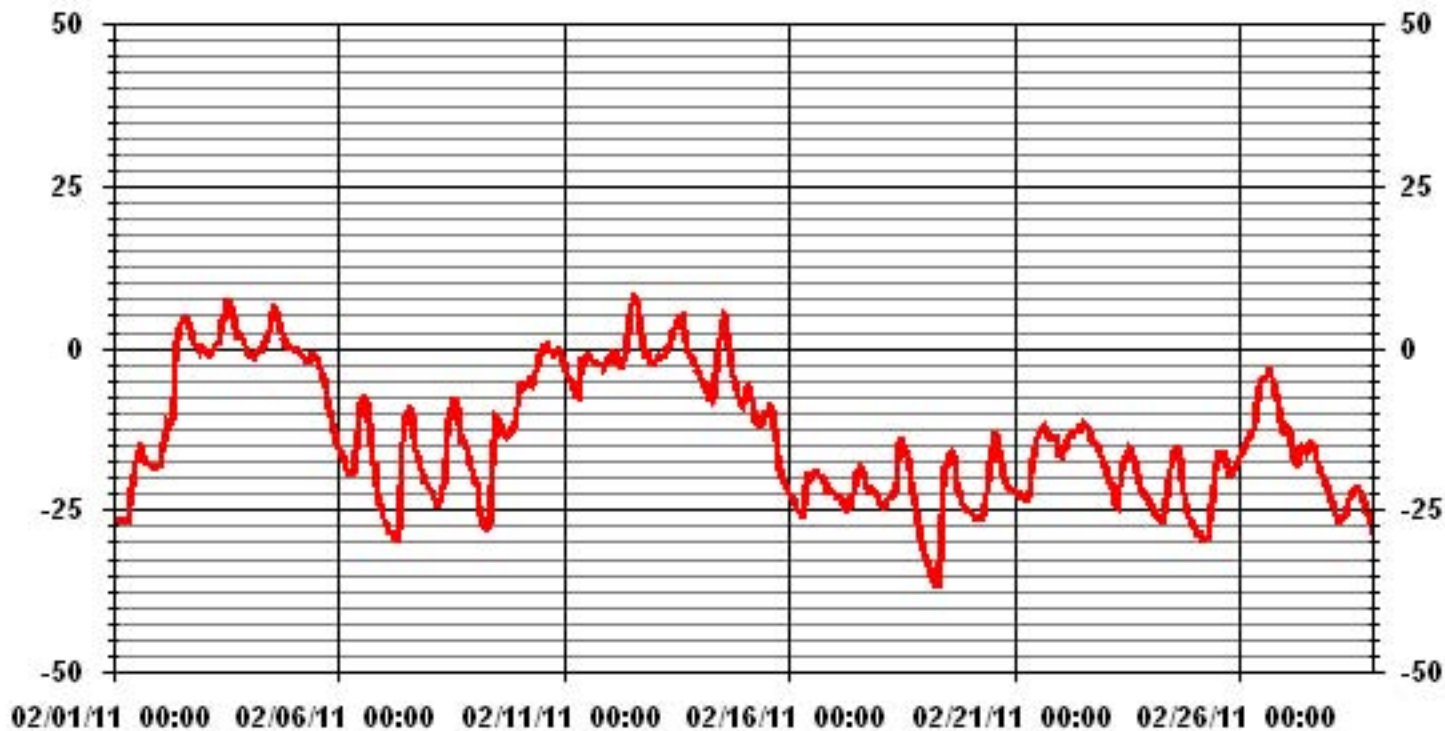


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-36.6 °C	@ HOUR(S)	7	ON DAY(S)	19
MAXIMUM 1-HR AVERAGE:	8.1 °C	@ HOUR(S)	13	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	2.3 °C			ON DAY(S)	3
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	672 HRS		
STANDARD DEVIATION:	10.03	AMD OPERATION UPTIME:	100.0 %		
		MONTHLY AVERAGE:	-13.40 °C		



### 01 Hour Averages



— LICA30 TPX DGC

# Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

FEBRUARY 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	0:00	DAILY	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	TOTAL	RDGS	
DAY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
4		0	0	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0.2	0.1	0.6	0.5	0.3	0.4	0	0	0	0.6	2.4	24
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.2	0	0	0	0	0	0.2	0.4	24
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
7		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
8		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
9		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	0.1	0.2	24
10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.2	0.1	0	0	0.3	0.6	24
11		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.3	0.2	0	0.1	0.2	0	0	0	0	0	0.4	1.2	24
12		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
13		0	0	0.3	1.2	1	0.6	0.2	0.1	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.2	3.8	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	0.7	2.1	24
16		0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24
17		0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24
18		0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	24
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
26		0	0	0	0.2	0.1	0	0.1	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.9	24
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0	0	0.1	0.2	24
28		0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0.2	0.3	24
HOURLY MAX		0.0	0.1	0.3	1.2	1.0	0.6	0.2	0.2	0.5	0.0	0.0	0.1	0.7	0.6	0.4	0.6	0.2	0.1	0.6	0.5	0.3	0.4	0.1	0.1	0.1			

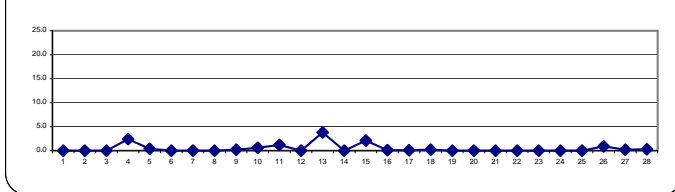
STATUS FLAG CODES

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

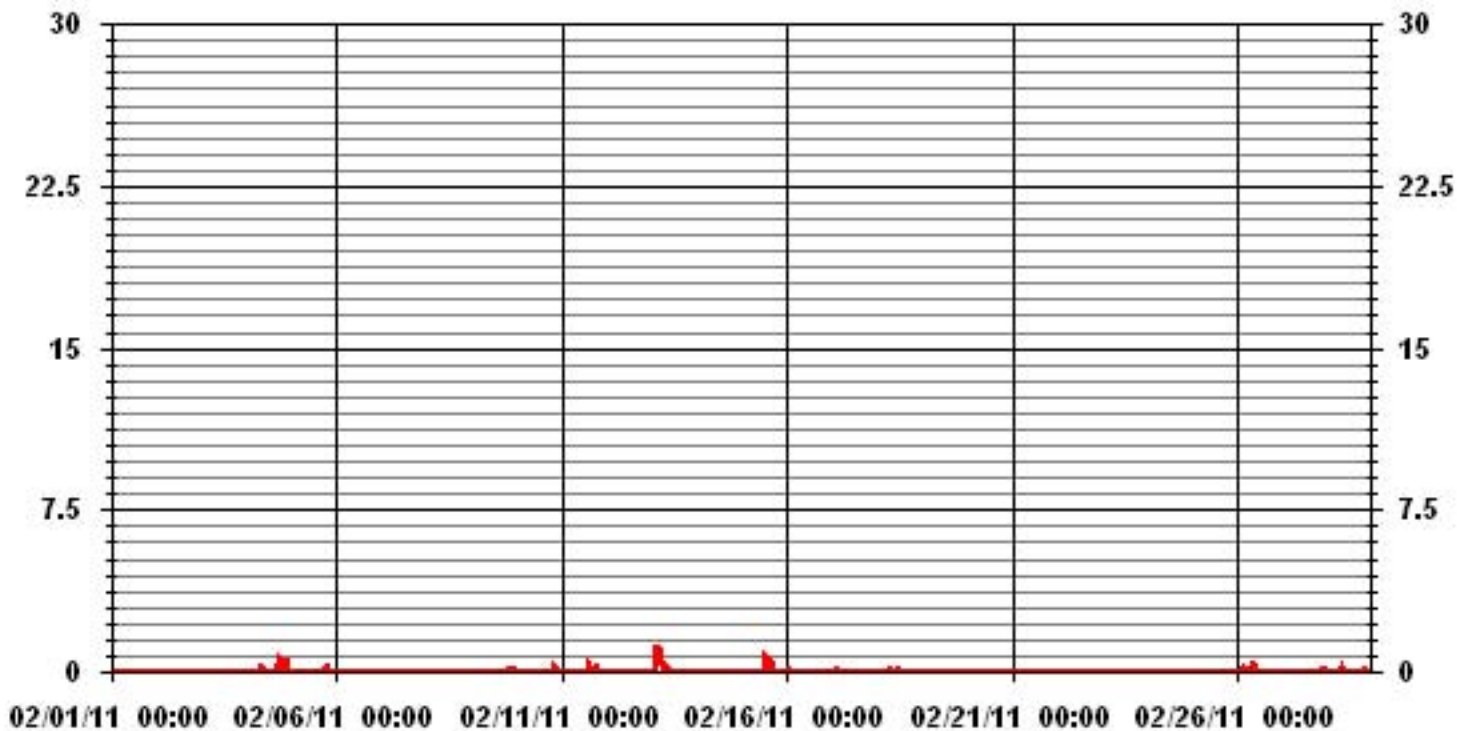
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	1.2	MM	HOUR(S)	3	ON DAY(S)	13
MAXIMUM DAILY TOTAL	3.8	MM			ON DAY(S)	13
MONTHLY TOTAL	12.5	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	672	HRS	
STANDARD DEVIATION:	0.10		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.02	MM	

DAILY TOTALS FOR FEBRUARY 2011



### 01 Hour Averages



# Relative Humidity

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

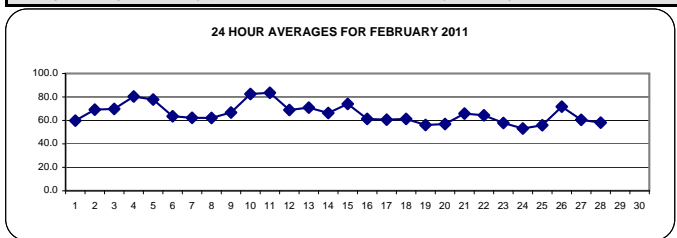
FEBRUARY 2011

### 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	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	68	67	67	67	67	67	66	66	65	63	61	58	53	49	47	48	51	55	56	57	58	59	60	61	68	59.8	24
2	2	61	62	61	63	68	72	74	80	83	73	65	64	63	62	62	62	63	67	71	75	77	77	79	77	83	69.2	24
3	3	77	79	79	79	78	78	76	75	75	68	63	60	53	57	59	58	61	66	70	71	70	71	74	78	79	69.8	24
4	4	78	79	79	79	78	76	76	80	80	84	85	83	75	72	66	69	78	83	87	88	89	89	89	88	89	80.4	24
5	5	88	88	88	86	86	84	85	84	83	81	78	77	76	72	69	71	74	75	74	74	71	68	68	67	88	77.8	24
6	6	69	70	69	69	72	73	74	74	71	62	54	48	45	43	42	44	51	64	71	71	74	73	72	70	74	63.5	24
7	7	68	68	67	67	66	65	66	66	64	58	51	55	52	48	43	47	58	63	66	68	71	72	73	72	73	62.3	24
8	8	72	71	70	70	69	71	73	73	71	66	60	52	47	41	39	43	52	57	60	61	64	67	70	72	73	62.1	24
9	9	75	75	74	71	68	68	67	66	65	61	66	56	50	51	52	55	60	63	70	73	77	78	79	82	82	66.8	24
10	10	83	84	84	84	85	85	86	86	85	85	85	82	78	75	74	78	81	83	83	86	87	84	83	87	87	82.5	24
11	11	82	85	85	86	86	87	86	86	85	82	74	75	76	76	78	81	84	85	87	87	88	88	88	88	88	83.5	24
12	12	87	84	82	83	83	80	81	80	78	73	65	57	53	49	48	47	51	59	64	72	65	66	73	74	87	68.9	24
13	13	73	74	77	86	88	88	89	89	88	83	76	72	67	64	59	53	53	58	59	60	60	62	61	63	89	70.9	24
14	14	65	68	72	72	75	78	78	79	77	67	60	53	43	40	41	48	54	64	70	71	76	79	80	82	82	66.3	24
15	15	80	83	82	81	80	79	78	77	78	77	75	74	77	78	69	66	72	72	67	66	66	66	67	67	83	74.0	24
16	16	69	69	67	66	65	66	67	66	62	52	46	51	51	52	53	57	60	62	63	65	66	66	65	65	69	61.3	24
17	17	64	66	65	65	65	65	65	64	62	58	57	55	50	50	49	51	55	61	63	63	64	65	66	67	67	60.6	24
18	18	68	69	69	69	66	66	66	66	64	60	50	44	42	46	49	53	58	62	65	67	69	69	68	66	69	61.3	24
19	19	65	64	63	62	61	60	59	59	56	54	54	47	47	42	42	42	46	51	55	58	62	65	66	66	66	56.1	24
20	20	66	65	63	65	66	65	65	65	60	55	51	46	43	41	42	43	45	50	56	59	62	63	64	66	66	56.9	24
21	21	67	68	70	71	72	71	71	70	68	64	59	55	54	56	58	61	63	66	71	70	70	69	66	70	72	65.8	24
22	22	75	77	79	78	78	77	77	76	72	65	59	54	52	51	55	50	52	55	57	60	60	60	60	66	79	64.4	24
23	23	69	69	70	70	72	71	71	70	65	53	47	44	41	40	41	42	45	50	56	56	60	63	62	61	72	57.8	24
24	24	63	63	62	62	63	64	62	61	58	49	43	40	38	36	35	36	39	48	52	55	59	61	62	64	64	53.1	24
25	25	65	66	65	65	64	64	64	63	59	53	47	41	39	37	40	41	45	50	54	58	61	65	67	68	68	55.9	24
26	26	66	66	70	74	75	77	78	78	77	75	70	67	68	68	66	64	62	62	68	75	75	77	81	82	82	71.7	24
27	27	80	77	70	73	76	77	75	73	68	60	48	43	41	40	40	42	45	51	55	61	64	64	65	64	80	60.5	24
28	28	63	63	61	59	60	61	62	61	61	59	55	50	51	51	55	53	59	59	58	55	56	58	60	64	64	58.1	24
HOURLY MAX		88	88	88	86	88	88	89	89	88	85	85	83	78	78	78	81	84	85	87	88	89	89	89	88			
HOURLY AVG		71.6	72.1	71.8	72.2	72.6	72.7	72.8	72.6	70.7	65.7	60.9	57.3	54.5	53.1	52.6	53.6	57.6	62.1	65.3	67.1	68.6	69.5	70.3	71.2			

#### STATUS FLAG CODES

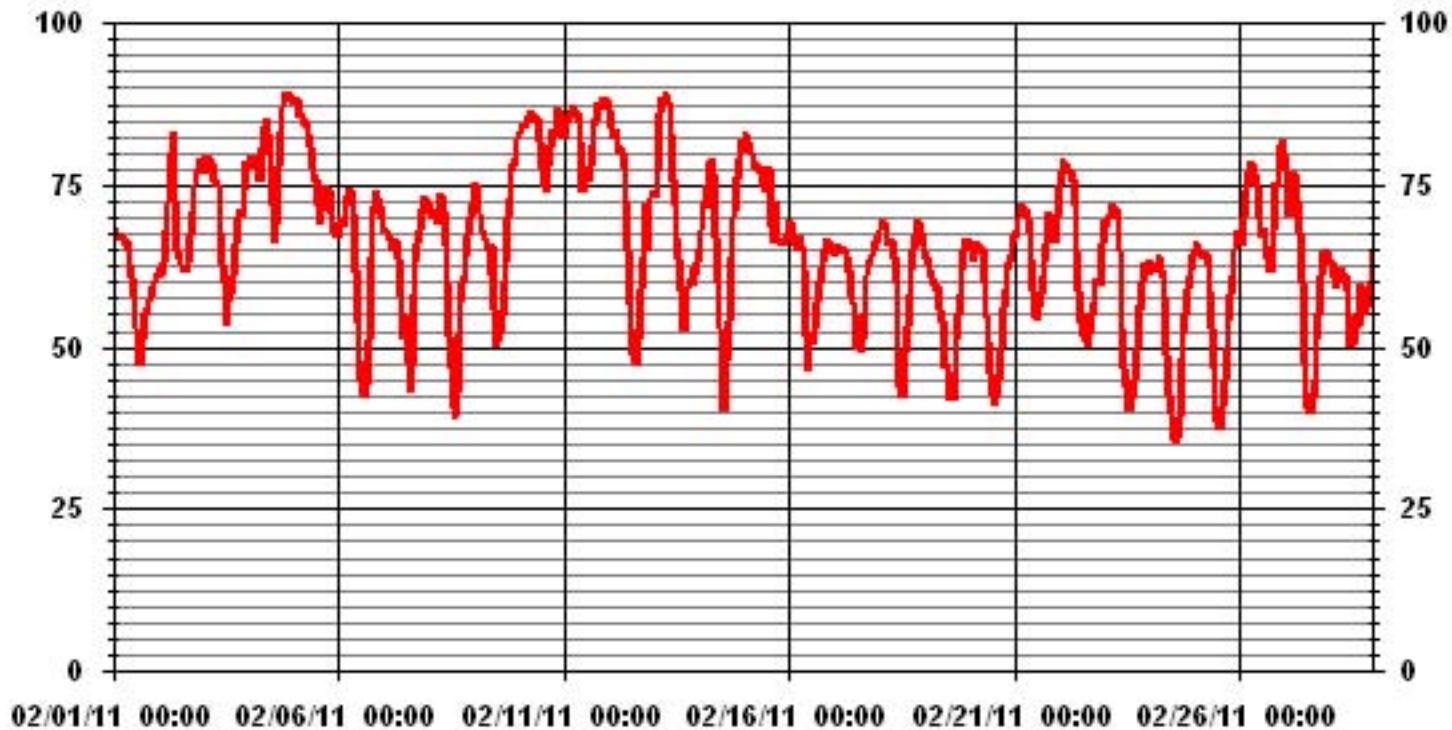
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



#### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	89	%	@ HOUR(S)	VAR	ON DAY(S)	4, 13
MAXIMUM 24-HR AVERAGE:	83.5	%			ON DAY(S)	11
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	672	HRS	
STANDARD DEVIATION:	12.00		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	65.77	%	

### 01 Hour Averages



— LICA30 RH %

# Barometric Pressure



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

FEBRUARY 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		962	962	961	960	959	959	958	957	956	955	954	953	952	951	950	950	949	948	947	946	946	945	944	943	962	952.8	24	
2		942	941	941	940	939	939	939	938	938	939	940	940	940	940	940	940	940	940	940	940	940	940	940	940	941	942	939.9	24
3		941	940	940	939	938	938	937	937	936	937	936	936	935	935	934	935	935	935	935	935	935	935	935	935	941	936.4	24	
4		935	935	935	934	934	933	932	931	930	930	929	928	928	927	927	927	927	928	928	929	929	930	931	933	935	930.4	24	
5		934	935	936	936	938	939	939	940	941	942	943	943	944	945	946	947	948	949	950	952	953	954	955	956	956	944.4	24	
6		957	958	959	959	959	960	960	960	960	961	961	961	960	960	959	959	958	957	956	956	955	955	954	954	961	958.3	24	
7		953	953	953	953	953	953	954	955	955	955	955	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	955.0	24
8		956	956	956	956	956	956	956	956	956	956	956	956	955	955	954	954	954	953	953	952	952	951	950	950	949	957	954.2	24
9		948	947	946	946	945	944	944	943	942	941	940	940	939	938	938	937	936	935	934	933	932	931	931	930	948	939.2	24	
10		930	930	930	930	930	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	929	930	930	931	931	929.5	24	
11		931	932	932	933	933	934	934	934	934	934	934	933	932	931	930	929	928	928	927	926	926	925	925	934	930.8	24		
12		925	925	924	924	924	924	923	923	923	923	923	923	922	922	921	921	919	918	918	916	915	914	913	913	925	920.7	24	
13		913	912	913	913	914	915	917	919	921	922	924	924	926	928	929	930	931	931	931	932	932	932	932	932	932	932	923.8	24
14		932	931	931	930	929	930	929	928	928	927	927	927	927	926	926	925	924	924	923	923	922	922	922	922	922	932	926.5	24
15		922	922	922	922	922	921	921	921	921	920	921	921	922	922	923	924	925	926	927	928	929	929	930	930	930	933	923.8	24
16		931	931	931	931	931	933	933	931	931	932	931	931	931	931	930	930	931	932	932	931	932	932	932	932	932	930	931.3	24
17		933	933	934	934	935	935	936	936	937	937	938	938	939	939	939	940	940	941	942	942	943	944	944	945	945	945	938.5	24
18		946	947	948	948	949	949	949	950	951	951	952	952	952	952	952	952	952	952	953	953	954	954	955	955	955	955	951.2	24
19		955	956	956	956	956	956	956	956	956	956	954	954	953	952	952	951	951	951	951	951	951	951	950	950	956	953.3	24	
20		950	949	948	948	947	947	946	946	945	945	944	944	943	943	942	941	941	940	940	939	939	938	938	937	950	943.3	24	
21		936	935	933	933	932	931	930	930	929	929	928	928	927	927	926	926	926	926	926	926	926	926	926	926	936	928.7	24	
22		927	927	928	928	929	930	931	932	932	933	934	934	935	935	935	936	936	937	938	939	939	940	941	941	941	934.0	24	
23		941	942	943	943	944	945	946	946	947	947	947	948	948	948	949	949	950	951	951	952	953	954	954	955	955	948.0	24	
24		955	955	956	956	956	957	957	957	957	957	957	957	956	955	955	954	953	953	953	953	953	953	951	950	957	954.8	24	
25		949	949	948	947	947	946	945	944	943	942	941	940	939	938	937	935	934	934	933	931	929	927	925	924	949	938.6	24	
26		921	919	918	916	914	913	912	912	912	912	913	913	914	915	916	916	917	918	919	919	920	921	921	922	922	916.4	24	
27		923	924	925	926	926	927	928	929	929	930	931	932	932	932	932	933	933	934	935	936	936	936	937	938	938	930.8	24	
28		938	938	939	940	940	940	941	941	941	941	941	941	941	941	941	942	942	943	944	945	946	947	948	950	950	942.1	24	
HOURLY MAX		962	962	961	960	959	960	960	960	960	961	961	961	960	960	959	959	958	957	956	956	956	956	956	956				
HOURLY AVG		939	939	939	939	939	939	939	939	939	939	939	939	939	938	938	938	938	938	938	938	938	938	938	938				

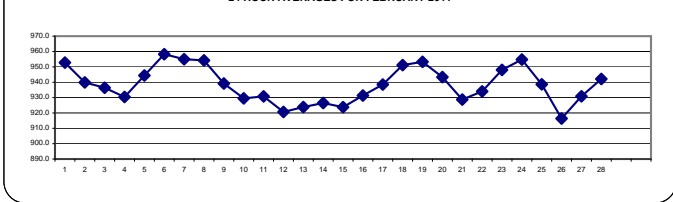
### STATUS FLAG CODES

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

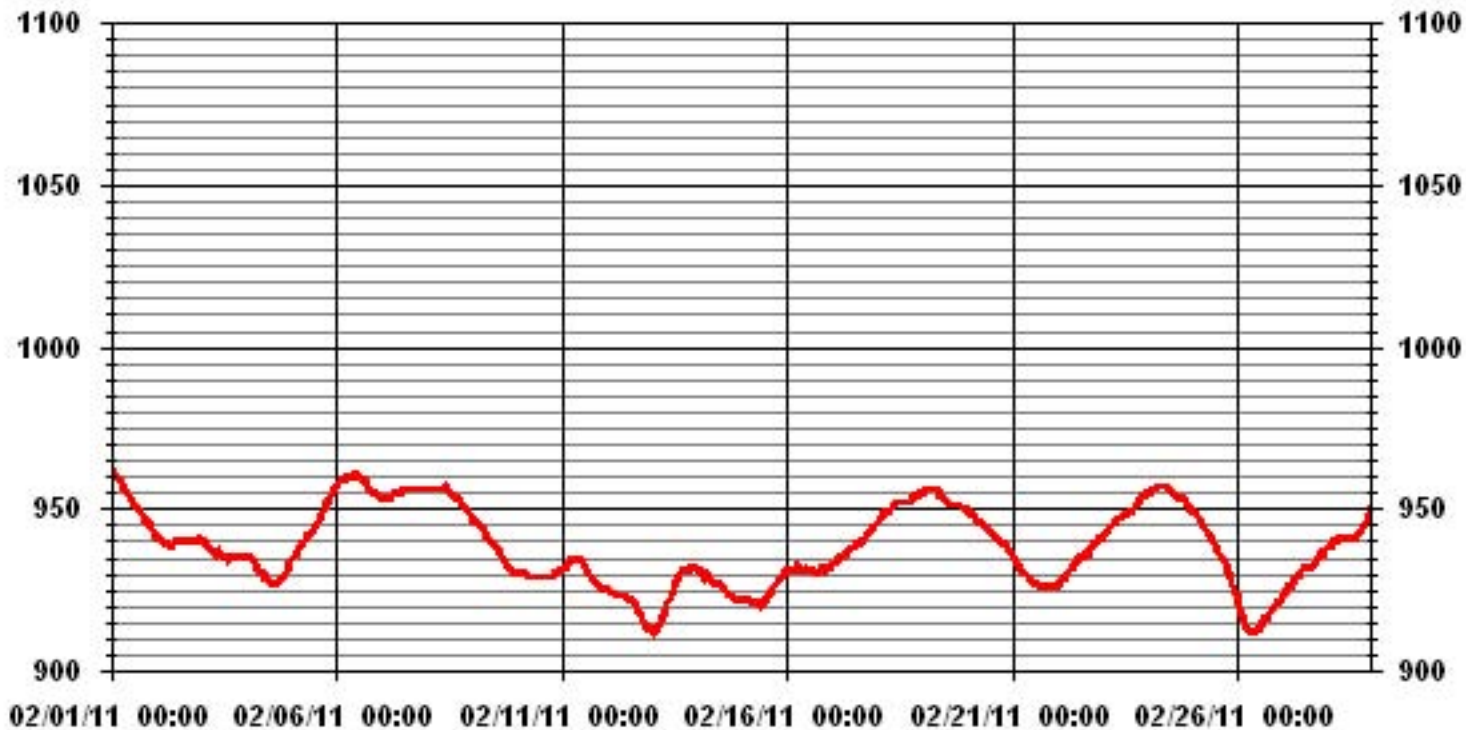
### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	962	MB	@ HOUR(S)	0, 1	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	958.3	MB			ON DAY(S)	6
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	672	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	12.18		MONTHLY AVERAGE:	938	MB	

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



# Vector Wind Speed

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

FEBRUARY 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	6.2	4.8	6.8	6.9	8.1	7.7	7.7	6.8	5.1	5.7	8	8.6	8.5	9.6	9.2	8.4	8	5.5	5.1	5.4	5.7	5.1	6.1	5.1	9.6	6.8	24
2	4.4	4.1	4.6	5.7	6.6	10	9.6	6.6	6.8	8	8.2	10.8	8.9	9.1	7.4	6.6	6.8	5.5	5.7	4.8	4.8	4	4.6	6.1	10.8	6	24
3	5.3	4.7	5.6	7.5	6.9	6.2	5.9	6	6.6	6.2	6.5	7.6	11	11.4	11.6	11.4	10.1	7.1	6.1	7.8	9.6	9.9	6	4.2	11.6	6.8	24
4	3.4	5.2	5.2	6.7	4.2	5.4	2.6	2	1	1.5	3.7	5.4	5.3	3.7	7.6	3.7	4.7	3.6	3.4	3.2	6.1	7.7	8.4	6.6	8.4	0.6	24
5	6.3	5.7	4.7	5.8	5.7	6.7	5.6	4.8	4.4	6.4	6.5	8.1	8.1	11.1	13.5	11.7	10	10.2	13	12.4	11.7	12.1	9.8	11.9	13.5	8.5	24
6	8.8	7.6	4	5.8	3.1	3.1	4.5	4.2	3.3	3.5	3.9	5.7	5.8	5.8	4.9	4.3	2.7	1.1	2.2	4	1.6	0.8	0.8	0.8	8.8	2.8	24
7	1.5	2.4	0.7	1.4	0.8	0.4	1.2	0.4	0.4	0.6	1	3.4	5.6	5.8	4.7	6.6	6.2	5.3	6.6	5.6	4.4	5.5	4.6	5.8	6.6	3	24
8	5.6	5.7	6.2	5.7	2.9	1.6	2.9	3.5	3.8	6.1	7.1	6	4.9	6.1	7.3	8.1	6.1	5.9	3.7	3.1	3.3	4.4	4.1	4.9	8.1	4.2	24
9	3.5	4	3.7	0.5	0.3	0.2	1.1	0.2	2.6	0.7	3	2.4	1.3	6.4	8.5	6.5	6	6.1	6.2	5.2	5.4	4.5	4.1	5.4	8.5	3.2	24
10	7.9	7.1	5	4.4	3.6	3.2	4	4.7	3.7	4.9	4.6	4.1	7.3	6.8	8.2	8.6	7.2	7	5.1	4.6	6.3	7	7.5	7.2	8.6	5.4	24
11	6.6	5.9	4.5	4.8	5.7	4	3.8	1.3	0.4	1.3	0.4	5.1	6.9	4.6	4	4.7	4.4	4.7	3.9	2.1	0.3	0.4	1.2	3.4	6.9	1.8	24
12	2.3	4.7	4.5	7.8	6.5	7	6.6	8	8.1	7.7	7.7	7.4	6	6.6	6.5	6.2	4.8	7.2	5.1	3.5	6.7	2.6	1	1.3	8.1	5.4	24
13	3.8	3.9	1.8	1.8	1.7	1.9	5	6.5	4.2	9.3	13.8	14.5	13.7	13.2	12.4	13.1	11.3	6.6	4.5	4.5	6.7	5.7	9.7	7.4	14.5	5.8	24
14	4.4	2.3	2.1	0.9	1.9	0	2.1	1.1	1.9	0.7	6.2	5.6	2.5	2.8	1.6	4.8	1.7	2.8	2.3	3.3	2.5	2.8	2.8	3.6	6.2	1.1	24
15	5.9	7.7	8.3	12.4	13.2	11.8	13.3	10.4	11.9	9.1	11.7	9.8	5.5	6.6	8.9	8.1	7.4	9.4	9.1	8.4	9.4	8.1	7.3	5.9	13.3	6.4	24
16	5.1	7	5.4	4	3.6	5	3.3	3.5	4.5	4.2	3.2	2.9	4.8	5.1	4.6	5.7	6.7	6.1	6.3	6.5	7.4	7.6	9.1	10	10	4.1	24
17	10.2	9	8.4	6.2	5.7	5.5	4.9	5.7	7.2	7.4	9.5	9.9	4.6	5.3	6.3	6.8	6.9	5.2	5.1	5.2	5.1	6.4	3.6	4.2	10.2	6.3	24
18	1.9	0.5	0.8	0.9	2.9	1.4	1.9	1.3	1	1.7	2.5	3.7	3.4	5.9	6.5	5.7	5.9	6.8	5.2	3.9	3.2	2.2	1.3	2.1	6.8	1.9	24
19	0.6	0.3	0.8	0.9	0.1	0.6	0.2	0.7	0.3	2.3	5.5	7.2	9.3	8.3	7.6	9.3	7.9	6.1	6.2	6.2	6.2	5	4.9	4.8	9.3	4	24
20	6.6	6.1	4.9	4.3	6.4	5.9	6.7	7	6.7	8.3	9.1	7.9	8.1	10.4	11.8	12.7	9.6	5.8	4.7	6.4	5.3	4.6	4.3	4.9	12.7	6.9	24
21	5.6	5.3	5.6	3.4	4.9	4.1	3.4	7.3	8	6.5	6.8	8	7.1	6.3	8	7.7	4.7	3	2.5	3.1	4.1	4	3.6	0.9	8	4.7	24
22	1.6	1.7	1.4	2.5	3.3	5.6	3.8	5.1	8.5	10.3	10.6	8	8.8	7.1	9.2	8.8	9	7.8	6.9	6.2	5.5	5.6	6.3	6.2	10.6	6	24
23	6.7	5.6	7.5	7.5	7.5	5.8	1.3	3.9	6.2	9.5	9.2	10.1	9.7	9.7	9.4	9.8	10.4	7.1	6	4.7	3.9	4.5	5.1	5.8	10.4	6.6	24
24	6.8	7.4	5.9	5.4	5.6	4.6	4.7	4.4	5.6	6.5	5.7	6.7	2	5.8	5.2	5.6	5.3	4	3.7	3.5	3.4	4.1	4.9	4.9	7.4	3.9	24
25	5.4	5.5	7	6.6	5.6	6.1	6.4	7	6.2	6.7	6.4	8.4	11.5	8.5	9.8	9.9	10.8	9.8	7.9	8.5	9.1	7.4	9.5	9.8	11.5	7.8	24
26	12.4	10.7	9.7	9.9	9.8	8.8	6.2	4.3	3.9	4.8	8	9.5	10.3	9.3	8.1	5.5	7.1	7	8.1	4.8	5.1	3.3	1.2	0.9	12.4	2.5	24
27	2.2	7.2	7.3	4.9	5.1	3.3	2.8	4.3	4.1	12.1	10.1	10.4	8.9	8.6	7.2	8.1	9.4	8	7.7	8.6	10.4	12.9	12.2	12.6	12.9	7.7	24
28	12.5	10.5	12	11.5	9.2	9.6	9.3	8.5	8.1	8.2	8.6	10.2	8.5	7.9	7.3	6	5	6.6	5.5	3.9	3.9	4.3	0.7	0.9	12.5	6.7	24
HOURLY MAX	12.5	10.7	12.0	12.4	13.2	11.8	13.3	10.4	11.9	12.1	13.8	14.5	13.7	13.2	13.5	13.1	11.3	10.2	13.0	12.4	11.7	12.9	12.2	12.6			
HOURLY AVG	5.5	5.5	5.2	5.2	5.0	4.8	4.7	4.6	4.8	5.7	6.7	7.4	7.1	7.4	7.8	7.7	7.0	6.1	5.6	5.3	5.6	5.4	5.2	5.3			

STATUS FLAG CODES

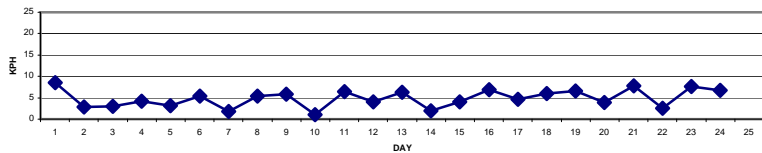
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: February 4, 2009

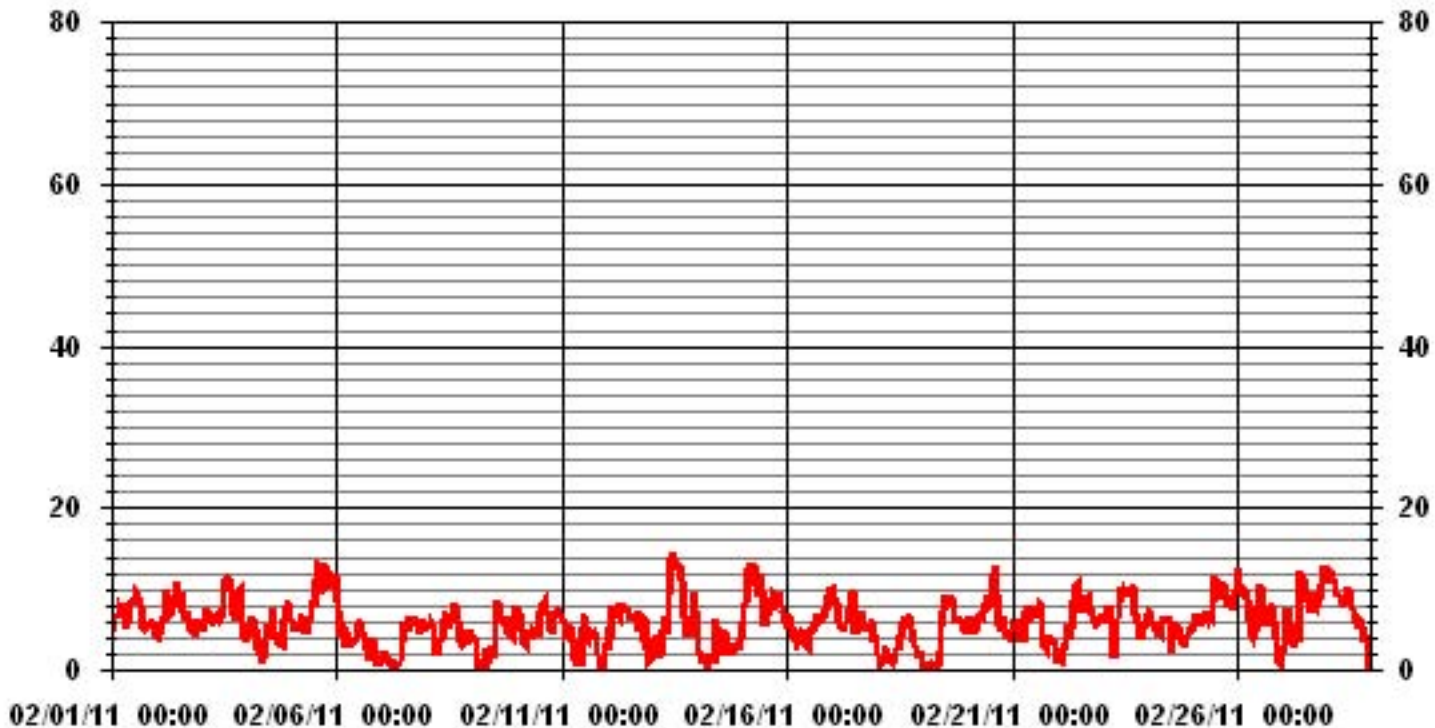
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	14.5	KPH	@ HOUR(S)	11	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	8.5	KPH			ON DAY(S)	5
CALMS (≤ 1 KPH)	4.45	%	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	2.92		MONTHLY AVERAGE	5.86	KPH	

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA30 WSP KPH

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

FEBRUARY 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		17.8	16.5	24.4	16.9	20.6	20.7	21	20.8	19.2	18	24.2	18.4	21	27	21.4	21.8	20.3	17.1	16.9	17.5	18.2	43.4	21.2	28.5	43.4	
2		56.3	69.5	28.1	14.3	18.8	21.1	22	16	29.4	28.5	41.8	32.4	31.9	34.9	26	24.5	25.2	24.4	25	25.2	20.1	17.7	19.7	27	69.5	
3		25.2	24.4	14.6	18.6	15.6	19.9	21.6	24.2	21.6	16.4	26.3	33.2	50.8	59	44.3	37	32.5	22	22.2	27.2	35.6	30.8	23.1	19	59	
4		16	11.3	12.1	13.6	13.8	10.8	12.3	10.2	11.7	10.4	14.3	13.4	16.4	22.9	31	15.3	16	13.6	14.3	17.3	15.4	20.5	23.5	16.9	31	
5		16.9	14.1	12.1	19.7	18.2	24.8	18.6	18.8	16	22.2	20.1	21.6	24.5	30.2	31.7	30.9	28.5	33.5	47.5	38	35.2	38.8	34.5	44.7	47.5	
6		33.7	23.6	60.2	28.3	45.5	32.3	29.6	41.9	75.1	69	68.9	20.1	21.4	21	24.4	17.9	33.7	41.2	19.7	11.7	23.6	N	67.6	N	75.1	
7		53.3	58.3	41	41.7	52.9	63	95.2	<b>125.8</b>	103.2	30.9	92.7	16.7	18.8	20.7	21	19.5	21.4	17.7	16.7	44.5	38	19.3	80.5	13.4	<b>125.8</b>	
8		15.2	27.2	13.4	11.9	27	31.5	28.3	90.5	62.6	27.2	24	24.2	21.6	23.3	28.5	26.1	24.2	19.5	57.4	42.7	79.4	10.6	16.4	14.1	90.5	
9		14.9	14.3	22.3	37.8	52.5	39.3	42.9	N	N	60.9	34.8	34.8	26.8	25.5	18.2	14.1	18.6	16.2	14.7	13.3	15.6	15.1	30.9	22.3	60.9	
10		25.3	27.6	21.4	20.3	19	16	13	14.3	14.7	13.6	13.4	22.9	28.3	31.5	32.4	M	24.6	22.7	21.3	20.9	27.2	24.2	31.5	27.4	32.4	
11		25	25	19.4	17.3	15.6	17.7	22.2	19.9	10.4	13.4	11.3	12.1	13.6	12.2	11.3	17.1	18.2	18.4	17.9	14.9	22.4	12.1	11	12.5	25	
12		13.4	17.5	23.9	18.2	19	18.4	16	19.9	21.1	18.2	19.9	17.3	20.9	18.8	16.6	14.9	10.2	11.7	12.6	8.9	13.8	9.9	12.1	20.3	23.9	
13		14.7	12.3	10.6	13.4	13	12.6	21.6	23	19.7	35.6	43.1	54.5	47	43.3	39.9	47.2	41.8	32.1	23.5	18.8	16.2	13.8	18.6	17.9	54.5	
14		11.5	10.8	11.5	11.3	10.6	10.4	11.3	9.8	16.7	10	13.2	13.4	10.6	11.4	12.9	12.3	13.6	16.9	18.6	34.9	28.7	30.9	11.7	16.8	34.9	
15		17.1	21	26.5	37.7	41.2	44.9	30.6	27.6	34.8	29.6	25.9	25.3	16.6	27.9	30.9	24.8	26.5	29.6	34.7	34.3	29.8	38.2	27.4	23.6	44.9	
16		44.1	29.8	28.1	40.2	26.4	51.9	31.3	55	23.4	18.8	73.8	71.2	67.3	18	21.6	18.6	27.6	83.7	83.3	49	21.4	22.3	23.6	24	83.7	
17		26.2	26.4	24.2	20.4	31.3	40	20.8	29.6	21.9	22.7	29	22.1	18.4	19.3	86.1	18.8	53.7	21.1	80.7	27	20.8	19.3	104.2	79.8	104.2	
18		102.7	63.9	34.4	54	26	36.5	36.1	84	35.2	69.9	66.9	40.2	20.1	16.9	15.4	17.5	15.5	15.8	19.5	13.2	12.2	16.5	46	18.2	102.7	
19		100.2	113.6	N	N	90.7	N	111.8	115.5	102.4	74.5	16.5	25.3	27	25.3	21.4	23.6	18.4	13.9	18.2	18.8	17.5	32.2	23.6	14.5	115.5	
20		21	18.9	18	16.3	18.8	19.5	21.2	25.7	21.8	24.6	22.5	25.1	23.3	30.6	34.8	31.5	27.2	17.1	15.8	16.7	14.1	27.6	78.9	26.8	78.9	
21		39.7	16	16.7	19.3	42.8	19.6	24	24.9	21.9	17.3	18.8	18.6	16	14.9	15.8	14.9	19	12.6	12.3	12.7	21.6	47	14.1	85.8	85.8	
22		56.3	66.9	58.7	54.1	19.3	19.5	43.4	17.5	42.3	35.4	30.9	25.7	29.6	27.6	31.5	32.8	43.2	28.3	29.6	28.3	24.4	23.1	25.1	27.2	66.9	
23		66.2	21.4	25.1	26.8	28.5	28.1	52.2	34.6	36.8	37.4	31.8	34.1	38.4	32.6	39.7	37.4	37.1	34.1	25.3	31.1	18.8	46	21.9	28.8	66.2	
24		25.3	39.1	22.1	24	20.1	33.7	20.1	22.1	49.5	25.7	22.9	27.2	52.9	56.9	20.5	28.3	31.3	80.5	80.2	28.8	33.3	11.9	13	12.8	80.5	
25		15.2	13	18.4	15.6	14.7	22.3	17.1	18	17.9	19.2	20.3	21.8	25.9	23.3	25.7	22.7	24	22.2	19.9	22.5	21.6	18	22.1	26.8	26.8	
26		32.8	26.1	26.1	24.4	21.4	20.5	17.5	18.8	11.9	19.9	28.7	34.5	34.5	35.1	32	23.1	23.7	27.6	31.1	20.5	18.6	14.2	12.4	72.4	72.4	
27		43.2	21.6	20.3	28.1	17.5	33.9	18.4	32.6	17.7	28.5	27.4	29.6	26.1	22.3	18.6	23.5	26.8	25.6	22.9	21.6	26.8	28.1	25.5	32.6	43.2	
28		30.7	34.6	31.3	25.1	22.7	22.5	18.2	19.4	18.9	24	21.4	23.8	22.1	23.8	22.9	21.6	25.3	24	21.6	18.2	16.5	33.9	52	52.3	52.3	
PEAK		102.7	113.6	60.2	54.1	90.7	63.0	111.8	125.8	103.2	74.5	92.7	71.2	67.3	59.0	86.1	47.2	53.7	83.7	83.3	49.0	79.4	47.0	104.2	85.8		

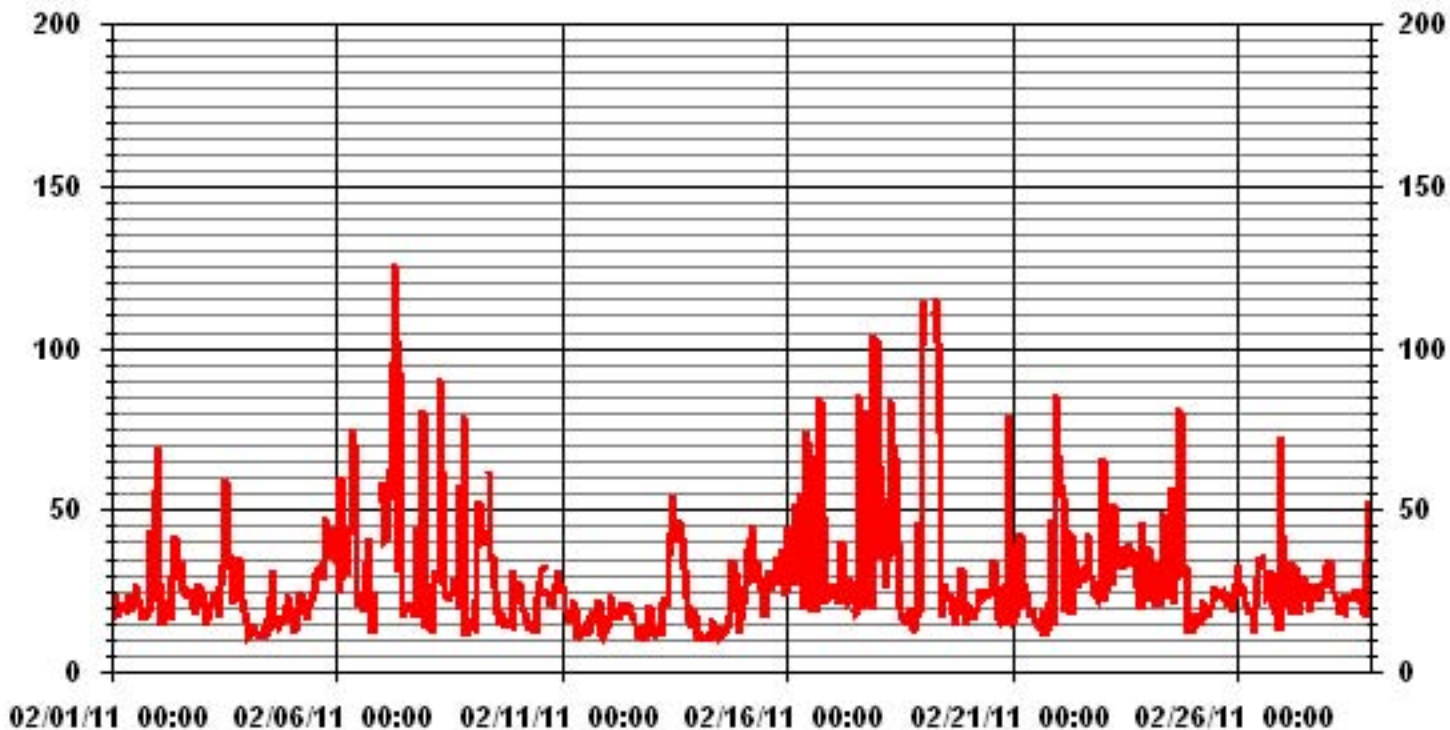
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

MAXIMUM INSTANTANEOUS READING	125.8	KPH	@ HOUR(S)	7
			ON DAY(S)	7

### 01 Hour Averages



— LICA30 WSMAX KPH

LICA30  
WSP / WDR Joint Frequency Distribution (Percent)

February 2011

Distribution By % Of Samples

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

Wind Parameter : WDR  
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	4.46	2.52	.89	.74	1.48	1.33	1.93	1.78	2.67	6.84	9.97	2.67	3.57	2.82	5.05	4.31	53.12
< 12.0	3.72	5.80	1.93	.00	.00	.00	.00	1.19	2.08	11.16	3.27	.14	5.20	3.57	3.57	1.93	43.60
< 20.0	.29	.89	.74	.00	.00	.00	.00	.00	.14	.14	.00	.00	.14	.74	.00	.00	3.12
< 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	8.48	9.22	3.57	.74	1.48	1.33	1.93	2.97	4.91	18.15	13.24	2.82	8.92	7.14	8.63	6.25	

Calm : .14 %

Total # Operational Hours : 672

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	30	17	6	5	10	9	13	12	18	46	67	18	24	19	34	29	357
< 12.0	25	39	13					8	14	75	22	1	35	24	24	13	293
< 20.0	2	6	5						1	1			1	5			21
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	57	62	24	5	10	9	13	20	33	122	89	19	60	48	58	42	

Calm : .14 %

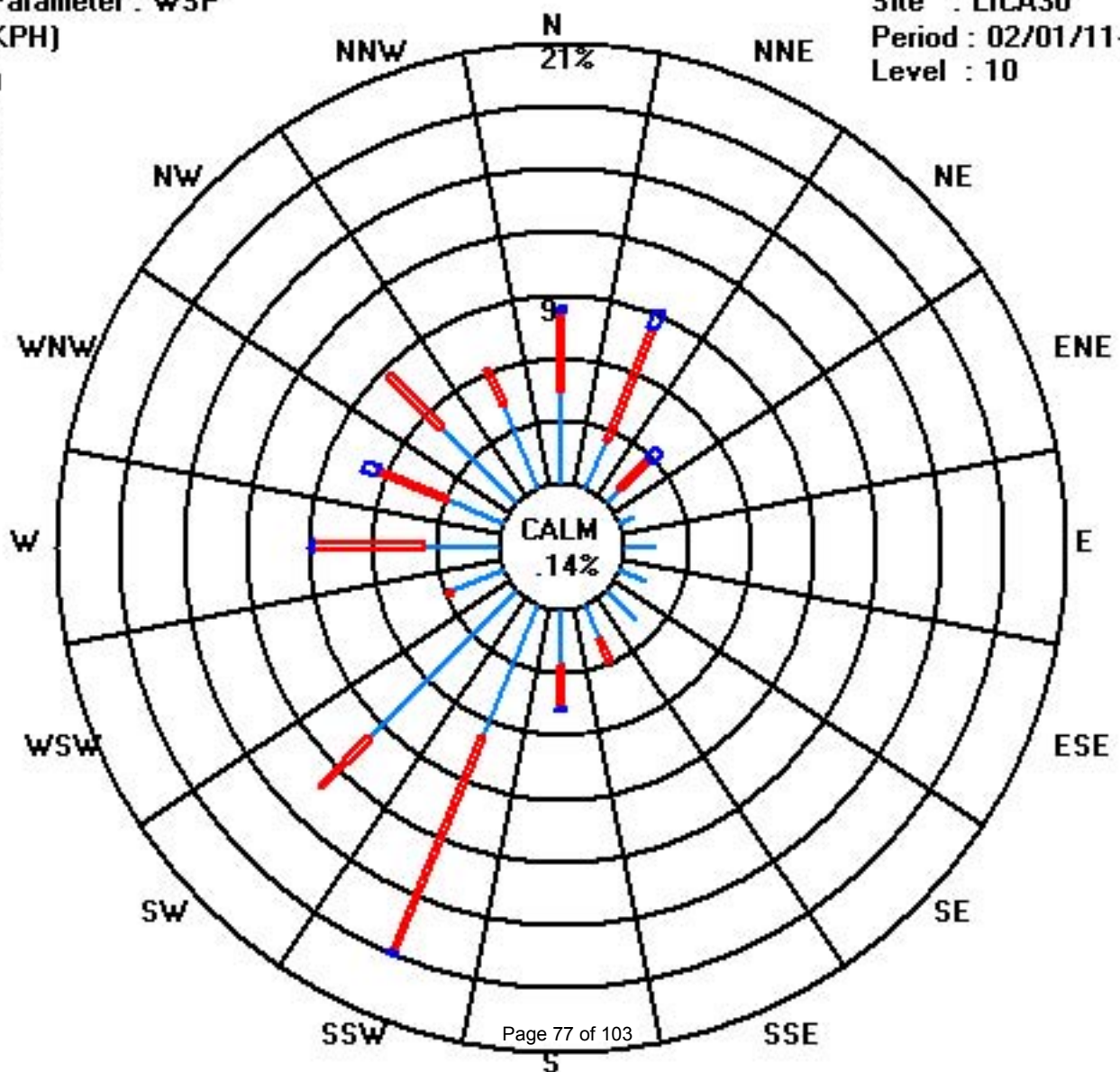
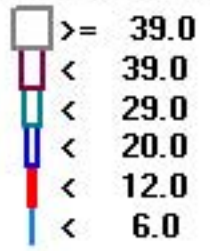
Total # Operational Hours : 672



Class Limits (KPH)

Period : 02/01/11-02/28/11

Level : 10



# Vector Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -COLD LAKE- MASKWA

FEBRUARY 2011

WIND DIRECTION hourly averages in degrees

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG		
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.	
DAY																													
1		209	214	205	206	201	206	208	203	214	<b>207</b>	202	201	204	201	201	197	208	217	219	221	228	225	223	223	209	SSW	24	
2		224	231	230	213	218	208	213	224	267	273	274	278	281	279	277	272	275	269	262	254	257	245	250	266	253	WSW	24	
3		272	234	226	207	210	225	230	229	225	221	233	243	274	275	277	283	281	278	267	278	281	281	270	262	257	WSW	24	
4		244	214	206	205	211	197	164	171	151	172	197	204	220	231	286	343	1	349	338	11	35	41	40	39	255	WSW	24	
5		35	22	14	6	5	358	6	352	1	1	359	8	4	11	17	15	13	360	11	5	5	13	6	8	9	N	24	
6		4	5	1	353	332	339	309	331	333	312	304	307	312	315	310	317	338	170	193	205	191	87	196	124	327	NW	24	
7		273	223	110	113	338	168	160	231	192	15	302	225	227	232	260	220	219	224	225	226	233	225	219	216	227	SW	24	
8		225	232	219	213	208	240	290	273	265	290	292	302	299	292	284	281	277	276	263	256	230	209	212	211	260	WSW	24	
9		216	209	204	133	91	195	164	84	163	324	213	323	283	209	201	208	214	210	207	211	212	226	226	270	214	SSW	24	
10		281	280	275	265	263	247	229	226	227	220	224	242	275	273	276	277	274	275	272	258	273	291	292	300	268	W	24	
11		293	265	252	233	228	247	258	74	97	298	29	200	192	178	143	131	116	105	110	121	141	323	223	217	204	SSW	24	
12		215	229	236	206	218	222	213	211	212	209	216	208	221	221	213	210	204	197	205	194	189	191	60	50	211	SSW	24	
13		34	16	210	86	356	282	303	285	251	275	281	284	284	284	283	282	280	272	254	235	221	209	198	207	271	W	24	
14		194	189	17	111	26	58	180	67	38	114	185	198	195	170	168	37	89	89	87	85	73	84	41	57	115	ESE	24	
15		44	47	49	46	52	56	39	44	42	34	29	27	4	341	303	317	319	303	310	315	307	285	303	305	7	N	24	
16		271	276	300	318	319	224	253	349	332	321	317	314	311	343	353	21	15	12	19	10	15	14	18	23	346	NNW	24	
17		19	15	14	13	3	356	360	359	6	9	13	19	331	351	355	8	12	358	0	1	360	21	357	358	6	N	24	
18		347	290	296	26	3	342	19	15	359	132	231	279	237	207	199	202	198	194	191	210	219	216	202	198	215	SSW	24	
19		266	225	172	228	226	246	126	287	118	201	198	201	211	207	210	201	199	200	181	182	182	173	165	171	196	SSW	24	
20		174	179	171	156	157	174	163	160	158	180	183	168	167	166	177	180	181	173	160	151	148	146	140	134	167	SSE	24	
21		137	139	140	157	169	189	196	190	196	203	197	192	189	203	193	198	204	200	215	221	216	215	219	270	190	S	24	
22		347	289	278	303	336	358	343	315	314	311	310	321	310	312	301	303	307	322	325	331	328	310	312	291	315	NW	24	
23		297	310	293	294	297	289	285	273	298	327	338	341	326	333	324	338	322	329	336	332	330	327	334	321	320	NW	24	
24		316	313	318	320	320	323	328	318	328	344	331	305	31	316	310	295	280	268	233	227	224	214	214	215	301	WNW	24	
25		213	206	206	208	209	206	206	208	218	220	219	198	193	201	197	193	194	201	204	205	200	198	197	196	203	SSW	24	
26		194	198	197	187	198	201	210	214	223	292	329	350	355	355	353	347	321	316	318	323	346	336	355	301	278	W	24	
27		300	20	20	16	19	17	27	19	10	20	12	16	21	19	12	5	13	10	12	14	25	27	30	31	18	NNE	24	
28		34	47	36	35	32	31	32	30	31	30	29	30	15	11	9	344	326	336	342	337	319	304	322	203	19	NNE	24	
HOURLY AVG		347	313	318	353	356	358	360	359	359	344	359	350	355	355	355	347	338	360	342	337	360	336	357	358				

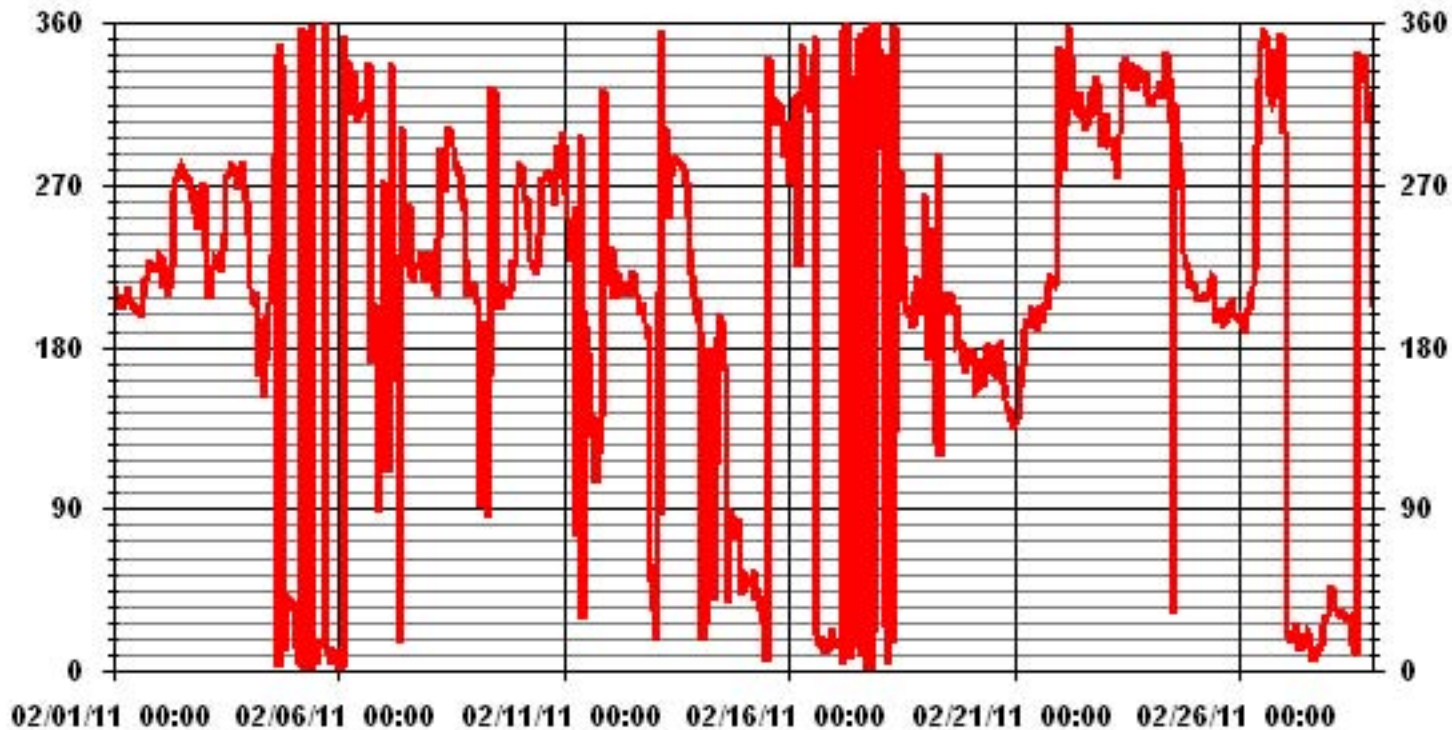
**STATUS FLAG CODES**

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:	February 4, 2009
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	672 HRS
STANDARD DEVIATION	103.67	AMD OPERATION UPTIME	100.0 %
		MONTHLY AVERAGE	277 DEG

### 01 Hour Averages



— LICA30 WDR DEG

# Standard Deviation Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

FEBRUARY 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	18	23	17	15	14	17	19	20	24	21	18	18	21	18	18	16	17	20	22	20	24	23	24	25	
2	28	27	26	15	16	12	15	14	25	26	28	25	27	26	24	27	25	26	26	26	29	27	24	25	
3	24	21	17	15	16	24	24	20	19	18	27	29	29	29	27	26	21	22	24	22	24	22	26	27	
4	26	14	12	13	15	13	30	38	66	55	25	23	20	24	25	35	27	31	30	29	12	19	18	17	
5	15	14	18	27	22	25	22	28	25	26	26	22	30	22	19	20	22	25	22	23	27	22	23	22	
6	24	24	42	27	39	38	36	34	40	38	37	28	32	34	37	32	35	33	33	10	40	43	45	57	
7	66	55	43	34	46	52	43	43	37	45	34	30	28	31	35	24	19	16	16	19	23	15	16	11	
8	13	14	13	10	16	47	31	32	31	26	26	31	38	30	33	24	23	22	27	28	25	12	15	18	
9	21	18	18	59	45	71	60	60	72	67	36	55	60	27	16	16	15	14	16	17	18	20	16	26	
10	22	24	28	27	30	26	18	18	22	17	20	26	26	28	27	28	28	25	30	28	26	23	31	25	
11	24	23	25	21	16	24	27	43	71	31	35	17	16	26	25	24	22	25	27	54	80	59	63	27	
12	41	23	21	15	18	19	15	17	16	17	17	17	22	22	18	15	11	8	13	14	12	40	52	40	
13	28	24	24	22	37	33	32	26	32	31	24	24	24	24	25	25	25	24	26	21	15	13	11	14	
14	14	49	30	49	35	58	51	29	37	62	19	20	49	37	41	19	32	18	32	22	21	23	20	18	
15	16	20	19	19	21	22	17	18	18	28	16	15	27	29	30	32	33	26	34	33	29	26	30	31	
16	32	27	34	36	38	35	31	52	38	38	45	43	33	31	33	24	21	24	21	21	17	18	19	18	
17	17	20	20	22	25	26	28	26	24	25	22	19	36	33	31	26	21	25	23	25	24	19	27	28	
18	30	40	50	47	31	43	40	42	49	46	51	53	50	27	24	24	16	12	11	19	15	14	41	14	
19	52	58	45	34	70	50	60	55	68	31	18	22	21	23	23	19	17	14	17	19	19	21	25	24	
20	20	20	24	19	18	24	22	21	22	22	22	22	26	26	20	22	21	20	21	15	17	18	26	32	28
21	20	20	19	29	20	22	34	16	17	19	20	16	19	22	15	14	21	18	30	32	19	20	22	37	
22	38	39	34	26	26	27	29	31	29	31	29	35	31	33	32	35	32	33	33	35	37	33	31	26	
23	24	34	24	22	25	27	57	37	26	33	35	32	35	34	34	34	32	37	35	36	40	36	36	31	
24	31	29	33	34	33	38	37	34	37	35	39	32	62	37	42	32	30	30	25	20	18	14	15	13	
25	12	10	12	15	15	15	15	16	21	19	22	18	15	21	18	15	15	14	15	15	15	17	16	16	
26	14	14	14	16	15	15	20	21	18	27	34	31	28	32	29	38	35	32	31	34	30	36	50	42	
27	29	17	12	15	9	27	24	19	22	18	25	22	27	25	26	27	22	24	22	20	16	15	14	15	
28	15	20	17	15	13	11	13	14	16	17	23	21	23	26	27	32	34	33	32	33	33	31	47	57	

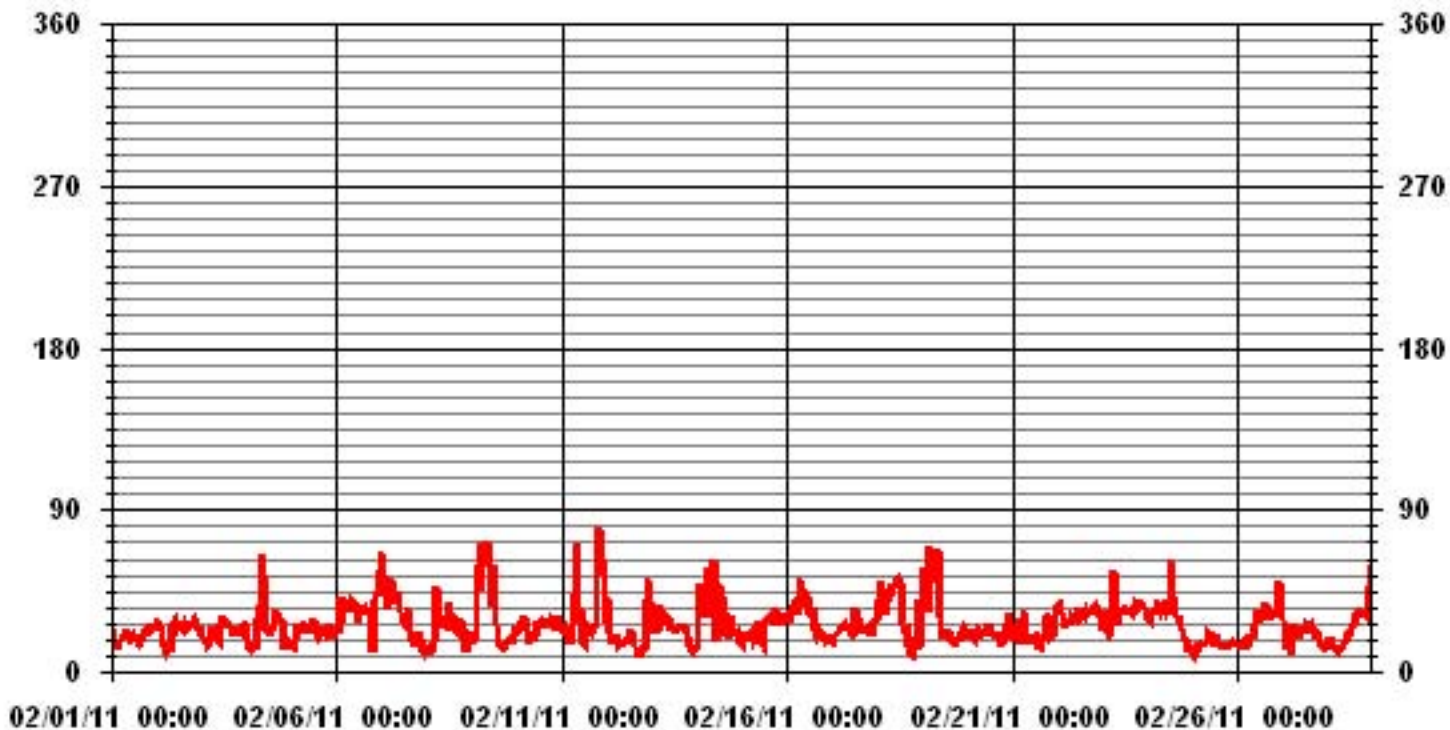
### STATUS FLAG CODES

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: February 4, 2009

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 672 HRS

### 01 Hour Averages



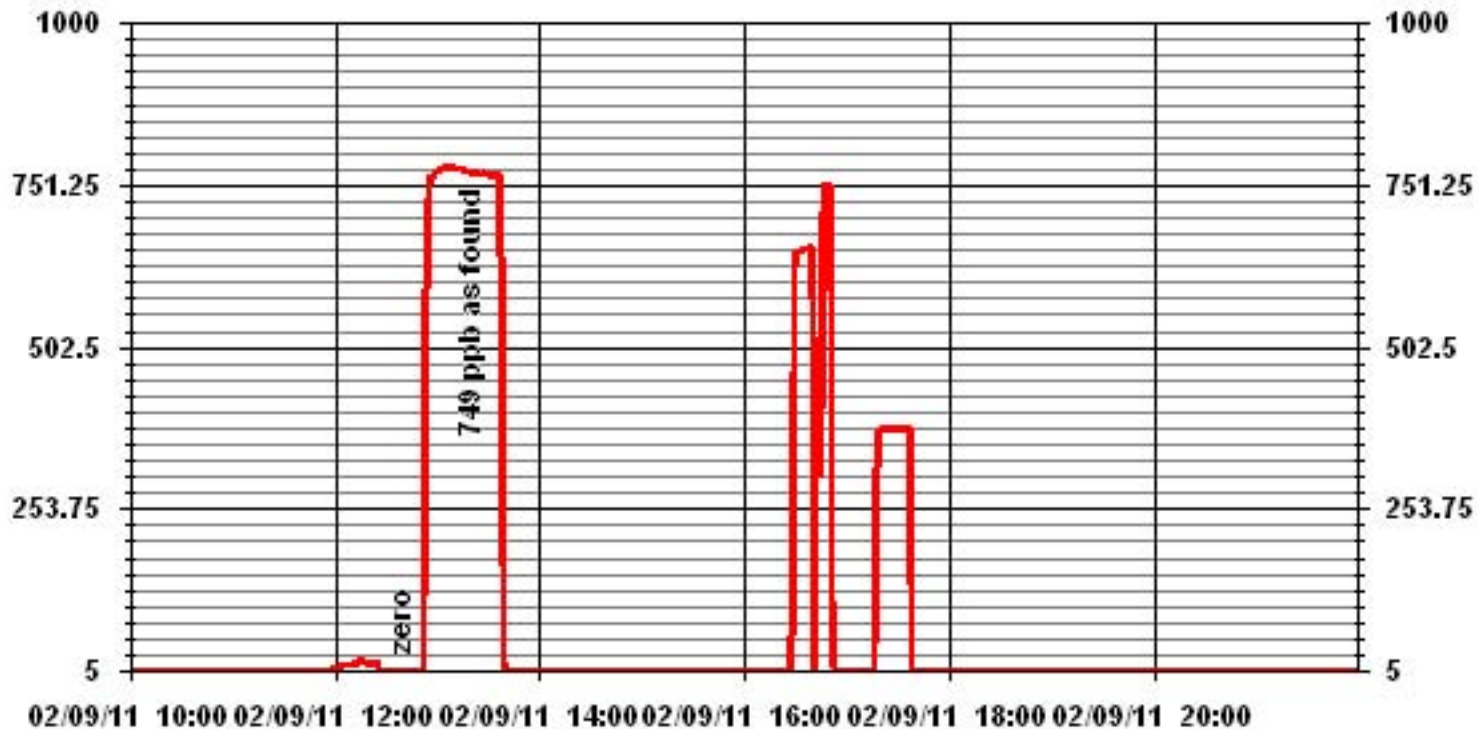
# Calibration Reports



# Sulphur Dioxide



### 01 Minute Averages



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

#### Station Information

Calibration Date	February 10, 2011	Previous Calibration	January 11, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	8:59	End Time (MST)	12:37
Reason:	Monthly Calibration		
Barometric Pressure	929 mBar	Station Temperature	21 Deg C
Cal Gas	51.4 ppm	Cal Gas Expiry date	August 5, 2012
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:	EnviroNics 6000		4760	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Flow Meter:	EnviroNics 6000	S/N :	4760		

#### Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 1000	ppb	
Sample Flow / Box Temp	590 ccm 31.4 Deg C	590 ccm 31.5 Deg C	
HVPS / Lamp Setting	494 3058	494 3059	
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 1.117	34.1 1.11	

#### Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	N/A
4921	74.2	764	767	0.9954
4921	74.2	764	764	0.9994
4960	34.6	356	355	1.0030
4973	19.8	204	203	1.0041
4995	0	0	0	N/A
Sum of Least Squares				1.0002
New Correction Factor				0.9994

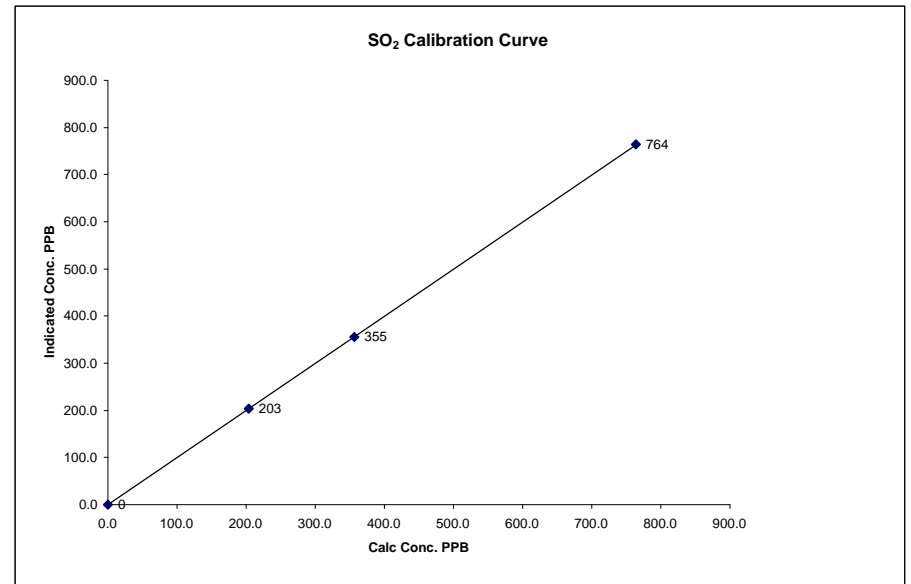
	Before Calibration	After Calibration
Auto Zero	0.6	0.8
Auto Span	367	379
Sample Lines Connected		YES
Percent Change from Previous Calibration		-

Calibration Performed by: Ting Xu / Shea Beaton

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

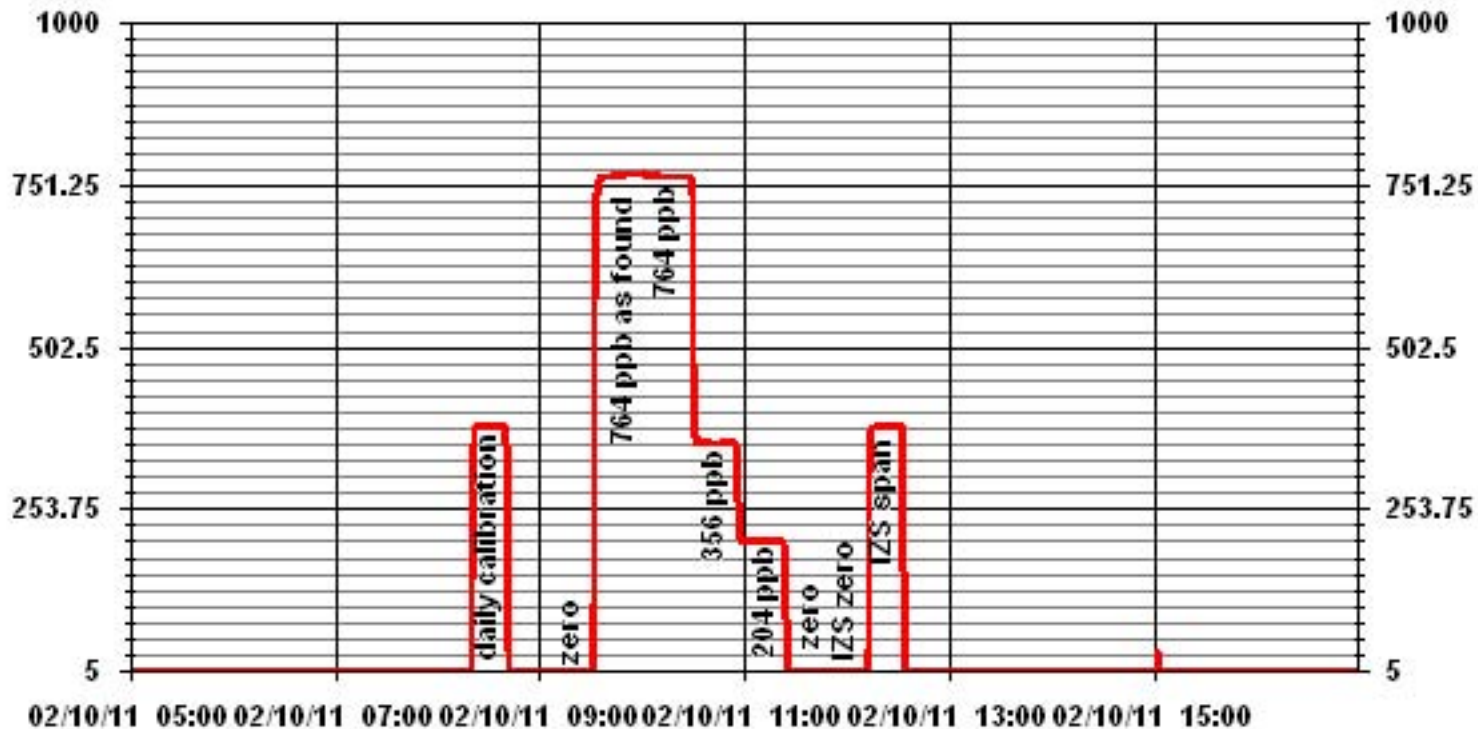
Calibration Date	February 10, 2011
Company	Lakeland Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	8:59
End Time (MST)	12:37

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.)	-0.662770
204	203	1.0041			
356	355	1.0030			
764	764	0.9994			



Notes:

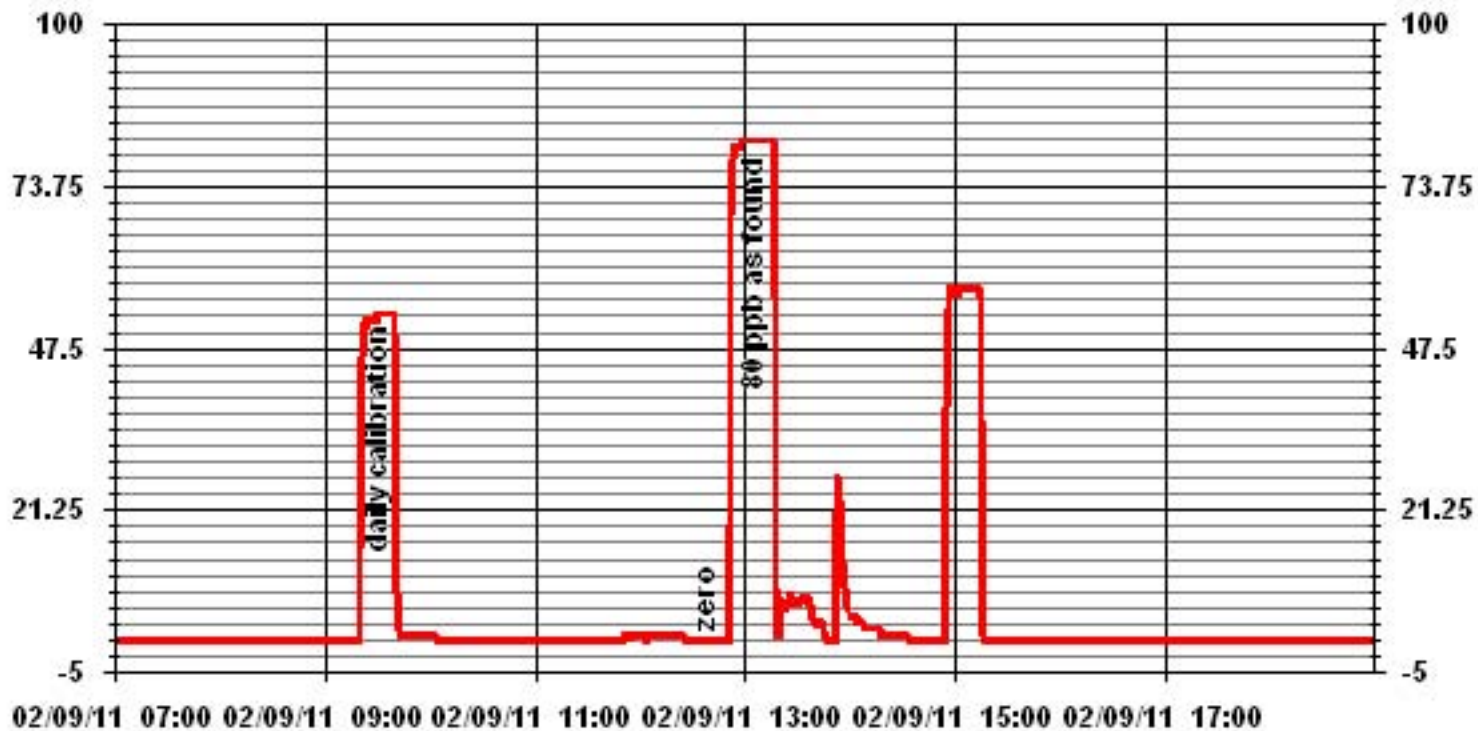
### 01 Minute Averages



# Hydrogen Sulphide



### 01 Minute Averages



— LICA30 H2S\_ PPB



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

### Station Information

Calibration Date	February 10, 2010	Previous Calibration	January 10, 2011
Company	Lakelnad Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	8:58	End Time (MST)	12:31
Reason:	Monthly Calibration		
Barometric Pressure	929 mBar	Station Temperature	21 Deg C
Cal Gas	10.6 ppm	Cal Gas Install date	05/12/2011
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	0 - 100 ppb	
Sample Flow / Box Temp	528 ccm, 31.4 Deg C	526 ccm, 30.7 Deg C	
HVPS / Lamp Setting	552, 2183	552, 2183	
PMT / RxCell Temp	7.9 Deg C, 50 Deg C	7.9 Deg C, 50 Deg C	
Converter / IZS Temp	315.1 Deg C, 45 Deg C	314.8 Deg C, 45 Deg C	
Offset / Slope	30, 1.003	30, 0.953	

### Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	N/A
4959	37.7	80	84	1.0127
4959	37.7	80	80	1.0000
4981	18.8	40	41	0.9756
4986	10.9	23	23	1.0000
4998	0	0	0	N/A
Sum of Least Squares				0.9948
New Correction Factor				1.0000

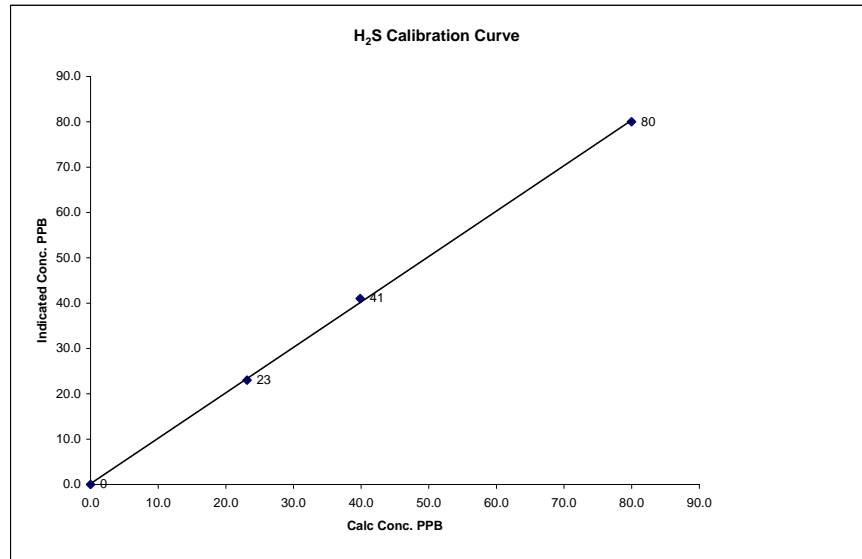
Before Calibration		After Calibration	
Auto Zero	0.5	0.2	
Auto Span	58	55	
Sample Lines Connected		YES	
Percent Change from Previous Calibration		-	

Calibration Performed by: Ting Xu/ Shea Beaton

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

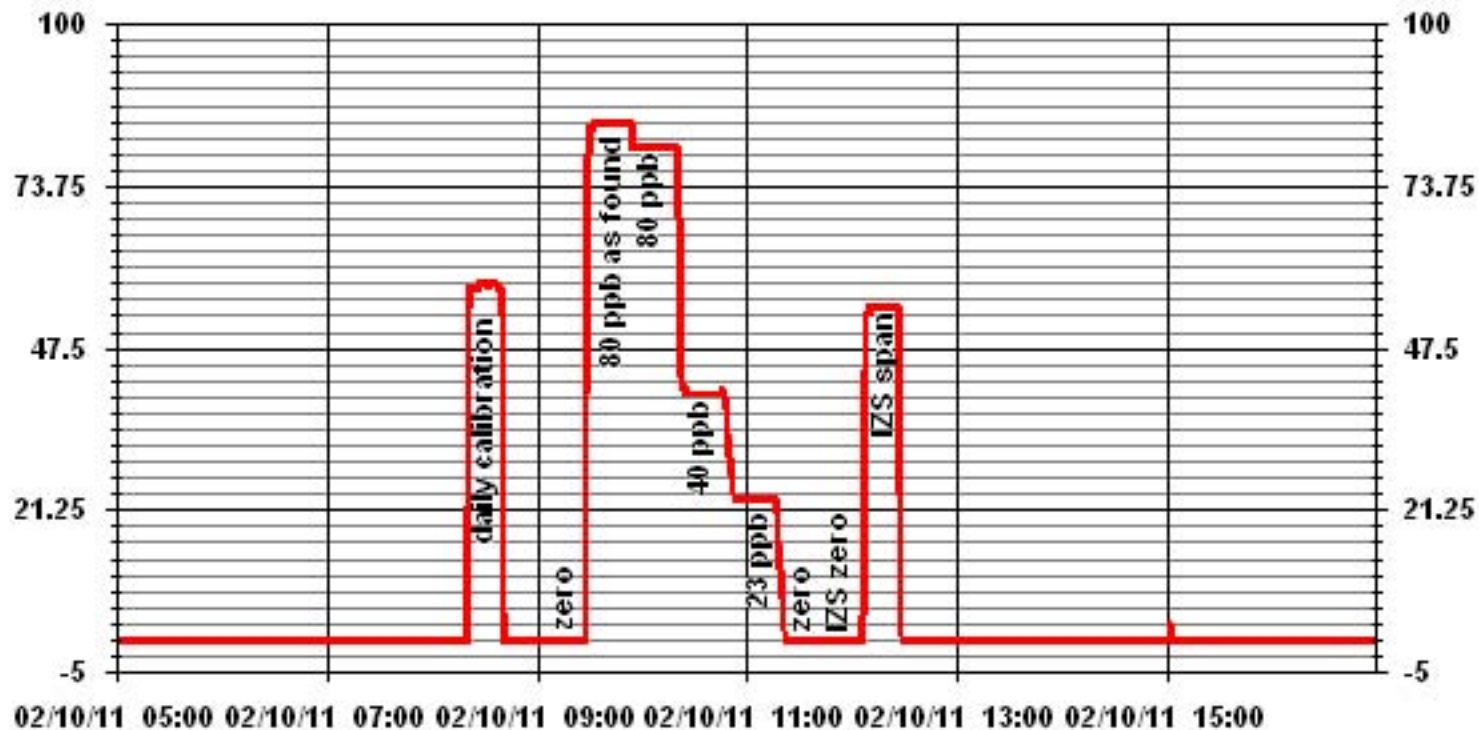
Calibration Date	February 10, 2010
Company	Lakelnad Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	8:58
End Time (MST)	12:31

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	
0	0	n/a	Intercept		0.999698
23	23	1.0053			1.002133
40	41	0.9721			0.184579
80	80	0.9997			



Notes:

### 01 Minute Averages



# Total Hydrocarbons

### THC Calibration Report

Station Information			
Calibration Date:	February 9, 2011	Previous Calibration	01/112011
Company:	Lakeland Industry & Community Association		
Plant / Location:	Cold Lake - Maskwa		
:	(MST) 13:44	End Time	(MST) 17:41
Reason:	Monthly Calibration		
Barometric Pressure:	939 mBar	Station Temperature:	21 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	-0.1	N/A
1999	70.0	39.6	39.4	1.0058
Correction Factor:				1.0058

Previous Calibration Correction Factor: 0.9956  
 Current Correction Factor Before Span Adjust: 1.0058  
 Percent Change: -1.01%

### IZS Calibration Data

	Before Calibration		After Calibration	
Auto Zero	0.0		0.0	
Auto Span	44.0		43.7	
Sample Lines Connected			YES	

### Cylinder Pressures

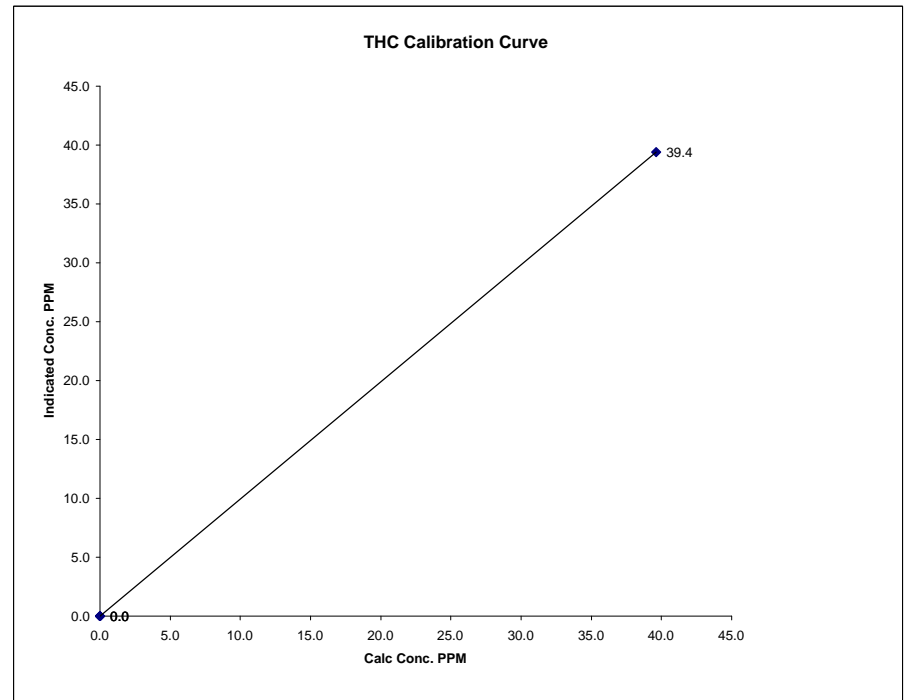
Span	1200	psi
Hydrogen	500	psi
Zero Air	32	psi

Calibration Performed by: Ting Xu

### THC Calibration Curve

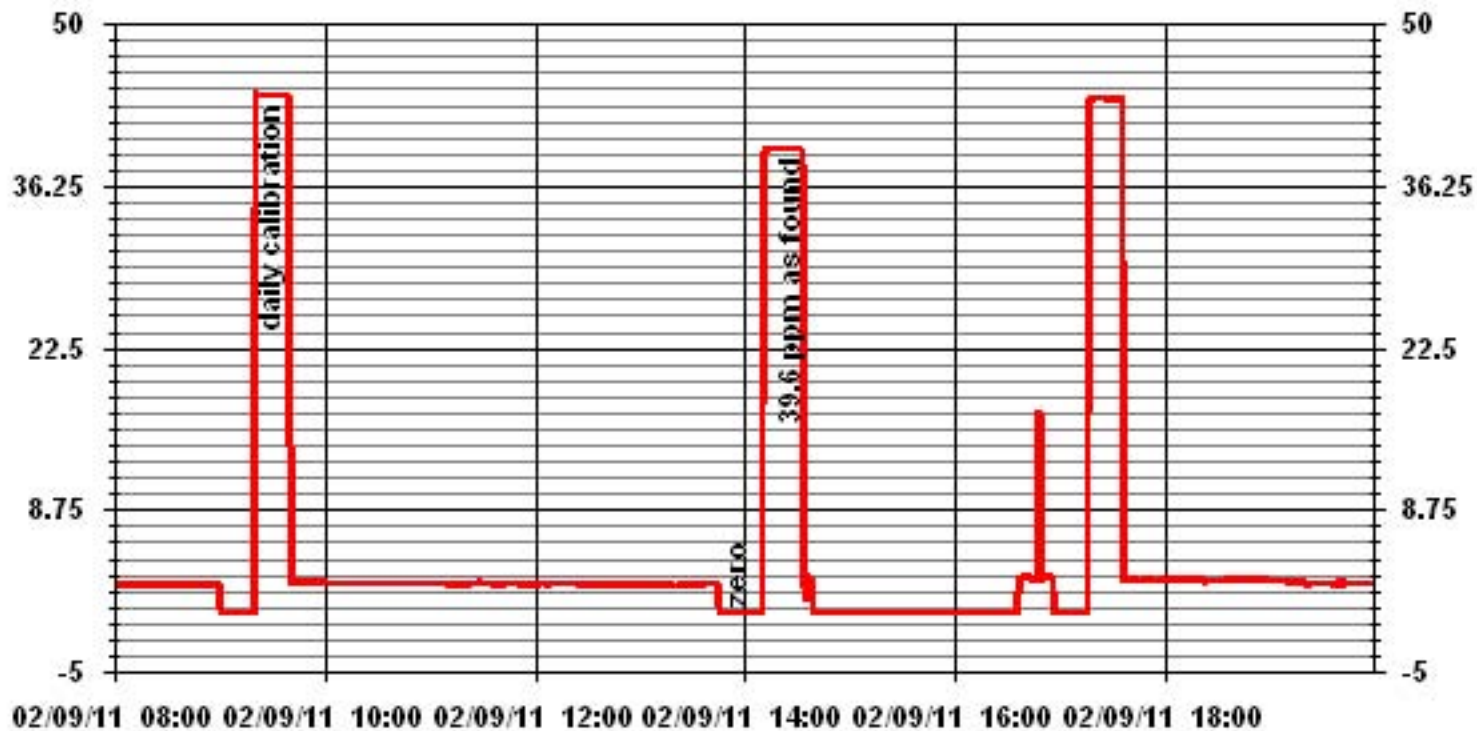
Calibration Date	February 9, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	13:44	End Time (MST)	17:41

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient (≥ 0.995)	1.000000
0.0	0.0		Slope (0.85 to 1.15)	0.994281
0.0	0.0	#DIV/0!	Intercept (± 3% F.S.)	0.000000
0.0	0.0	#DIV/0!		
39.6	39.4	1.0058		



Notes: Flame Temp 173 deg.

### 01 Minute Averages



### THC Calibration Report

Station Information			
Calibration Date:	February 10, 2011	Previous Calibration	February 9, 2011
Company:	Lakeland Industry & Community Association		
Plant / Location:	Cold Lake - Maskwa		
:	(MST) 11:56	End Time	(MST) 15:48
Reason:	Monthly Calibration		
Barometric Pressure:	929 mBar	Station Temperature:	22 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	207 Prop/ 602 Meth/1171.25THC	ppm	Cal Gas Expiry Date: August 21, 2011
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	-0.1	N/A
1999	0.0	0.0	0.0	N/A
1999	70.0	39.6	39.0	1.0161
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:	0.9956
Current Correction Factor Before Span Adjust:	0.9931
Percent Change:	0.25%

### IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	43.3	44.4
Sample Lines Connected		YES

### Cylinder Pressures

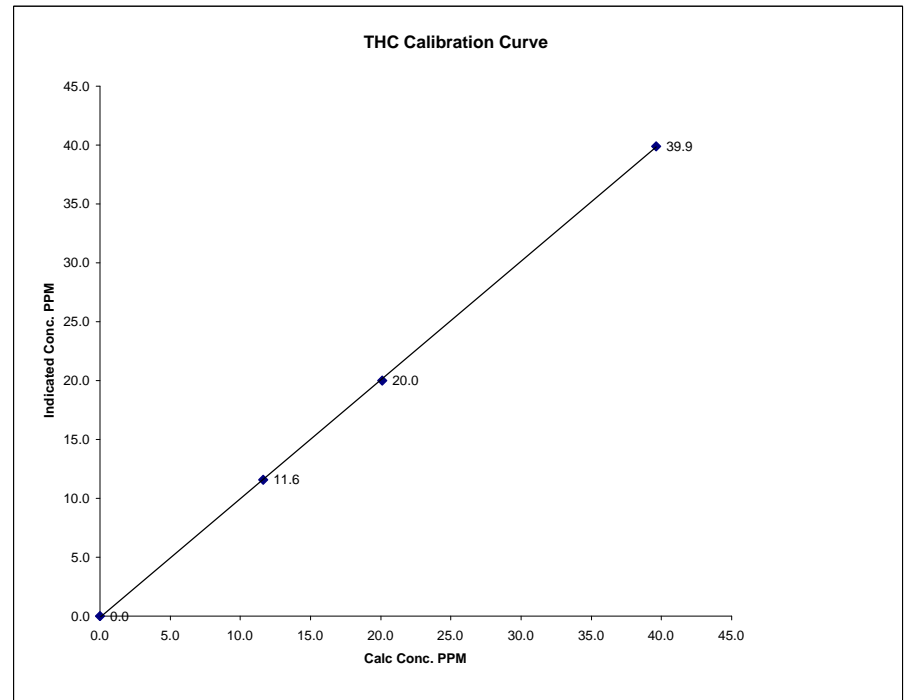
Span	1500	psi
Hydrogen	500	psi
Zero Air	32	psi

Calibration Performed by: Ting Xu/ Shea Beaton

### THC Calibration Curve

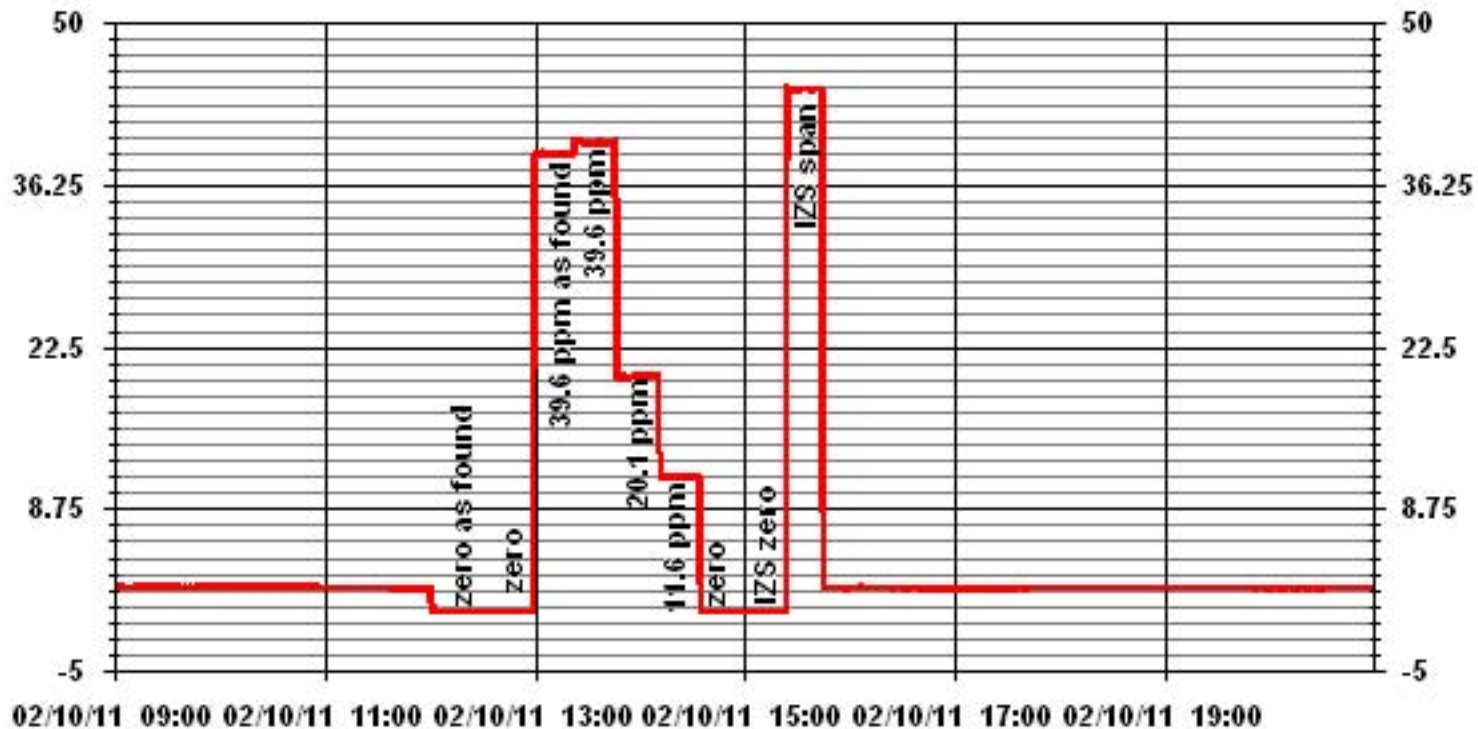
Calibration Date	February 10, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	11:56	End Time (MST)	15:48

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



# Nitrogen Dioxide



## NOx - NO- NO2 Calibration Report

### Station Information

Calibration Date	January 10, 2011	Previous Calibration	December 9, 2010
Company	LICA	Plant/Location	Maskwa
Start Time (MST)	12:48	End Time (MST)	18:30
Reason:	Monthly Calibration		Other
Barometric Pressure	959 mmHg	Station Temperature	21 Deg C
Cal Gas Concentration	NOx 50.8 ppm	NO 50.4 ppm	Cal Gas Expiry date 05-Aug-12
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:	Envionics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Envionics 6100	S/N :	4760		

### Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0-1000			ppb			
Sample Flow/Conv. Temp	469 ccm	316.9 Deg C		462 ccm	315.1 Deg C		
Ozone Flow / Vacuum	80 ccm	5.9 "Hg-A		70 ccm	5.9 "Hg-A		
HVPS / A ZERO	767 Volts	16.6 MV		767 Volts	16.5 MV		
Rx/ Temp / PMT Temp	50.1 Deg C	6.5 Deg C		50.0 Deg C	6.5 Deg C		
Box Temp / IZS Temp	28.9 Deg C	45.4 Deg C		30.3 Deg C	45.1 Deg C		
Offset	1.5 NOx	0.5 NO		1.5 NOx	0.5 NO		
Slope	1.083 NOx	1.074 NO		1.099 NOx	1.093 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	0	----	----
4919	74.2	----	755	749	----	744	737	8	1.0146	1.0176
4919	74.2	----	755	749	----	756	751	5	0.9985	0.9986
4959	34.6	----	352	349	----	357	354	3	0.9860	-0.9118
4974	19.8	----	201	200	----	207	205	2	0.9730	-0.3756
4995	0.0	----	0	0	0	0	1	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		
4919	74.2	----	755	749	----	756	753	3	----	----
4919	74.2	600	755	----	573	754	183	571	1.0035	99.65%
4919	74.2	300	755	----	291	755	465	290	1.0034	99.65%
4919	74.2	150	755	----	99	755	657	99	1.0000	100.00%

Linearity	Sum of Least Squares	NOx= 0.995	NO= 0.994	NO2= 1.003	
OK?	Yes No	Correction Factors:	NOx= 0.9985	NO= 0.9986	NO2= 1.0035
		Average Converter Efficiency= 99.77%			

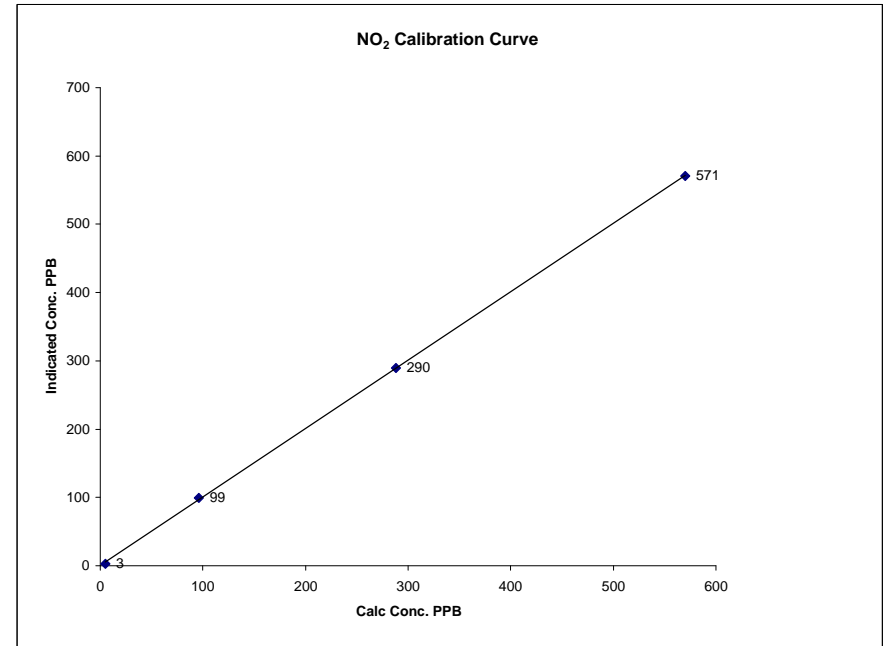
Before Calibration				After Calibration			
Auto Zero	0.5 NOx	0.6 NO2		1.0 NOx	0.0 NO2		
Auto Span	724 NOx	713 NO2		726 NOx	714 NO2		
Sample Lines Connected				YES			
Percent Change from Previous Calibration		NOx -1.7%	NO -1.9%	NO2 -0.2%			

Notes

## NO2 Calibration Curve

Calibration Date	January 10, 2011	<b>LICA</b>	
Company		<b>Maskwa</b>	
Plant / Location		End Time (MST)	18:30
Start Time (MST)	12:48		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	
5	3	N/A	Slope	(0.85 to 1.15) 0.999932
96	99	0.9697	Intercept	(± 3% F.S.) 1.002484
288	290	0.9931		0.40435
570	571	0.9982		



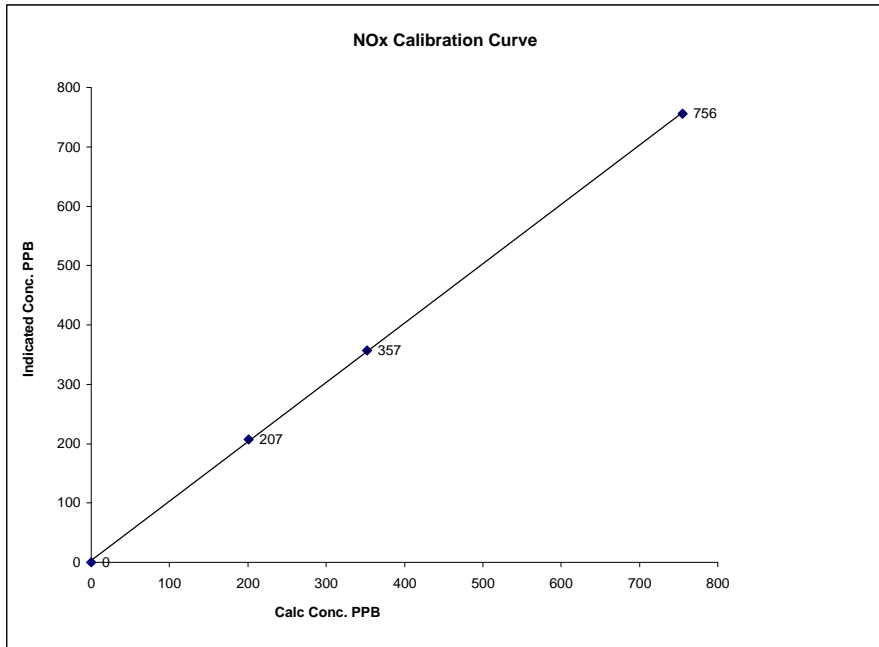
Notes: No CE gain adjustment.

Calibration Performed by: Ting Xu

### NOx Calibration Curve

Calibration Date January 10, 2011  
 Company LICA  
 Plant / Location Maskwa  
 Start Time (MST) 12:48 End Time (MST) 18:30

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999924
0	0	N/A	Slope (0.85 to 1.15)	0.999656
201	207	0.9730	Intercept (± 3% F.S.)	3.03675
352	357	0.9860		
755	756	0.9985		

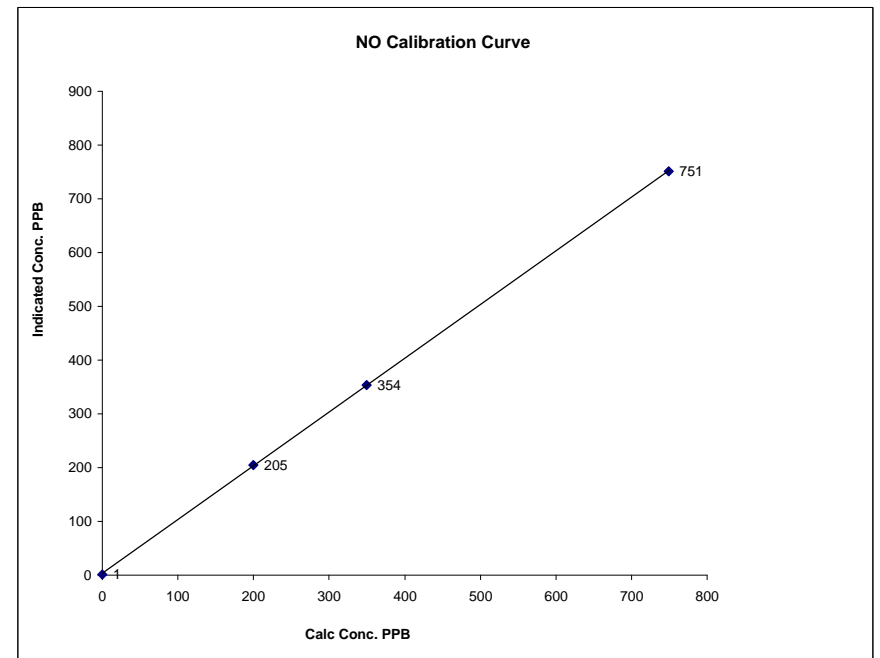


Notes:

### NO Calibration Curve

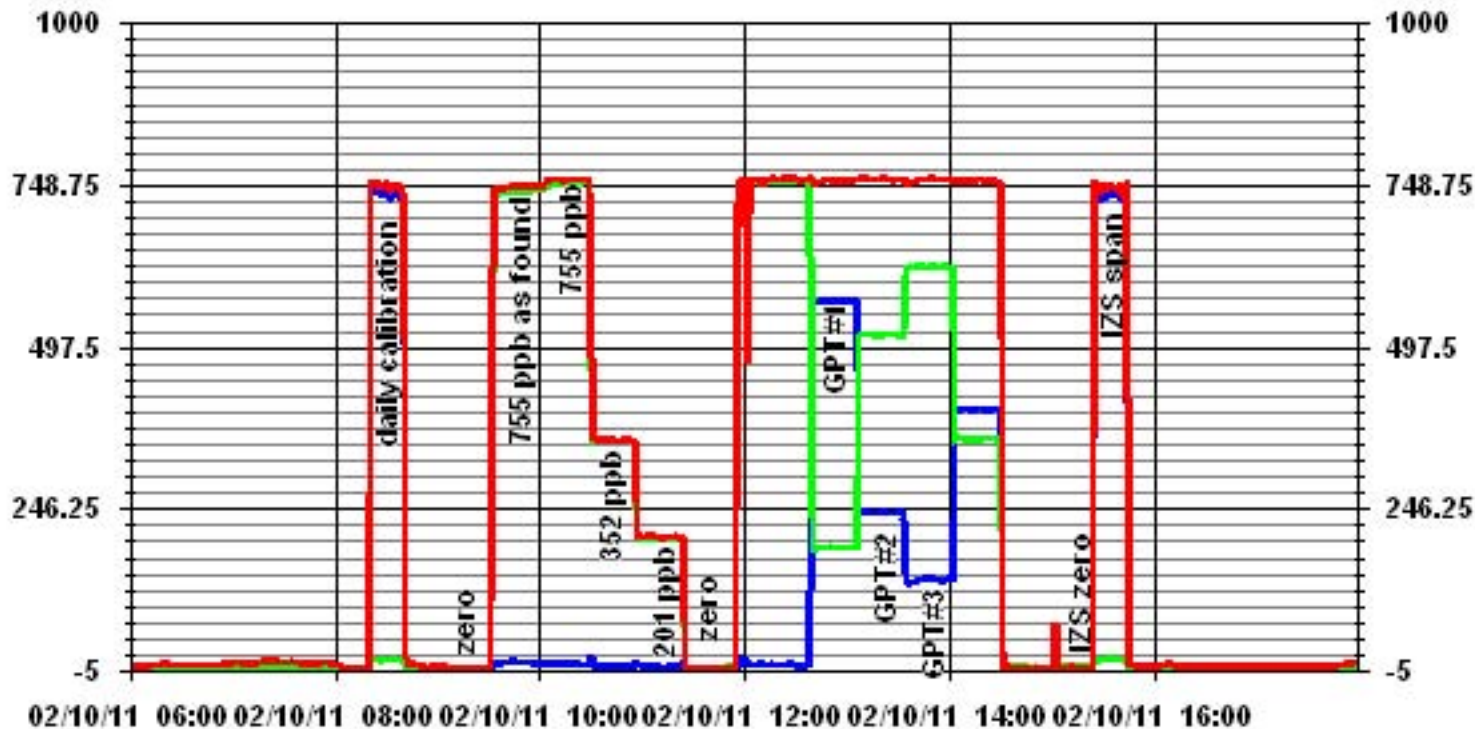
Calibration Date January 10, 2011  
 Company LICA  
 Plant / Location Maskwa  
 Start Time (MST) 12:48 End Time (MST) 18:30

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999958
0	1	N/A	Slope (0.85 to 1.15)	0.994072
200	205	0.9748	Intercept (± 3% F.S.)	7.1783
349	354	0.9865		
749	751	0.9973		



Notes:

### 01 Minute Averages



# **Lakeland Industry & Community Association**

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

Ambient Air Monitoring Data Report

For

February 2011

Prepared By:



March 11, 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: February 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 – February 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	0.48	6	19	18	10.6	164(SSE)	2.3	21	100.0
H <sub>2</sub> S (PPB)	10	3	-	-	0.10	5	7	8	1.9	309(NW)	0.9	7	99.9
THC (PPM)	-	-	-	-	2.55	8.0	9	9	0.3	322(NW)	4.0	14	99.9
NO <sub>2</sub> (PPB)	212	106	0	0	5.26	32	22	3	6.9	285(WNW)	10.0	9	99.9
NO (PPB)	-	-	-	-	1.23	25	9	10	2.4	298(WNW)	4.7	7	99.9
NO <sub>x</sub> (PPB)	-	-	-	-	6.44	43	9	10	2.4	298(WNW)	14.0	9	99.9
O <sub>3</sub> (PPB)	82	-	0	-	30.34	44	13, 26	VAR	VAR	VAR	39.3	26	95.4
PM 2.5 (UG/M <sup>3</sup> )	-	30	-	0	5.63	32.2	9	4	2.6	102(E)	15.5	9	92.0
VECTOR WS (KPH)	-	-	-	-	9.53	31.4	13	11	-	283(W)	15.9	3	100.0
VECTOR WD (DEGREES)	-	-	-	-	136(SE)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS



# Volatile Organics Data Summary

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE

### Xontech Model 910A – February 2, 2010

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

### Xontech Model 910A – February 8, 2010

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

### Xontech Model 910A – February 14, 2010

Maximum reading (ug/m3)	Volatile Organic
NA	NA

### Xontech Model 910A – February 20, 2010

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

### Xontech Model 910A – February 26, 2010

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

# Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

### PUF cartridge – February 2, 2010

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

### PUF cartridge – February 8, 2010

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

### PUF cartridge – February 14, 2010

<b>Maximum reading (ng/m3)</b>	<b>Semi-Volatile Organic</b>
NA	NA

Note: No PAHs sample was collected today as the Puff sampler was not received on time.

### PUF cartridge – February 20, 2010

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

### PUF cartridge – February 26, 2010

<b>Maximum reading (ng/m3)</b>	<b>Semi-Volatile Organic</b>
<6.055	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 started. Data was corrected using daily zero information. The 24-hour objective was changed from 57 ppb to 48 ppb on February 15<sup>th</sup> as per Alberta Environment guidelines.

#### Hydrogen Sulphide (PPB)

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

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

#### Nitrogen Dioxide (PPB)

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

No operational issue observed during the month. The inlet filter was replaced before the monthly calibration was started. 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 monthly calibration attempted to be performed on February 3<sup>rd</sup>. However, it was determined that the calibrator used for the calibration was not stable. The calibration was aborted. A multi-point calibration was performed on February 11<sup>th</sup>. The analyzer read 4 ppb since 9:00am on February 9<sup>th</sup>. It was found that the analog output from the analyzer was stuck. Cycled the power of the analyzer on February 10<sup>th</sup>. Once the analyzer began to measure ozone, the analog output returned to normal. A daily calibration was run, and the analyzer responded normally. Data was invalidated back to the last valid daily calibration, which was February 9<sup>th</sup>. 28 hours of data between February 9<sup>th</sup> and 10<sup>th</sup> were invalidated. The inlet filter was changed before the monthly calibration was started. 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 started. 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 attempted to be performed on February 22<sup>nd</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. 54 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.

# 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 February 3<sup>rd</sup>.

### Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. All AQI values recorded in February 2011 were within the Good range. The highest hourly concentration of Ozone was 44 ppb and an AQI value of 22 on February 13<sup>th</sup> and 26<sup>th</sup>, in various hours. The highest hourly concentration of PM2.5 was 32.2ug/m3 on February 9<sup>th</sup>, hour of 4. No AQI value for highest hourly concentration of PM2.5 was presented as the value is not applicable.

# General Monthly Summary

## AQM STATION – LICA – PORTABLE

### **Volatile Organics (VOCs)**

The volatile organics were sampled from February 2<sup>nd</sup> to February 26<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. A flow verification on the Xontech was performed on February 26<sup>th</sup>. The result of the verification was good.

### **Polycyclic Aromatic Hydrocarbons (PAHs)**

The PAHs were sampled from February 2<sup>nd</sup> to February 26<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. No sample for February 14<sup>th</sup> was collected as the Puff sampler was not received on time.

# Continuous Monitoring

# Monthly Summaries, Graphs & Wind Roses



# Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 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	
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	
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		9	8	8	9	10	10	10	11	14	14	-	17	18	18	18	18	18	16	16	16	14	11	13	12	18	
	PM2	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	PM2	O3	O3	O3	
2		13	12	12	9	8	12	11	16	12	-	-	-	-	-	-	-	-	-	20	20	20	19	20	20	20	
	O3	PM2	O3	PM2	O3	PM2	O3	PM2	O3	NA	NA	NA	NA	NA	NA	NA	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	
3		19	-	19	20	19	18	16	16	-	18	18	19	-	-	-	-	20	19	19	19	19	19	19	-	21	
	O3	NA	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	NA	NA	NA	NA	NA	O3	O3	O3	O3	O3	NA	O3	NA	O3	
4		19	-	18	18	18	18	-	-	13	13	13	15	16	17	19	19	18	-	16	13	13	12	13	11	19	
	O3	NA	O3	O3	O3	O3	NA	NA	O3	PM2	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	
5		13	11	12	11	14	13	-	15	14	15	15	16	17	18	18	18	18	18	16	17	17	16	-	12	11	
	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	NA	NA	O3	O3	O3	O3	
6		18	-	17	17	17	-	15	15	15	15	15	17	17	18	18	18	18	18	16	17	17	16	-	12	11	
	O3	NA	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	
7		10	14	10	10	-	11	9	6	6	7	15	10	12	13	13	16	15	16	17	17	17	17	18	16	16	
	O3	PM2	O3	O3	NA	PM2	O3	O3	PM2	O3	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
8		16	16	14	-	13	11	13	13	14	15	16	17	18	-	19	18	17	16	16	15	15	15	15	14	19	
	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
9		20	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	
	PM2	PM2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	PM2	
10		-	-	-	-	-	-	-	-	-	-	-	-	19	19	19	19	19	18	18	18	18	17	18	17	18	
	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
11		-	16	-	-	17	16	16	-	-	-	-	-	18	18	-	18	16	16	15	13	13	9	-	18		
	NA	O3	NA	NA	O3	O3	O3	NA	NA	NA	NA	NA	NA	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	
12		13	13	14	15	14	15	16	17	17	16	17	19	20	20	-	21	20	19	18	17	15	15	-	12	21	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	
13		11	10	9	12	11	11	7	10	15	17	-	-	20	21	22	22	22	22	22	21	19	20	-	20	22	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	NA	O3	O3	
14		20	18	-	-	15	14	13	11	12	14	17	18	19	19	18	18	17	14	12	14	-	12	10	11	20	
	O3	O3	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	
15		15	16	16	17	17	-	-	16	-	16	16	16	16	17	17	-	15	15	-	15	15	15	15	15	17	
	O3	O3	PM2	O3	O3	NA	NA	NA	NA	O3	NA	O3	O3	O3	O3	O3	NA	O3	O3	NA	O3	O3	O3	O3	O3	O3	
16		15	15	16	15	14	15	15	13	-	15	16	16	17	-	16	-	16	15	-	14	14	-	13	14	17	
	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	NA	O3	NA	O3	NA	O3	NA	O3	O3	NA	O3	O3	O3	
17		13	-	13	-	-	13	14	-	14	15	16	16	16	17	17	16	-	14	14	15	15	13	14	17		
	O3	NA	O3	NA	NA	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	
18		14	13	13	13	11	9	8	6	8	9	12	14	15	15	16	17	-	16	16	16	15	14	14	14	17	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	
19		14	14	13	12	12	11	10	8	8	10	12	-	15	16	15	-	14	14	13	13	12	12	12	13	16	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	NA	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	
20		13	13	15	15	15	15	15	14	16	16	17	17	17	18	-	18	18	18	18	18	18	18	18	17	18	
	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	O3	
21		16	17	16	16	16	16	16	15	15	16	16	16	16	16	-	15	15	15	14	18	12	11	11	13	11	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	PM2	PM2	O3	O3	O3	O3	PM2	PM2	
22		17	9	12	11	9	13	13	15	15	18	20	20	-	-	-	21	21	21	21	19	17	18	17	18	22	
	PM2	PM2	PM2	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	NA	NA	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
23		18	18	19	18	19	19	19	19	19	19	20	-	20	21	21	20	20	20	20	-	-	19	18	18	21	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	NA	NA	O3	O3	O3	O3	
24		18	18	17	17	16	15	14	13	13	13	-	12	13	12	13	13	13	14	13	12	12	13	14	14	18	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
25		15	15	15	15	14	13	11	10	11	-	16	16	16	17	17	18	17	16	14	14	14	14	14	15	16	
	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
26		17	18	18	18	18	18	18	19	17	-	19	-	21	21	21	22	22	-	22	22	21	-	-	18	22	
	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	NA	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	NA	NA	O3	O3	
27		-	17	16	17	14	12	13	-	15	14	13	10	10	12	12	13	13	13	13	13	12	13	14	15	18	
	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	O3	
28		15	15	16	16	17	16	-	15	16	16	17	17	17	17	17	17	16	-	14	13	11	11	9	11	17	
	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	PM2	
PEAK		20	18	19	20	19	19	19	19	19	19	20	21	21	21	22	22	22	22	22	22	22	21	19	20	20	
	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	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
GOOD (1-25)	521	77.5%	22	VAR	13,26	26	3.9%	NA	NA	NA	0	0.0%	-	-	-	0						

# Sulphur Dioxide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 2011

## SULPHUR DIOXIDE (SO<sub>2</sub>) 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	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.
1	1	2	2	2	2	2	2	2	2	2	IZS	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1.4	24	
2	2	2	2	2	2	3	2	2	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.8	24
3	0	0	0	0	0	1	1	1	IZS	1	1	1	C	C	C	C	0	0	0	0	0	0	0	0	0	1	0.3	24
4	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
5	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
6	0	0	0	0	0	IZS	0	1	1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	1	0.4	24
7	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
8	0	0	0	IZS	1	1	1	1	1	1	1	1	0	0	0	0	1	1	0	1	1	1	1	1	1	1	0.7	24
9	1	1	IZS	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	0.6	24
10	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
11	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	24
12	0	0	1	1	1	0	0	0	1	1	1	2	2	2	2	1	2	2	2	2	1	1	1	IZS	1	2	1.1	24
13	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	1	0.2	24
14	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	IZS	0	0	0	0	1	0.3	24	
15	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	IZS	1	0	0	0	1	0.2	24	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	2	2	0.1	24	
17	3	4	2	2	2	2	1	1	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	4	1.0	24
18	1	1	0	0	0	0	0	0	0	0	0	1	2	2	3	1	IZS	0	0	0	0	0	0	0	0	3	0.5	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	IZS	2	5	6	2	2	1	1	1	6	1.0	24	
20	2	2	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	2	2	1.1	24
21	2	3	4	4	4	4	3	3	3	3	3	3	3	IZS	2	2	2	2	1	1	1	1	1	1	0	4	2.3	24
22	0	0	0	0	1	1	1	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
23	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25	0	0	0	0	0	1	0	1	1	IZS	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0.2	24
26	0	0	0	0	0	0	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
27	0	0	0	0	0	0	0	IZS	0	1	2	1	1	0	1	1	1	2	1	1	1	1	0	0	0	2	0.6	24
28	0	0	0	0	0	0	IZS	0	0	0	0	1	3	1	1	0	0	0	0	0	0	0	0	0	3	0.3	24	
HOURLY MAX	3	4	4	4	4	4	NA	3	3	3	3	3	3	2	3	2	2	5	6	2	2	1	2	2				
HOURLY AVG	0.5	0.6	0.5	0.5	0.6	0.6	NA	0.5	0.4	0.4	0.4	0.5	0.7	0.4	0.6	0.4	0.4	0.6	0.6	0.4	0.4	0.3	0.3	0.4				

### STATUS FLAG CODES

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

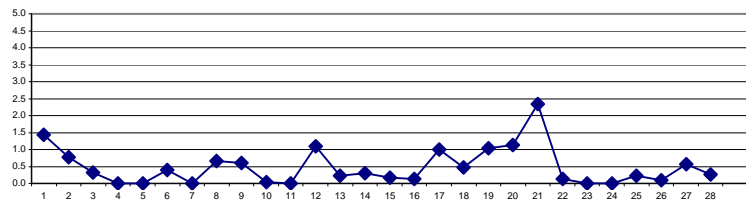
### OBJECTIVE LIMIT:

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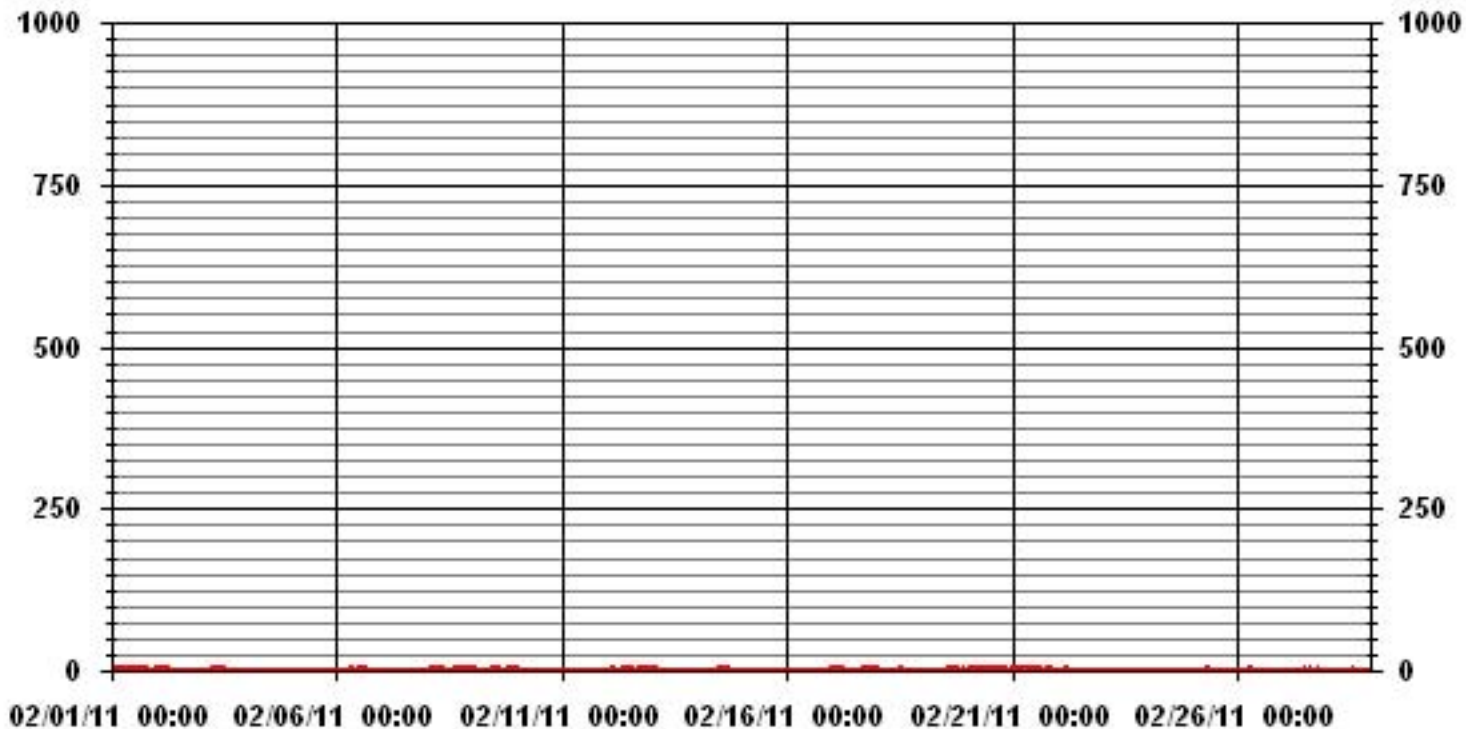
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	214					
MAXIMUM 1-HR AVERAGE:	6	PPB	@ HOUR(S)	18	ON DAY(S)	19
MAXIMUM 24-HR AVERAGE:	2.3	PPB			ON DAY(S)	21
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.82		MONTHLY AVERAGE:	0.48	PPB	

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA33 SO2\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -PORTABLE SITE

FEBRUARY 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																							
		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	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	DAY																																																	
1	1	2	3	3	3	3	3	3	3	3	4	IZS	2	2	2	3	2	2	2	2	2	2	3	3	3	4	2.6	24																						
2	2	3	3	3	3	3	4	4	3	3	IZS	1	1	1	1	1	2	1	1	1	1	1	1	1	1	4	1.9	24																						
3	3	1	1	1	1	2	2	2	2	IZS	2	2	C	C	C	C	C	0	0	0	0	0	0	1	2	1.0	24																							
4	4	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0.7	24																						
5	5	1	1	1	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0.8	24																						
6	6	1	1	1	1	1	IZS	1	2	2	2	1	1	2	3	2	2	2	2	2	2	1	1	1	1	3	1.5	24																						
7	7	1	1	1	1	IZS	0	0	1	0	0	1	1	1	0	1	2	2	1	1	1	1	1	0	1	2	0.8	24																						
8	8	1	1	1	IZS	2	2	2	2	2	2	1	1	1	1	1	2	1	1	4	2	2	2	2	2	4	1.7	24																						
9	9	3	2	IZS	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1	2	3	1.7	24																						
10	10	2	IZS	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	2	0.9	24																						
11	11	IZS	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	IZS	1	0.5	24																						
12	12	1	1	2	2	2	2	1	1	2	3	2	3	3	3	3	2	3	3	3	2	2	2	IZS	2	3	2.2	24																						
13	13	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	IZS	1	1	2	1.2	24																						
14	14	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	IZS	1	1	2	1.4	24																						
15	15	2	2	1	1	2	1	2	1	1	1	2	1	1	1	1	1	1	1	3	IZS	2	2	1	1	3	1.4	24																						
16	16	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	2	3	3	1.0	24																						
17	17	4	5	3	3	3	3	2	2	1	2	1	1	1	1	1	1	1	IZS	2	2	2	2	2	2	5	2.0	24																						
18	18	2	2	1	1	1	1	1	1	1	1	1	2	4	3	5	4	IZS	1	1	1	1	1	1	1	5	1.7	24																						
19	19	1	1	1	1	1	1	0	0	1	0	1	1	1	3	4	IZS	3	9	8	3	3	2	2	3	9	2.2	24																						
20	20	4	3	2	2	2	2	2	2	2	2	2	2	2	IZS	2	2	2	2	2	2	2	2	2	3	4	2.2	24																						
21	21	3	5	5	5	5	5	4	4	4	4	4	4	4	IZS	3	3	3	3	2	2	2	2	2	1	5	3.4	24																						
22	22	1	1	2	1	3	2	2	2	1	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	3	1.1	24																						
23	23	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	0	1	1	1	1.0	24																						
24	24	1	0	0	1	1	1	0	0	0	0	IZS	0	1	0	1	1	0	0	1	1	1	0	1	1	1	0.5	24																						
25	25	1	1	1	1	1	2	2	2	2	IZS	1	1	2	2	1	1	1	1	1	1	1	1	2	2	2	1.3	24																						
26	26	1	1	1	1	1	2	2	2	IZS	1	1	0	1	1	1	1	1	0	0	0	0	0	0	2	0.8	24																							
27	27	0	0	0	0	0	0	1	IZS	1	2	3	2	2	1	2	2	3	2	2	2	2	1	1	1	3	1.3	24																						
28	28	1	0	0	1	1	0	IZS	1	1	2	2	2	4	2	2	2	1	1	1	1	1	1	1	1	4	1.3	24																						
HOURLY MAX		4	5	5	5	5	5	4	4	4	4	4	4	4	3	5	4	3	9	8	3	3	3	3	3																									
HOURLY AVG		1.6	1.5	1.3	1.3	1.5	1.5	1.4	1.4	1.3	1.4	1.3	1.3	1.7	1.5	1.7	1.6	1.5	1.6	1.7	1.3	1.3	1.2	1.2	1.4																									

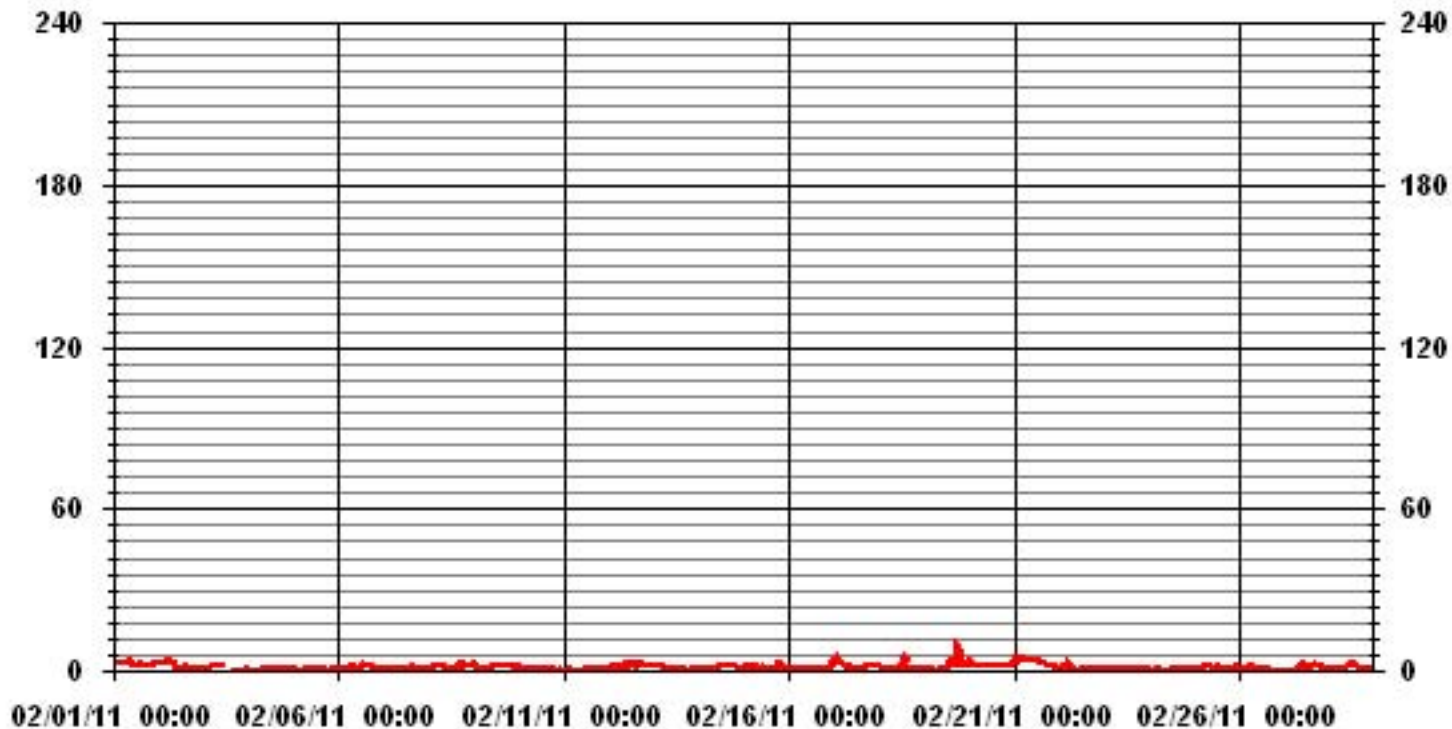
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	559					
MAXIMUM INSTANTANEOUS VALUE:	9	PPB	@ HOUR(S)	17	ON DAY(S)	19
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	1.05					

### 01 Hour Averages



— LICA33 SO2MAX PPB

LICA33  
 SO2\_ / WDR Joint Frequency Distribution (Percent)

February 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	5.94	4.38	4.53	2.03	2.81	3.75	4.06	3.12	6.25	4.53	12.83	9.07	11.26	12.51	7.19	5.63	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	5.94	4.38	4.53	2.03	2.81	3.75	4.06	3.12	6.25	4.53	12.83	9.07	11.26	12.51	7.19	5.63	

Calm : .00 %

Total # Operational Hours : 639

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	38	28	29	13	18	24	26	20	40	29	82	58	72	80	46	36	639
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	38	28	29	13	18	24	26	20	40	29	82	58	72	80	46	36	

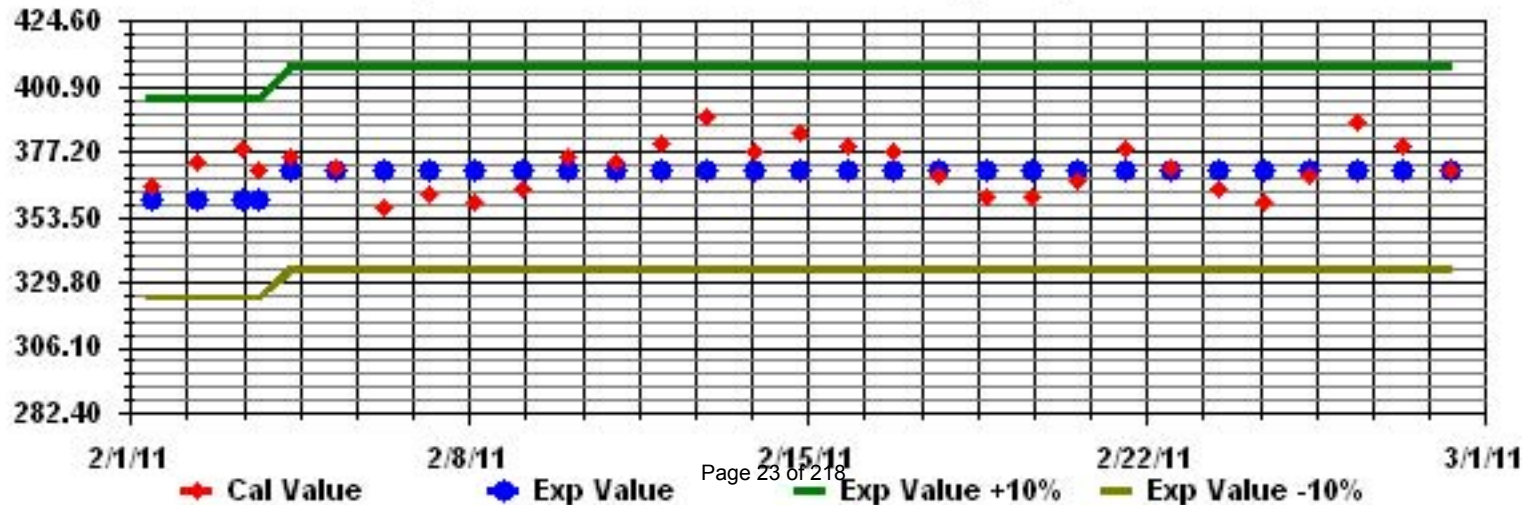
Calm : .00 %

Total # Operational Hours : 639





Calibration Graph for Site: LICA33 Parameter: S02\_ Sequence: S02 Phase: SPAll



# Hydrogen Sulphide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE

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

**STATUS FLAG CODES**

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

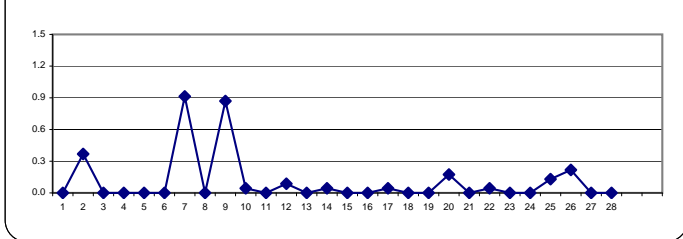
OBJECTIVE LIMIT:

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

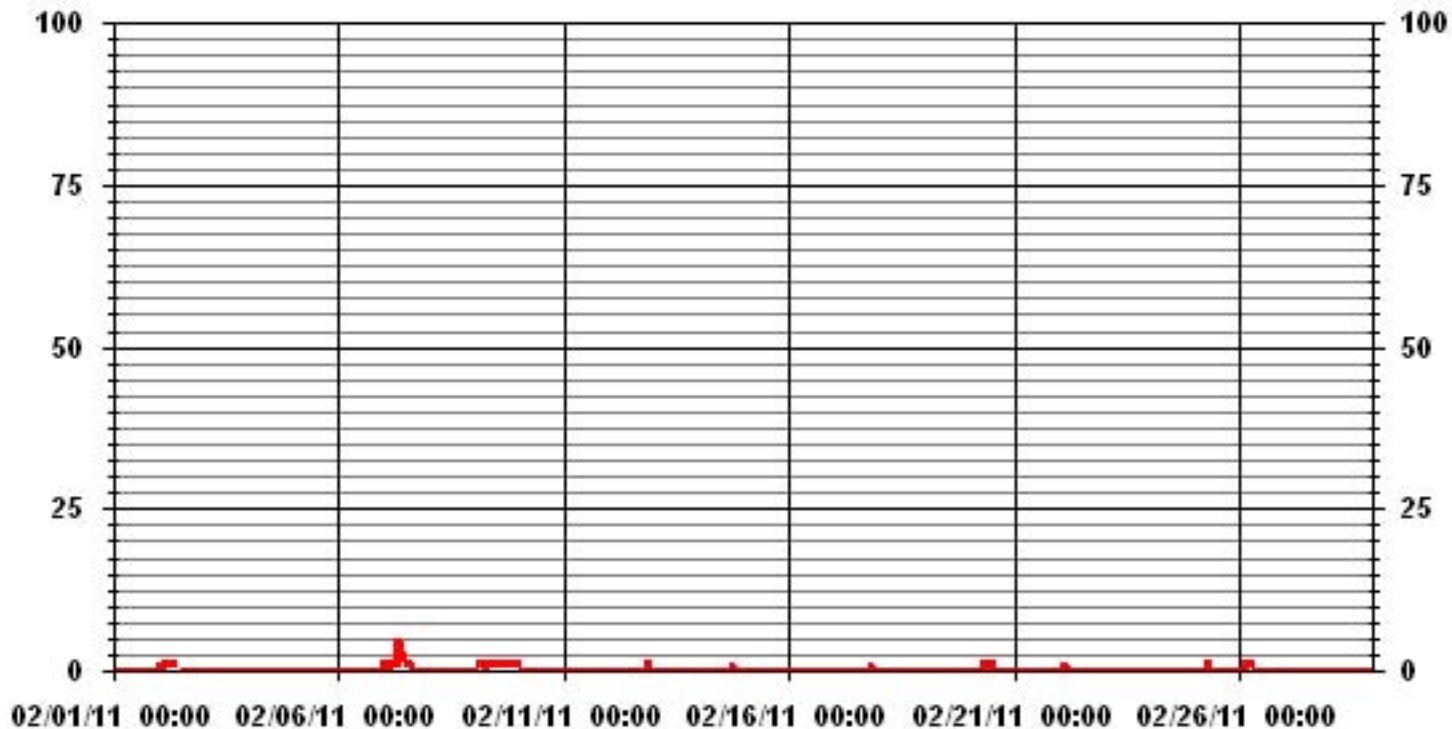
**MONTHLY SUMMARY**

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	58
MAXIMUM 1-HR AVERAGE:	5 PPB @ HOUR(S) 8 ON DAY(S) 7
MAXIMUM 24-HR AVERAGE:	0.9 PPB ON DAY(S) 7
	VAR-VARIOUS
IZS CALIBRATION TIME:	29 HRS
MONTHLY CALIBRATION TIME:	4 HRS
OPERATIONAL TIME:	671 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.37
MONTHLY AVERAGE:	0.10 PPB

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 2011

## HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR				
		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
DAY																														
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	0.3	24	
2		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	1	2	1.1	24
3		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	0.4	22
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	24
7		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	6	1.2	24
8		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	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	2	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	0.0	24
11		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	0.0	24
12		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
13		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
14		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6	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	0.6	24
16		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
20		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	0.6	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		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	0.4	24
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25		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	0.6	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	0.3	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
HOURLY MAX		1	1	1	1	2	1	1	1	1	6	4	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
HOURLY AVG		0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.3	0.5	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.3	0.4	0.4	0.4	0.4	0.4			

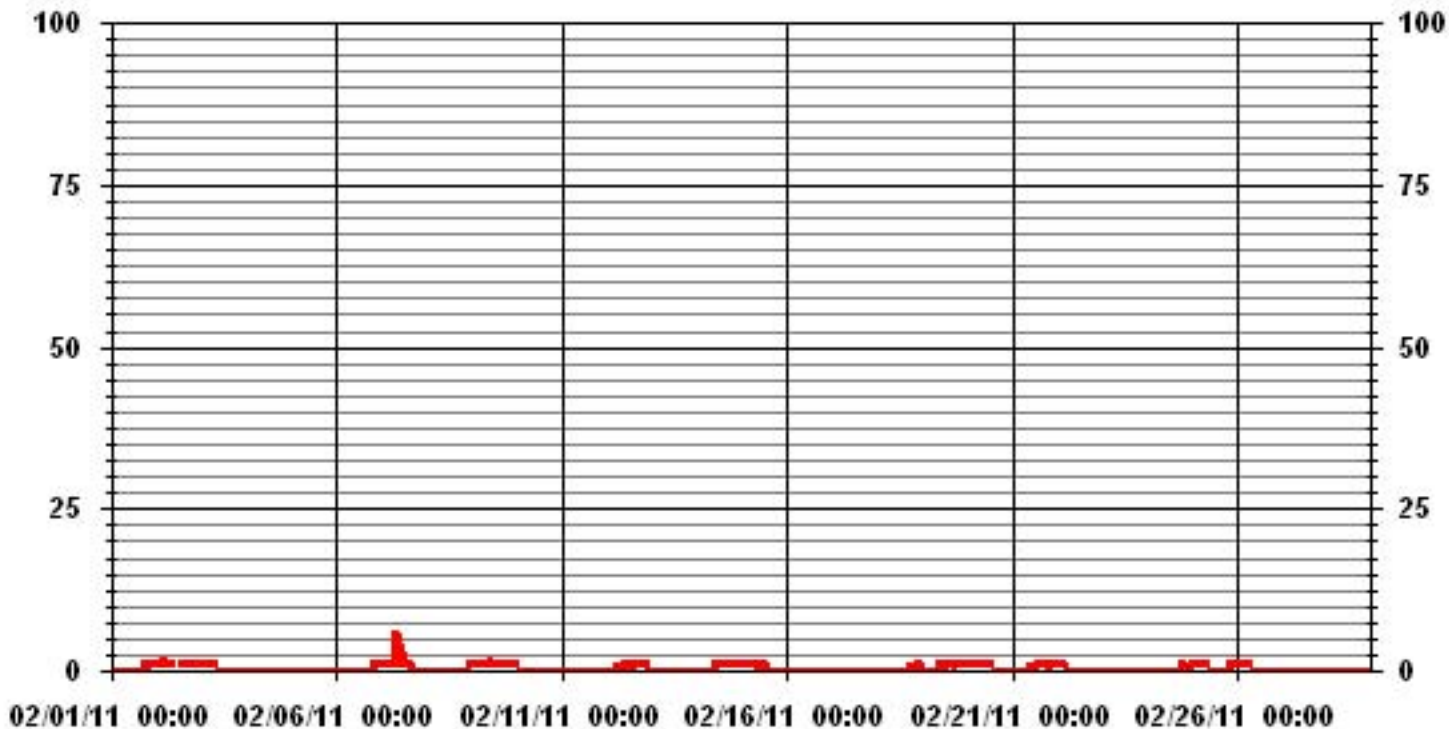
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	186					
MAXIMUM INSTANTANEOUS VALUE:	6	PPB	@ HOUR(S)	8	ON DAY(S)	7
	VAR - VARIOUS					
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	670 HRS		
MONTHLY CALIBRATION TIME:	4 HRS					
STANDARD DEVIATION:	0.56					

### 01 Hour Averages



LICA33  
H2S\_ / WDR Joint Frequency Distribution (Percent)

February 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	5.95	4.38	4.54	2.03	2.82	3.76	4.07	3.13	6.26	4.54	12.85	9.24	10.97	12.38	7.05	5.64	99.68
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	.15	.00	.31
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.95	4.38	4.54	2.03	2.82	3.76	4.07	3.13	6.26	4.54	12.85	9.24	11.12	12.38	7.21	5.64	

Calm : .00 %

Total # Operational Hours : 638

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	38	28	29	13	18	24	26	20	40	29	82	59	70	79	45	36	636
< 10													1		1		2
< 50																	
>= 50																	
Totals	38	28	29	13	18	24	26	20	40	29	82	59	71	79	46	36	

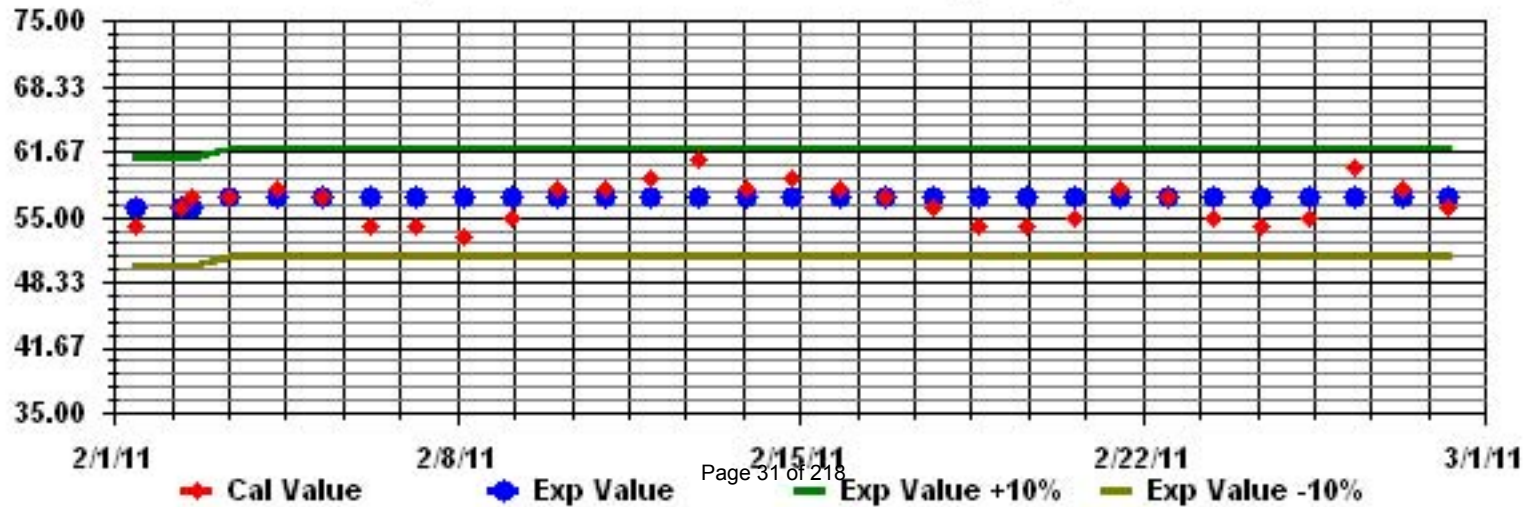
Calm : .00 %

Total # Operational Hours : 638





Calibration Graph for Site: LICA33 Parameter: H2S\_ Sequence: H2S Phase: SPAll



# Particulate Matter 2.5

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE**  
**FEBRUARY 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	
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	1	10.7	9.2	9.8	9.2	10.7	10.2	6.3	7.3	6.8	1.8	14.2	3.7	5.8	7.7	3.2	12.7	9.7	5.8	4.8	6.3	6.3	13.3	4.8	13.3	14.2	8.1	24
2	2	8.7	13.8	10.2	10.8	8.3	13.8	11.7	18.7	11.2	10.7	2.7	6.8	7.3	6.3	2.7	1.2	N	0.7	4.2	0	0.7	4.8	0.7	2.3	18.7	6.9	23
3	3	2.7	N	6.2	0	4.7	0.7	7.7	6.3	6.2	4.2	4.2	2.2	3.2	0.8	0	0	3.2	1.2	0	2.2	4.2	N	3.2	N	7.7	3.0	21
4	4	3.7	N	6.7	3.2	0	4.7	N	5.2	12.1	15.2	11.8	16.2	5.8	1.8	0	4.8	6.8	N	0.8	4.2	0.7	0	0	1.2	16.2	5.0	21
5	5	2.6	2.3	0.8	2.7	0	4.3	0	5.3	0.2	0.4	1.5	3.8	1.2	0	2.7	4.3	5.4	10.1	N	N	N	9.1	0	2.2	10.1	2.8	21
6	6	0	N	0	5.3	2.6	1.2	1.1	0	7.1	1.5	5.2	1.1	2.7	0.4	0.5	8.8	12.1	0	1.6	6.5	7.4	N	6.8	3.1	12.1	3.4	22
7	7	5.2	17.1	10.1	0	1.2	13.2	8.7	6.1	7.4	7.1	17.7	9.9	5.3	3.7	9.5	10.4	12.1	4.6	3.2	0	8.5	2.1	4.6	11.2	17.7	7.5	24
8	8	5.9	5.4	6.3	5.6	7	8	12.2	2.3	4.2	7.3	6.7	2	0.7	N	N	0	8	2.3	12.4	12	12.5	12.8	15	10	15.0	7.2	22
9	9	23.5	13.1	13.8	18.2	32.2	20.2	19.4	18.7	25.7	18.7	14.3	23.4	19.1	15.1	22.2	5.8	17.9	11.5	11.9	8.6	6	11.5	0	1	32.2	15.5	24
10	10	1.2	2.2	4.2	N	N	N	0	8	15.1	N	2.6	N	0.4	0	1.2	0	1.2	1.7	0.8	0	0	0	0	4.8	15.1	2.3	19
11	11	0.9	4.5	N	N	1.3	2.1	0	N	N	7.6	3.7	5.6	0	0.3	2.3	N	7.7	0.3	0	4.9	1.4	1.6	2.2	6	7.7	2.8	19
12	12	5.1	7.8	9.9	7.7	8.2	7.7	4.3	1.2	3.7	7.7	3.2	5.6	0	4.7	N	5.7	0	3.8	7.7	8.7	5.7	4.7	5.8	6.8	9.9	5.5	23
13	13	0	8.3	5.7	2.7	3.2	10.7	3.7	4.7	1.7	0	N	N	0	0	0.7	5.2	0	1.2	0	0	9.7	N	N	11.7	11.7	3.5	20
14	14	10.7	0	N	N	0	14.2	11.7	6.2	6.7	13.2	11.7	10.2	5.2	6.8	12.2	5.2	11.2	9.7	12.7	16.8	3.2	0	0	4.7	16.8	7.8	22
15	15	15.7	16.2	18.7	18.2	2.3	N	N	N	5.2	N	0	0	0.2	0.2	6.2	0	N	3.2	7.7	1.2	3.2	0.7	7.3	0	18.7	5.6	19
16	16	5.2	4.2	9.7	3.7	0.2	5.2	2.3	3.7	N	0	0	2.7	7.3	N	5.7	N	5.7	0	2.2	1.2	3.7	N	8.3	7.7	9.7	3.9	20
17	17	7.3	N	5.8	N	N	0	0.2	N	4.2	0	2.7	7.7	1.2	1.7	4.7	0	14.7	8.3	8.3	1.8	0.2	5.7	2.2	7.7	14.7	4.2	20
18	18	5.2	0.2	7.3	3.2	9.7	0.8	3.7	1.7	4.2	8.3	0	3.7	12.2	0	10.2	4.7	1.2	3.7	0	5.2	7.7	2.2	4.2	11.2	12.2	4.6	24
19	19	2.7	5.2	7.3	5.2	5.7	5.2	4.2	7.2	3.7	10.2	4.2	N	14.7	14.2	8.7	4.2	11.2	9.2	4.7	6.7	13.3	8.3	13.2	13.2	14.7	7.9	23
20	20	6.7	3.7	10.2	7.3	7.7	11.2	10.2	8.3	5.7	11.7	13.3	5.2	8.3	5.2	0	12.2	0	6.2	0.7	6.7	0	7.7	0	1.2	13.3	6.2	24
21	21	11.2	13.2	2.7	4.2	10.7	13.2	8.3	2.2	0	4.7	4.7	7.7	14.2	7.7	0	3.2	11.2	17.2	21.2	13.2	8.3	10.2	15.2	12.7	21.2	9.0	24
22	22	20.2	10.2	13.8	12.7	10.2	7.3	8.3	4.2	0	7.2	0.8	1.2	N	C	C	0.2	0	5.2	3.7	1.2	0	1.7	5.2	0	20.2	5.4	23
23	23	0.8	0.8	3.2	5.2	0.2	0	4.8	0	3.2	1.7	0	4.7	0.8	0	12.7	0.7	0.7	8.7	1.7	N	N	2.7	0	0	12.7	2.4	22
24	24	1.7	3.2	3.2	0.8	6.2	0.2	5.7	3.2	1.2	0	0	8.3	1.2	3.2	0.2	11.7	4.2	0	6.3	5.7	6.2	3.7	0	8.7	11.7	3.5	24
25	25	2.7	0	4.3	2.3	3.2	0.2	3.7	10.7	8.3	0	0.8	12.2	9.7	7.7	12.2	1.7	7.2	6.7	11.2	12.7	8.3	5.7	7.7	3.2	12.7	5.9	24
26	26	9.7	0.8	5.7	0	7.7	6.7	5.2	11.7	2.7	13.2	N	5.2	1.2	0	1.2	3.7	0	N	4.2	10.2	N	N	7.7	0	13.2	4.8	20
27	27	N	6.7	1.2	0	2.7	5.2	8.3	5.2	0	4.2	8.7	2.2	5.2	4.8	2.7	6.2	6.7	4.2	4.2	4.2	3.7	1.7	4.2	5.2	8.7	4.2	23
28	28	2.7	0	0	9.7	0	3.2	12.2	6.7	5.2	2.3	4.7	0.7	10.2	11.2	5.8	14.2	1.2	N	0	7.7	3.7	5.8	7.3	12.7	14.2	5.5	23
HOURLY MAX		24	17	19	18	32	20	19	19	26	19	18	23	19	15	22	14	18	17	21	17	13	13	15	13			
HOURLY AVG		6.4	6.2	6.8	5.7	5.6	6.5	6.3	6.2	5.8	6.1	5.4	6.1	5.3	4.1	5.1	4.9	6.1	5.0	5.0	5.7	5.0	5.0	4.7	6.0			

**STATUS FLAG CODES**

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

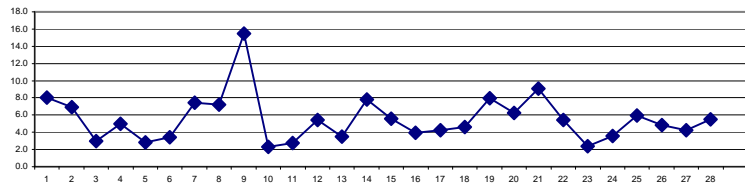
**OBJECTIVE LIMIT:**

<b>ALBERTA ENVIRONMENT:</b>	1-HR	-	PPB	24-HR	30	PPB
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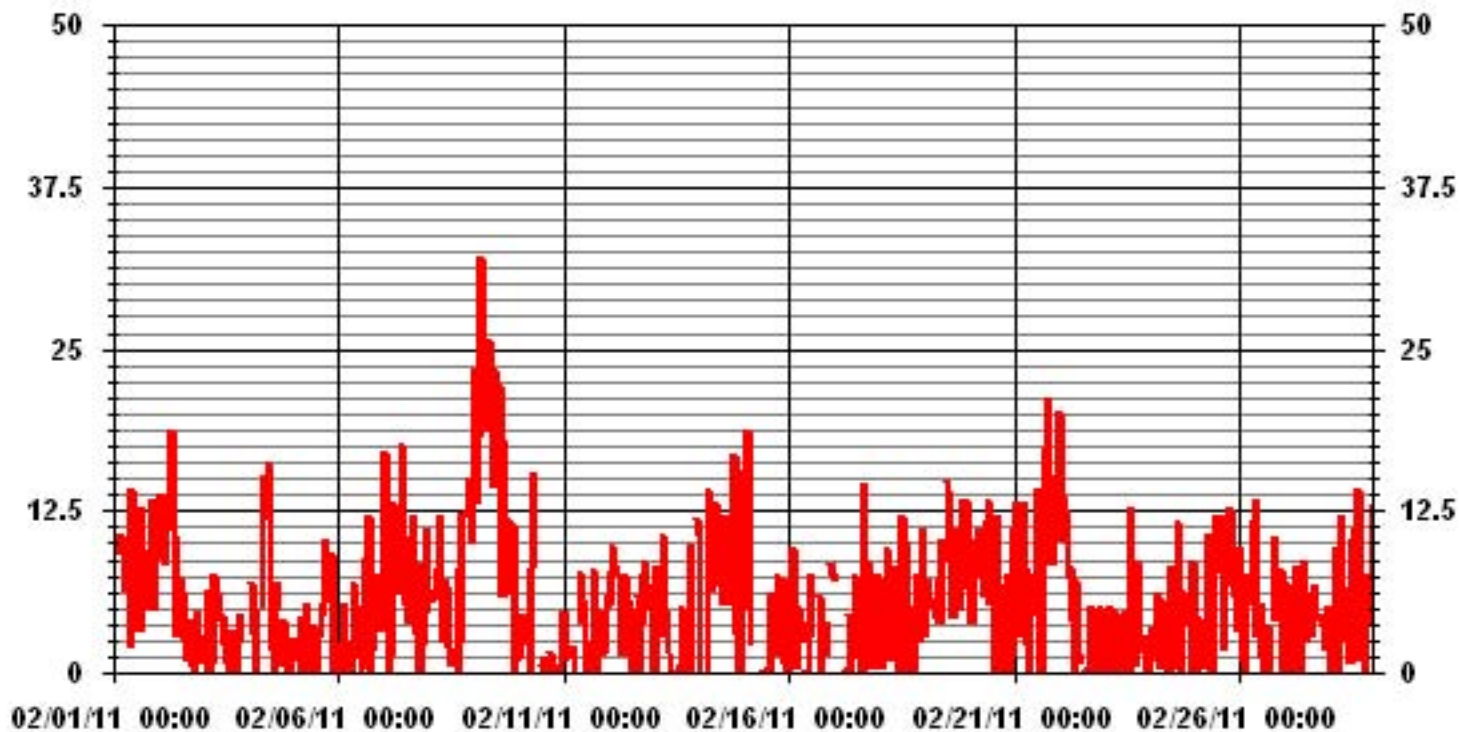
**MONTHLY SUMMARY**

NUMBER OF 1-HR EXCEEDENCES:	-	PROPOSED CANADA WIDE GUIDELINE
NUMBER OF 24-HR EXCEEDENCES:	0	
NUMBER OF NON-ZERO READINGS:	527	
MAXIMUM 1-HR AVERAGE:	32.2 UG/M <sup>3</sup>	@ HOUR(S) 4 ON DAY(S) 9
MAXIMUM 24-HR AVERAGE:	15.5 UG/M <sup>3</sup>	ON DAY(S) 9
IZS CALIBRATION TIME:	0 HRS	OPERATIONAL TIME: 618 HRS
MONTHLY CALIBRATION TIME:	2 HRS	AMD OPERATION UPTIME: 92.0 %
STANDARD DEVIATION	5.02	MONTHLY AVERAGE: 5.63 UG/M <sup>3</sup>

**24 HOUR AVERAGES FOR FEBRUARY 2011**



### 01 Hour Averages



— LICA33 PM2 UG/M3

LICA33  
 PM2 / WDR Joint Frequency Distribution (Percent)

February 2011

Distribution By % Of Samples

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

Wind Parameter : WDR  
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	5.35	4.70	4.22	1.94	2.59	3.57	4.38	3.57	7.14	4.54	13.47	8.44	11.68	11.85	6.98	5.35	99.83
< 60.0	.00	.00	.00	.00	.00	.16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.16
< 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	5.35	4.70	4.22	1.94	2.59	3.73	4.38	3.57	7.14	4.54	13.47	8.44	11.68	11.85	6.98	5.35	

Calm : .00 %

Total # Operational Hours : 616

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	33	29	26	12	16	22	27	22	44	28	83	52	72	73	43	33	615
< 60.0						1											1
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	33	29	26	12	16	23	27	22	44	28	83	52	72	73	43	33	

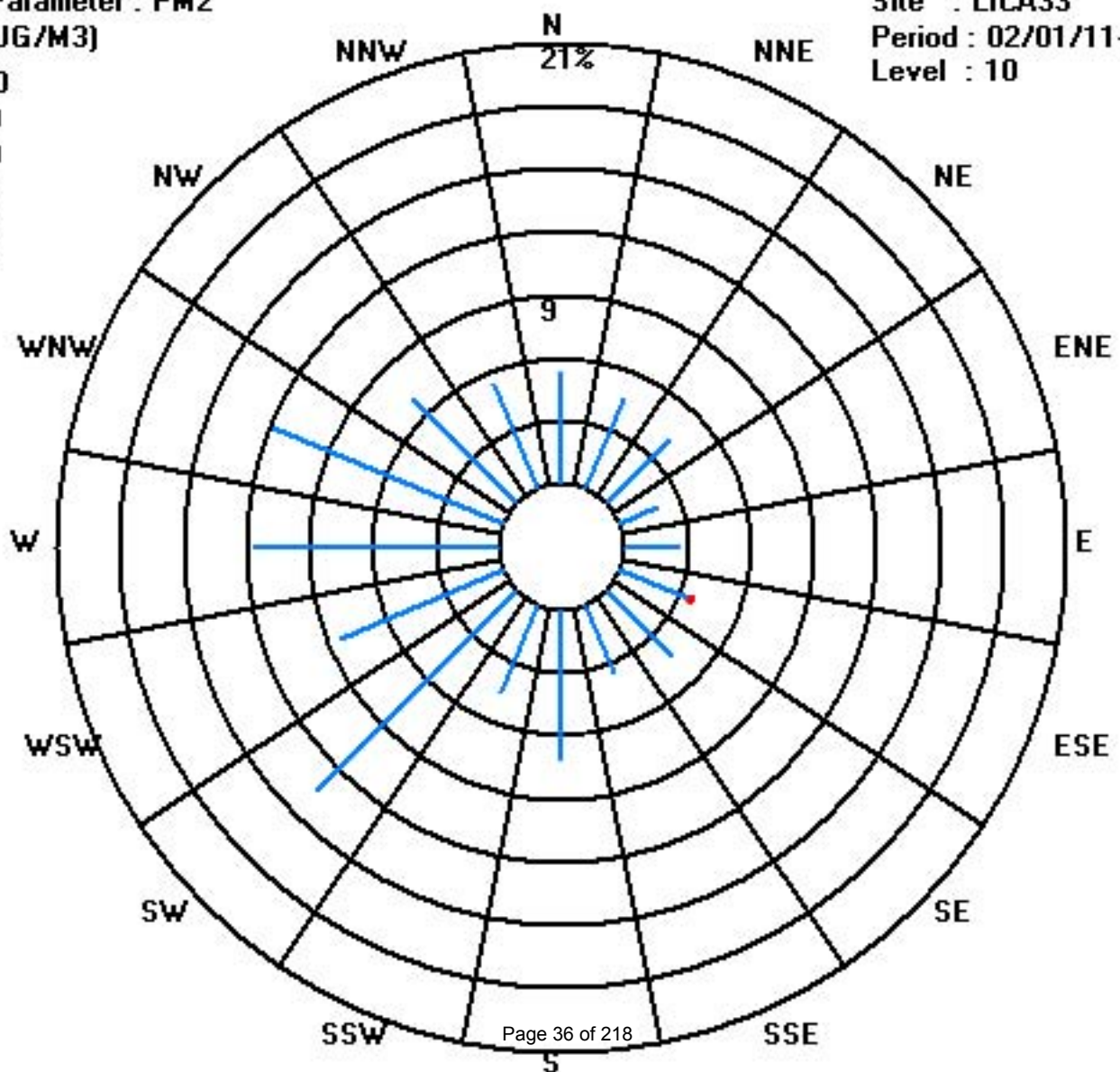
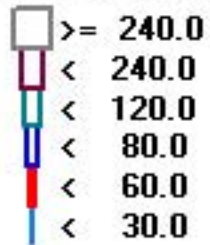
Calm : .00 %

Total # Operational Hours : 616

Class Limits (UG/M3)

Period : 02/01/11-02/28/11

Level : 10



# Nitrogen Dioxide



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 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		15	14	13	13	12	14	12	12	8	7	IZS	3	4	3	4	5	6	9	10	8	10	16	13	12	16	9.7	24	
2		11	12	12	15	16	18	15	15	11	IZS	C	C	C	C	C	C	C	2	2	3	4	2	2	18	9.3	24		
3		3	4	2	2	2	4	5	6	IZS	3	4	2	1	1	1	M	1	2	2	2	1	1	2	2	6	2.4	23	
4		2	2	2	1	1	2	3	IZS	7	8	7	5	4	2	1	2	2	2	4	6	3	4	3	4	8	3.3	24	
5		4	7	3	4	3	3	IZS	1	3	3	3	2	2	2	1	1	1	2	1	2	1	1	1	2	7	2.4	24	
6		2	2	4	4	4	IZS	5	5	5	6	5	3	2	2	2	1	3	5	3	3	4	7	8	10	10	4.1	24	
7		11	12	8	7	IZS	8	9	14	16	14	13	12	9	8	8	7	8	7	5	4	5	3	5	6	16	8.7	24	
8		5	6	7	IZS	10	13	10	9	7	6	4	3	2	2	1	2	2	5	7	7	7	6	6	8	13	5.9	24	
9		10	12	IZS	12	12	16	14	14	15	14	17	11	9	9	10	6	9	12	9	6	4	3	3	3	17	10.0	24	
10		3	IZS	3	3	3	2	5	2	2	4	2	1	1	1	1	1	1	1	2	2	2	2	2	1	5	2.0	24	
11		IZS	3	3	1	2	3	4	6	11	9	4	7	5	2	3	3	3	4	4	5	8	7	10	IZS	11	4.9	24	
12		7	7	7	7	6	5	4	4	6	6	5	4	4	4	4	5	7	8	9	10	10	IZS	11	11	6.4	24		
13		12	13	15	11	10	11	16	11	3	2	1	0	0	0	0	1	1	2	5	4	IZS	2	3	16	5.3	24		
14		4	5	6	9	6	6	8	10	11	9	7	7	5	6	8	8	10	16	18	12	IZS	14	14	11	18	9.1	24	
15		7	5	8	2	1	1	0	0	0	0	1	1	1	0	0	0	0	1	2	IZS	2	3	3	3	8	1.8	24	
16		3	2	2	2	5	3	4	6	8	5	3	1	1	1	2	2	2	3	IZS	4	4	6	6	4	8	3.4	24	
17		5	5	5	6	6	5	4	6	5	3	2	2	2	1	1	2	IZS	7	7	5	5	7	7	7	4.3	24		
18		6	6	7	6	9	12	14	19	16	15	8	4	3	4	3	3	IZS	5	5	4	5	6	5	4	19	7.3	24	
19		5	4	4	5	6	6	6	8	12	10	7	6	5	5	6	IZS	7	7	8	8	10	10	9	7	12	7.0	24	
20		6	7	5	5	4	4	4	4	3	2	2	2	2	1	IZS	2	3	3	4	3	4	4	4	4	7	3.6	24	
21		7	4	5	5	5	5	5	6	5	4	5	4	5	IZS	6	8	10	10	12	13	14	12	17	13	17	7.8	24	
22		19	26	23	32	28	7	6	5	5	2	1	1	IZS	0	0	0	1	1	2	4	6	5	8	5	32	8.1	24	
23		4	4	3	4	3	3	2	3	3	1	1	IZS	0	0	0	0	0	1	1	2	3	2	3	3	4	2.0	24	
24		2	2	2	2	2	3	3	3	3	1	IZS	0	0	0	0	1	1	2	3	6	5	3	3	3	6	2.2	24	
25		3	2	3	4	4	6	9	12	11	IZS	4	5	5	5	5	5	7	10	12	12	12	12	10	9	12	7.3	24	
26		8	6	6	6	6	5	5	6	IZS	4	3	1	1	1	1	1	1	1	1	2	3	3	6	6	8	3.6	24	
27		5	7	9	4	10	13	12	IZS	4	3	2	1	1	1	1	2	3	3	4	5	5	3	3	2	13	4.5	24	
28		2	1	0	1	1	1	IZS	2	2	1	1	1	2	1	1	1	1	1	2	2	3	3	6	8	8	1.9	24	
HOURLY MAX		19	26	23	32	28	18	16	19	16	15	17	12	9	9	10	8	10	16	18	13	14	16	17	13				
HOURLY AVG		6.3	6.7	6.2	6.4	6.6	6.7	7.1	7.3	6.9	5.5	4.5	3.5	2.9	2.4	2.7	2.6	3.5	4.6	5.2	5.3	5.3	5.7	6.0	5.7				

### STATUS FLAG CODES

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

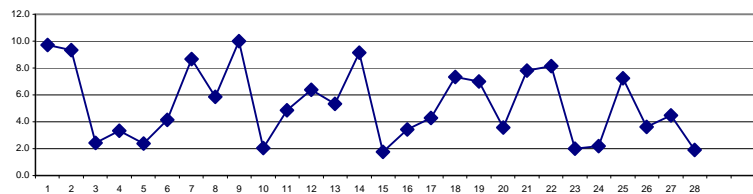
### OBJECTIVE LIMIT:

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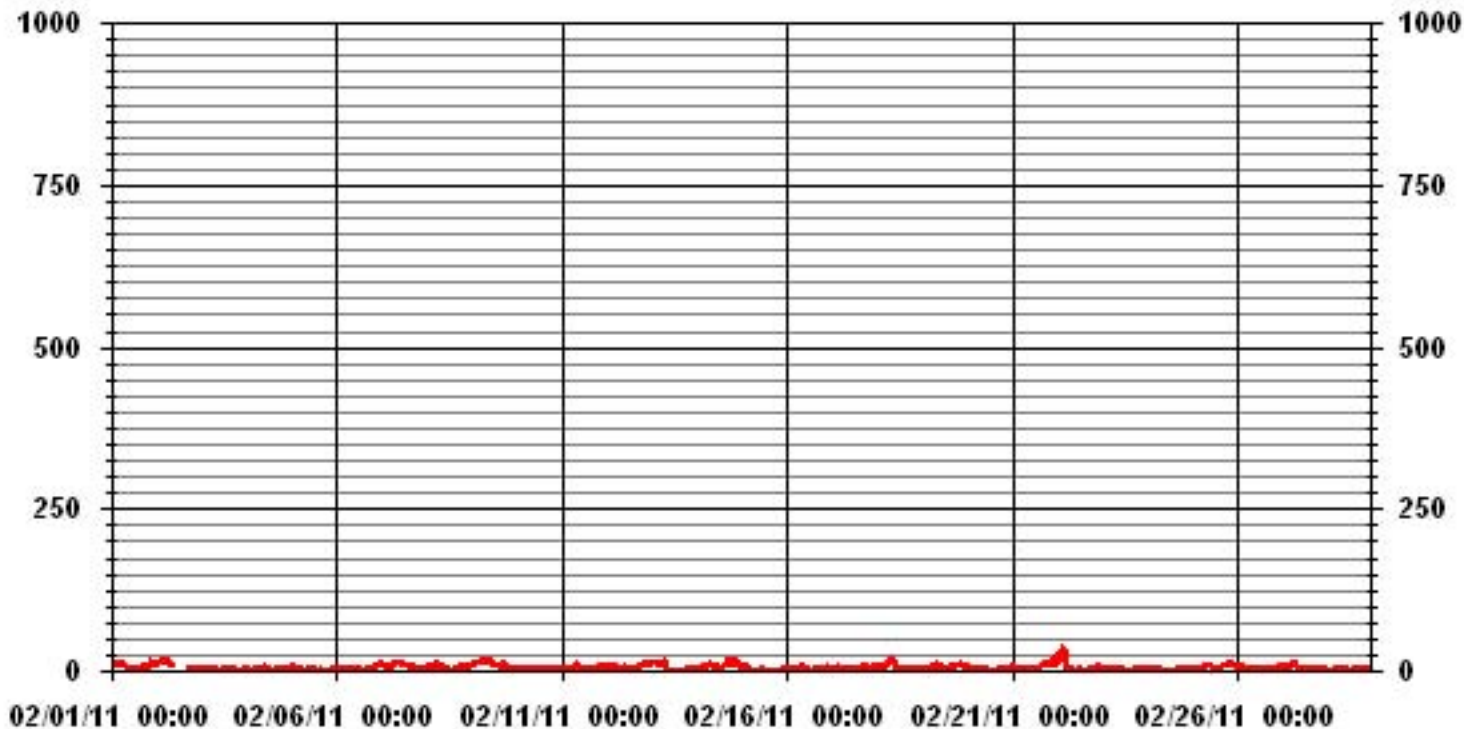
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	608					
MAXIMUM 1-HR AVERAGE:	32	PPB	@ HOUR(S)	3	ON DAY(S)	22
MAXIMUM 24-HR AVERAGE:	10.0	PPB			ON DAY(S)	9
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	4.34		MONTHLY AVERAGE:	5.26	PPB	

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA33 H02\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 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	17	15	16	16	13	15	14	13	10	10	IZS	4	4	4	5	6	8	23	11	10	13	22	19	17	23	12.4	24	
2	12	15	15	19	19	21	18	26	14	IZS	C	C	C	C	C	C	C	C	3	5	4	4	3	3	26	12.1	24	
3	3	6	5	3	3	6	7	8	IZS	5	5	4	2	9	2	M	M	4	3	3	2	3	3	3	9	4.2	22	
4	3	6	5	2	2	2	4	IZS	12	9	8	7	5	4	2	2	3	3	6	14	9	10	5	7	14	5.7	24	
5	8	12	7	6	5	7	IZS	3	5	4	4	4	4	3	3	2	2	2	3	2	3	3	3	4	12	4.3	24	
6	4	4	8	9	7	IZS	6	6	7	24	7	4	3	3	2	3	4	9	4	5	5	9	10	12	24	6.7	24	
7	12	20	10	9	IZS	11	13	18	25	25	14	21	11	10	10	10	11	13	7	5	7	5	17	9	25	12.7	24	
8	7	8	9	IZS	12	17	13	21	10	7	7	4	3	7	2	3	3	8	8	8	8	7	8	10	21	8.3	24	
9	11	14	IZS	14	13	24	17	17	17	18	29	14	11	10	11	8	12	13	12	8	5	5	4	4	29	12.7	24	
10	4	IZS	4	5	4	3	12	3	4	40	4	2	2	2	2	2	2	2	3	4	4	4	3	2	40	5.1	24	
11	IZS	9	11	3	4	7	7	17	18	17	6	8	8	3	4	4	4	5	7	16	13	9	15	IZS	18	8.9	24	
12	11	10	8	8	8	8	7	5	6	8	8	6	5	23	7	5	8	8	10	10	12	11	IZS	22	23	9.3	24	
13	20	18	19	13	12	12	22	23	4	14	2	1	1	1	1	2	4	4	12	11	IZS	3	4	23	8.9	24		
14	5	7	12	19	10	12	11	16	17	11	9	8	6	6	11	8	15	23	23	16	IZS	16	22	18	23	13.1	24	
15	21	11	17	6	1	2	1	1	1	2	2	3	3	2	0	1	6	2	3	IZS	3	9	4	4	21	4.6	24	
16	4	4	3	4	8	6	8	13	13	9	4	2	2	2	4	3	4	6	IZS	7	8	9	7	5	13	5.9	24	
17	5	7	7	8	7	6	5	10	9	4	2	2	2	2	2	2	11	IZS	10	10	6	6	11	12	12	6.3	24	
18	11	8	9	7	12	13	17	22	27	43	11	6	4	4	4	4	4	IZS	7	7	5	8	24	17	6	43	12.0	24
19	6	6	6	6	7	7	7	21	17	22	9	7	6	7	7	IZS	8	9	9	10	12	14	11	8	22	9.7	24	
20	7	9	6	5	5	4	5	9	9	3	3	2	2	2	IZS	3	3	4	5	4	4	5	5	11	11	5.0	24	
21	13	6	6	6	5	6	6	7	6	6	6	5	13	IZS	8	9	11	13	14	14	18	15	22	15	22	10.0	24	
22	31	29	28	33	32	17	10	6	6	5	1	2	IZS	1	1	1	1	2	3	8	8	9	12	6	33	11.0	24	
23	6	5	5	9	4	4	4	6	10	3	2	IZS	2	1	1	1	1	2	2	5	5	3	5	4	10	3.9	24	
24	4	3	3	3	3	3	5	5	16	3	IZS	1	1	1	1	1	3	3	10	14	11	4	4	4	16	4.6	24	
25	3	3	4	5	5	7	12	19	30	IZS	5	5	5	5	5	6	10	12	21	13	13	13	12	10	30	9.7	24	
26	9	8	6	7	6	6	6	8	IZS	8	4	3	2	2	2	2	2	2	2	3	5	9	8	10	10	5.2	24	
27	6	16	18	7	16	17	30	IZS	5	8	3	3	2	2	2	3	4	4	5	6	7	4	4	3	30	7.6	24	
28	4	2	2	3	3	2	IZS	3	3	3	1	2	3	2	2	2	1	2	4	4	6	4	8	9	9	3.3	24	
HOURLY MAX	31	29	28	33	32	24	30	26	30	43	29	21	13	23	11	10	15	23	23	16	18	24	22	22				
HOURLY AVG	9.1	9.7	9.2	8.7	8.4	9.1	10.3	11.8	11.6	12.0	6.2	5.0	4.3	4.5	3.9	3.7	5.6	7.1	7.4	8.2	7.8	8.7	9.1	8.2				

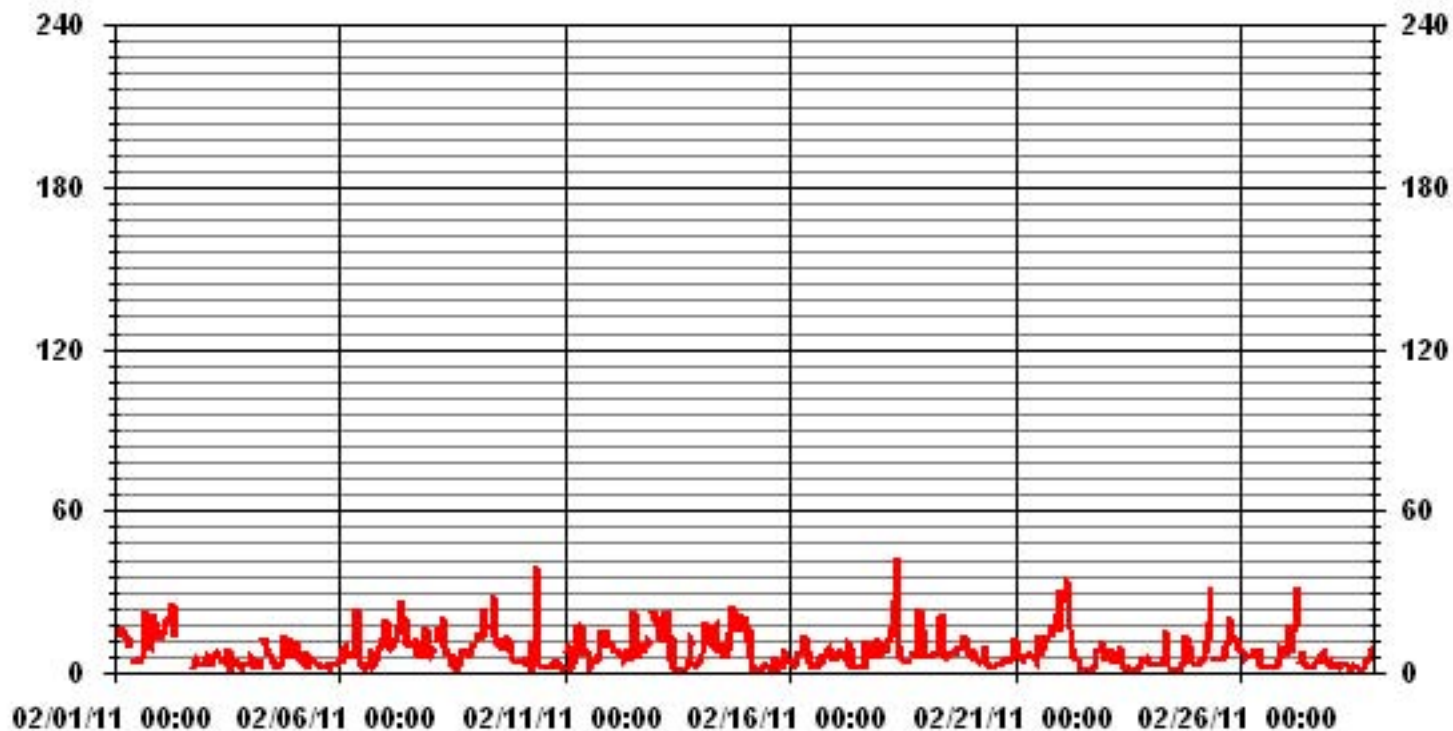
**STATUS FLAG CODES**

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:	632					
MAXIMUM INSTANTANEOUS VALUE:	43	PPB	@ HOUR(S)	9	ON DAY(S)	18
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	670	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	6.25					

### 01 Hour Averages



— LICA33 H02MAX PPB

LICA33  
 NO2\_ / WDR Joint Frequency Distribution (Percent)

February 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	5.99	4.41	4.57	2.05	2.83	3.78	4.10	3.15	6.30	4.57	12.93	9.30	10.56	12.46	7.25	5.67	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.99	4.41	4.57	2.05	2.83	3.78	4.10	3.15	6.30	4.57	12.93	9.30	10.56	12.46	7.25	5.67	

Calm : .00 %

Total # Operational Hours : 634

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	38	28	29	13	18	24	26	20	40	29	82	59	67	79	46	36	634
< 110																	
< 210																	
>= 210																	
Totals	38	28	29	13	18	24	26	20	40	29	82	59	67	79	46	36	

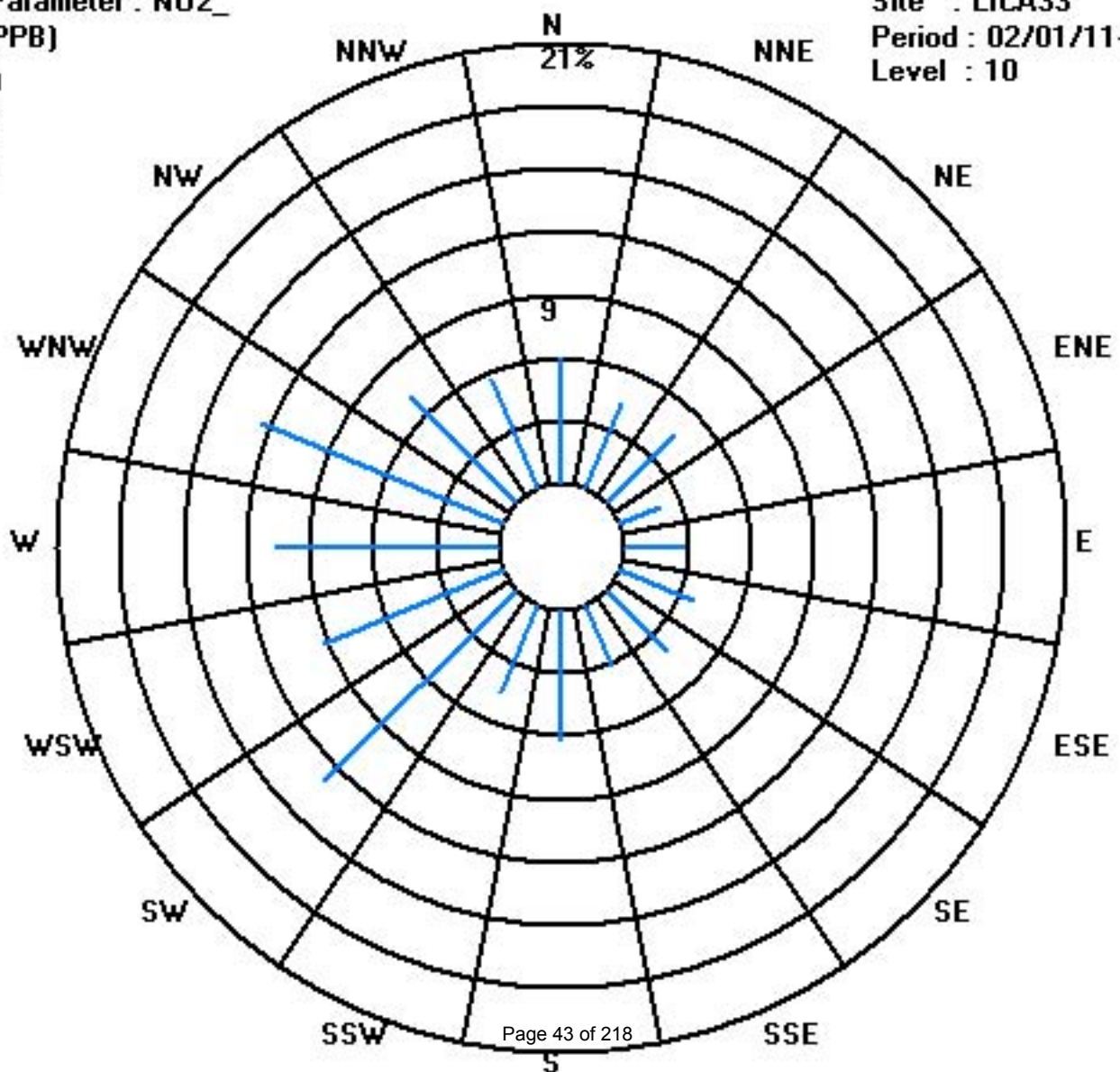
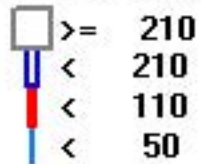
Calm : .00 %

Total # Operational Hours : 634

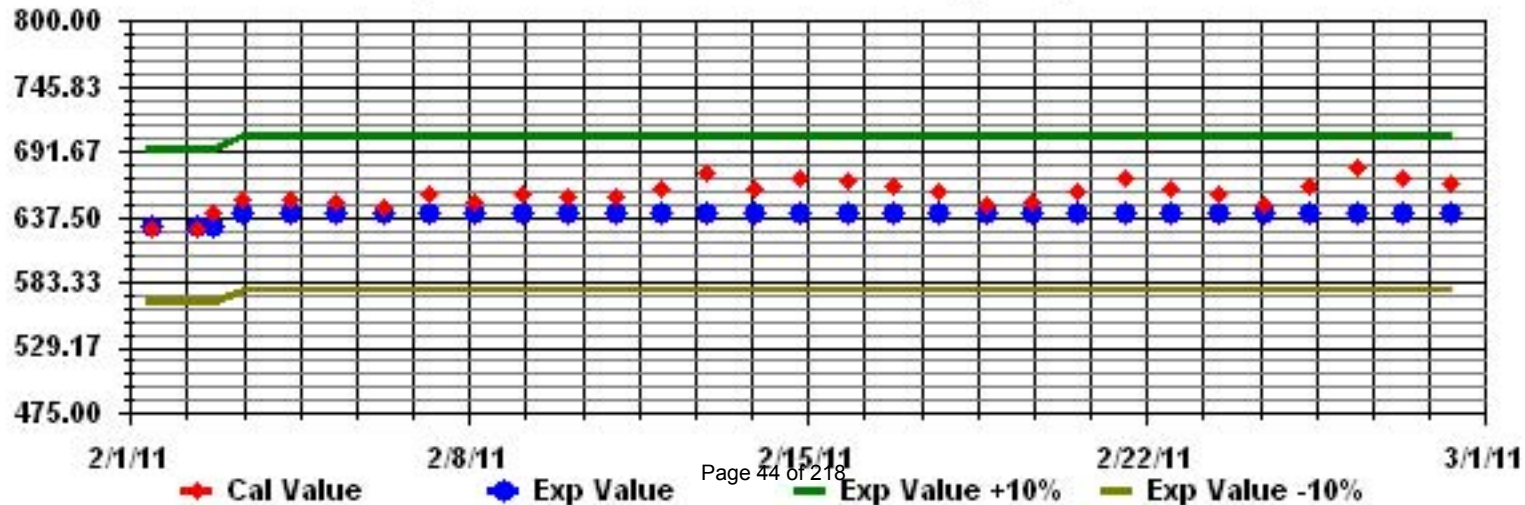
Class Limits (PPB)

Period : 02/01/11-02/28/11

Level : 10



Calibration Graph for Site: LICA33 Parameter: NO2\_ Sequence: NO2 Phase: SPAN



# Nitric Oxide



# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 2011

NITRIC OXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	0	0	0	0	0	0	0	0	1	2	IZS	3	3	2	2	2	1	1	0	0	0	0	0	0	0	3	0.7	24
2	0	0	0	0	0	0	0	1	1	IZS	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	1	0.1	24
3	0	0	0	0	0	0	0	0	IZS	2	2	1	1	1	1	M	1	0	0	1	1	0	0	0	2	0.5	23	
4	0	0	0	0	0	0	0	IZS	2	2	3	3	2	2	1	1	1	0	1	0	0	1	0	1	3	0.9	24	
5	1	1	0	0	0	0	IZS	1	1	1	1	2	1	1	1	1	0	0	0	0	0	0	0	0	2	0.6	24	
6	1	1	0	0	0	IZS	1	1	1	4	4	3	2	2	1	1	1	1	0	0	0	1	1	1	4	1.2	24	
7	1	1	1	1	IZS	1	1	1	8	17	19	18	12	9	7	4	2	1	1	1	0	0	1	1	19	4.7	24	
8	1	1	0	IZS	1	1	1	1	1	3	3	3	2	1	1	1	1	0	1	0	0	1	0	1	3	1.1	24	
9	1	1	IZS	0	0	0	0	0	6	15	25	15	10	9	7	2	1	0	0	0	0	0	0	0	25	4.0	24	
10	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0.6	24	
11	IZS	1	1	1	0	0	1	1	3	5	3	5	3	1	2	1	1	1	0	1	1	0	1	IZS	5	1.5	24	
12	1	1	1	1	0	0	1	0	1	2	3	3	2	3	2	1	1	1	1	0	0	0	0	IZS	1	3	1.1	24
13	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	IZS	1	2	0.8	24	
14	0	1	0	1	1	1	1	1	2	3	4	4	3	2	4	3	2	1	1	1	IZS	1	1	1	4	1.7	24	
15	2	1	2	1	1	0	0	1	1	1	1	1	1	2	1	1	1	1	0	IZS	0	0	0	0	2	0.8	24	
16	0	0	0	0	0	0	0	0	2	2	1	0	0	0	1	0	0	0	IZS	1	1	1	1	1	2	0.5	24	
17	1	1	1	1	1	0	1	1	2	2	2	2	2	2	1	1	1	IZS	1	1	1	1	1	1	2	1.2	24	
18	0	1	1	1	1	1	1	3	11	13	9	5	4	4	3	2	IZS	0	0	0	0	0	0	0	13	2.6	24	
19	0	0	0	0	0	0	0	1	7	12	10	8	6	4	4	IZS	3	0	0	0	0	0	0	0	12	2.4	24	
20	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	IZS	2	1	1	0	0	1	1	1	2	0.6	24	
21	1	1	1	0	1	1	1	1	2	3	3	3	4	IZS	3	3	2	0	0	0	0	0	0	0	4	1.3	24	
22	3	1	1	8	4	0	0	0	0	0	0	0	IZS	1	1	1	1	1	0	0	1	0	1	0	8	1.0	24	
23	0	0	1	1	0	0	0	1	2	1	1	IZS	1	1	1	1	1	0	1	1	0	0	0	0	2	0.6	24	
24	1	0	0	1	0	1	1	1	2	2	IZS	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0.5	24	
25	0	0	0	0	0	0	0	1	7	IZS	4	4	4	4	3	2	2	1	0	0	0	0	0	0	7	1.4	24	
26	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	
27	0	0	0	0	0	0	2	IZS	2	3	3	3	3	1	2	2	2	1	0	1	1	1	1	1	3	1.3	24	
28	1	1	1	1	1	1	IZS	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24	
HOURLY MAX	3	1	2	8	4	1	2	3	11	17	25	18	12	9	7	4	3	1	1	2	1	1	1	1				
HOURLY AVG	0.6	0.6	0.5	0.7	0.5	0.3	0.5	0.7	2.6	3.8	4.2	3.4	2.7	2.1	1.9	1.3	1.0	0.4	0.3	0.4	0.2	0.3	0.4	0.4				

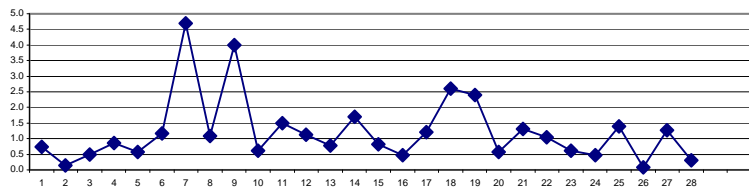
### STATUS FLAG CODES

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

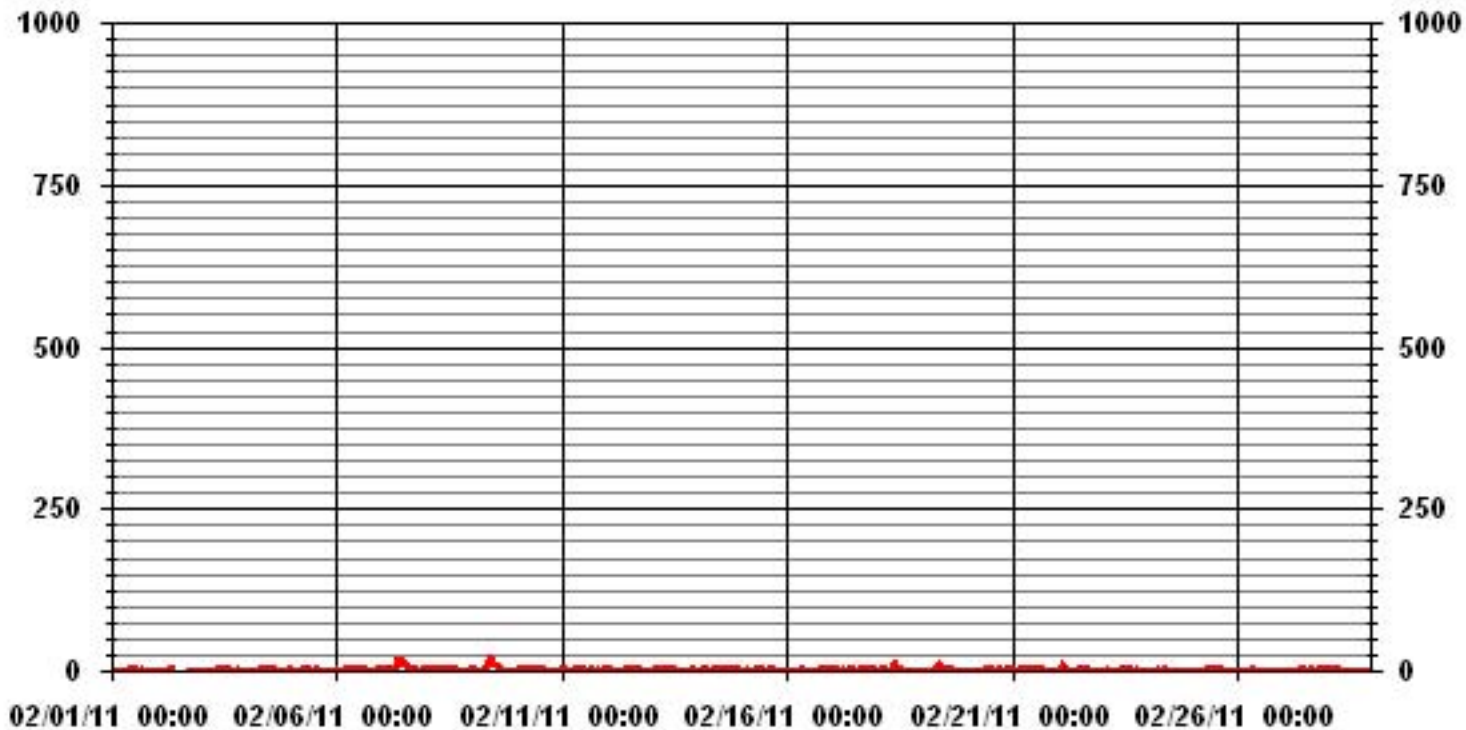
### MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	363					
MAXIMUM 1-HR AVERAGE:	25	PPB	@ HOUR(S)	10	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	4.7	PPB			ON DAY(S)	7
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	2.39		MONTHLY AVERAGE:	1.23	PPB	

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA33 NO\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 2011

**NITRIC OXIDE MAX** instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
DAY																													
1	1	1	1	1	1	1	1	1	2	4	IZS	4	3	3	3	2	2	29	0	1	1	1	1	1	1	29	2.8	24	
2	1	1	1	1	1	1	1	9	3	IZS	C	C	C	C	C	C	C	C	1	0	0	0	0	0	0	9	1.3	24	
3	0	0	0	0	0	0	0	1	IZS	2	3	2	1	9	1	M	M	1	1	1	1	1	1	1	1	9	1.2	22	
4	1	1	1	1	1	1	1	IZS	5	3	4	4	3	4	1	1	1	1	1	1	1	1	2	1	2	5	1.8	24	
5	2	3	1	1	1	1	IZS	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	3	1.4	24	
6	1	1	1	1	1	IZS	1	1	2	23	6	4	3	3	2	2	1	3	1	1	1	1	1	1	1	23	2.7	24	
7	1	2	1	1	IZS	2	2	3	28	48	23	35	15	12	9	8	3	2	1	1	1	1	1	1	1	48	8.7	24	
8	1	1	1	IZS	2	1	1	14	3	4	13	4	3	7	2	2	2	1	2	1	1	1	1	1	1	14	3.0	24	
9	1	1	IZS	1	0	2	1	4	14	24	54	22	14	10	9	4	2	1	0	0	0	0	0	0	0	54	7.1	24	
10	0	IZS	1	1	1	1	1	1	3	8	5	1	1	2	1	1	1	1	1	1	1	1	1	1	1	8	1.6	24	
11	IZS	1	1	1	1	1	15	4	12	12	4	6	5	2	2	2	2	1	1	3	2	1	5	IZS	15	3.8	24		
12	2	1	1	1	1	1	2	1	2	3	4	4	4	24	3	2	2	1	1	1	1	1	1	1	3	24	2.9	24	
13	7	1	2	1	1	1	2	2	2	19	2	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	1	19	2.3	24
14	1	1	1	2	1	1	1	3	3	4	6	5	4	3	5	4	3	2	2	1	IZS	2	2	3	6	2.6	24		
15	8	1	5	1	1	1	1	1	1	1	2	2	3	3	1	1	12	1	1	IZS	0	1	0	0	12	2.1	24		
16	0	0	0	0	1	1	2	2	4	6	2	1	1	1	1	1	0	IZS	1	1	1	1	1	1	1	6	1.3	24	
17	1	1	1	1	1	1	1	2	2	4	3	2	3	2	2	2	11	IZS	1	2	1	1	1	1	1	11	2.0	24	
18	1	1	1	1	1	1	3	9	75	34	13	7	5	5	4	3	IZS	1	0	0	0	17	3	0	75	8.0	24		
19	0	2	0	0	0	0	0	24	11	33	11	9	8	6	5	IZS	4	1	0	0	0	0	0	0	33	5.0	24		
20	0	0	0	0	0	0	0	3	3	2	2	2	2	2	IZS	2	2	1	1	1	1	1	1	1	3	1.2	24		
21	1	1	1	1	1	1	1	1	3	4	4	4	14	IZS	4	3	2	1	0	0	0	0	2	0	14	2.1	24		
22	13	3	4	10	10	0	0	0	1	1	0	0	IZS	2	1	1	1	1	1	1	1	1	1	1	13	2.3	24		
23	1	1	1	2	1	1	1	2	12	2	2	IZS	3	1	1	1	1	1	1	2	1	1	1	1	12	1.8	24		
24	1	1	1	1	1	1	1	2	19	3	IZS	1	1	1	0	0	1	1	5	8	1	0	0	0	19	2.2	24		
25	0	0	0	0	0	0	0	13	42	IZS	5	5	5	5	4	3	3	3	14	0	0	0	0	0	42	4.4	24		
26	0	0	0	0	0	0	0	0	IZS	3	2	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0.3	24		
27	0	0	2	0	0	0	18	IZS	4	7	4	4	4	2	3	4	3	2	1	1	1	1	2	2	18	2.8	24		
28	2	1	1	1	1	2	IZS	1	1	1	1	1	3	1	1	1	0	0	0	0	0	0	0	0	3	0.8	24		
HOURLY MAX	13	3	5	10	10	2	18	24	75	48	54	35	15	24	9	8	12	29	14	8	2	17	5	3					
HOURLY AVG	1.7	1.0	1.1	1.1	1.1	0.9	2.2	4.0	9.9	9.9	7.1	5.1	4.3	4.3	2.6	2.1	2.5	2.2	1.4	1.1	0.7	1.4	1.1	0.9					

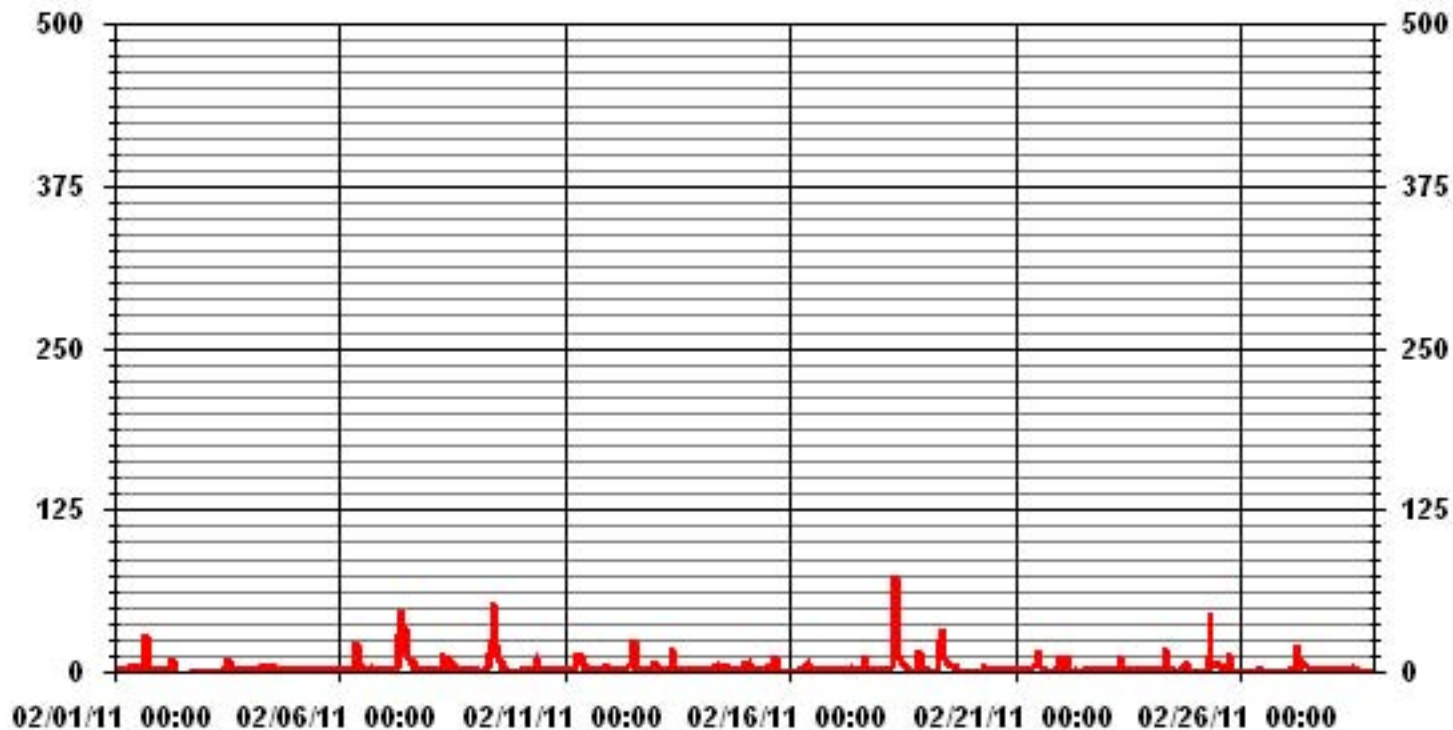
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	522					
MAXIMUM INSTANTANEOUS VALUE:	75	PPB	@ HOUR(S)	8	ON DAY(S)	18
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	670	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	6.12					

### 01 Hour Averages



LICA33  
 NO\_ / WDR Joint Frequency Distribution (Percent)

February 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	5.99	4.41	4.57	2.05	2.83	3.78	4.10	3.15	6.30	4.57	12.93	9.30	10.56	12.46	7.25	5.67	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.99	4.41	4.57	2.05	2.83	3.78	4.10	3.15	6.30	4.57	12.93	9.30	10.56	12.46	7.25	5.67	

Calm : .00 %

Total # Operational Hours : 634

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	38	28	29	13	18	24	26	20	40	29	82	59	67	79	46	36	634
< 110																	
< 210																	
>= 210																	
Totals	38	28	29	13	18	24	26	20	40	29	82	59	67	79	46	36	

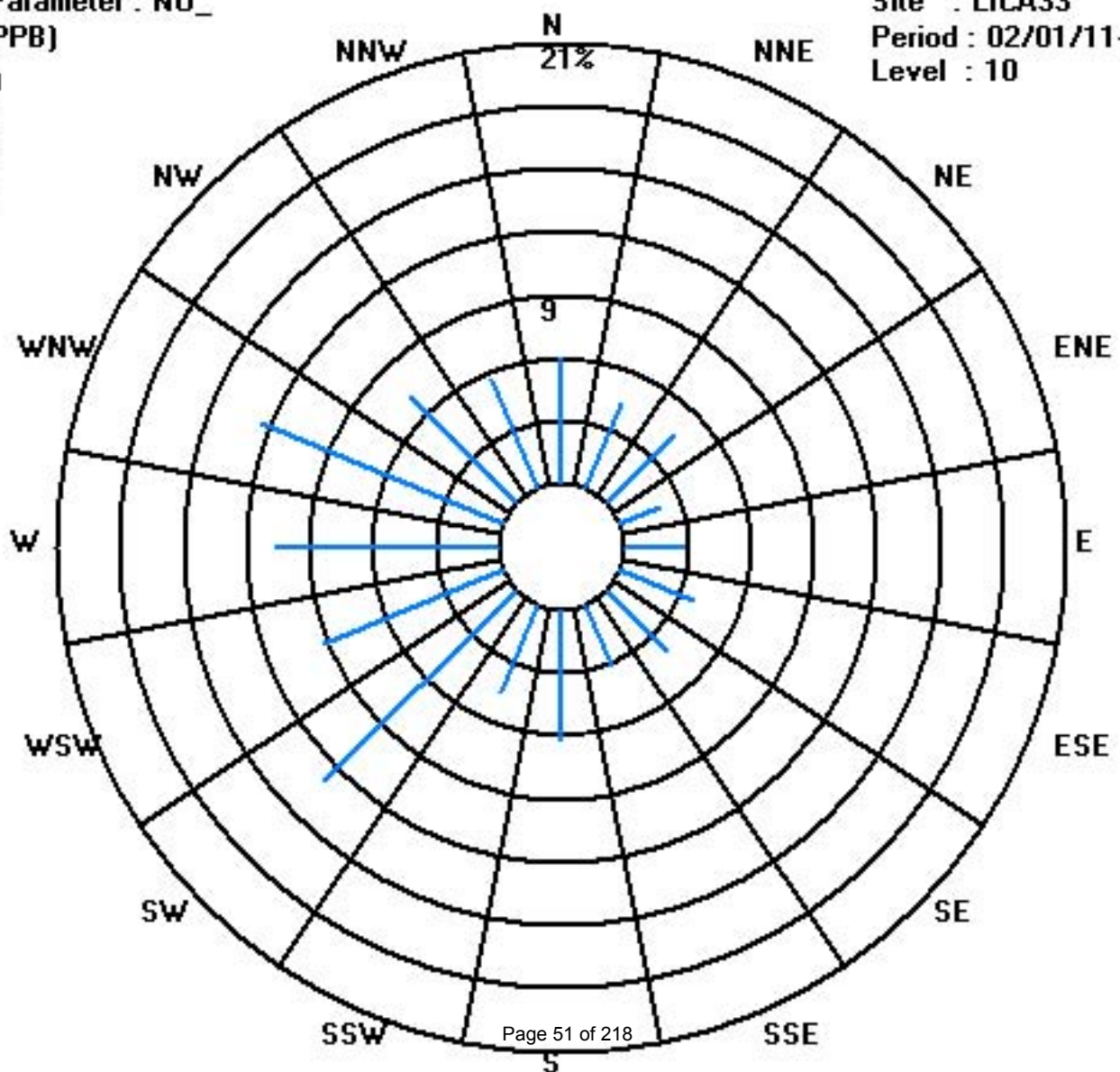
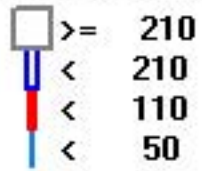
Calm : .00 %

Total # Operational Hours : 634

Class Limits (PPB)

Period : 02/01/11-02/28/11

Level : 10



# Oxides of Nitrogen

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 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	16	14	14	13	12	14	13	12	9	9	IZS	6	6	6	6	7	7	11	10	8	10	17	13	12	17	10.7	24	
2	11	13	12	15	17	18	15	17	13	IZS	C	C	C	C	C	C	C	C	1	1	2	2	1	1	18	9.3	24	
3	1	2	1	0	1	3	4	5	IZS	5	6	4	2	2	2	M	2	3	2	2	2	2	2	2	6	2.5	23	
4	2	2	3	2	2	2	3	IZS	9	10	10	8	6	4	2	2	3	2	5	7	4	5	3	5	10	4.4	24	
5	5	8	4	5	3	4	IZS	2	4	5	4	4	4	3	3	2	1	1	3	2	2	2	2	3	8	3.3	24	
6	3	3	4	4	4	IZS	6	6	7	10	10	6	5	4	3	2	4	6	3	4	4	7	9	11	11	5.4	24	
7	11	13	8	8	IZS	9	9	14	23	31	32	29	20	17	14	10	9	7	5	3	5	3	5	6	32	12.7	24	
8	5	5	7	IZS	10	12	10	10	8	8	5	5	3	2	2	2	4	6	7	7	6	6	8	12	6.1	24		
9	10	12	IZS	12	12	17	14	15	21	29	43	27	20	18	17	8	10	12	9	5	3	3	3	2	43	14.0	24	
10	3	IZS	3	3	3	1	5	2	2	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1.8	24	
11	IZS	4	3	2	3	4	5	7	14	14	7	12	8	4	5	4	4	5	5	6	9	7	12	IZS	14	6.5	24	
12	8	8	7	8	8	7	6	4	5	8	8	8	6	7	6	5	6	8	9	9	11	11	IZS	13	13	7.7	24	
13	15	14	17	12	11	11	17	12	4	3	2	1	1	1	1	1	1	2	3	6	5	IZS	2	3	17	6.3	24	
14	3	5	5	9	6	6	7	10	12	11	10	10	7	7	11	10	11	17	18	12	IZS	15	15	12	18	10.0	24	
15	9	6	9	3	1	1	1	1	1	1	3	3	3	2	0	1	1	2	3	IZS	3	4	4	3	9	2.8	24	
16	3	3	2	3	6	3	5	8	11	9	5	3	3	3	4	3	4	IZS	5	5	7	6	5	11	4.7	24		
17	5	6	6	7	6	6	5	6	7	5	3	4	4	3	2	2	4	IZS	8	8	6	6	8	8	8	5.4	24	
18	6	7	7	7	9	13	15	22	28	28	16	10	7	8	6	5	IZS	6	6	5	5	8	6	4	28	10.2	24	
19	5	5	5	6	7	6	7	10	20	23	18	15	12	10	11	IZS	11	8	9	9	11	11	10	8	23	10.3	24	
20	7	8	5	5	5	4	5	6	5	5	4	4	4	3	IZS	3	3	3	3	3	3	4	4	4	8	4.3	24	
21	6	4	4	4	4	5	5	5	6	6	7	6	8	IZS	10	11	12	11	12	13	14	12	17	13	17	8.5	24	
22	22	27	24	40	33	6	6	4	5	2	1	1	IZS	0	0	0	0	1	1	4	6	5	7	5	40	8.7	24	
23	4	3	3	4	2	2	2	3	4	2	1	1	IZS	2	1	1	1	1	1	3	4	2	4	3	4	2.3	24	
24	3	2	3	2	3	3	4	4	6	3	IZS	1	0	0	0	1	1	2	3	7	4	2	3	2	7	2.6	24	
25	2	2	2	4	4	5	9	13	18	IZS	8	9	9	8	8	8	9	11	12	12	12	12	10	9	18	8.5	24	
26	7	6	5	6	5	5	5	6	IZS	5	4	2	1	1	1	1	1	1	1	3	3	5	5	7	3.5	24		
27	5	7	9	4	10	13	14	IZS	6	7	5	4	4	2	3	5	6	4	5	6	6	3	4	3	14	5.9	24	
28	4	2	1	2	2	2	IZS	3	3	2	2	3	4	2	2	2	2	2	3	3	4	4	6	8	8	3.0	24	
HOURLY MAX	22	27	24	40	33	18	17	22	28	31	43	29	20	18	17	11	12	17	18	13	14	17	17	13				
HOURLY AVG	6.7	7.1	6.4	7.0	7.0	6.7	7.6	8.0	9.7	9.4	8.6	7.2	5.8	4.6	4.7	3.9	4.4	5.2	5.4	5.6	5.6	6.1	6.2	5.9				

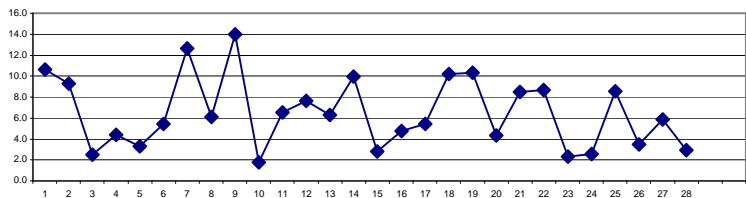
#### STATUS FLAG CODES

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

#### MONTHLY SUMMARY

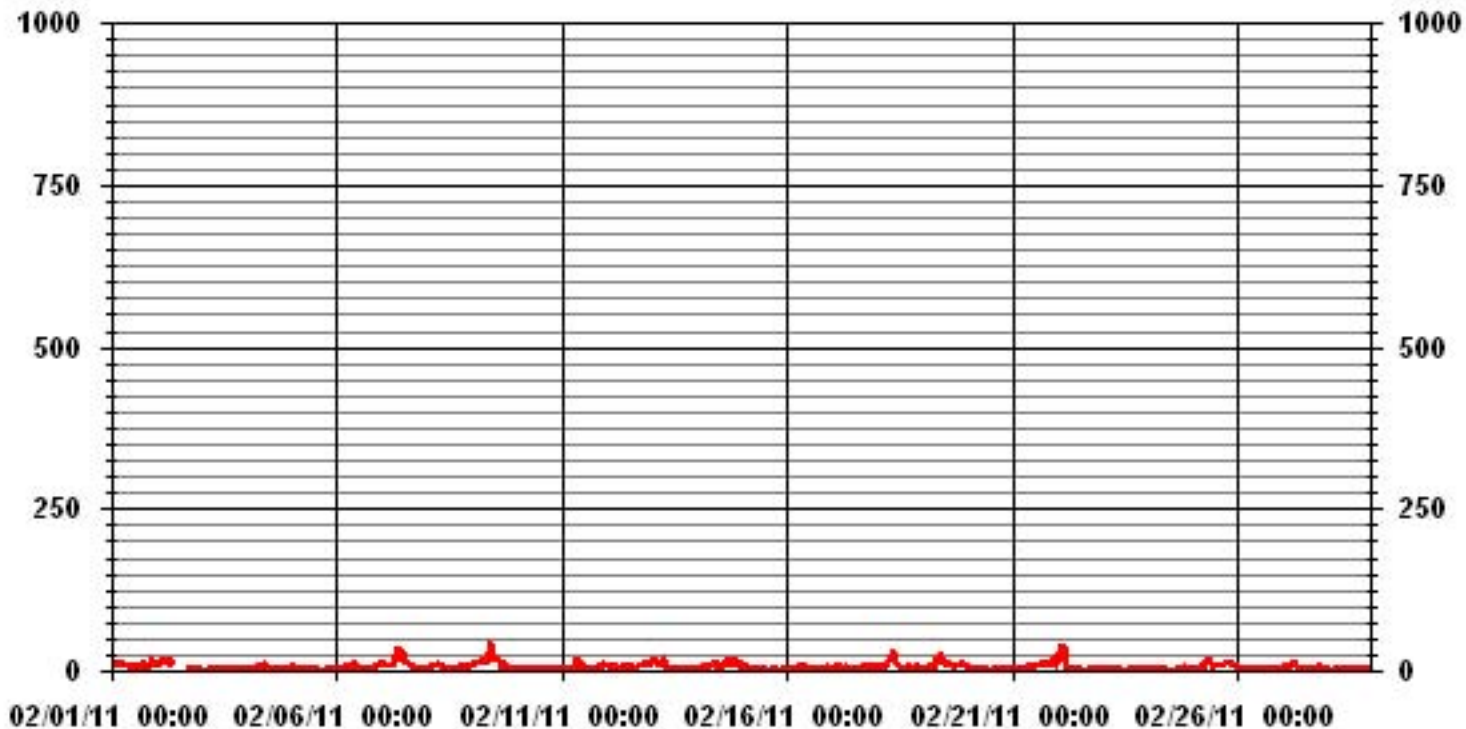
NUMBER OF NON-ZERO READINGS:	625					
MAXIMUM 1-HR AVERAGE:	43	PPB	@ HOUR(S)	10	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	14.0	PPB			ON DAY(S)	9
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME	99.9	%	
STANDARD DEVIATION	5.58		MONTHLY AVERAGE	6.44	PPB	

24 HOUR AVERAGES FOR FEBRUARY 2011





### 01 Hour Averages



— LICA33 NOX\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 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	17	16	16	17	13	15	15	13	10	14	IZS	7	7	7	7	9	8	45	11	10	14	23	20	18	45	14.4	24	
2	12	15	15	20	19	21	19	35	17	IZS	C	C	C	C	C	C	C	C	2	4	2	3	1	2	35	12.5	24	
3	2	5	3	1	1	5	5	7	IZS	7	8	6	3	18	3	M	M	4	4	4	3	3	3	3	18	4.7	22	
4	3	6	5	3	2	3	5	IZS	16	11	11	11	7	7	3	3	3	3	7	15	10	11	6	9	16	7.0	24	
5	10	15	8	7	6	7	IZS	3	6	6	6	6	5	5	4	3	3	2	4	3	4	3	3	4	15	5.3	24	
6	4	4	9	9	8	IZS	7	7	8	45	13	8	6	6	4	4	5	11	5	5	5	10	11	13	45	9.0	24	
7	13	22	10	10	IZS	12	14	18	46	71	36	54	25	20	17	17	11	13	7	5	7	4	17	8	71	19.9	24	
8	6	8	9	IZS	12	17	13	30	10	9	17	7	5	12	2	4	4	7	8	8	8	7	7	10	30	9.6	24	
9	11	14	IZS	13	13	26	18	21	30	42	79	37	24	20	19	12	12	13	12	8	5	4	3	3	79	19.1	24	
10	4	IZS	4	4	4	2	11	3	5	47	8	2	2	2	2	2	2	2	2	3	3	4	3	2	47	5.3	24	
11	IZS	10	11	4	5	8	31	20	29	28	10	13	13	5	6	5	5	5	8	19	15	9	20	IZS	31	12.7	24	
12	12	10	8	8	9	8	9	5	7	11	11	10	9	46	10	6	9	9	11	11	13	12	IZS	24	46	11.7	24	
13	28	19	21	14	13	13	23	24	5	33	3	2	2	2	2	1	2	5	5	12	12	IZS	3	3	33	10.7	24	
14	5	7	12	19	9	12	11	18	19	14	13	12	8	8	15	11	15	23	23	15	IZS	17	24	21	24	14.4	24	
15	29	12	21	7	2	3	2	2	1	3	4	4	6	4	1	2	18	3	3	IZS	4	11	5	4	29	6.6	24	
16	5	5	3	5	10	7	10	17	15	16	7	4	4	4	5	5	5	7	IZS	8	9	10	8	7	17	7.7	24	
17	6	8	8	9	8	7	6	12	11	8	5	4	5	4	3	3	20	IZS	11	12	7	7	12	13	20	8.2	24	
18	12	9	10	8	13	14	20	31	101	75	24	12	8	8	7	6	IZS	8	8	6	10	41	21	6	101	19.9	24	
19	7	9	6	7	8	7	8	45	26	51	20	17	14	13	12	IZS	13	10	10	11	12	15	11	9	51	14.8	24	
20	8	10	7	6	6	5	5	14	13	5	5	4	4	4	IZS	4	4	4	4	4	4	5	4	11	14	6.1	24	
21	13	5	6	6	5	5	6	7	7	8	9	7	25	IZS	10	11	13	13	14	14	18	15	24	15	25	11.1	24	
22	43	30	32	43	42	17	10	6	6	6	1	2	IZS	1	1	1	1	2	2	7	8	9	12	5	43	12.5	24	
23	5	4	5	10	3	3	4	6	21	4	2	IZS	5	2	2	2	2	2	2	6	5	3	5	4	21	4.7	24	
24	4	3	3	3	3	4	6	6	33	5	IZS	2	1	1	1	1	3	3	15	22	11	3	4	3	33	6.1	24	
25	3	2	4	4	5	6	11	32	64	IZS	10	10	10	10	9	8	11	12	33	13	13	13	11	9	64	13.2	24	
26	8	7	6	7	6	6	5	8	IZS	10	5	3	2	2	2	1	2	1	2	2	5	8	8	11	11	5.1	24	
27	5	16	19	6	16	18	46	IZS	8	15	7	6	6	4	5	7	7	5	6	7	8	5	5	5	46	10.1	24	
28	5	3	3	4	4	4	IZS	5	5	4	3	4	6	3	3	3	2	3	5	5	7	5	8	9	9	4.5	24	
HOURLY MAX	43	30	32	43	42	26	46	45	101	75	79	54	25	46	19	17	20	45	33	22	18	41	24	24				
HOURLY AVG	10.4	10.1	9.8	9.4	9.1	9.4	12.3	15.2	20.0	21.1	12.7	9.8	8.2	8.4	6.0	5.2	7.2	8.3	8.3	8.9	8.2	9.6	9.6	8.6				

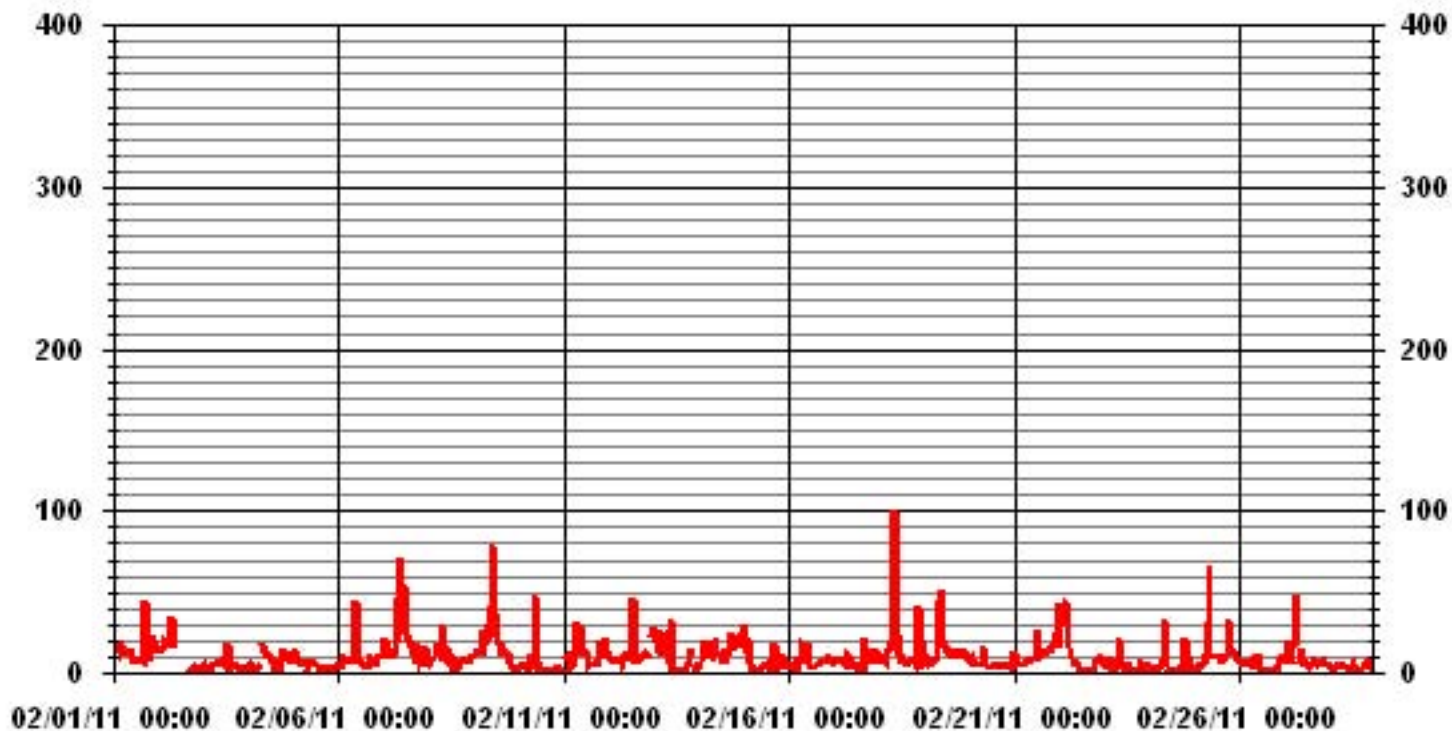
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	633		
MAXIMUM INSTANTANEOUS VALUE:	101 PPB @ HOUR(S) 8 ON DAY(S) 18		
IZS CALIBRATION TIME:	29 HRS	OPERATIONAL TIME:	670 HRS
MONTHLY CALIBRATION TIME:	8 HRS		
STANDARD DEVIATION:	10.47		

### 01 Hour Averages



— LICA33 NOxMAX PPB

LICA33  
 NOX\_ / WDR Joint Frequency Distribution (Percent)

February 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	5.99	4.41	4.57	2.05	2.83	3.78	4.10	3.15	6.30	4.57	12.93	9.30	10.56	12.46	7.25	5.67	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.99	4.41	4.57	2.05	2.83	3.78	4.10	3.15	6.30	4.57	12.93	9.30	10.56	12.46	7.25	5.67	

Calm : .00 %

Total # Operational Hours : 634

Distribution By Samples

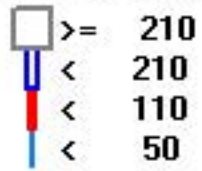
	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	38	28	29	13	18	24	26	20	40	29	82	59	67	79	46	36	634
< 110																	
< 210																	
>= 210																	
Totals	38	28	29	13	18	24	26	20	40	29	82	59	67	79	46	36	

Calm : .00 %

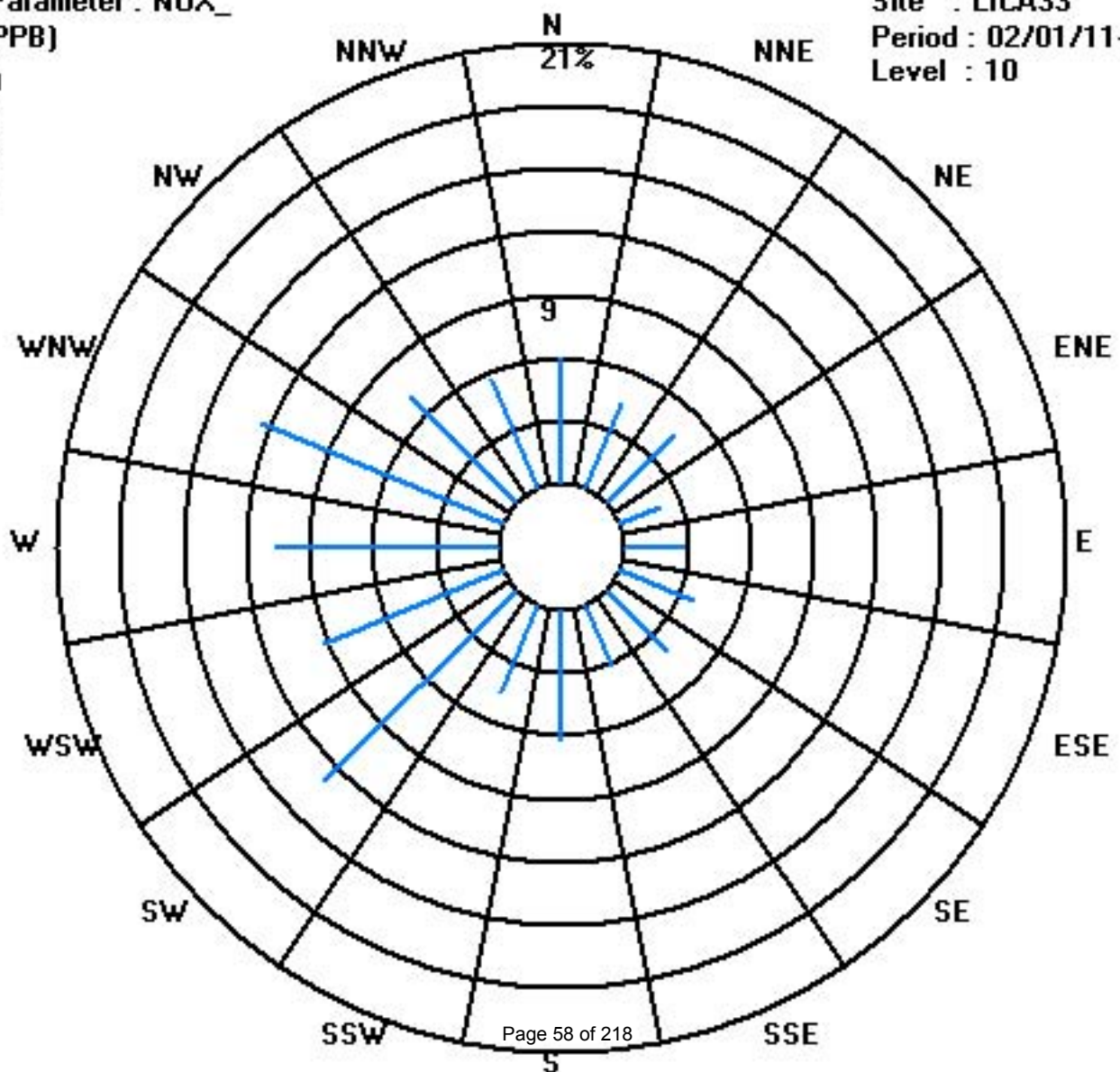
Total # Operational Hours : 634

Class Limits (PPB)

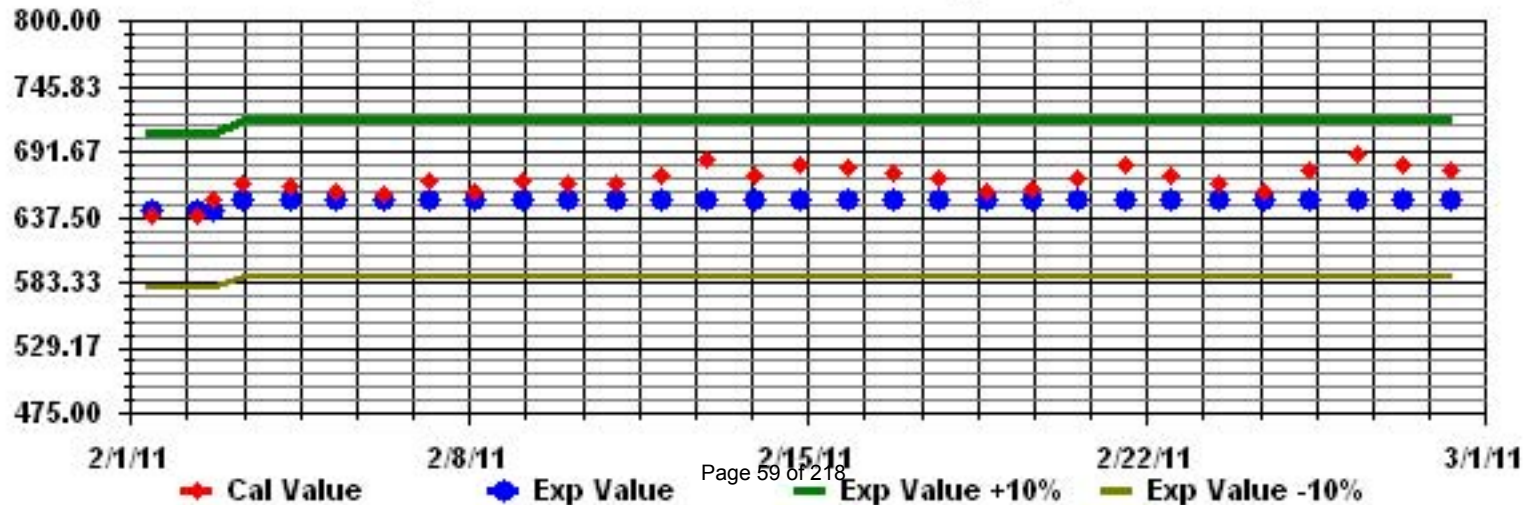
Period : 02/01/11-02/28/11



Level : 10



Calibration Graph for Site: LICA33 Parameter: NOX\_ Sequence: NO2 Phase: SPAN



# Ozone

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 2011

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

MST

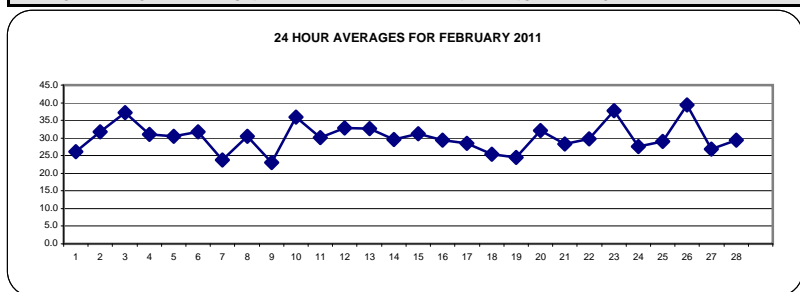
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	13	15	15	17	19	19	19	21	27	28	<b>IZS</b>	34	35	36	36	35	32	31	32	28	22	25	24	36	26.0	24		
2	25	22	23	18	16	16	21	21	24	<b>IZS</b>	35	37	39	40	40	40	39	40	40	39	39	38	40	39	40	31.8	24	
3	38	37	38	39	38	35	32	32	<b>IZS</b>	36	36	38	<b>C</b>	<b>C</b>	41	<b>M</b>	39	38	38	38	38	38	37	37	41	37.2	23	
4	37	36	36	36	35	35	33	<b>IZS</b>	25	24	26	30	31	34	37	37	36	35	32	25	25	23	25	22	37	31.1	24	
5	25	22	24	22	28	26	<b>IZS</b>	30	28	28	29	30	31	33	34	36	33	30	32	34	35	37	37	36	37	30.4	24	
6	36	35	33	34	34	<b>IZS</b>	30	29	29	29	30	33	34	35	36	36	35	32	34	33	31	27	24	22	36	31.8	24	
7	19	17	20	20	<b>IZS</b>	18	17	11	10	13	16	20	24	26	26	31	30	32	33	34	33	35	32	31	35	23.8	24	
8	31	31	28	<b>IZS</b>	25	22	25	25	28	29	32	33	35	36	37	37	36	34	32	31	29	30	29	27	37	30.5	24	
9	25	21	<b>IZS</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	25	23.0	3	
10	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>M</b>	<b>C</b>	36	37	37	38	38	37	36	35	35	34	35	34	35	38	35.9	15	
11	<b>IZS</b>	32	32	34	33	32	31	27	21	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	36	35	35	35	32	31	29	25	25	18	<b>IZS</b>	36	30.2	24	
12	25	25	28	29	28	30	32	34	34	32	34	37	39	40	41	41	39	37	35	33	30	29	<b>IZS</b>	24	41	32.9	24	
13	22	20	18	23	22	21	13	19	30	33	38	40	40	41	43	44	44	43	41	37	39	<b>IZS</b>	42	40	<b>44</b>	32.7	24	
14	39	36	35	28	29	27	25	21	23	28	33	35	37	37	36	36	33	27	23	28	<b>IZS</b>	23	20	22	39	29.6	24	
15	29	31	27	33	33	33	32	32	32	32	31	31	31	32	33	34	34	30	29	<b>IZS</b>	30	29	30	30	34	31.2	24	
16	29	30	31	30	28	30	30	26	26	29	31	32	33	32	32	32	32	30	<b>IZS</b>	28	27	26	25	27	33	29.4	24	
17	26	26	26	25	26	26	27	26	27	30	32	32	32	33	33	33	31	<b>IZS</b>	27	27	29	29	26	27	33	28.5	24	
18	27	26	26	26	22	18	15	11	15	18	24	28	30	30	31	33	<b>IZS</b>	31	31	31	29	27	28	28	33	25.4	24	
19	27	28	25	24	23	21	20	16	15	20	24	27	29	31	30	<b>IZS</b>	28	28	25	25	23	23	24	26	31	24.4	24	
20	26	26	29	29	29	30	29	28	31	32	33	34	34	35	<b>IZS</b>	36	36	35	35	35	35	35	34	34	36	32.2	24	
21	31	33	32	32	32	31	31	30	30	32	32	32	<b>IZS</b>	30	30	29	27	25	23	22	22	16	18	33	28.3	24		
22	12	5	7	1	5	26	26	29	30	36	40	<b>IZS</b>	43	43	42	42	41	41	37	34	35	33	35	43	35	29.7	24	
23	36	36	37	36	37	38	38	37	37	38	39	<b>IZS</b>	40	41	41	40	40	39	39	37	36	37	35	36	41	37.8	24	
24	36	35	34	34	32	30	27	26	25	25	<b>IZS</b>	24	25	24	25	26	26	27	26	24	24	26	27	28	36	27.7	24	
25	29	30	30	29	28	26	22	20	21	<b>IZS</b>	31	32	32	34	34	35	34	31	28	27	27	27	30	31	35	29.0	24	
26	33	35	36	36	36	36	37	34	<b>IZS</b>	38	39	41	42	42	43	44	44	44	44	42	41	38	36	<b>44</b>	<b>39.3</b>	24		
27	35	33	31	34	27	24	25	<b>IZS</b>	29	27	25	20	20	23	24	25	26	26	26	24	25	28	29	30	35	26.8	24	
28	29	30	31	31	33	31	<b>IZS</b>	30	31	32	34	34	33	34	34	33	32	32	28	25	22	22	18	16	34	29.3	24	
HOURLY MAX	39	37	38	39	38	38	38	37	37	38	40	41	42	43	43	44	44	44	44	44	44	42	41	42	40			
HOURLY AVG	28.5	27.9	28.2	28.0	27.9	27.2	26.5	25.6	26.2	29.1	31.5	32.4	33.1	34.6	35.1	35.6	34.8	33.4	32.3	31.3	30.4	29.6	29.1	29.3				

### STATUS FLAG CODES

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

OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 82 PPB

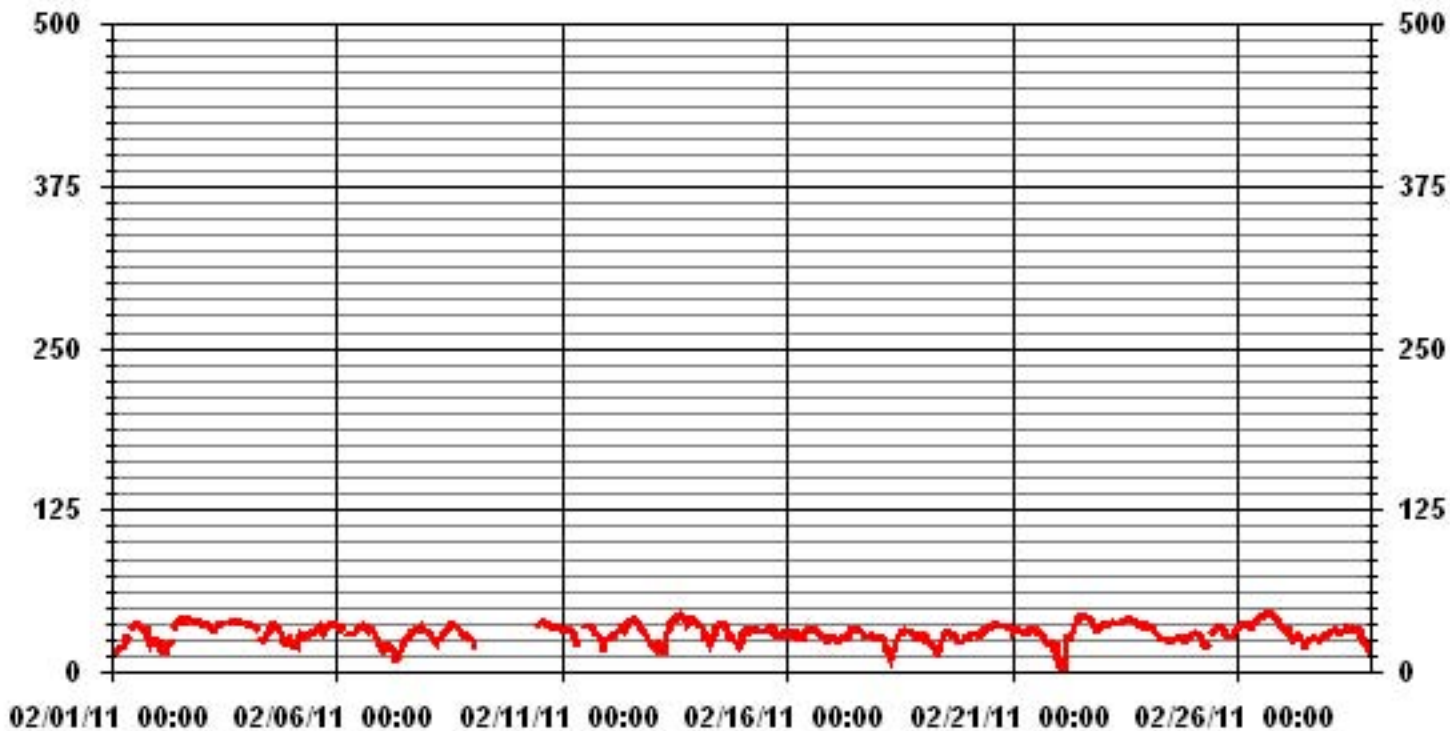


### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	605					
MAXIMUM 1-HR AVERAGE:	44	PPB	@ HOUR(S)	VAR	ON DAY(S)	13, 26
MAXIMUM 24-HR AVERAGE:	39.3	PPB			ON DAY(S)	26
					VAR-VARIOUS	
IZS CALIBRATION TIME:	28	HRS	OPERATIONAL TIME:	641	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME	95.4	%	
STANDARD DEVIATION	6.78		MONTHLY AVERAGE	30.34	PPB	



### 01 Hour Averages



— LICA33 03\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 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	15	15	17	19	20	19	20	23	30	31	<b>IZS</b>	35	35	36	36	36	35	32	33	31	26	29	27	36	27.7	24		
2	27	26	24	21	19	22	22	24	27	<b>IZS</b>	36	38	39	40	40	40	40	40	40	39	40	41	40	41	40	41	33.3	24
3	39	39	39	39	38	37	34	33	<b>IZS</b>	38	38	<b>C</b>	<b>C</b>	<b>C</b>	41	<b>M</b>	<b>M</b>	39	39	39	39	38	38	38	41	38.1	22	
4	38	37	36	36	36	35	34	<b>IZS</b>	29	25	28	31	32	36	37	37	36	34	30	28	25	26	24	38	32.5	24		
5	28	27	27	27	30	29	<b>IZS</b>	32	30	30	30	31	32	34	36	37	35	31	34	36	37	38	39	38	39	32.5	24	
6	37	36	36	36	36	<b>IZS</b>	32	30	30	30	32	34	35	36	36	36	36	34	35	35	33	29	26	24	37	33.2	24	
7	20	21	23	22	<b>IZS</b>	21	20	16	13	15	21	23	25	28	28	36	35	33	35	35	35	36	36	35	36	26.6	24	
8	32	32	31	<b>IZS</b>	26	25	26	26	30	31	33	35	36	37	37	38	37	37	33	33	30	31	31	29	38	32.0	24	
9	27	23	<b>IZS</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	27	25.0	3	
10	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>M</b>	<b>C</b>	36	37	38	38	38	38	37	36	36	36	36	35	35	38	36.6	15	
11	<b>IZS</b>	35	34	34	34	34	34	31	26	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	36	36	36	34	33	32	26	27	27	<b>IZS</b>	36	32.3	24	
12	28	27	29	30	29	31	34	35	35	33	36	38	41	42	42	42	41	39	37	35	33	30	<b>IZS</b>	27	42	34.5	24	
13	26	23	22	24	23	23	21	27	32	36	40	40	41	42	44	44	44	44	43	40	42	<b>IZS</b>	44	41	44	35.0	24	
14	41	38	37	33	32	30	29	28	28	31	34	37	38	38	38	38	36	34	27	32	<b>IZS</b>	26	26	28	41	33.0	24	
15	34	35	32	34	34	33	33	33	33	32	32	32	32	33	34	34	35	31	30	<b>IZS</b>	31	30	30	30	35	32.5	24	
16	30	32	32	31	30	32	31	31	29	31	32	33	33	33	32	33	33	<b>IZS</b>	<b>IZS</b>	29	29	28	27	27	33	30.9	24	
17	27	28	29	27	27	27	28	28	30	32	32	33	33	33	34	33	<b>IZS</b>	<b>IZS</b>	30	30	30	30	29	30	34	30.1	24	
18	28	27	27	26	25	19	17	15	19	21	27	30	31	30	32	34	<b>IZS</b>	<b>IZS</b>	32	32	32	31	30	30	29	34	27.1	24
19	30	30	27	27	24	23	21	18	19	23	26	28	31	32	30	<b>IZS</b>	29	30	26	26	24	24	26	27	32	26.1	24	
20	27	28	30	30	29	30	30	30	33	33	34	34	35	36	<b>IZS</b>	36	36	36	36	35	36	35	35	35	36	33.0	24	
21	33	34	33	33	33	32	31	31	31	32	33	33	32	<b>IZS</b>	31	30	29	29	26	25	25	20	21	34	29.7	24		
22	21	10	12	2	19	28	28	31	31	40	41	41	<b>IZS</b>	43	43	43	42	42	41	41	37	37	35	36	43	32.3	24	
23	37	38	38	38	38	38	39	38	38	39	40	<b>IZS</b>	41	41	41	41	41	40	40	39	37	38	36	36	41	38.8	24	
24	37	36	35	35	33	32	29	27	26	25	<b>IZS</b>	25	26	25	25	26	27	28	27	28	26	27	28	29	37	28.8	24	
25	30	31	31	29	29	27	25	22	24	<b>IZS</b>	31	32	33	35	35	35	35	32	30	28	28	28	31	32	35	30.1	24	
26	34	37	37	37	37	37	38	36	<b>IZS</b>	39	39	42	43	43	44	44	44	45	45	45	43	43	40	40	<b>45</b>	40.5	24	
27	38	36	36	36	33	28	32	<b>IZS</b>	32	29	27	22	22	23	25	28	29	28	27	26	27	29	31	32	38	29.4	24	
28	31	31	32	32	34	32	<b>IZS</b>	31	33	34	34	34	44	34	34	34	34	32	32	26	24	23	22	17	44	31.0	24	
HOURLY MAX	41	39	39	39	38	38	39	38	38	40	41	42	44	43	44	44	44	45	45	45	43	43	44	41				
HOURLY AVG	30.6	30.1	30.2	29.5	29.9	29.0	28.7	28.2	28.7	30.9	32.9	33.2	34.5	35.3	35.7	36.4	35.9	35.0	33.8	33.3	32.2	31.1	31.5	31.0				

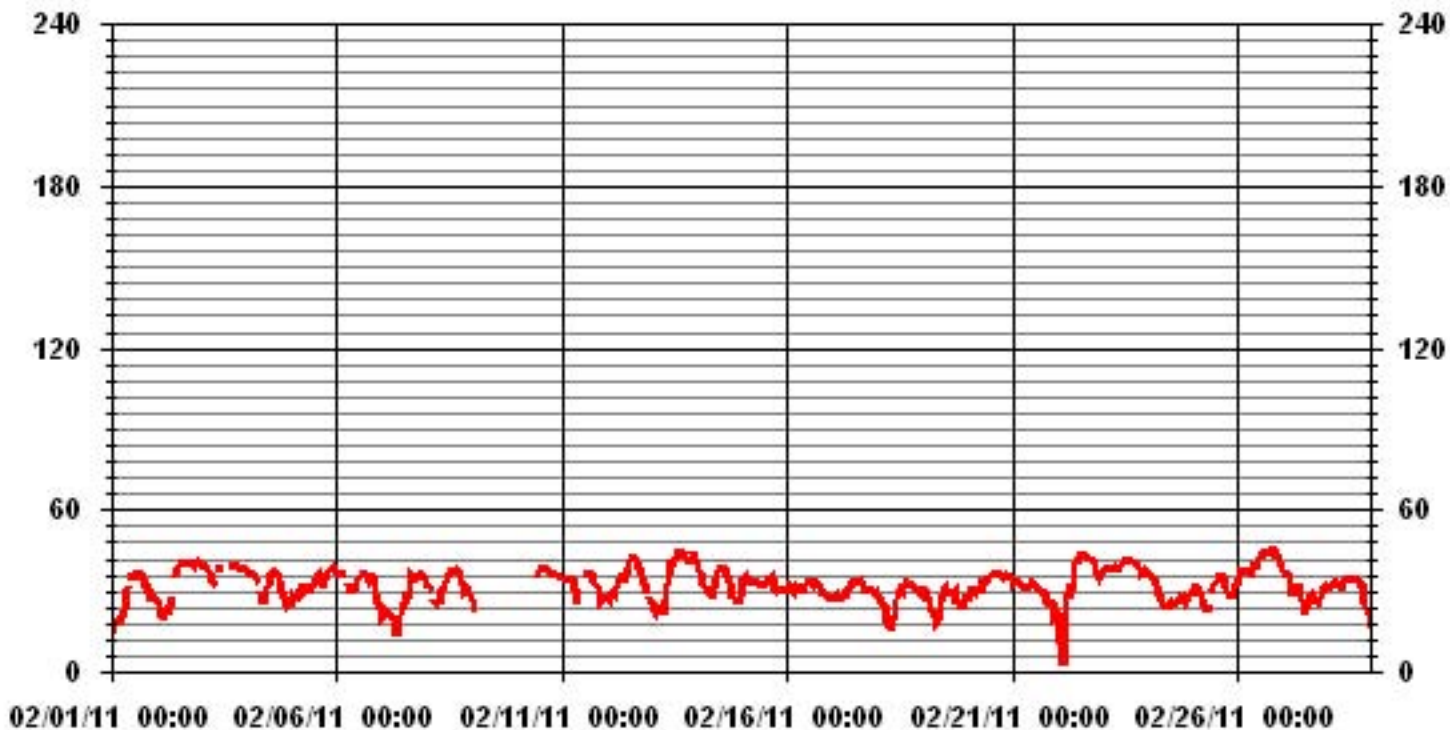
**STATUS FLAG CODES**

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:	602				
MAXIMUM INSTANTANEOUS VALUE:	45	PPB	@ HOUR(S)	VAR	ON DAY(S) 26
IZS CALIBRATION TIME:	28	HRS	OPERATIONAL TIME:	640	HRS
MONTHLY CALIBRATION TIME:	9	HRS			
STANDARD DEVIATION:	6.17				

### 01 Hour Averages



LICA33  
 O3\_ / WDR Joint Frequency Distribution (Percent)

February 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	6.11	4.62	4.79	1.98	2.80	3.80	3.96	2.47	6.44	4.79	12.56	8.26	11.23	12.89	7.27	5.95	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	6.11	4.62	4.79	1.98	2.80	3.80	3.96	2.47	6.44	4.79	12.56	8.26	11.23	12.89	7.27	5.95	

Calm : .00 %

Total # Operational Hours : 605

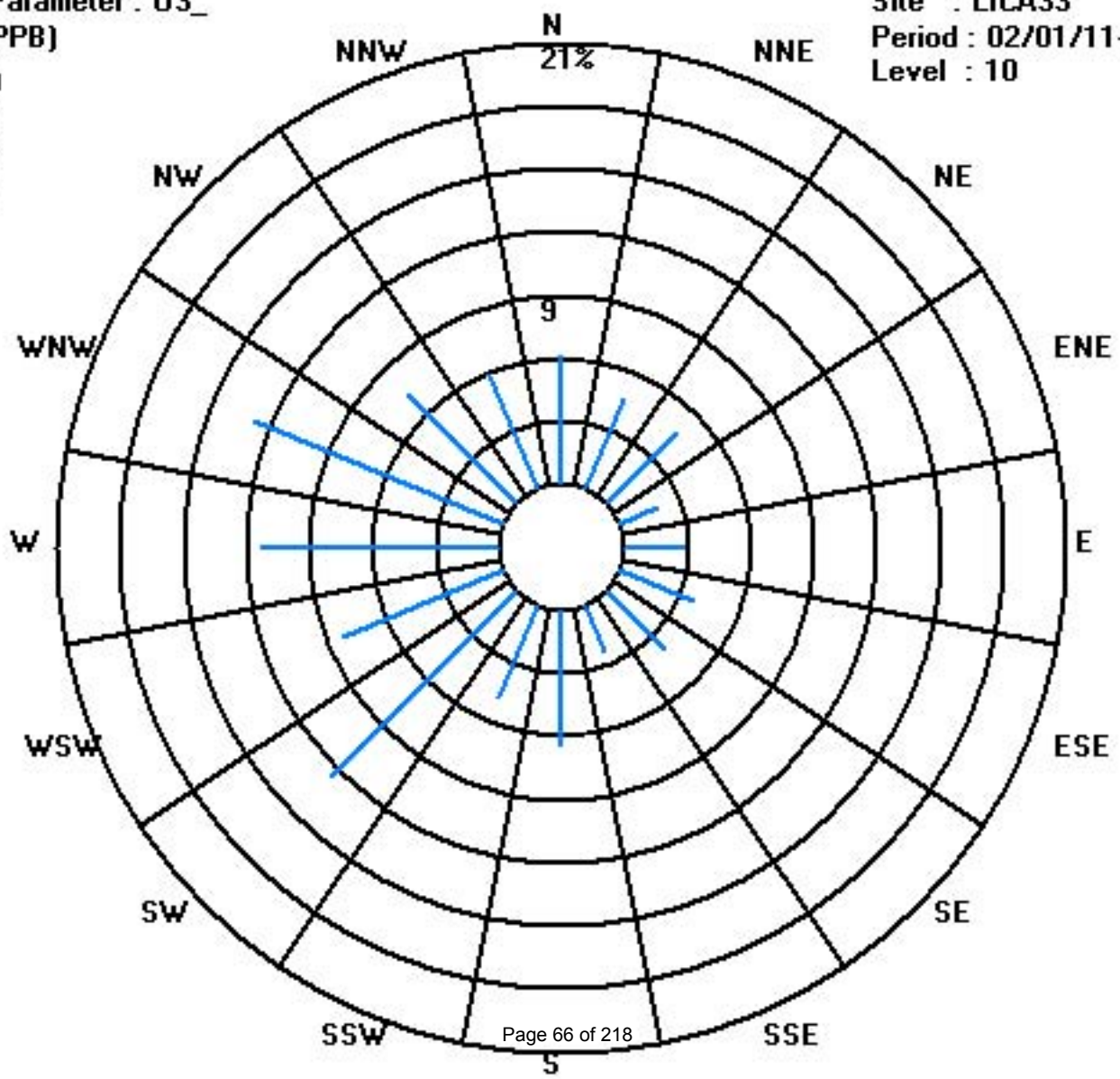
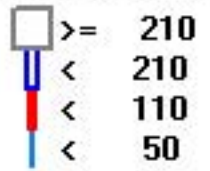
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	37	28	29	12	17	23	24	15	39	29	76	50	68	78	44	36	605
< 110																	
< 210																	
>= 210																	
Totals	37	28	29	12	17	23	24	15	39	29	76	50	68	78	44	36	

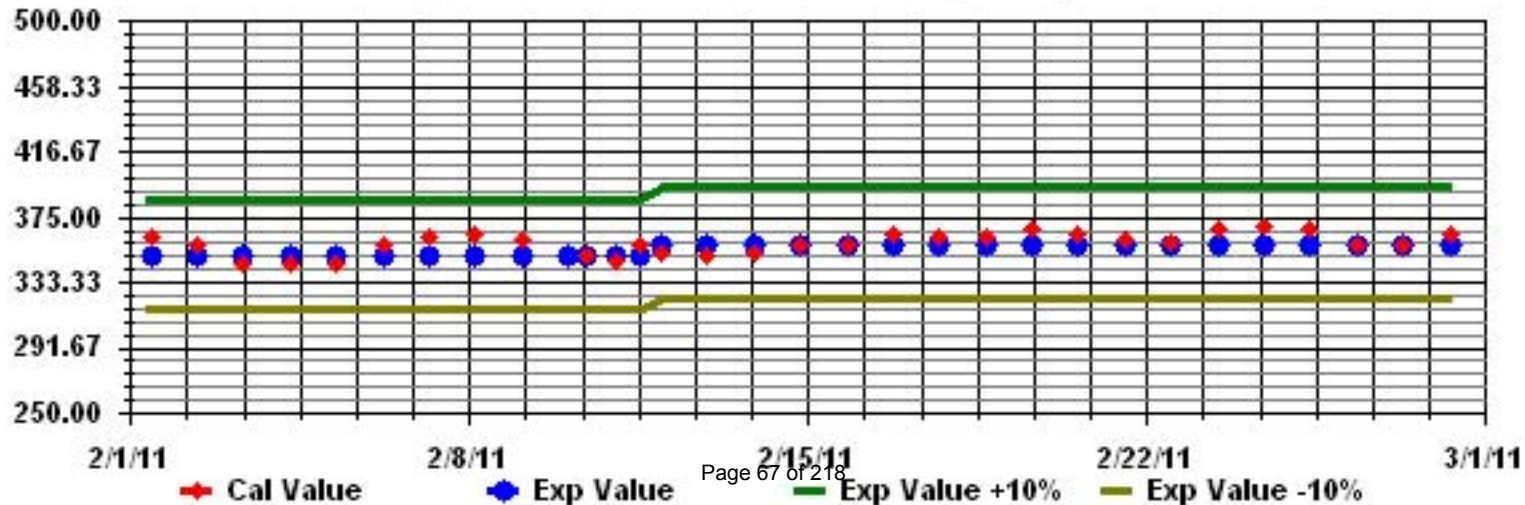
Calm : .00 %

Total # Operational Hours : 605

Class Limits (PPB)



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

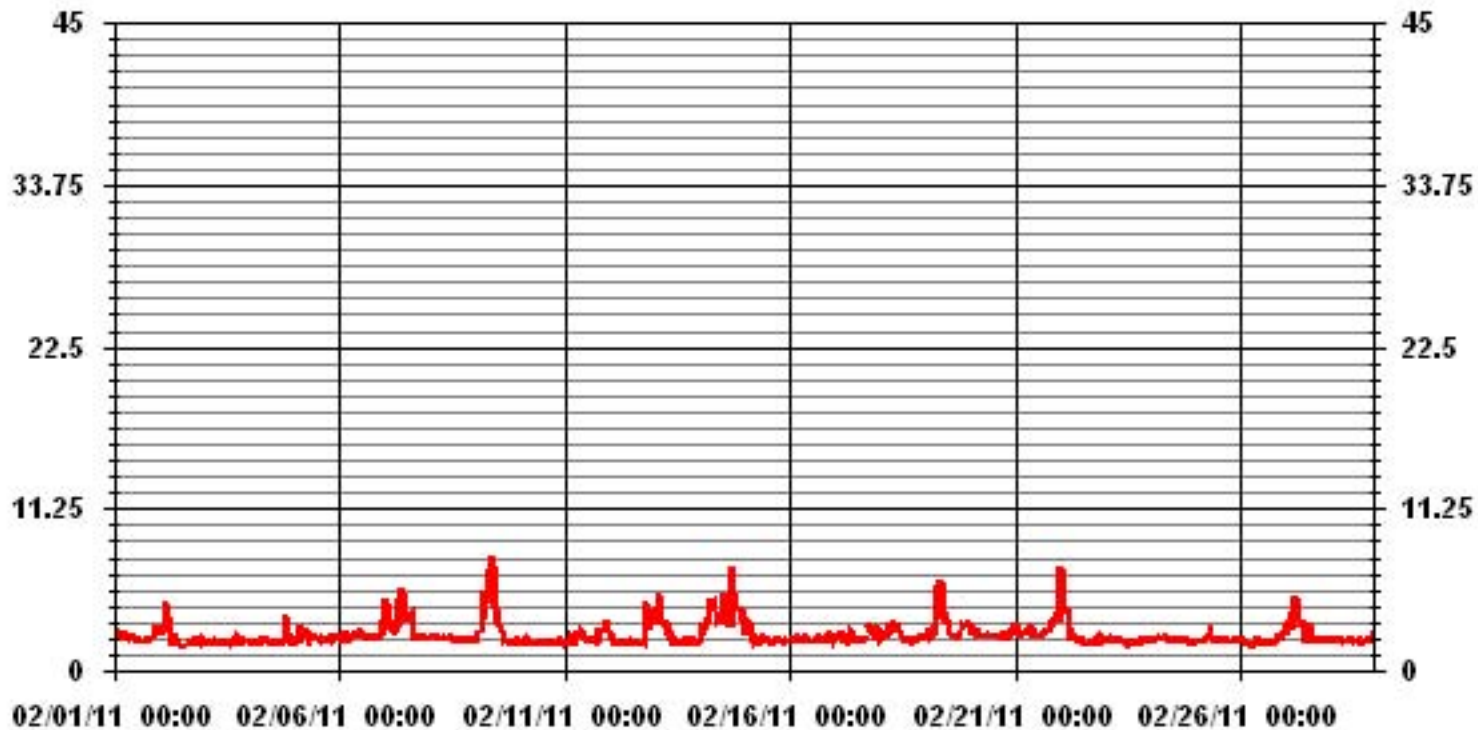


# Total Hydrocarbons





### 01 Hour Averages



— LICA33 THC PPM

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 2011

## TOTAL HYDROCARBONS MAX      instantaneous maximum in ppm

MST																									DAILY	24-HOUR		
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	2.9	2.7	3.3	2.5	2.6	2.6	3.2	2.6	2.8	3.7	<b>IZS</b>	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.7	3.9	6	14.9	6.8	14.9	3.5	24	
2	4.5	7.1	5.5	8	5.7	3.9	2.3	3.7	2.7	<b>IZS</b>	2.2	2	1.9	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	2.2	2.2	3.3	2.6	2.2	2.7	2.8	8	3.6	24	
3	2.2	2.2	2.1	2.1	2.1	2.1	2.8	2.1	<b>IZS</b>	2	2.1	2.4	2.3	2.6	2	<b>M</b>	<b>M</b>	3.7	3	2.9	2.3	2.9	3.2	3.4	3.7	2.5	22	
4	3	2.1	2.1	2	2.5	2.1	7.7	<b>IZS</b>	8.4	7.8	2.1	2.5	2.4	3.5	2.1	2	2	2.1	2.4	7.8	5.4	6.5	2.3	2.7	8.4	3.6	24	
5	2.5	2.9	4.1	4.5	4.1	5.1	<b>IZS</b>	2	4	3.3	3.1	3.1	3.1	2.9	2.8	2.8	2.3	2.2	2.7	2.3	3	2.7	3	3.1	5.1	3.1	24	
6	2.7	3.1	4.1	4.1	2.5	<b>IZS</b>	4	2.6	2.8	2.7	2.8	2.8	2.6	3.1	2.6	2.3	2.3	2.4	2.3	2.7	8	4.4	3.8	10.7	10.7	3.5	24	
7	7.9	10.1	10.3	<b>6.2</b>	<b>IZS</b>	3.3	4.3	7	14.4	13.1	6.9	5	3.8	4.1	5.7	3.6	2.4	2.4	2.5	2.4	2.4	2.7	2.6	2.5	14.4	5.5	24	
8	2.4	3	2.5	<b>IZS</b>	2.4	2.4	2.8	2.7	2.6	2.5	2.5	2.2	2.2	2.2	2.8	2.9	4.2	2.2	2.3	2.3	2.2	2.2	3.2	4.2	2.6	24		
9	3.6	7.4	<b>IZS</b>	4.6	5.1	12.7	10.5	11	15.2	13.7	13.5	11.7	7.9	9.8	6.1	2.3	2.3	2.2	2.2	2.1	2	2.6	2.9	2.8	15.2	6.7	24	
10	2	<b>IZS</b>	3.3	3.4	3	2.9	2.2	2.1	2	2.4	2.6	2	2	2	2	2	2	2	2	2.1	3.1	2.5	3.6	2.9	2	3.6	24	
11	<b>IZS</b>	4.3	2.1	3.8	3.4	3.4	2.5	5.6	4.5	8.8	10.3	3.2	2.8	3.1	3	3.4	3	3.4	3.3	3.3	5.2	11.7	7.5	6.7	<b>IZS</b>	11.7	4.8	24
12	4.6	3.1	2.2	2.1	2.1	2.1	2	2	2.1	4.2	2.2	2	2.1	1.9	1.9	2.7	2.1	2	<b>54.1</b>	<b>54.1</b>	4.2	<b>IZS</b>	7.3	<b>54.1</b>	7.2	24		
13	6.5	7.4	7.2	4.1	5.4	3.4	3.7	4	3.4	4	2.1	2	2	2	2.1	2	2.1	5.8	2.1	2.2	2.2	<b>IZS</b>	2.2	2.2	7.4	3.5	24	
14	2.7	4.9	4.2	5.9	16.6	22.4	7.9	18.2	6.2	11.4	8.9	8.9	5.7	23	8	6.4	4.2	54.1	11.8	6.2	<b>IZS</b>	4.5	9.7	5.8	54.1	11.2	24	
15	5.6	17.2	7.8	5.5	3	3.1	2.7	3.1	2.7	3.2	3	2.5	3.8	2.1	2.1	2.1	2.2	2.2	2.2	<b>IZS</b>	2.1	2.5	2.2	2.3	17.2	3.7	24	
16	2.2	2.2	2.1	2.8	3.2	3	3	2.5	2.8	3.2	2.3	2.2	2.2	2.5	3	3.8	3.3	2.8	<b>IZS</b>	3	3.9	3.2	3	2.9	3.9	2.8	24	
17	3.3	3.1	3.3	3.7	3.8	2.2	2.4	3.9	3.8	4.2	2.8	2.8	3.3	2.2	2.2	2.3	3	<b>IZS</b>	5.5	4	3.9	3.4	5.5	5.3	5.5	3.5	24	
18	2.4	2.4	2.5	2.6	2.9	9.9	5	3.2	3.6	3.8	3.2	2.7	3.1	2.7	2.2	2.2	<b>IZS</b>	2.1	2.1	2.1	2.9	5.1	4.8	5.4	9.9	3.4	24	
19	5.3	5.2	5.2	2.7	6.4	10.1	7.7	16.7	9.5	9.6	5.6	4.7	4	3.8	2.6	<b>IZS</b>	3.5	2.5	2.7	3	4.2	4.3	5.5	5.2	16.7	5.7	24	
20	3	4.6	3	3.2	6.3	3.4	2.9	3.9	2.8	2.7	3.3	2.5	2.5	2.4	<b>IZS</b>	2.6	2.5	2.6	2.9	2.6	2.5	3.1	3.1	5	6.3	3.2	24	
21	5.1	3.3	3.6	3.3	2.6	2.7	2.8	4.5	13.1	8.1	4.9	2.5	2.4	<b>IZS</b>	2.7	2.8	2.8	4.2	2.9	7.5	15.3	7.5	11.8	5.4	15.3	5.3	24	
22	21.6	9.2	5.4	4.5	4.7	4.4	3.9	2.3	2.4	2.3	2.1	2.8	<b>IZS</b>	2	2	2.1	2	2.1	2.1	3.1	4.2	2.3	2.7	2.5	21.6	4.0	24	
23	2.6	2.3	2.3	3.3	2.3	2.3	2.2	2.3	2.3	2.3	2.2	<b>IZS</b>	2	2	2	2.3	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3	3.3	2.3	24	
24	2.4	2.2	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.3	<b>IZS</b>	2.1	2.1	2.1	2.1	2.1	2.1	2.5	3.1	3	2.4	2.1	2.1	2.2	3.1	2.3	24	
25	2.4	3.6	3.7	4.5	4.2	6.3	10.6	3.2	9.2	<b>IZS</b>	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	10.6	3.4	24	
26	2.2	2.1	2.1	2.1	2	2	1.9	2.3	<b>IZS</b>	2.3	2.3	2.1	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.3	2.4	3.3	2.8	4	4	2.3	24
27	2.9	6.5	6.6	3.4	5.4	6.7	5.4	<b>IZS</b>	4.8	8.3	2.5	2.4	4.2	23.4	6.6	3.9	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	23.4	4.9	24	
28	2.5	2.9	2.7	2.4	2.4	2.4	<b>IZS</b>	3.3	2.9	2.9	4.2	8	3.2	2.6	2.7	2.9	2.1	2.1	2.3	2.3	2.5	2.2	2.6	3.1	8	2.9	24	
HOURLY MAX	22	17	10	8	17	22	11	18	15	14	14	12	8	23	8	6	4	54	12	54	54	8	15	11				
HOURLY AVG	4.1	4.7	3.9	3.7	4.0	4.8	4.2	4.6	5.1	5.1	4.0	3.4	3.0	4.4	3.0	2.7	2.5	4.6	2.9	5.1	5.8	3.6	4.1	3.9				

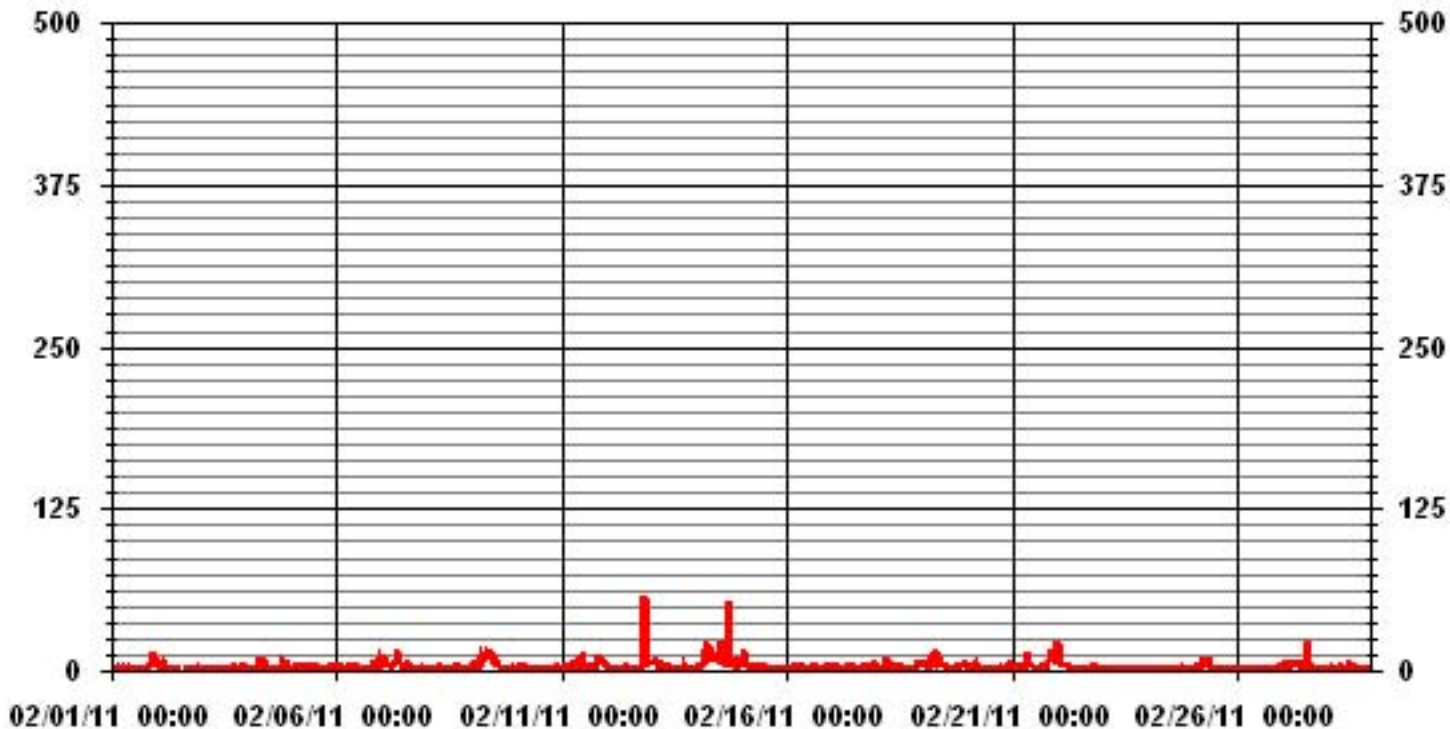
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	637					
MAXIMUM INSTANTANEOUS VALUE:	54.1	PPB	@ HOUR(S)	19, 20	ON DAY(S)	12
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	670	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	4.52					

### 01 Hour Averages



— LICA33 THCMAX PPM

LICA33  
 THC / WDR Joint Frequency Distribution (Percent)

February 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	4.54	3.60	2.97	.47	.78	2.66	2.50	2.50	5.48	4.54	12.38	8.77	10.18	10.81	6.11	5.17	83.54	
< 10.0	1.41	.78	1.56	1.56	2.03	1.09	1.56	.62	.78	.00	.47	.47	.94	1.56	1.09	.47	16.45	
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	5.95	4.38	4.54	2.03	2.82	3.76	4.07	3.13	6.26	4.54	12.85	9.24	11.12	12.38	7.21	5.64		

Calm : .00 %

Total # Operational Hours : 638

Distribution By Samples

	Direction																	
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 3.0	29	23	19	3	5	17	16	16	35	29	79	56	65	69	39	33	533	
< 10.0	9	5	10	10	13	7	10	4	5		3	3	6	10	7	3	105	
< 50.0																		
>= 50.0																		
Totals	38	28	29	13	18	24	26	20	40	29	82	59	71	79	46	36		

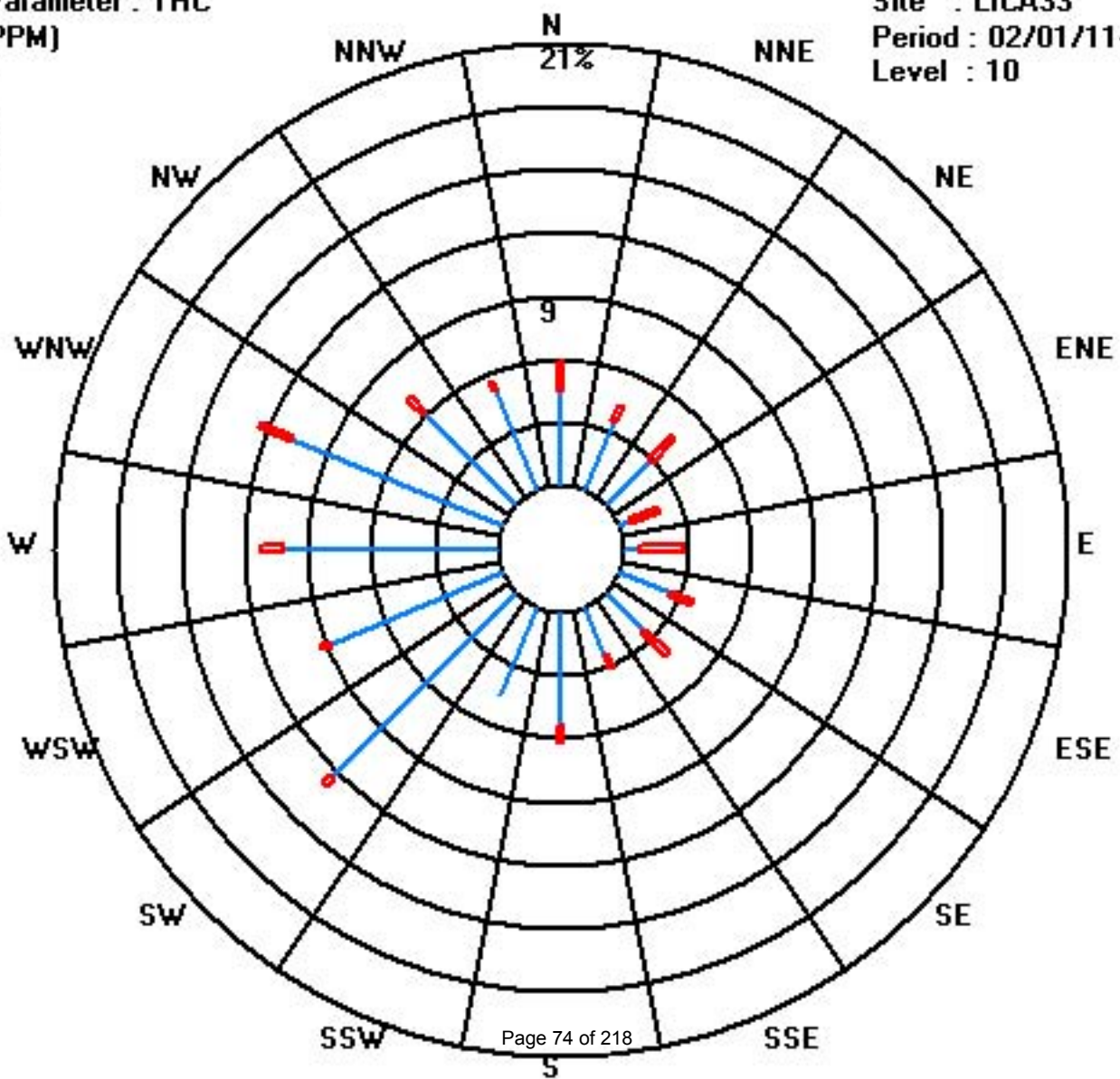
Calm : .00 %

Total # Operational Hours : 638

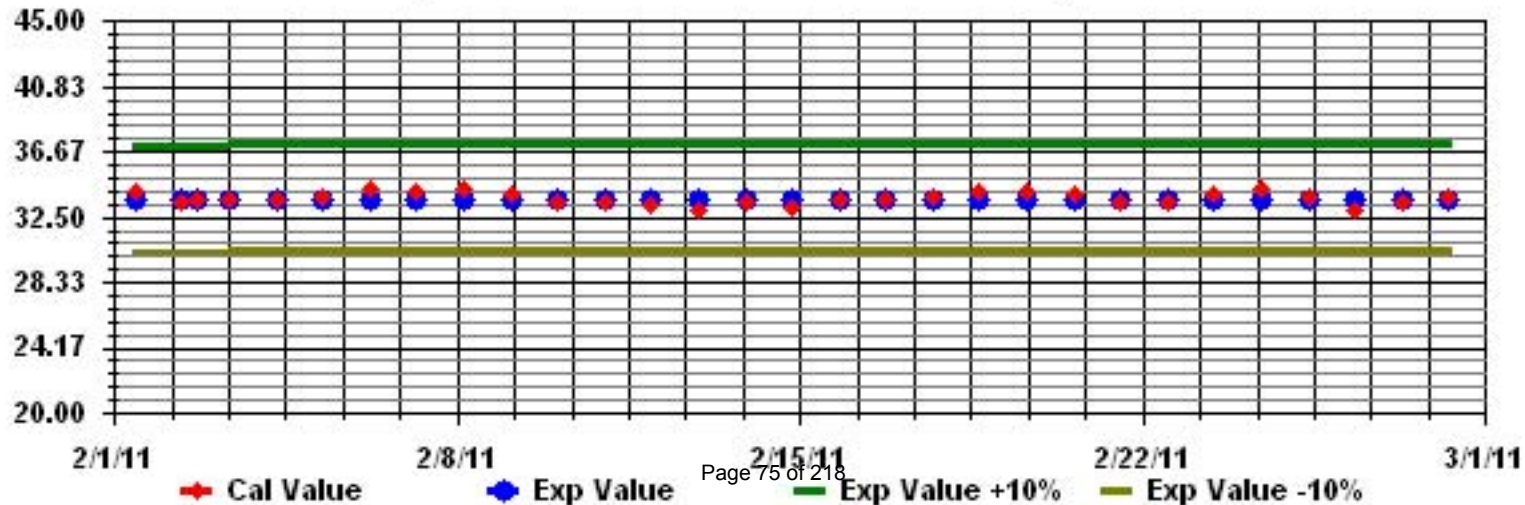
Class Limits (PPM)

Period : 02/01/11-02/28/11

Level : 10



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



# Vector Wind Speed

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 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	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	4.1	4	5.2	5.7	6.1	6.6	6.5	6.6	5.8	4.4	6.2	6	7.3	9.2	6.7	5.9	5.2	4.1	2.9	3.2	2.8	2.9	3.1	9.2	5.1	24		
2	2	1.9	1.5	3.5	2.1	3.9	9.5	14.3	9.8	10.2	20	21.1	23.9	21.9	20.7	17.8	15.9	17.9	15.4	13.6	13	15.1	16.3	15.2	15.2	23.9	12.8	24	
3	3	15.9	15.3	13.9	14.2	12.6	13.6	13.6	18.9	17.8	18.6	17.4	15.1	20.1	20.4	22.8	21.2	18.4	13.9	15.8	15	12.5	14.9	15.2	16.4	22.8	15.9	24	
4	4	14.1	14.4	12.1	9.9	8.1	5.8	3.1	4.9	3.3	1	4.6	4.9	5.3	11.8	14.4	13.5	12.9	12.2	6.8	6	5.3	5.9	8.2	8.5	14.4	5.5	24	
5	5	10	8.6	5.1	6.2	10.7	8.5	8.7	9.3	9.1	8	10.1	10.7	12.2	14.5	15.2	16.1	17.3	15.4	18.5	20.1	18.2	16.9	15.5	15	20.1	12.5	24	
6	6	14.4	14.9	11.2	7.8	5.5	4.6	6.6	7.3	5.8	7.9	8.5	7.6	8.3	7.4	8.9	8.3	10.1	9	11.2	5	2.5	0.6	0.5	1.5	14.9	7.3	24	
7	7	2.3	3.1	2.6	4.2	3.9	3.2	2.7	1.9	1.9	1.3	1.5	2.8	2.1	2.6	3.6	9.8	10.2	11.3	14.5	15.6	11.2	6.6	9.2	9.2	15.6	5.7	24	
8	8	11.6	11.2	11.2	9.3	8.7	12	9.9	10.4	12	7.5	12.2	12.7	12.8	13.5	13.7	12.8	10.9	6.6	9.7	12.1	8.3	7.5	4.3	5.2	13.7	10.3	24	
9	9	6.3	3.4	0.9	1.7	2.6	0.8	1.2	1	0.3	0.3	2.4	0.7	2.5	2.1	2.9	9.7	7.2	7.4	8.5	12	12.5	14.1	13	14.3	14.3	5.3	24	
10	10	16	13.6	9.4	9.5	10	10.5	10.8	10	8.7	9.1	12.2	14	14.6	16.1	18	16.6	15.7	17.1	11.4	10.3	14.1	11.9	11.3	16.1	18.0	12.8	24	
11	11	12.9	11.6	13.7	12.3	13.3	11.9	8.3	5.3	1.4	2.7	2.7	4.7	5.9	8	7.3	8.8	9.1	9.1	7.7	6	4.1	1.6	1.6	3.9	13.7	7.2	24	
12	12	6	6.6	11.5	15.6	15.9	18	14.4	17.7	18.3	15.6	14	14.6	12	15.5	14.5	15	6.6	4.3	3.1	2.5	4.2	4.8	3.3	4.4	18.3	10.8	24	
13	13	7.2	3.7	2.6	5	4.7	7.3	10.9	16.2	12.8	13.8	25.3	31.4	26.4	24.8	26.2	27.9	19.7	12.7	10.8	11.3	7.7	9.4	7	4.2	31.4	13.7	24	
14	14	3.9	5.3	4.4	5.5	1.7	0.6	2.2	3.8	5.7	5.9	2.2	3.4	3.1	3	3.5	2.3	1.6	2.2	3.1	4.4	3.7	3.6	5.2	6.7	6.7	3.6	24	
15	15	13.6	3.7	6.8	11.8	23	21.7	19.2	16	20.4	14.3	14.4	13	8.3	15.2	20.1	16.8	20.9	23.6	23	20.2	16.4	10.7	11.4	10.2	23.6	15.6	24	
16	16	12.8	15.8	11.2	5.5	8.5	13.1	9.8	4.9	7	5.7	6.1	7.7	9.6	7	5.9	5.7	7	8.4	6	8.4	9.9	9.7	11.3	12.5	15.8	8.7	24	
17	17	11	10.3	9.8	9.4	9.4	9.7	8.9	7.6	11	7.9	11.2	11.3	7.3	8.8	10	9.9	7.4	5.3	5.1	8.2	8.8	10	5.8	4.2	11.3	8.7	24	
18	18	5.2	5.6	4.6	5.4	6.2	3.7	2.8	3.4	3.1	2.2	3.3	3.6	2.2	4.8	5.8	5.7	3.8	3.7	7.6	10.5	6	5.5	4.4	3.3	10.5	4.7	24	
19	19	4.2	3.6	2.2	1.6	0.5	0.3	0.7	0.3	1.5	2.6	3.6	4.3	4.9	4.6	4.8	6.9	4.9	8.5	10.6	10.5	8.7	8.2	5.3	5	10.6	4.5	24	
20	20	4.2	4.2	5.3	6.1	6.7	3.8	5	5	8.3	11.2	9.1	11.1	11	13.1	13	11.5	10	10.9	11.3	11.8	13.6	12.4	13	9.9	13.6	9.2	24	
21	21	7.5	10.2	11	11.4	9	6.2	4.6	4.9	2	1.6	4	6	5.2	6.7	4.3	5.1	4.8	3.9	5.1	2.7	2.1	1.5	1.7	3.2	11.4	5.2	24	
22	22	3	2.6	6.9	6.9	6.9	8.5	8	8.4	8.4	13.2	16.5	13.7	15.8	22	19.4	18	17.5	16.4	12.1	4.9	7.4	9.5	8.7	9	22.0	11.0	24	
23	23	11.4	11	11.8	12.3	12.3	12.8	12.1	11.2	12.6	15.8	14.2	17.6	19.3	19	14.2	13.5	13	13.4	12.7	9	8.2	7.7	10.2	10.6	19.3	12.7	24	
24	24	10.3	12.3	11	11.4	13	12.9	12.5	13	12.6	13.7	14.6	14.7	15.7	15.4	14.2	13.5	10.3	13.3	12	9.7	10.7	12.7	9.7	9.5	15.7	12.4	24	
25	25	6	5.5	5.6	5.1	3.4	2.1	1.8	1.4	0.9	5.8	9.2	8.9	7.5	12.2	11.4	13.7	14.8	15.5	7.8	6.6	6.3	5.7	8	7.3	15.5	7.2	24	
26	26	7.1	7.5	7.6	10.8	7	4.9	12.6	12.5	11.7	13.5	14.7	13.9	14.9	15.5	15.1	13.4	11.3	14.3	12.8	10.6	9.6	5.7	5	5.9	15.5	10.7	24	
27	27	6.3	7.3	7.7	6.3	6.3	2.5	5.7	6.6	6.5	10.6	14.8	15.3	15.1	13.1	12.7	12.6	12.6	11.9	11.4	12.8	15.1	14.4	16.2	17.1	17.1	10.9	24	
28	28	17.3	18.7	20.7	19.5	18.3	16.6	15.3	12.8	12.2	15.3	13.4	11.6	11.4	10.7	11.1	9.9	9.9	12.4	9.6	8.9	8.3	8.3	8.3	7.6	20.7	12.8	24	
HOURLY MAX		17.3	18.7	20.7	19.5	23.0	21.7	19.2	18.9	20.4	20.0	25.3	31.4	26.4	24.8	26.2	27.9	20.9	23.6	23.0	20.2	18.2	16.9	16.2	17.1				
HOURLY AVG		8.8	8.4	8.2	8.3	8.5	8.3	8.3	8.3	8.3	8.9	10.3	10.9	10.8	12.1	12.1	12.2	11.1	10.8	10.2	9.7	9.1	8.5	8.3	8.5				

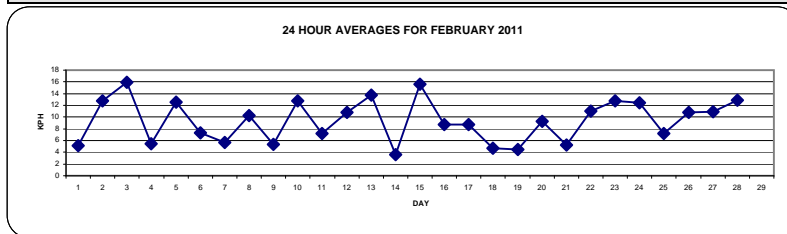
### STATUS FLAG CODES

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

LAST CALIBRATION: September 24, 2009

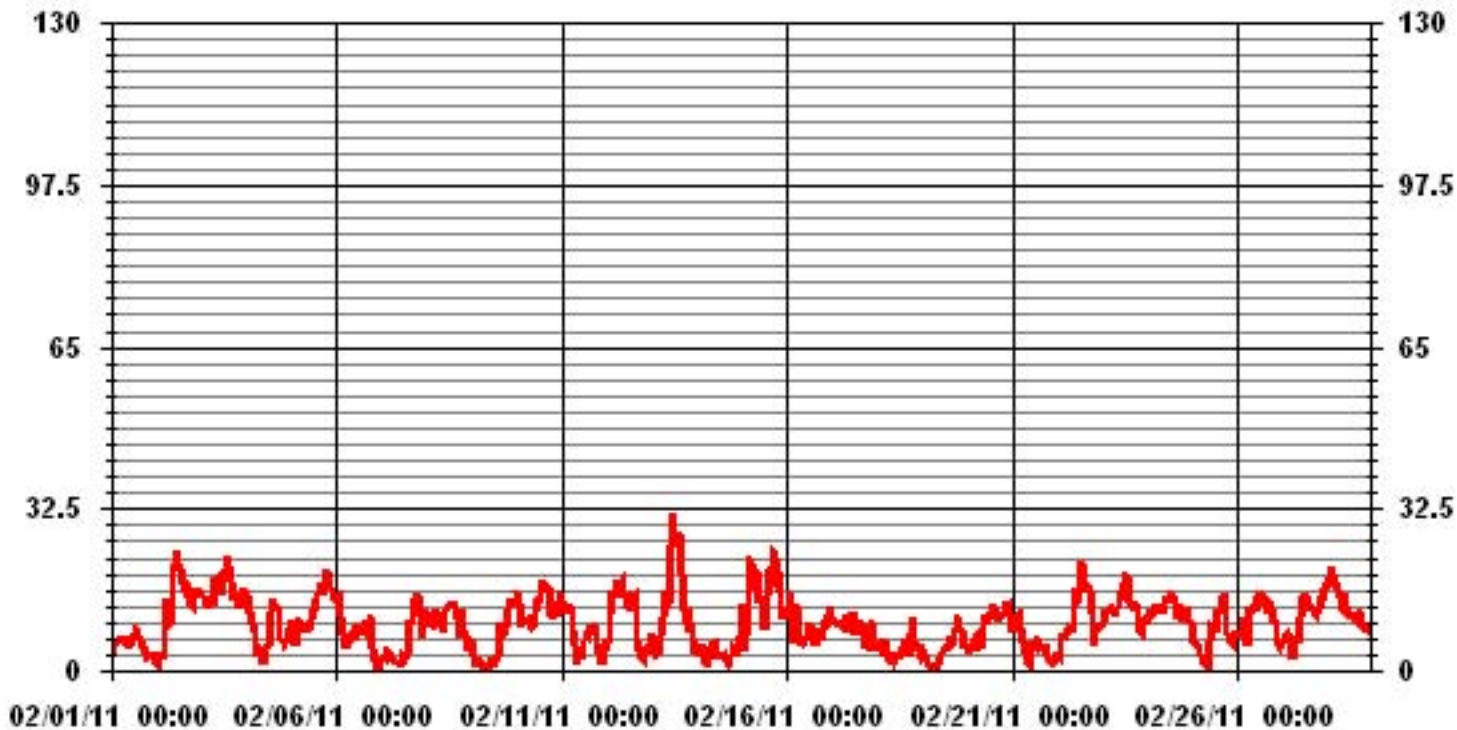
### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	31.4	KPH	@ HOUR(S)	11	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	15.9	KPH			ON DAY(S)	3
CALMS (≤ 0 KPH)	0.57	%	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	5.32		MONTHLY AVERAGE:	9.53	KPH	





### 01 Hour Averages



— LICA33 WSP KPH

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE**

FEBRUARY 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	9.6	10.1	12.8	14.8	14.3	13.9	11.2	9.6	15.5	12.7	16.1	15.1	16.2	20.6	17.6	15.9	17	12.8	10.9	8.5	7.6	5.5	6.3	6.9	20.6
2	6.7	7.5	7.4	5.5	7.1	21.5	22.1	15.9	16.3	32.7	32.1	37.6	31.7	31.6	26.8	25.4	27.6	23.4	21.3	20	22.4	25.6	26.7	21.8	37.6	
3	23.5	23.3	22.2	22.1	19.3	20.6	23.1	27.2	26.7	32.1	27.4	24.4	31.2	34.7	40.7	33	32.2	21.4	25.8	24.1	20.6	25.7	21.7	24.3	40.7	
4	22.7	20.8	18.7	19.1	17.4	12.5	8.7	12.5	12.8	5.5	13.3	12.5	18.4	20.3	26.4	26.2	23.4	19.2	18.2	13.6	9.6	15.6	12.6	13.6	26.4	
5	15.4	13.1	9.8	14.6	19.8	17.5	18.6	19.3	17.3	18.1	19.6	20.1	24.5	25.9	26.6	28.2	29.1	28.9	34.6	35.9	35.1	34.4	29.7	30.3	35.9	
6	27.5	25.1	22.8	15.2	10.2	7.1	9.3	11.5	8.9	12.3	13.2	11.6	14	14.7	13	12	12.6	11.8	14.6	12.6	5.2	2.9	3.9	4.2	27.5	
7	5.4	4.9	4.3	6.1	5.5	5	4.2	5	3.3	3.5	2.8	5.8	4.5	5.4	6.6	18.8	15.6	13.6	19.4	18.7	16.4	10.4	13.6	20.8	20.8	
8	17.6	18.3	16.5	14.6	15.3	14.8	16.3	16.8	18.4	16.7	18.9	20.8	22.3	23.2	22.7	20.5	18.8	13.7	14.5	15.7	12.1	11	8.8	10.6	23.2	
9	11.1	6	3.8	5	5.3	5.5	6	4.3	4.1	3.1	5.5	5.3	7	6.7	8.5	14.1	13.5	13.3	14.2	19.2	20.2	23.3	21.6	23.1	23.3	
10	24	22.1	15.9	14.7	15	14	14.8	13.8	12.3	14.3	23.6	24.1	23.9	27	31.2	25.5	24.4	27	22.7	24.9	27.3	26.3	20.9	24.5	31.2	
11	20.5	17.7	20.1	19.7	19.6	18.1	13.7	12.6	7.6	6.9	5.9	9.5	9.6	10	9.9	12	12.3	12.3	10.7	9.1	7.2	6.2	5.8	6.4	20.5	
12	10.9	13.8	19.9	21.7	22.5	24.1	20.1	23.6	23.6	22.1	21.7	21.3	18.8	27.1	21.4	21.8	13.6	12.3	7.1	6	7.5	6.8	7	8.4	27.1	
13	13.6	9.4	13.8	11.3	11.5	13	16.9	25.4	21.2	26	49.1	50.1	43.7	<b>51.6</b>	48.9	47.5	37.4	20.4	14.7	16	14.3	15.5	16.9	12	<b>51.6</b>	
14	9.2	8.5	7.7	8.9	5.7	4.9	5.6	7.9	9.6	9.5	5.2	5.4	4.9	5.1	5.2	5.4	3.3	5.9	7.3	9	7	7.9	10.2	11.9	11.9	
15	20.7	9.1	12.5	28.5	36.8	35.1	30.8	24.2	32.2	28.9	23.5	21.4	17	29.2	31.5	27.9	32.1	33.3	32.9	29.9	25.2	20.3	18.1	18.5	36.8	
16	18.9	26.9	16.3	10	15.1	18	18.2	11.9	10.5	9.6	10.1	15.2	16.7	16.4	12.7	11	13.6	14.5	10.1	13.7	18.1	17	21.1	21.7	26.9	
17	17.5	18.7	16.5	17.7	18.4	16.5	16.4	14.9	21.1	18.1	18.6	19.5	15.6	16.3	18.4	18.1	13	9.3	11.8	14.7	15.7	19.2	12.2	7.6	21.1	
18	6.6	7.9	6.5	7.9	7.7	6.1	6.7	6.4	5.9	4.1	6.5	6.9	6.4	10.3	13	11.8	9.7	8.7	13.4	13.2	9.7	8.8	9.6	6.2	13.4	
19	6.9	7	5.2	3.5	3.1	3.2	3.9	3.4	5.1	4.7	5.1	6.5	6.9	8.5	10.4	12.5	10.5	14.3	18.6	16.8	13.8	12.1	10.8	9.9	18.6	
20	9.8	6.8	8.2	8.8	10.1	7.8	7.7	9.1	12.6	13.3	14.3	17.8	17.5	22.3	21.1	21.5	17.1	17.9	18.8	15.7	16.7	16.6	15.6	16.4	22.3	
21	14.4	21.8	22.3	20	14.4	11.2	7.5	8.4	6.5	6.1	11.1	11.7	12.5	15.8	10.4	11	11.4	9.8	11	7.4	4.6	4.8	7.2	10.6	22.3	
22	10.7	5.8	10.2	10.1	11	17.6	13.3	17.1	16.6	28.7	31.2	27.1	32.1	34.9	32.8	29.9	31.4	28.4	23.7	8.9	12.4	12.7	12.4	13.5	34.9	
23	17.4	15	17.3	20.6	17.9	18.5	17.2	15.5	17.4	27.2	28.8	30.4	34.9	34.1	28.2	27.2	28	26.6	27.6	16.7	14.1	10.8	16.2	23.8	34.9	
24	18.9	17	17.9	18.9	21.1	18.8	16.7	17.9	18.2	22.3	22.6	23.6	23.9	23.2	22.1	19	16.9	20.9	17.8	16.1	13.8	15.1	14.1	12.5	23.9	
25	12.3	12.1	11.9	12.7	9.1	7.7	4.8	3.8	3.9	15.3	15.3	13.4	18.5	21	20.9	21.6	24.9	28.1	21.7	13.1	12.2	13.4	17.9	17.4	28.1	
26	18.7	19.9	21.4	20	19.7	13.7	22.6	23.3	18.8	26.7	25.4	25.9	29.4	31.8	28.4	26.2	21	25.7	23.6	29.6	19.5	13.1	7.3	7.9	31.8	
27	8.5	13	13.7	12	10.8	6.6	8.9	10.6	11.1	18.3	24.4	25.6	23	21.9	22.2	22.2	19	21	19.9	23.3	24.6	22.7	24.9	26.2	26.2	
28	28.1	32.5	32.5	33.1	28.5	26.3	23.7	20.9	19.6	25.5	23.5	20.9	22.7	21.2	20.7	19.3	18.6	22.1	16.8	16.6	13.2	11.3	10.8	10.8	33.1	
PEAK		28.1	32.5	32.5	33.1	36.8	35.1	30.8	27.2	32.2	32.7	49.1	50.1	43.7	51.6	48.9	47.5	37.4	33.3	34.6	35.9	35.1	34.4	29.7	30.3	

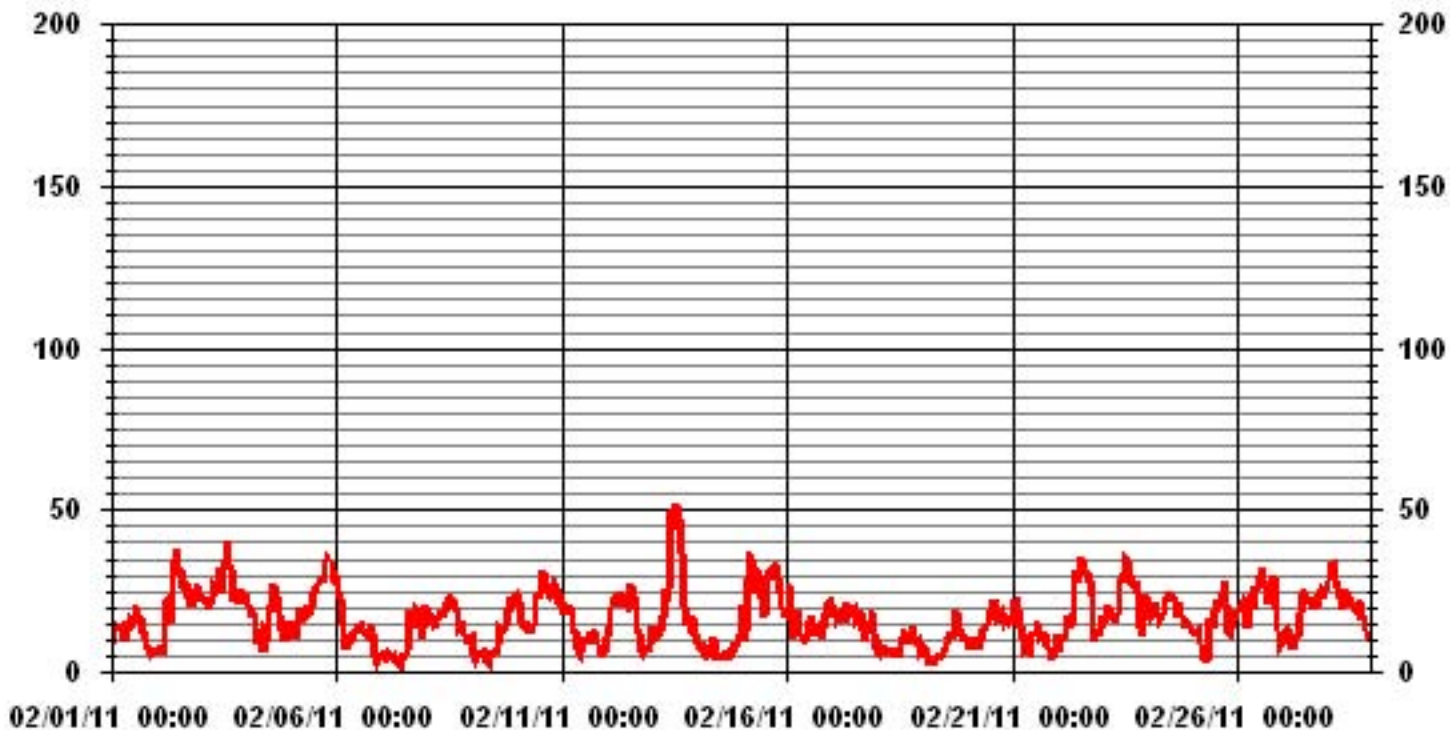
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

MAXIMUM INSTANTANEOUS READING	51.6	KPH	@ HOUR(S)	13
			ON DAY(S)	13

### 01 Hour Averages



LICA33  
WSP / WDR Joint Frequency Distribution (Percent)

February 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	1.04	.59	1.33	1.63	2.08	1.93	2.52	1.78	3.86	3.27	3.12	.89	1.63	1.93	1.63	.89	30.20
< 12.0	2.67	1.93	.59	.14	.59	1.33	1.48	1.19	2.67	1.19	5.65	3.72	3.27	4.01	2.38	3.72	36.60
< 20.0	1.93	1.93	2.08	.00	.00	.44	.00	.29	.00	.00	4.01	4.31	5.35	4.76	3.12	1.04	29.31
< 29.0	.14	.00	.44	.14	.00	.00	.00	.00	.00	.00	.00	.14	1.19	1.48	.14	.00	3.72
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.14
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.80	4.46	4.46	1.93	2.67	3.72	4.01	3.27	6.54	4.46	12.79	9.07	11.45	12.35	7.29	5.65	

Calm : .00 %

Total # Operational Hours : 672

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	7	4	9	11	14	13	17	12	26	22	21	6	11	13	11	6	203
< 12.0	18	13	4	1	4	9	10	8	18	8	38	25	22	27	16	25	246
< 20.0	13	13	14			3		2			27	29	36	32	21	7	197
< 29.0	1		3	1								1	8	10	1		25
< 39.0														1			1
>= 39.0																	
Totals	39	30	30	13	18	25	27	22	44	30	86	61	77	83	49	38	

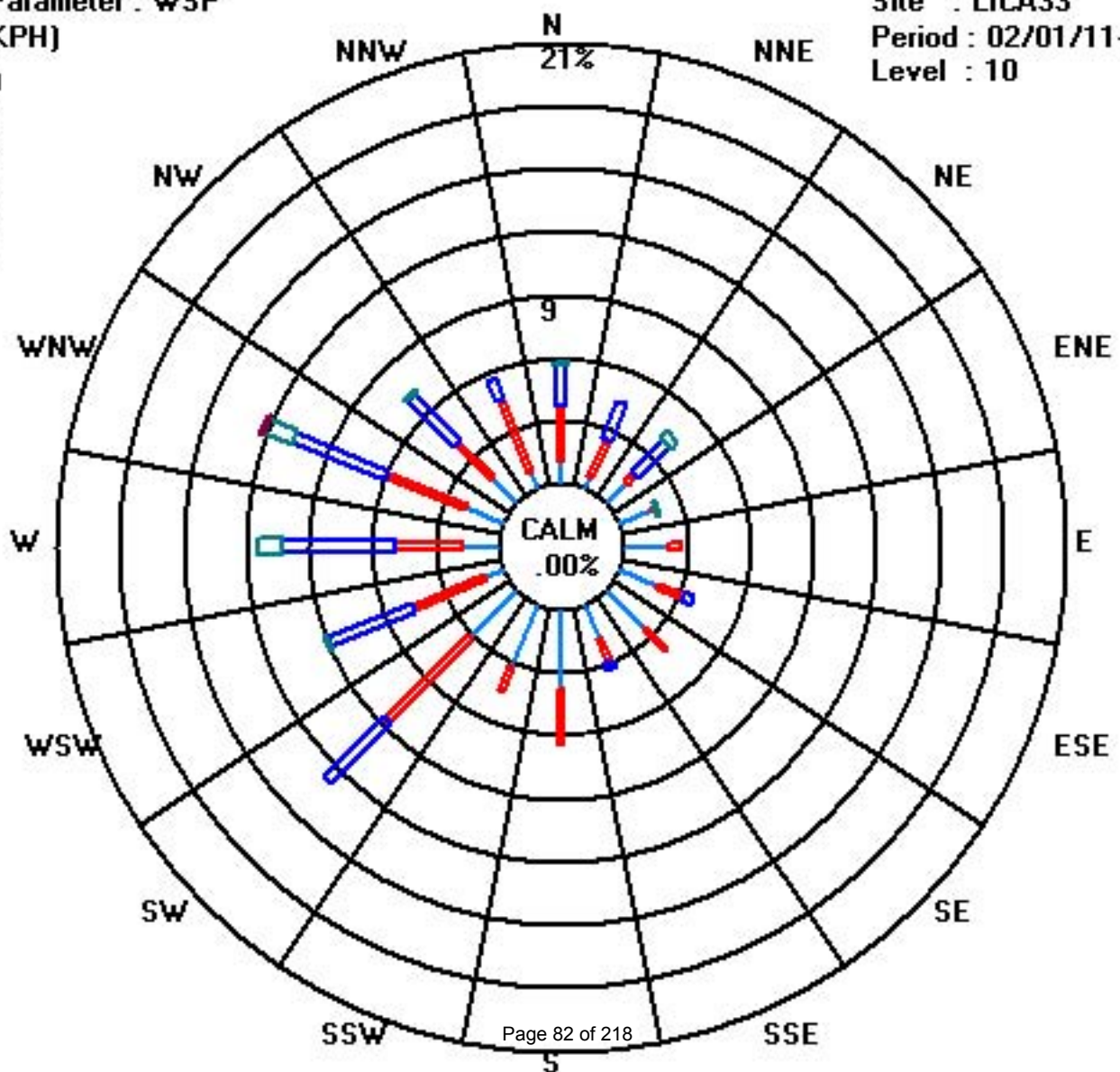
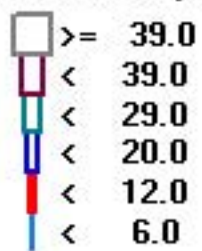
Calm : .00 %

Total # Operational Hours : 672

Class Limits (KPH)

Period : 02/01/11-02/28/11

Level : 10



# Vector Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 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	197	210	184	187	181	182	166	160	202	195	186	176	180	181	183	185	192	207	206	198	213	228	185	225	188	S	24	
2	163	287	232	327	288	230	236	243	278	270	274	279	279	282	276	271	272	267	268	264	265	268	258	251	267	W	24	
3	249	242	236	229	237	246	250	237	239	245	238	241	250	261	272	277	278	264	259	257	250	256	250	263	252	WSW	24	
4	250	246	233	231	224	228	196	202	211	111	199	257	274	273	284	295	290	289	320	351	319	359	23	28	272	W	24	
5	27	35	7	336	353	350	328	324	340	341	347	344	341	354	349	3	3	4	351	352	356	358	351	346	353	N	24	
6	354	349	342	334	331	313	280	288	275	279	300	283	281	263	224	226	226	229	230	221	202	117	89	83	284	WNW	24	
7	92	49	47	35	27	38	23	267	309	254	277	264	233	138	169	230	238	229	227	227	234	241	233	237	234	SW	24	
8	243	242	238	231	241	230	245	272	273	247	276	289	291	284	291	274	255	229	224	225	226	223	211	210	254	WSW	24	
9	223	215	133	83	102	78	301	140	351	322	298	304	150	157	178	231	218	219	226	233	222	241	256	266	231	SW	24	
10	278	272	266	257	262	251	248	250	246	242	267	275	277	283	278	281	281	283	278	276	281	310	303	293	275	W	24	
11	286	254	247	253	270	250	258	234	39	154	157	150	139	116	113	105	108	88	104	85	93	142	71	227	200	SSW	24	
12	250	228	229	231	228	234	231	232	234	237	235	233	234	243	241	234	208	210	234	171	119	112	153	78	230	SW	24	
13	26	353	0	218	301	299	291	286	260	257	277	283	287	288	286	283	282	266	236	239	231	219	212	190	275	W	24	
14	142	90	96	38	45	140	69	61	96	131	110	87	107	74	71	61	127	326	43	132	122	77	31	43	83	E	24	
15	44	64	42	59	53	63	54	52	50	23	359	358	6	312	304	303	295	286	288	292	294	287	300	285	345	NNW	24	
16	274	293	298	284	261	234	298	299	230	261	273	289	297	329	338	347	13	10	3	22	8	357	6	23	315	NW	24	
17	8	1	341	338	336	327	335	337	344	335	346	359	338	334	323	330	311	332	350	354	359	17	348	326	343	NNW	24	
18	303	315	307	295	302	308	289	276	268	246	266	216	174	180	183	194	185	196	224	224	230	240	241	214	243	WSW	24	
19	218	230	185	215	207	190	353	98	149	95	93	90	103	143	184	171	156	170	164	157	143	135	117	135	152	SSE	24	
20	138	106	141	113	114	128	112	131	141	121	130	141	140	156	158	154	152	145	133	124	117	107	103	101	131	SE	24	
21	91	115	133	167	158	171	169	169	172	132	163	198	190	186	183	181	183	185	155	93	78	240	176	161	161	SSE	24	
22	321	276	281	285	300	332	328	316	301	323	319	322	305	294	301	307	310	310	316	271	265	278	288	278	304	WNW	24	
23	286	278	273	271	273	282	290	275	277	290	315	309	306	303	320	333	330	331	326	312	296	288	297	305	300	WNW	24	
24	294	292	284	285	289	283	282	289	275	286	291	283	280	278	287	276	258	248	250	255	235	226	228	226	272	W	24	
25	228	231	223	221	222	212	163	210	121	222	232	234	209	219	217	222	219	222	213	186	183	181	184	191	214	SSW	24	
26	189	193	203	180	197	191	228	246	256	284	304	326	327	327	325	320	309	312	309	316	307	292	285	291	288	WNW	24	
27	296	319	13	13	1	17	40	23	8	1	14	12	33	34	31	32	33	22	15	22	28	25	33	33	21	NNE	24	
28	39	44	49	43	43	41	40	39	37	40	34	37	20	357	333	330	321	305	311	319	306	294	279	281	15	NNE	24	
HOURLY AVG	354	353	342	338	353	350	353	337	351	341	359	359	341	357	349	347	330	332	351	354	359	359	351	346				

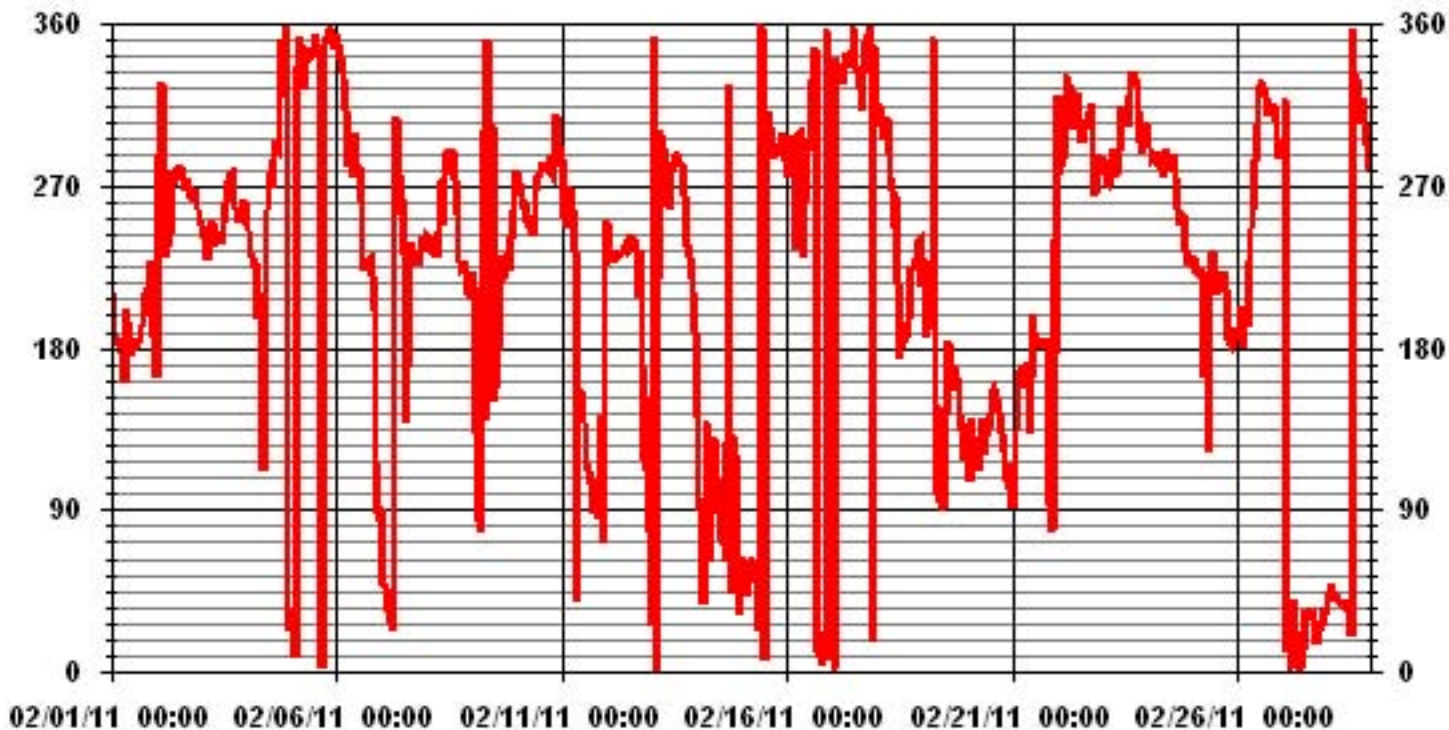
**STATUS FLAG CODES**

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:	672 HRS
STANDARD DEVIATION	95.34	AMD OPERATION UPTIME	100.0 %
		MONTHLY AVERAGE	136 DEG

### 01 Hour Averages



— LICA33 WDR DEG



# Standard Deviation Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

FEBRUARY 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	21	16	14	19	14	16	12	11	19	18	20	18	19	17	20	19	24	21	29	17	17	16	20	18
2	26	16	22	15	13	6	6	7	10	8	6	6	8	6	6	6	7	8	6	6	7	7	6	5
3	5	4	6	4	6	7	7	6	6	8	7	8	8	9	9	8	8	7	8	7	7	5	5	7
4	6	5	5	5	16	17	32	24	37	66	18	18	16	8	8	8	6	6	12	12	11	11	7	7
5	8	8	12	12	13	11	12	12	13	14	13	14	14	13	13	12	12	12	12	12	14	14	14	14
6	11	11	13	11	10	10	6	5	6	6	7	6	7	13	9	3	4	5	3	20	19	23	39	19
7	8	8	9	6	11	4	10	16	16	11	9	12	18	19	15	10	5	3	3	3	5	8	5	7
8	6	7	6	7	8	4	8	8	8	13	8	8	8	8	8	8	7	21	5	3	6	9	15	14
9	14	13	32	28	8	38	23	32	36	18	18	38	42	26	23	7	17	17	9	5	9	7	6	7
10	7	7	8	7	7	5	5	5	7	9	9	9	9	8	7	7	8	8	8	9	8	14	13	7
11	7	6	5	6	7	7	8	25	39	32	18	13	11	4	5	6	4	4	7	14	13	55	22	19
12	16	14	4	4	4	5	4	5	4	8	8	7	7	8	6	4	22	26	16	18	15	8	12	12
13	16	40	50	13	11	7	7	6	8	8	8	8	9	9	8	8	7	7	4	5	14	13	21	24
14	12	6	12	13	31	42	21	17	12	9	25	12	12	10	10	17	12	21	16	14	11	15	15	6
15	5	15	10	7	7	7	6	7	8	16	14	13	14	12	9	10	8	8	7	7	8	10	8	8
16	6	7	6	10	8	7	11	16	12	8	10	11	14	18	25	20	16	12	10	9	10	11	12	10
17	10	10	11	11	11	11	12	15	13	15	12	14	19	16	17	15	12	11	11	11	12	10	10	11
18	5	7	7	7	4	10	27	14	15	11	13	19	41	28	20	19	20	17	14	5	10	11	23	13
19	16	12	16	19	32	50	21	37	26	15	6	8	7	13	22	15	12	11	11	11	7	4	10	7
20	15	8	9	7	6	9	6	10	7	3	8	7	9	13	14	12	11	9	7	3	4	3	5	4
21	10	9	12	12	12	11	9	8	26	21	26	20	21	23	24	19	17	16	18	16	20	46	35	18
22	31	22	6	4	11	11	13	10	10	13	13	14	13	10	11	11	11	10	11	11	6	4	5	5
23	6	4	5	6	5	5	4	5	5	8	13	12	11	11	14	15	13	13	12	10	8	4	6	7
24	9	5	7	6	5	5	5	5	6	7	8	10	9	9	9	8	7	6	5	6	5	3	5	4
25	5	6	17	37	31	35	45	21	41	20	8	10	24	14	18	11	14	8	22	18	16	16	17	23
26	22	24	22	16	23	23	13	8	8	8	10	14	13	13	13	13	11	11	10	10	7	7	9	4
27	4	10	10	13	9	11	8	6	9	12	14	13	10	13	11	12	8	9	10	9	9	9	9	8
28	8	8	8	8	8	8	8	9	10	9	10	11	15	14	14	15	13	10	10	10	6	3	4	7

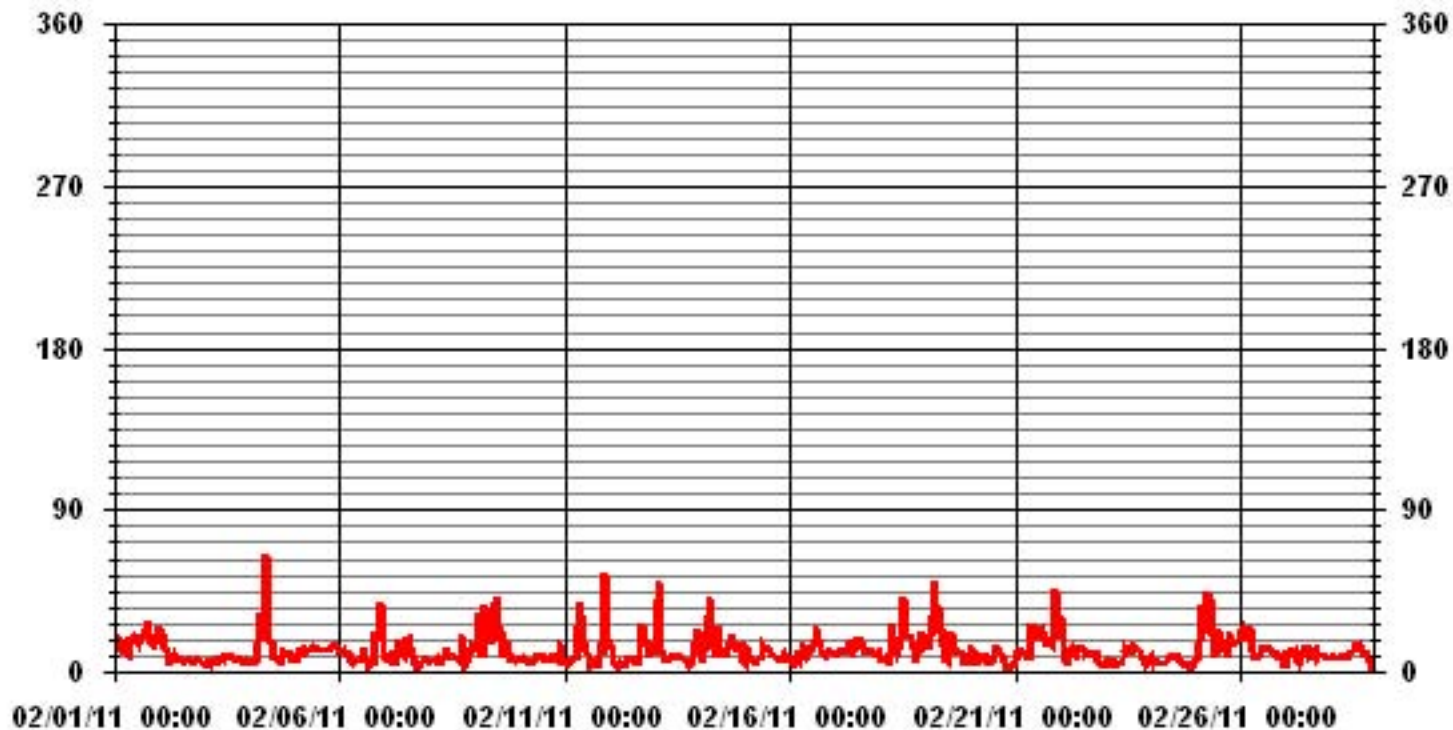
### STATUS FLAG CODES

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

LAST CALIBRATION: September 24, 2009

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 672 HRS

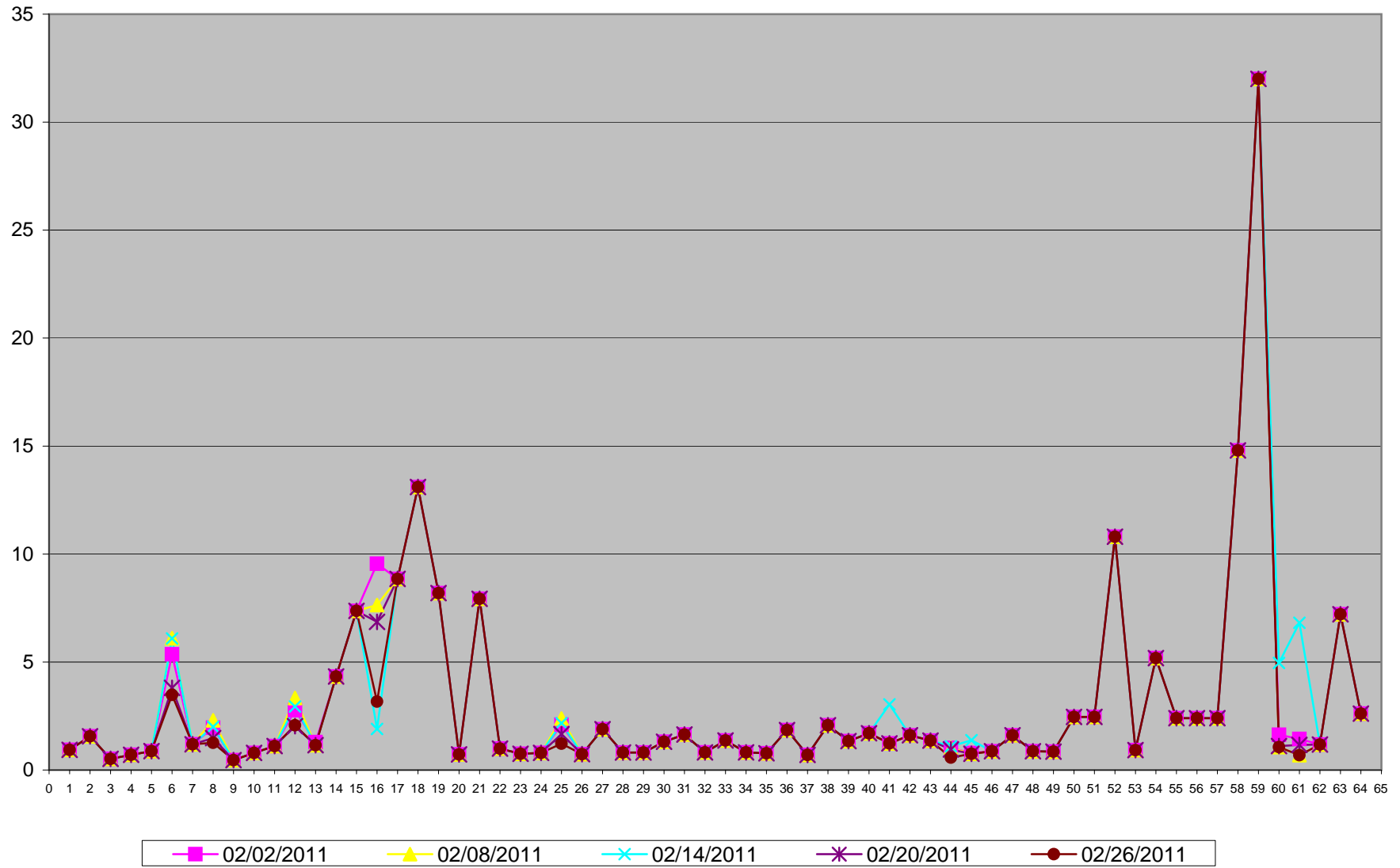
### 01 Hour Averages



— 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 February 2011

LICA- Portable Site

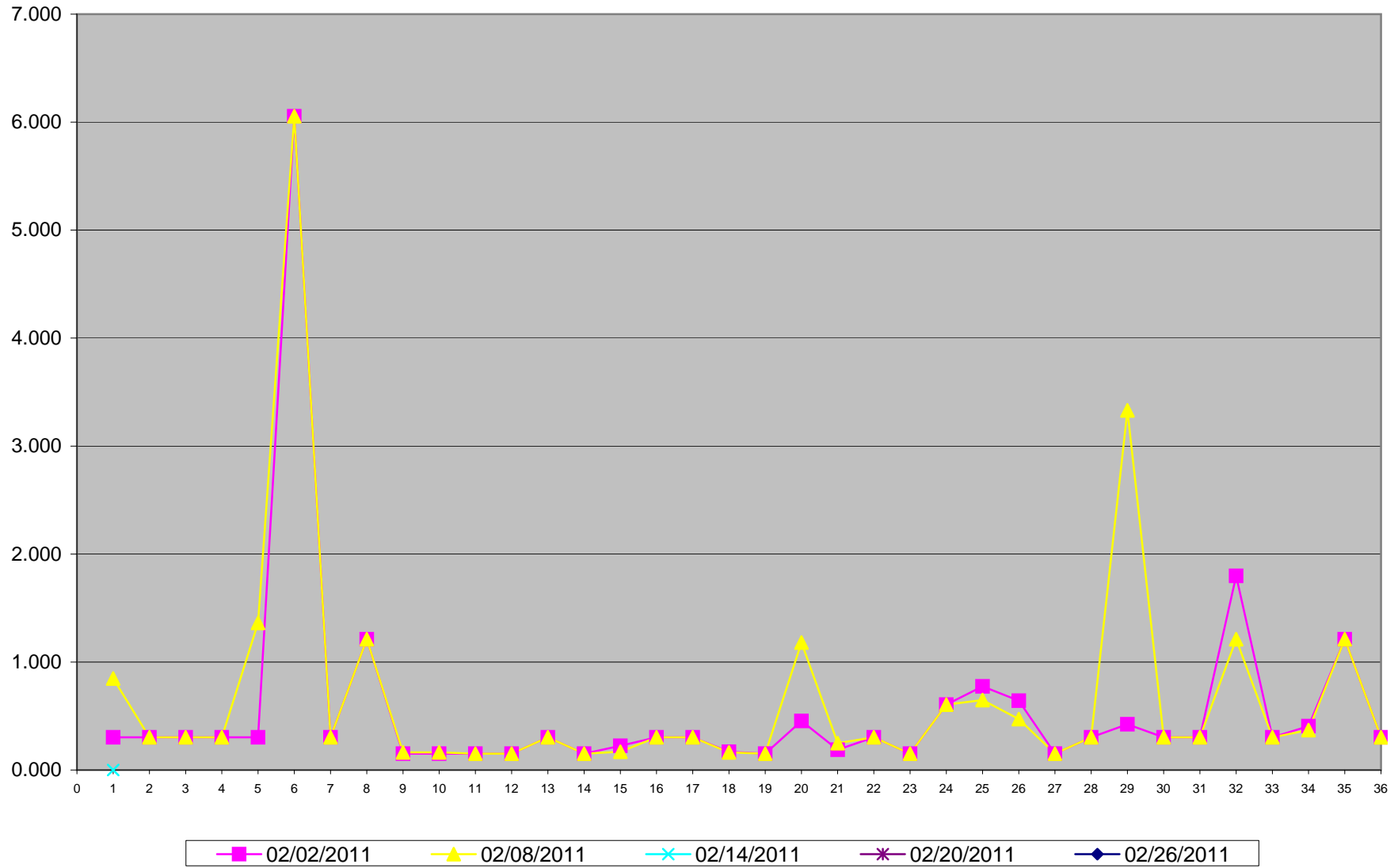
Unit: ng/m<sup>3</sup>

PAHs	02/02/2011	02/08/2011	02/14/2011	02/20/2011	02/26/2011
Sample Volume (unit: m3)	330.35	330.34	NA	330.38	330.33
1 1-Methylnaphthalene	0.303	0.848	NA	1.362	0.303
2 1-Methylphenanthrene	0.303	0.303	NA	0.303	0.303
3 2-Chloronaphthalene	0.303	0.303	NA	0.303	0.303
4 2-Methylantracene	0.303	0.303	NA	0.303	0.303
5 2-Methylnaphthalene	0.303	1.362	NA	2.179	0.545
6 3-Methylcholanthrene	6.054	6.054	NA	6.054	6.055
7 7,12-Dimethylbenzo(a)anthracene	0.303	0.303	NA	0.303	0.303
8 9,10-Dimethylantracene	1.211	1.211	NA	1.211	1.211
9 Acenaphthene	0.151	0.163	NA	0.151	0.151
10 Acenaphthylene	0.151	0.163	NA	0.151	0.151
11 Anthracene	0.151	0.151	NA	0.151	0.151
12 Benzo(a)anthracene	0.151	0.151	NA	0.151	0.151
13 Benzo(a)fluorene	0.303	0.303	NA	0.303	0.303
14 Benzo(a)pyrene	0.151	0.151	NA	0.151	0.151
15 Benzo(b)fluoranthene	0.224	0.170	NA	0.151	0.151
16 Benzo(b)fluorene	0.303	0.303	NA	0.303	0.303
17 Benzo(e)pyrene	0.303	0.303	NA	0.303	0.303
18 Benzo(g,h,i)perylene	0.170	0.163	NA	0.151	0.151
19 Benzo(k)fluoranthene	0.151	0.151	NA	0.151	0.151
20 Biphenyl	0.454	1.181	NA	1.362	0.605
21 Chrysene	0.188	0.248	NA	0.151	0.151
22 Coronene	0.303	0.303	NA	0.303	0.303
23 Dibenz(a,h)anthracene	0.151	0.151	NA	0.151	0.151
24 Dibenzo(a,e)pyrene	0.605	0.605	NA	0.605	0.605
25 Fluoranthene	0.775	0.648	NA	0.351	0.206
26 Fluorene	0.642	0.472	NA	0.539	0.375
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	NA	0.151	0.151
28 m-Terphenyl	0.303	0.303	NA	0.303	0.303
29 Naphthalene	0.424	3.330	NA	3.015	0.775
30 o-Terphenyl	0.303	0.303	NA	0.303	0.303
31 Perylene	0.303	0.303	NA	0.303	0.303
32 Phenanthrene	1.798	1.211	NA	1.065	0.890
33 p-Terphenyl	0.303	0.303	NA	0.303	0.303
34 Pyrene	0.406	0.369	NA	0.182	0.151
35 Quinoline	1.211	1.211	NA	1.211	1.211
36 Tetralin	0.303	0.303	NA	0.303	0.303

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



PAHs in ng/m3 Site: LICA - Portable Site



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

# Calibration Reports

# Sulphur Dioxide

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

#### Station Information

Calibration Date	February 3, 2011	Previous Calibration	January 11, 2011
Company	Lakeland Community and Industry Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	11:58	End Time (MST)	15:56
Reason:	Monthly Calibration		
Barometric Pressure	0.935 atm	Station Temperature	22 Deg C
Cal Gas	51.4 ppm	Cal Gas Expiry date	5/8/2010
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	576 ccm, 32.3 Deg C	576 ccm, 32.2 Deg C	
HVPS / Lamp Setting	604, 2188	604, 2189	
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	71.3, 0.956	73.9, 0.941	

#### Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4998	0	0	1	N/A
4998	0	0	0	N/A
4927	73	750	761	0.9861
4927	73	750	750	1.0006
4961	38.9	400	395	1.0124
4981	16.5	170	170	0.9983
4998	0	0	0	N/A
Sum of Least Squares				1.0030
New Correction Factor				1.0006

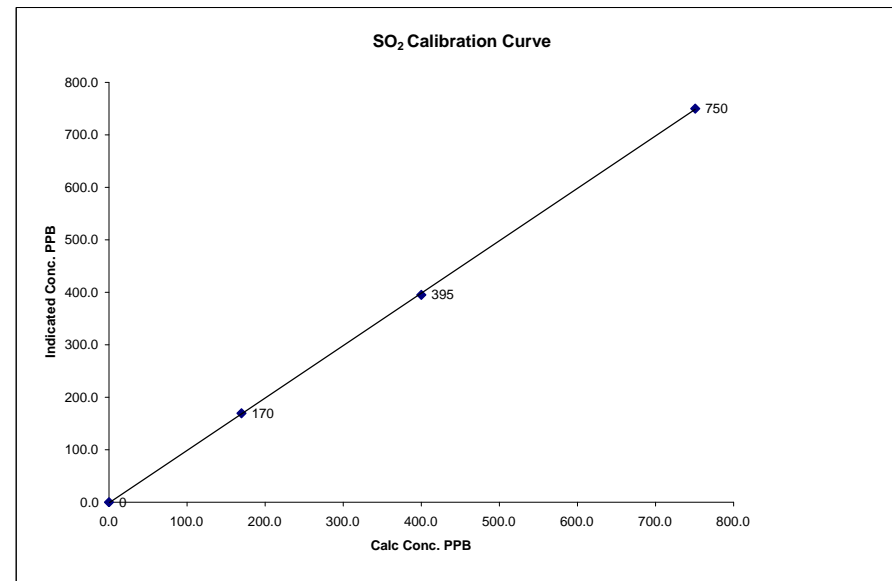
	Before Calibration	After Calibration
Auto Zero	1.3	0.5
Auto Span	346	371
Sample Lines Connected		YES
Percent Change from Previous Calibration		1.4%

Calibration Performed by: Ting Xu

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

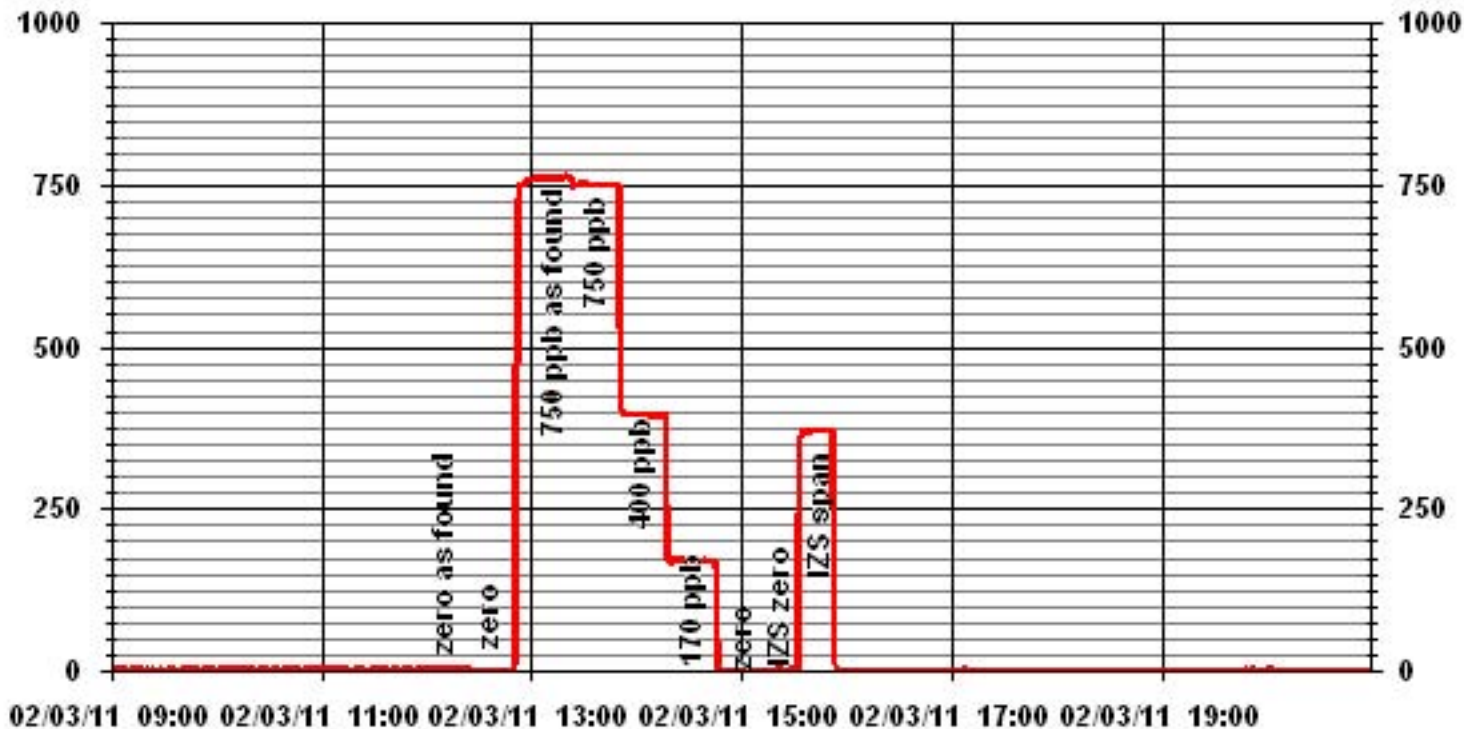
Calibration Date	February 3, 2011
Company	Lakeland Community and Industry Association
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M
Start Time (MST)	11:58
End Time (MST)	15:56

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope (≥ 0.995) (0.85 to 1.15)	Intercept (± 3% F.S.)
0	0	n/a	0.999946	0.998183
170	170	0.9983		-0.661446
400	395	1.0124		
750	750	1.0006		



Notes:

### 01 Minute Averages

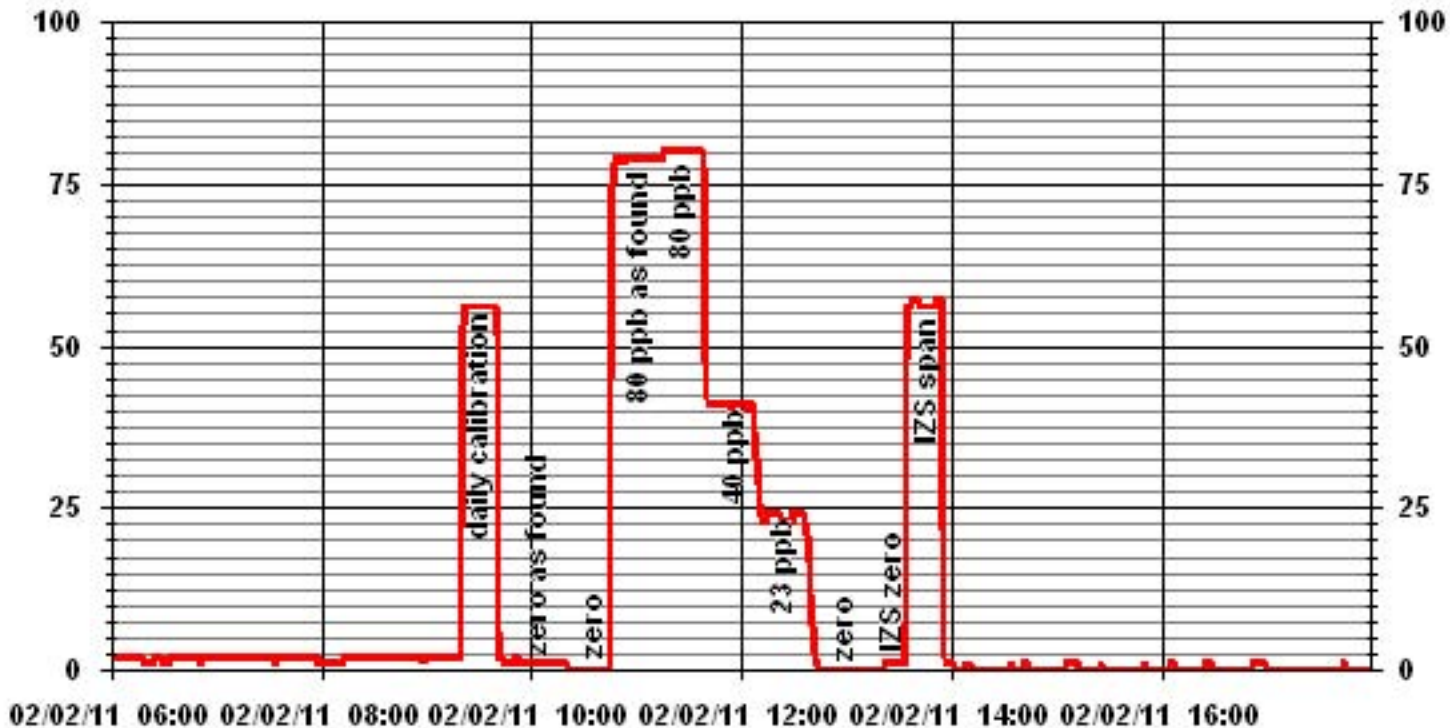


# Hydrogen Sulphide





### 01 Minute Averages



# Particulate Matter 2.5

**TEOM 1405F Audit**

	<b><u>Station</u></b>		<b><u>Audit Transfer Standard</u></b>
Date:	<u>February 22, 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>35.6%</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>-12.2</u>
		Press (ATM)	<u>0.929</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>
Pump Vacuum <b>&lt;0.40atm</b>	<u>0.32</u>	Pump Gauge (inHg)	<u>-19</u>
<b>Temperature/Pressure</b>			
Measured Temp ( <b>± 2 °C</b> )	<u>-12.0</u>	<b>D °C</b>	<u>-0.2</u>
Measured Press ( <b>± 0.01atm</b> )	<u>0.926</u>	<b>DATM</b>	<u>0.003</u>
<b>Flow Audit</b>			
Indicated Main Flow (l/min)	<u>3.00</u>	Main Flow Drift ( <b>±10.0%</b> )	<u>0.84%</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>2.82%</u>
Measured Bypass Flow (l/min)	<u>13.90</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>	<u>Flow Control = Active</u>	
		<u>Report Conditions = Standard (25.0 C and 1atm)</u>	
<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:** 13:35      **Finish Time:** 15:11

**Sample Inlet Cleaned:** Yes      **New Filters Installed:** Yes  
**New Filter Loading %:** 20.2%

**Comments:**

**Auditor/s:** Ting Xu

# Nitrogen Dioxide

**NOx - NO- NO<sub>2</sub> Calibration Report**

**Station Information**

Calibration Date	February 2, 2011	Previous Calibration	January 12, 2011
Company	LICA	Plant/Location	Portable/ 13-16-62-5W4M
Start Time (MST)	9:50	End Time (MST)	17:15
Reason:	Monthly Calibration		Other
Barometric Pressure	0.931 atm	Station Temperature	22 Deg C
Cal Gas Concentration	NOx 50.8 ppm	NO 50.4 ppm	Cal Gas Expiry date 05-Aug-12
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	479 ccm	315.4 Deg C		480 ccm	315.8 Deg C		
Ozone Flow / Vacuum	78 ccm	5.4 "Hg-A		78 ccm	5.4 "Hg-A		
HVPS / A ZERO	634 Volts	5.8 MV		634 Volts	5.7 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	33.3 Deg C	45.0 Deg C		33.8 Deg C	45.2 Deg C		
Offset	0.2 NOx	0.1 NO		3.7 NOx	0.6 NO		
Slope	1.198 NOx	1.186 NO		1.244 NOx	1.230 NO		
NO <sub>2</sub> COEF / Conv Efficiency	NA NO <sub>2</sub>	0.996		NA NO <sub>2</sub>	0.996		

**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
3002	0.0		0	0	0	2	0	1	-----	-----
3004	0.0	-----	0	0	0	-1	0	-1	-----	-----
2965	44.7	-----	754	749	-----	726	722	4	1.0378	1.0368
2965	44.7	-----	754	749	-----	755	751	4	0.9980	0.9967
2987	23.9	-----	403	400	-----	401	400	1	1.0031	1.0002
2997	11.9	-----	201	199	-----	201	201	0	0.9946	0.9917
3003	0.0	-----	0	0	0	-1	0	-2	-----	-----

**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>		
2965	44.7	-----	754	749	-----	755	752	3	-----	-----
2965	44.7	600	754	-----	550	754	205	549	1.0000	99.82%
2965	44.7	250	754	-----	224	755	531	224	0.9956	100.00%
2965	44.7	140	754	-----	119	756	636	120	0.9835	100.86%

Linearity	Sum of Least Squares	NOx= 1.001	NO= 0.997	NO <sub>2</sub> = 1.001	
OK?	Yes No	Correction Factors:	NOx= 0.9980	NO= 0.9967	NO <sub>2</sub> = 1.0000
Average Converter Efficiency= 100.23%					

Before Calibration				After Calibration			
Auto Zero	0.4 NOx	0.4 NO <sub>2</sub>		-1.9 NOx	-3.1 NO <sub>2</sub>		
Auto Span	639 NOx	628 NO <sub>2</sub>		653 NOx	641 NO <sub>2</sub>		
Sample Lines Connected				YES			
Percent Change from Previous Calibration		NOx -3.7%	NO -3.4%	NO <sub>2</sub> -0.2%			

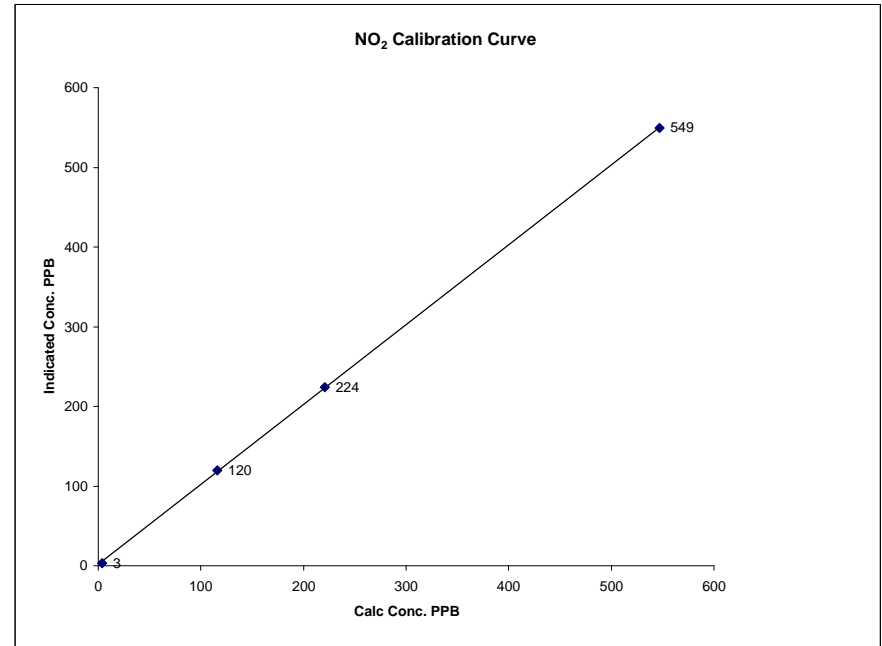
Notes Additional point done for ozone cal (O3 set point= 420), NOx=756, NO=382, NO<sub>2</sub>=374.

Calibration Performed by: Ting Xu

**NO<sub>2</sub> Calibration Curve**

Calibration Date	February 2, 2011	Company	LICA
Plant / Location	Portable/ 13-16-62-5W4M	Start Time (MST)	9:50
End Time (MST)	17:15		

Calculated Conc.	Indicated Response	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999922
ppb	ppb		Slope	(0.85 to 1.15)	1.002683
4	3	N/A	Intercept	(± 3% F.S.)	1.40444
116	120	0.9667			
221	224	0.9866			
547	549	0.9964			

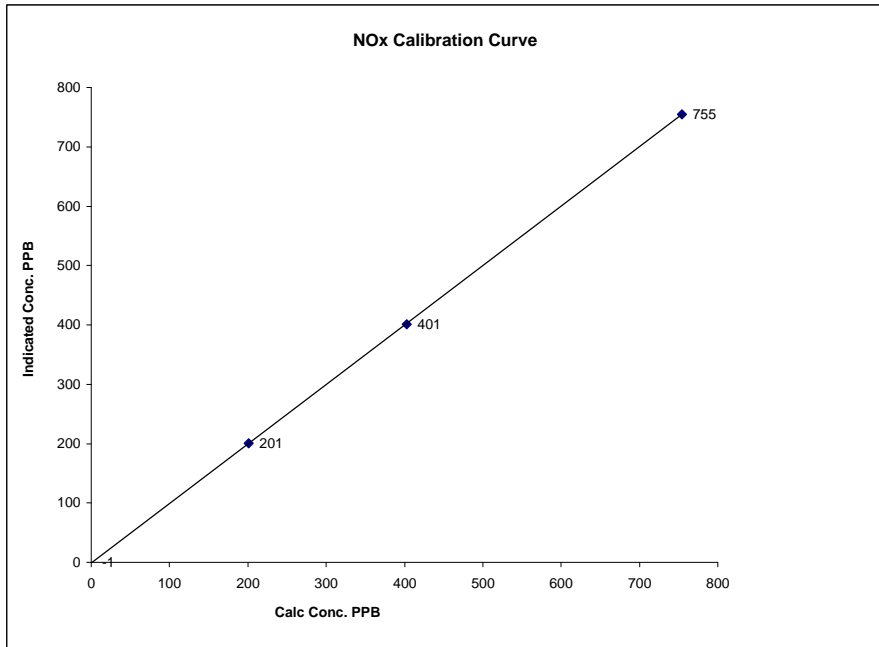


Notes:

### NOx Calibration Curve

Calibration Date February 2, 2011  
 Company LICA  
 Plant / Location Portable/ 13-16-62-5W4M  
 Start Time (MST) 9:50 End Time (MST) 17:15

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999987
0	-1	N/A	Slope (0.85 to 1.15)	1.001288
201	201	0.9996	Intercept (± 3% F.S.)	-1.09565
403	401	1.0056		
754	755	0.9993		

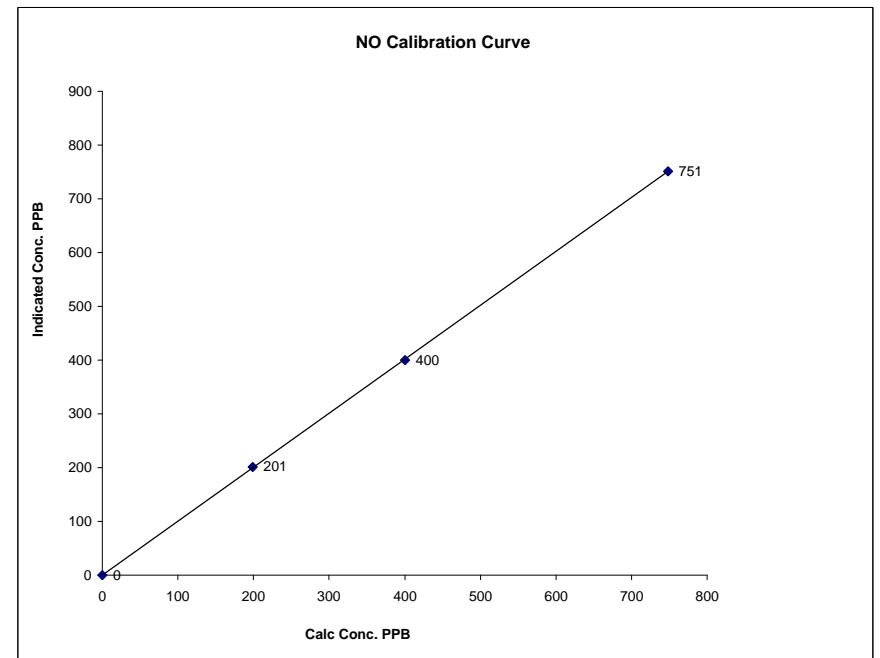


Notes:

### NO Calibration Curve

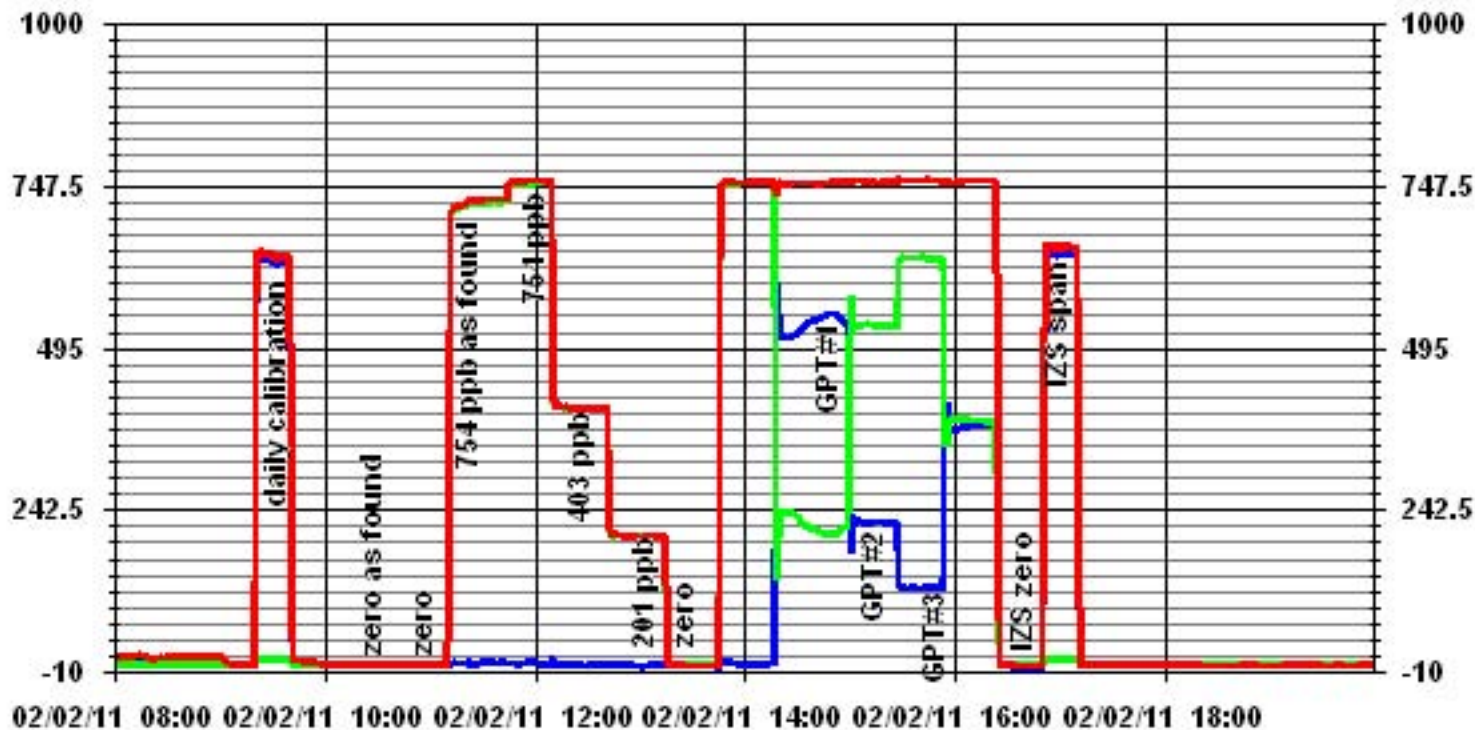
Calibration Date February 2, 2011  
 Company LICA  
 Plant / Location Portable/ 13-16-62-5W4M  
 Start Time (MST) 9:50 End Time (MST) 17:15

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999991
0	0	N/A	Slope (0.85 to 1.15)	1.002082
199	201	0.9917	Intercept (± 3% F.S.)	-2.9672
400	400	1.0002		
749	751	0.9967		



Notes:

### 01 Minute Averages



# Ozone



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

#### Station Information

Calibration Date	February 11, 2011	Previous Calibration	January 12, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	9:36	End Time (MST)	12:57
Reason:	Monthly Calibration		
Barometric Pressure	0.925 mm Hg	Station Temperature	22 Deg C
DAS Output Voltage	0 - 10 Volts		

#### Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	1002240372	Method:	Photometric
Calibrator Make / Model:	Enviroincs 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	750 ccm	760 ccm	757 ccm	765 Deg C
Pressure	692 mmHg		701 mmHg	
Bench Lamp Temp	54.1 Deg C		54 Deg C	
O3 Lamp / Box Temp	68.2 Deg C	31 Deg C	68.2 Deg C	31.6 Deg C
Offset/Slop	0	0.964	0	0.993

#### Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	N/A
4995	420	399	387	1.0310
4995	420	399	400	0.9975
4995	250	237	239	0.9916
4995	140	133	134	0.9925
4995	0	0	0	N/A
Sum of Least Squares				N/A
New Correction Factor				0.9975

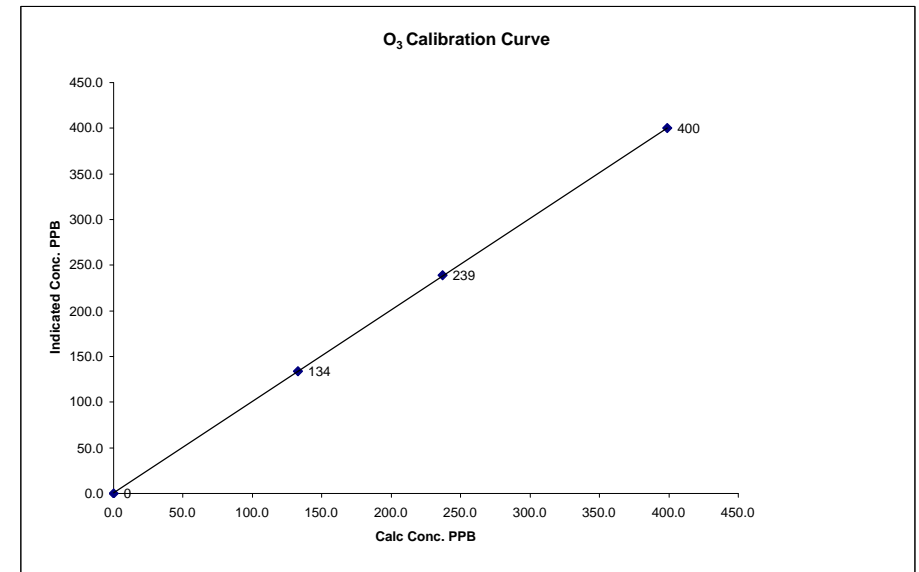
	Before Calibration	After Calibration
Auto Zero	-0.1	0.0
Auto Span	348	358
Sample Lines Connected		YES
Percent Change from Previous Calibration		-3.3%

Calibration Performed by: Ting Xu

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

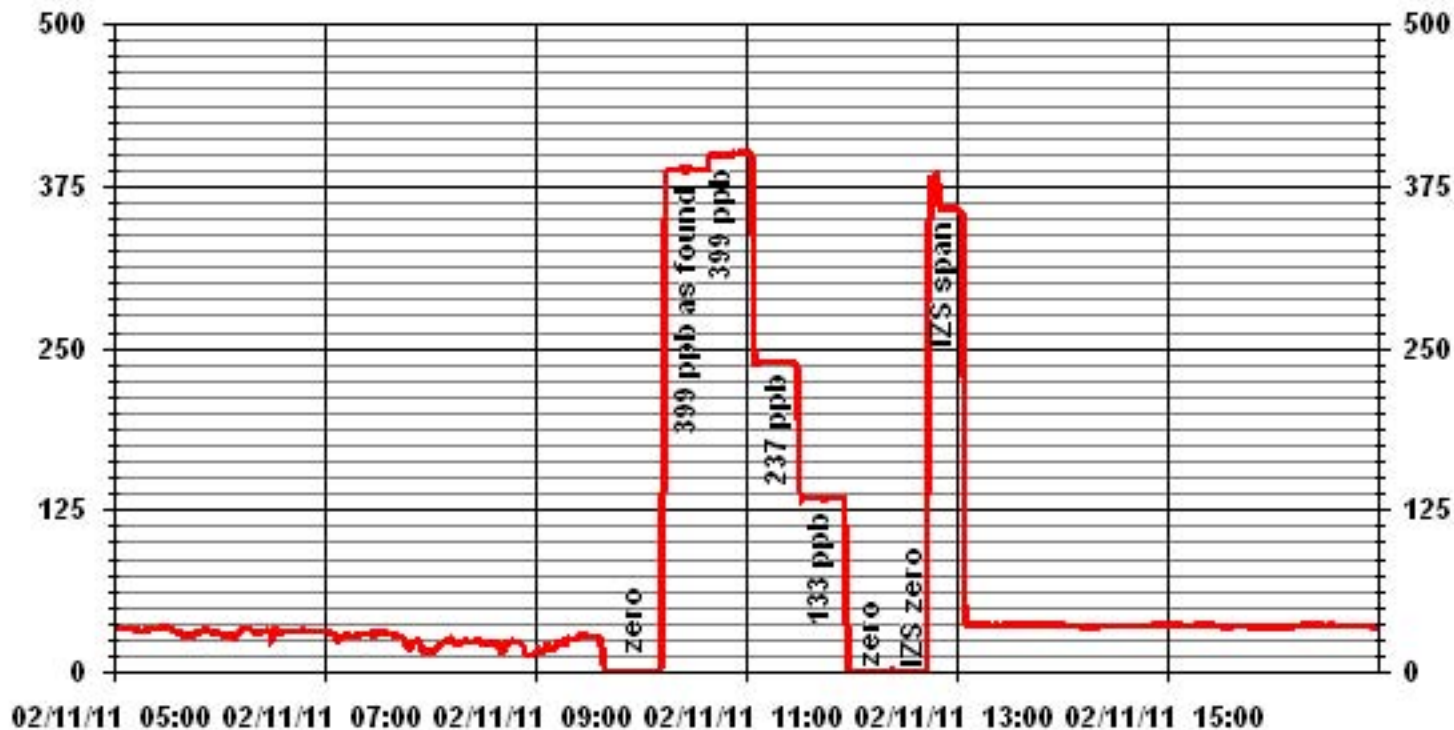
Calibration Date	February 11, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	9:36	End Time (MST)	12:57

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999984
0	0	n/a	Intercept	(0.85 to 1.15)	1.002781
133	134	0.9925		(± 3% F.S.)	0.465338
237	239	0.9916			
399	400	0.9975			



Notes: Using the Maskwa NOx calibration O<sub>3</sub> concentration as the reference.

### 01 Minute Averages



# Total Hydrocarbons

### THC Calibration Report

#### Station Information

Calibration Date:	February 2, 2011	Previous Calibration	January 12, 2011
Company:	Lakeland Industry and Community Association		
Plant / Location:	Portable Station Devon Wellsite 13-16-62-5W4M		
Start Time (MST)	13:23	End Time (MST)	16:47
Reason:	Monthly Calibration		
Barometric Pressure:	0.932 atm	Station Temperature:	23 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
--------------	----------	-------	-------------	--------	------------------

#### 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	0.0	N/A
1999	70.0	39.6	40.0	0.9907
2000	34.9	20.1	19.9	1.0094
2000	20.0	11.6	11.4	1.0172
2000	0	0.0	0.0	N/A
Correction Factor:				0.9907

#### Percent Change

Previous Calibration Correction Factor:	0.9907
Current Correction Factor Before Span Adjust:	0.9907
Percent Change:	0.0%

#### IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.1	0.0
Auto Span	33.5	33.7
Sample Lines Connected		YES

#### Cylinder Pressures

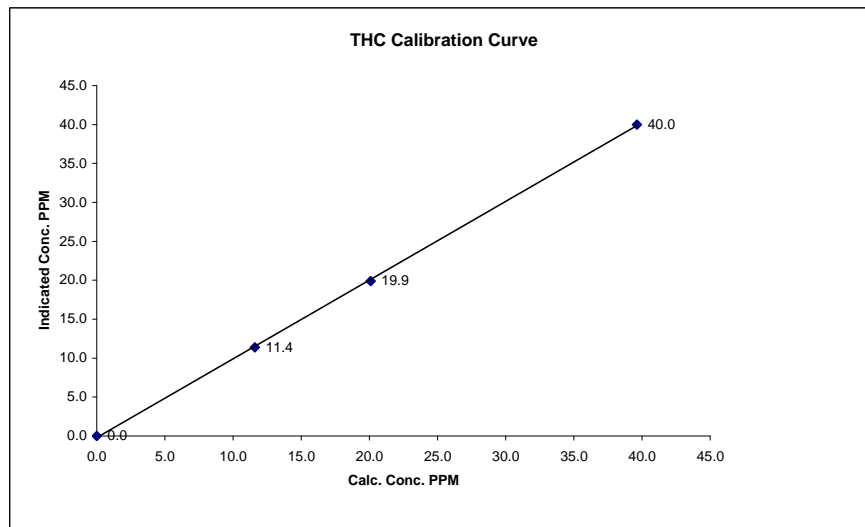
Span	1800 psi
Hydrogen	1000 psi
Zero Air	30 psi Using API 700

Calibration Performed by: Ting Xu

### THC Calibration Curve

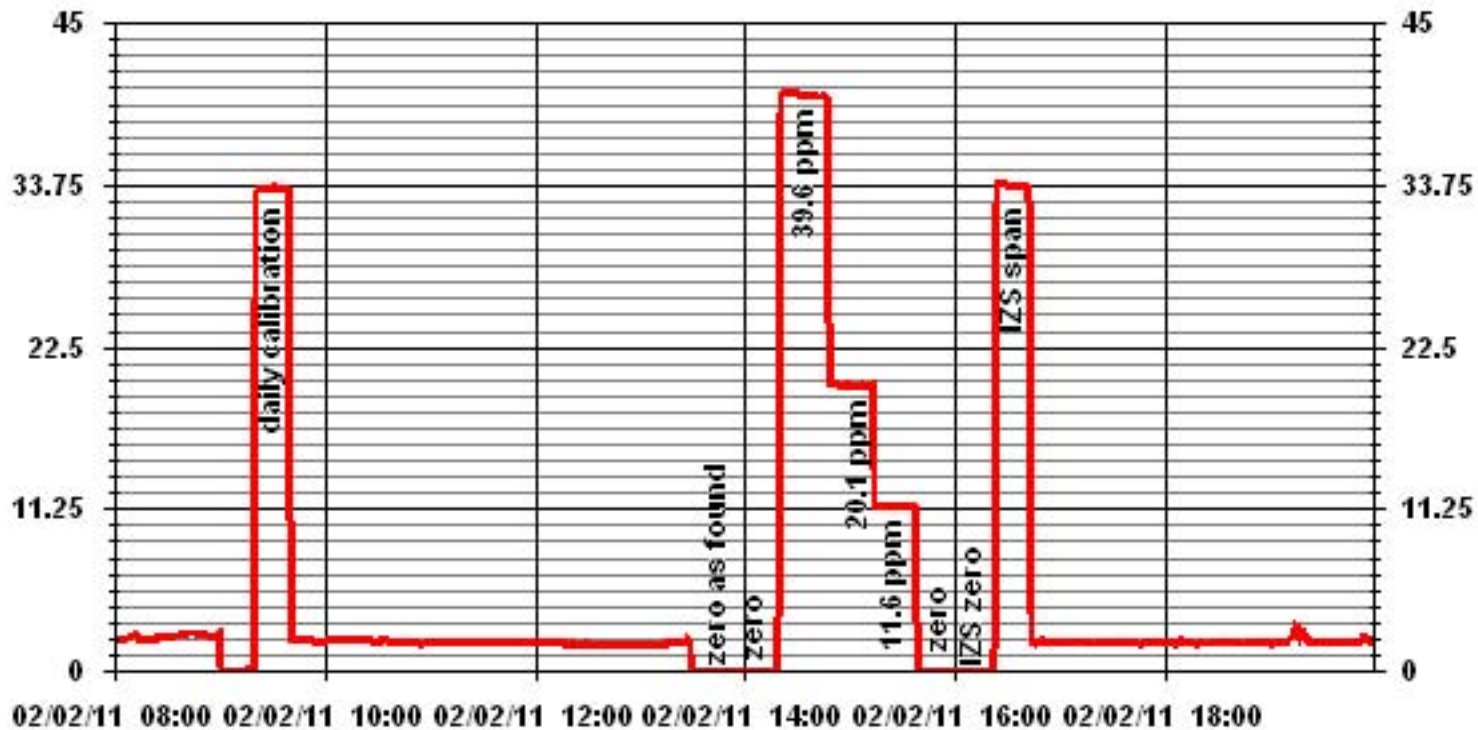
Calibration Date	February 2, 2011
Company	Lakeland Industry and Community Association
Plant / Location	Portable Station Devon Wellsite 13-16-62-5W4M
Start Time (MST)	13:23
End Time (MST)	16:47

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999862
0.0	0.0		Intercept	(0.85 to 1.15)	1.010681
11.6	11.4	1.0172		(± 3% F.S.)	-0.193150
20.1	19.9	1.0094			
39.6	40.0	0.9907			



Notes:

### 01 Minute Averages



# **Volatile Organics Laboratory Analysis**

# Maxxam Analytics Inc.

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200  
 Location: 13-16-62-5 W4M Canister ID: 7812  
 Station ID: Lica 33 (Portable) Canister Installation Date/Time: Feb 01, 11 @ 8:06 mst  
 Field Sample ID: LICA VOC/PORT/ Feb 02, 11 Canister Removal Date/Time: Feb 03, 11 @ 10:19 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
2-Feb-11	2/2/2011 0:00	2/3/2011 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 # 06426  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Technician Signature: Ting Xu \_\_\_\_\_



Site: LICA - COLD LAKE SOUTH  
Your C.O.C. #: 06426

**Attention: Michael Bisaga**

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

**Report Date: 2011/02/11**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B115818**

**Received: 2011/02/05, 14:30**

Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/02/10	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/02/10	BRL SOP-00304	EPA TO-15

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

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

**Encryption Key**

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

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

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

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Total cover pages: 1



Maxxam Job #: B115818  
 Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		IO5863	IO5864	
Sampling Date		2011/02/02 00:00	2011/02/02 00:00	
COC Number		06426	06426	
	<b>Units</b>	<b>LICA VOC/CLS/FEB 02, 11</b>	<b>LICA VOC/PORT/FEB 02, 11</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	21	22	2403390
QC Batch = Quality Control Batch				

Maxxam Job #: B115818  
 Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IO5863				
Sampling Date		2011/02/02 00:00				
COC Number		06426				
	<b>Units</b>	<b>LICA VOC/CLS/FEB 02, 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	2403392
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2403392
Propene	ppbv	<0.30	0.30	<0.516	0.516	2403392
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2403392
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2403392
Dichlorodifluoromethane (FREON 12)	ppbv	1.03	0.20	5.11	0.989	2403392
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2403392
Chloromethane	ppbv	0.92	0.30	1.90	0.620	2403392
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2403392
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2403392
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2403392
Trichlorofluoromethane (FREON 11)	ppbv	0.49	0.20	2.73	1.12	2403392
Trichlorotrifluoroethane	ppbv	0.16	0.15	1.21	1.15	2403392
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2403392
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2403392
2-Propanone	ppbv	3.63	0.80	8.62	1.90	2403392
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2403392
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2403392
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2403392
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2403392
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2403392
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2403392
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2403392
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2403392
Methylene Chloride(Dichloromethane)	ppbv	0.59	0.30	2.06	1.04	2403392
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2403392
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2403392
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2403392
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2403392
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2403392
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B115818  
 Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IO5863				
Sampling Date		2011/02/02 00:00				
COC Number		06426				
	<b>Units</b>	<b>LICA VOC/CLS/FEB 02, 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	2403392
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2403392
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2403392
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2403392
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2403392
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2403392
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2403392
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2403392
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2403392
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2403392
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2403392
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2403392
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2403392
Benzene	ppbv	0.34	0.18	1.09	0.575	2403392
Toluene	ppbv	0.24	0.20	0.908	0.753	2403392
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2403392
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2403392
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2403392
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2403392
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2403392
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2403392
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2403392
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2403392
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2403392
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2403392
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2403392
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2403392
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2403392
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2403392
Hexane	ppbv	0.33	0.30	1.16	1.06	2403392
Cyclohexane	ppbv	0.32	0.20	1.09	0.688	2403392
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2403392
QC Batch = Quality Control Batch						

Maxxam Job #: B115818  
 Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IO5863				
Sampling Date		2011/02/02 00:00				
COC Number		06426				
	<b>Units</b>	<b>LICA VOC/CLS/FEB 02, 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	2403392
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2403392
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	71		N/A	N/A	2403392
D5-Chlorobenzene	%	68		N/A	N/A	2403392
Difluorobenzene	%	70		N/A	N/A	2403392
N/A = Not Applicable QC Batch = Quality Control Batch						

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

Maxxam ID		IO5864				
Sampling Date		2011/02/02 00:00				
COC Number		06426				
	<b>Units</b>	<b>LICA VOC/PORT/FEB 02, 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	2403392
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2403392
Propene	ppbv	<0.30	0.30	<0.516	0.516	2403392
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2403392
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2403392
Dichlorodifluoromethane (FREON 12)	ppbv	1.08	0.20	5.36	0.989	2403392
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2403392
Chloromethane	ppbv	0.95	0.30	1.96	0.620	2403392
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2403392
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2403392
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2403392
Trichlorofluoromethane (FREON 11)	ppbv	0.49	0.20	2.77	1.12	2403392
Trichlorotrifluoroethane	ppbv	0.17	0.15	1.29	1.15	2403392
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2403392
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2403392
2-Propanone	ppbv	4.02	0.80	9.55	1.90	2403392
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2403392
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2403392
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2403392
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2403392
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2403392
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2403392
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2403392
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2403392
Methylene Chloride(Dichloromethane)	ppbv	0.61	0.30	2.10	1.04	2403392
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2403392
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2403392
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2403392
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2403392
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2403392
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

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

Maxxam ID		IO5864				
Sampling Date		2011/02/02 00:00				
COC Number		06426				
	<b>Units</b>	<b>LICA VOC/PORT/FEB 02, 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	2403392
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2403392
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2403392
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2403392
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2403392
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2403392
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2403392
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2403392
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2403392
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2403392
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2403392
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2403392
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2403392
Benzene	ppbv	0.32	0.18	1.02	0.575	2403392
Toluene	ppbv	0.21	0.20	0.786	0.753	2403392
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2403392
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2403392
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2403392
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2403392
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2403392
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2403392
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2403392
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2403392
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2403392
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2403392
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2403392
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2403392
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2403392
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2403392
Hexane	ppbv	0.46	0.30	1.63	1.06	2403392
Cyclohexane	ppbv	0.42	0.20	1.44	0.688	2403392
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2403392
QC Batch = Quality Control Batch						

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

Maxxam ID		IO5864				
Sampling Date		2011/02/02 00:00				
COC Number		06426				
	<b>Units</b>	<b>LICA VOC/PORT/FEB 02, 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	2403392
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2403392
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	67		N/A	N/A	2403392
D5-Chlorobenzene	%	65		N/A	N/A	2403392
Difluorobenzene	%	67		N/A	N/A	2403392
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B115818  
 Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

### Test Summary

**Maxxam ID** IO5863  
**Sample ID** LICA VOC/CLS/FEB 02, 11  
**Matrix** AIR  
**Collected** 2011/02/02  
**Shipped**  
**Received** 2011/02/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2403390	N/A	2011/02/10	MMU
Volatile Organics in Air (TO-15)	GC/MS	2403392	N/A	2011/02/10	MMU

**Maxxam ID** IO5864  
**Sample ID** LICA VOC/PORT/FEB 02, 11  
**Matrix** AIR  
**Collected** 2011/02/02  
**Shipped**  
**Received** 2011/02/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2403390	N/A	2011/02/10	MMU
Volatile Organics in Air (TO-15)	GC/MS	2403392	N/A	2011/02/10	MMU



Maxxam Job #: B115818  
Report Date: 2011/02/11

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

**GENERAL COMMENTS**

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

Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

Quality Assurance Report  
 Maxxam Job Number: GB115818

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2403392 MMU	Spiked Blank	Bromochloromethane	2011/02/10		101	%	60 - 140
		D5-Chlorobenzene	2011/02/10		102	%	60 - 140
		Difluorobenzene	2011/02/10		103	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/10		88	%	70 - 130
		Carbon Disulfide	2011/02/10		84	%	70 - 130
		Propene	2011/02/10		83	%	70 - 130
		Vinyl Acetate	2011/02/10		94	%	70 - 130
		Vinyl Bromide	2011/02/10		98	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/02/10		94	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/02/10		101	%	70 - 130
		Chloromethane	2011/02/10		88	%	70 - 130
		Vinyl Chloride	2011/02/10		91	%	70 - 130
		Chloroethane	2011/02/10		88	%	70 - 130
		1,3-Butadiene	2011/02/10		95	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/02/10		89	%	70 - 130
		Trichlorotrifluoroethane	2011/02/10		90	%	70 - 130
		Ethanol	2011/02/10		88	%	70 - 130
		2-propanol	2011/02/10		93	%	70 - 130
		2-Propanone	2011/02/10		97	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/02/10		84	%	70 - 130
		Methyl Isobutyl Ketone	2011/02/10		94	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/02/10		100	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/02/10		129	%	70 - 130
		Ethyl Acetate	2011/02/10		90	%	70 - 130
		1,1-Dichloroethylene	2011/02/10		94	%	70 - 130
		cis-1,2-Dichloroethylene	2011/02/10		93	%	70 - 130
		trans-1,2-Dichloroethylene	2011/02/10		129	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/02/10		79	%	70 - 130
		Chloroform	2011/02/10		94	%	70 - 130
		Carbon Tetrachloride	2011/02/10		95	%	70 - 130
		1,1-Dichloroethane	2011/02/10		95	%	70 - 130
		1,2-Dichloroethane	2011/02/10		92	%	70 - 130
		Ethylene Dibromide	2011/02/10		94	%	70 - 130
		1,1,1-Trichloroethane	2011/02/10		94	%	70 - 130
		1,1,2-Trichloroethane	2011/02/10		93	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/02/10		89	%	70 - 130
		cis-1,3-Dichloropropene	2011/02/10		96	%	70 - 130
		trans-1,3-Dichloropropene	2011/02/10		97	%	70 - 130
		1,2-Dichloropropane	2011/02/10		89	%	70 - 130
		Bromomethane	2011/02/10		90	%	70 - 130
		Bromoform	2011/02/10		108	%	70 - 130
		Bromodichloromethane	2011/02/10		91	%	70 - 130
		Dibromochloromethane	2011/02/10		99	%	70 - 130
		Heptane	2011/02/10		85	%	70 - 130
		Trichloroethylene	2011/02/10		93	%	70 - 130
		Tetrachloroethylene	2011/02/10		98	%	70 - 130
		Benzene	2011/02/10		91	%	70 - 130
		Toluene	2011/02/10		96	%	70 - 130
		Ethylbenzene	2011/02/10		96	%	70 - 130
		p+m-Xylene	2011/02/10		94	%	70 - 130
		o-Xylene	2011/02/10		92	%	70 - 130
		Styrene	2011/02/10		99	%	70 - 130
		1,3,5-Trimethylbenzene	2011/02/10		96	%	70 - 130
		1,2,4-Trimethylbenzene	2011/02/10		96	%	70 - 130
		4-ethyltoluene	2011/02/10		94	%	70 - 130

Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

## Quality Assurance Report (Continued)

Maxxam Job Number: GB115818

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2403392 MMU	Spiked Blank	Chlorobenzene	2011/02/10		91	%	70 - 130
		Benzyl chloride	2011/02/10		104	%	70 - 130
		1,3-Dichlorobenzene	2011/02/10		92	%	70 - 130
		1,4-Dichlorobenzene	2011/02/10		89	%	70 - 130
		1,2-Dichlorobenzene	2011/02/10		93	%	70 - 130
		1,2,4-Trichlorobenzene	2011/02/10		81	%	70 - 130
		Hexachlorobutadiene	2011/02/10		89	%	70 - 130
		Hexane	2011/02/10		84	%	70 - 130
		Cyclohexane	2011/02/10		93	%	70 - 130
		Tetrahydrofuran	2011/02/10		96	%	70 - 130
		1,4-Dioxane	2011/02/10		99	%	70 - 130
	Method Blank	Bromochloromethane	2011/02/10		109	%	60 - 140
		D5-Chlorobenzene	2011/02/10		104	%	60 - 140
		Difluorobenzene	2011/02/10		111	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/10	<0.20		ppbv	
		Carbon Disulfide	2011/02/10	<0.50		ppbv	
		Propene	2011/02/10	<0.30		ppbv	
		Vinyl Acetate	2011/02/10	<0.20		ppbv	
		Vinyl Bromide	2011/02/10	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/02/10	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/02/10	<0.17		ppbv	
		Chloromethane	2011/02/10	<0.30		ppbv	
		Vinyl Chloride	2011/02/10	<0.18		ppbv	
		Chloroethane	2011/02/10	<0.30		ppbv	
		1,3-Butadiene	2011/02/10	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/02/10	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/02/10	<0.15		ppbv	
		Ethanol	2011/02/10	<2.3		ppbv	
		2-propanol	2011/02/10	<3.0		ppbv	
		2-Propanone	2011/02/10	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/02/10	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/02/10	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/02/10	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/02/10	<0.20		ppbv	
		Ethyl Acetate	2011/02/10	<2.2		ppbv	
		1,1-Dichloroethylene	2011/02/10	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/02/10	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/02/10	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/02/10	0.64, RDL=0.30		ppbv	
		Chloroform	2011/02/10	<0.15		ppbv	
		Carbon Tetrachloride	2011/02/10	<0.30		ppbv	
		1,1-Dichloroethane	2011/02/10	<0.20		ppbv	
		1,2-Dichloroethane	2011/02/10	<0.20		ppbv	
		Ethylene Dibromide	2011/02/10	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/02/10	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/02/10	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/02/10	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/02/10	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/02/10	<0.17		ppbv	
		1,2-Dichloropropane	2011/02/10	<0.40		ppbv	
		Bromomethane	2011/02/10	<0.18		ppbv	
		Bromoform	2011/02/10	<0.20		ppbv	
		Bromodichloromethane	2011/02/10	<0.20		ppbv	
		Dibromochloromethane	2011/02/10	<0.20		ppbv	
		Heptane	2011/02/10	<0.30		ppbv	

Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

### Quality Assurance Report (Continued)

Maxxam Job Number: GB115818

QA/QC Batch				Date Analyzed				
Num Init	QC Type	Parameter		yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2403392	MMU	Method Blank	Trichloroethylene	2011/02/10	<0.30		ppbv	
			Tetrachloroethylene	2011/02/10	<0.20		ppbv	
			Benzene	2011/02/10	<0.18		ppbv	
			Toluene	2011/02/10	<0.20		ppbv	
			Ethylbenzene	2011/02/10	<0.20		ppbv	
			p+m-Xylene	2011/02/10	<0.37		ppbv	
			o-Xylene	2011/02/10	<0.20		ppbv	
			Styrene	2011/02/10	<0.20		ppbv	
			1,3,5-Trimethylbenzene	2011/02/10	<0.50		ppbv	
			1,2,4-Trimethylbenzene	2011/02/10	<0.50		ppbv	
			4-ethyltoluene	2011/02/10	<2.2		ppbv	
			Chlorobenzene	2011/02/10	<0.20		ppbv	
			Benzyl chloride	2011/02/10	<1.0		ppbv	
			1,3-Dichlorobenzene	2011/02/10	<0.40		ppbv	
			1,4-Dichlorobenzene	2011/02/10	<0.40		ppbv	
			1,2-Dichlorobenzene	2011/02/10	<0.40		ppbv	
			1,2,4-Trichlorobenzene	2011/02/10	<2.0		ppbv	
			Hexachlorobutadiene	2011/02/10	<3.0		ppbv	
			Hexane	2011/02/10	<0.30		ppbv	
			Cyclohexane	2011/02/10	<0.20		ppbv	
			Tetrahydrofuran	2011/02/10	<0.40		ppbv	
			1,4-Dioxane	2011/02/10	<2.0		ppbv	
			Xylene (Total)	2011/02/10	<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 Analytics Inc.

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200  
 Location: 13-16-62-5 W4M Canister ID: 7822  
 Station ID: Lica 33 (Portable) Canister Installation Date/Time: Feb 07, 11 @ 10:43 mst  
 Field Sample ID: LICA VOC/PORT/ Feb 08, 11 Canister Removal Date/Time: Feb 09, 11 @ 10:13 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
8-Feb-11	2/8/2011 0:00	2/9/2011 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 # 06705  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Technician Signature: Ting Xu \_\_\_\_\_



Site: LICA - COLD LAKE SOUTH  
Your C.O.C. #: 06705

**Attention: Michael Bisaga**

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

**Report Date: 2011/02/15**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B118504**

**Received: 2011/02/11, 09:35**

Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/02/11	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/02/11	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 #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		IQ0087	IQ0088	
Sampling Date		2011/02/08 00:00	2011/02/08 00:00	
COC Number		06705	06705	
	<b>Units</b>	<b>LICA VOC/CLS/FEB08,11 #7800</b>	<b>LICA VOC/PORT/FEB08,11 #7822</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	22	22	2405263
QC Batch = Quality Control Batch				

Maxxam Job #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0087				
Sampling Date		2011/02/08 00:00				
COC Number		06705				
	<b>Units</b>	<b>LICA VOC/CLS/FEB08,11 #7800</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	2405286
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2405286
Propene	ppbv	<0.30	0.30	<0.516	0.516	2405286
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2405286
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2405286
Dichlorodifluoromethane (FREON 12)	ppbv	1.20	0.20	5.95	0.989	2405286
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2405286
Chloromethane	ppbv	1.06	0.30	2.19	0.620	2405286
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2405286
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2405286
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2405286
Trichlorofluoromethane (FREON 11)	ppbv	0.56	0.20	3.14	1.12	2405286
Trichlorotrifluoroethane	ppbv	0.17	0.15	1.32	1.15	2405286
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2405286
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2405286
2-Propanone	ppbv	2.56	0.80	6.09	1.90	2405286
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2405286
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2405286
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2405286
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2405286
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2405286
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2405286
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2405286
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2405286
Methylene Chloride(Dichloromethane)	ppbv	0.71	0.30	2.48	1.04	2405286
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2405286
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2405286
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2405286
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2405286
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2405286

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch



Maxxam Job #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0087				
Sampling Date		2011/02/08 00:00				
COC Number		06705				
	<b>Units</b>	<b>LICA VOC/CLS/FEB08,11 #7800</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	2405286
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2405286
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2405286
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2405286
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2405286
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2405286
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2405286
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2405286
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2405286
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2405286
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2405286
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2405286
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2405286
Benzene	ppbv	0.35	0.18	1.11	0.575	2405286
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2405286
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2405286
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2405286
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2405286
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2405286
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2405286
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2405286
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2405286
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2405286
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2405286
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2405286
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2405286
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2405286
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2405286
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2405286
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2405286
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2405286
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2405286

QC Batch = Quality Control Batch

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

Maxxam ID		IQ0087				
Sampling Date		2011/02/08 00:00				
COC Number		06705				
	<b>Units</b>	<b>LICA VOC/CLS/FEB08,11 #7800</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	2405286
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2405286
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	74		N/A	N/A	2405286
D5-Chlorobenzene	%	70		N/A	N/A	2405286
Difluorobenzene	%	73		N/A	N/A	2405286

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

Maxxam Job #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0088				
Sampling Date		2011/02/08 00:00				
COC Number		06705				
	<b>Units</b>	<b>LICA VOC/PORT/FEB08,11 #7822</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	2405286
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2405286
Propene	ppbv	<0.30	0.30	<0.516	0.516	2405286
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2405286
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2405286
Dichlorodifluoromethane (FREON 12)	ppbv	1.23	0.20	6.10	0.989	2405286
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2405286
Chloromethane	ppbv	1.12	0.30	2.30	0.620	2405286
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2405286
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2405286
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2405286
Trichlorofluoromethane (FREON 11)	ppbv	0.59	0.20	3.33	1.12	2405286
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2405286
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2405286
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2405286
2-Propanone	ppbv	3.21	0.80	7.64	1.90	2405286
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2405286
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2405286
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2405286
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2405286
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2405286
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2405286
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2405286
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2405286
Methylene Chloride(Dichloromethane)	ppbv	0.68	0.30	2.38	1.04	2405286
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2405286
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2405286
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2405286
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2405286
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2405286

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0088				
Sampling Date		2011/02/08 00:00				
COC Number		06705				
	<b>Units</b>	<b>LICA VOC/PORT/FEB08,11 #7822</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	2405286
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2405286
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2405286
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2405286
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2405286
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2405286
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2405286
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2405286
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2405286
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2405286
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2405286
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2405286
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2405286
Benzene	ppbv	0.32	0.18	1.02	0.575	2405286
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2405286
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2405286
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2405286
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2405286
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2405286
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2405286
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2405286
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2405286
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2405286
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2405286
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2405286
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2405286
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2405286
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2405286
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2405286
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2405286
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2405286
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2405286
QC Batch = Quality Control Batch						

Maxxam Job #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0088				
Sampling Date		2011/02/08 00:00				
COC Number		06705				
	<b>Units</b>	<b>LICA VOC/PORT/FEB08,11 #7822</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	2405286
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2405286
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	72		N/A	N/A	2405286
D5-Chlorobenzene	%	68		N/A	N/A	2405286
Difluorobenzene	%	71		N/A	N/A	2405286
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B118504  
 Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

### Test Summary

<b>Maxxam ID</b>	IQ0087	<b>Collected</b>	2011/02/08
<b>Sample ID</b>	LICA VOC/CLS/FEB08,11 #7800	<b>Shipped</b>	
<b>Matrix</b>	AIR	<b>Received</b>	2011/02/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2405263	N/A	2011/02/11	MMU
Volatile Organics in Air (TO-15)	GC/MS	2405286	N/A	2011/02/11	MMU

<b>Maxxam ID</b>	IQ0088	<b>Collected</b>	2011/02/08
<b>Sample ID</b>	LICA VOC/PORT/FEB08,11 #7822	<b>Shipped</b>	
<b>Matrix</b>	AIR	<b>Received</b>	2011/02/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2405263	N/A	2011/02/11	MMU
Volatile Organics in Air (TO-15)	GC/MS	2405286	N/A	2011/02/11	MMU

Maxxam Job #: B118504  
Report Date: 2011/02/15

Maxxam Analytics

Project name: LICA - COLD LAKE SOUTH

**GENERAL COMMENTS**

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

Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

Quality Assurance Report  
 Maxxam Job Number: GB118504

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2405286 MMU	Spiked Blank	Bromochloromethane	2011/02/11		110	%	60 - 140
		D5-Chlorobenzene	2011/02/11		108	%	60 - 140
		Difluorobenzene	2011/02/11		112	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/11		102	%	70 - 130
		Carbon Disulfide	2011/02/11		101	%	70 - 130
		Propene	2011/02/11		96	%	70 - 130
		Vinyl Acetate	2011/02/11		111	%	70 - 130
		Vinyl Bromide	2011/02/11		110	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/02/11		108	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/02/11		118	%	70 - 130
		Chloromethane	2011/02/11		106	%	70 - 130
		Vinyl Chloride	2011/02/11		109	%	70 - 130
		Chloroethane	2011/02/11		105	%	70 - 130
		1,3-Butadiene	2011/02/11		112	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/02/11		105	%	70 - 130
		Trichlorotrifluoroethane	2011/02/11		104	%	70 - 130
		Ethanol	2011/02/11		91	%	70 - 130
		2-propanol	2011/02/11		103	%	70 - 130
		2-Propanone	2011/02/11		117	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/02/11		98	%	70 - 130
		Methyl Isobutyl Ketone	2011/02/11		101	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/02/11		102	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/02/11		148 (1)	%	70 - 130
		Ethyl Acetate	2011/02/11		104	%	70 - 130
		1,1-Dichloroethylene	2011/02/11		107	%	70 - 130
		cis-1,2-Dichloroethylene	2011/02/11		109	%	70 - 130
		trans-1,2-Dichloroethylene	2011/02/11		142 (1)	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/02/11		94	%	70 - 130
		Chloroform	2011/02/11		108	%	70 - 130
		Carbon Tetrachloride	2011/02/11		106	%	70 - 130
		1,1-Dichloroethane	2011/02/11		112	%	70 - 130
		1,2-Dichloroethane	2011/02/11		109	%	70 - 130
		Ethylene Dibromide	2011/02/11		101	%	70 - 130
		1,1,1-Trichloroethane	2011/02/11		106	%	70 - 130
		1,1,2-Trichloroethane	2011/02/11		100	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/02/11		98	%	70 - 130
		cis-1,3-Dichloropropene	2011/02/11		107	%	70 - 130
		trans-1,3-Dichloropropene	2011/02/11		111	%	70 - 130
		1,2-Dichloropropane	2011/02/11		101	%	70 - 130
		Bromomethane	2011/02/11		101	%	70 - 130
		Bromoform	2011/02/11		121	%	70 - 130
		Bromodichloromethane	2011/02/11		105	%	70 - 130
		Dibromochloromethane	2011/02/11		107	%	70 - 130
		Heptane	2011/02/11		100	%	70 - 130
		Trichloroethylene	2011/02/11		94	%	70 - 130
		Tetrachloroethylene	2011/02/11		102	%	70 - 130
		Benzene	2011/02/11		101	%	70 - 130
		Toluene	2011/02/11		102	%	70 - 130
		Ethylbenzene	2011/02/11		103	%	70 - 130
		p+m-Xylene	2011/02/11		103	%	70 - 130
		o-Xylene	2011/02/11		101	%	70 - 130
		Styrene	2011/02/11		101	%	70 - 130
		1,3,5-Trimethylbenzene	2011/02/11		99	%	70 - 130
		1,2,4-Trimethylbenzene	2011/02/11		99	%	70 - 130
		4-ethyltoluene	2011/02/11		101	%	70 - 130



Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

## Quality Assurance Report (Continued)

Maxxam Job Number: GB118504

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2405286 MMU	Spiked Blank	Chlorobenzene	2011/02/11		95	%	70 - 130
		Benzyl chloride	2011/02/11		111	%	70 - 130
		1,3-Dichlorobenzene	2011/02/11		94	%	70 - 130
		1,4-Dichlorobenzene	2011/02/11		92	%	70 - 130
		1,2-Dichlorobenzene	2011/02/11		92	%	70 - 130
		1,2,4-Trichlorobenzene	2011/02/11		84	%	70 - 130
		Hexachlorobutadiene	2011/02/11		95	%	70 - 130
		Hexane	2011/02/11		99	%	70 - 130
		Cyclohexane	2011/02/11		102	%	70 - 130
		Tetrahydrofuran	2011/02/11		108	%	70 - 130
		1,4-Dioxane	2011/02/11		100	%	70 - 130
	Method Blank	Bromochloromethane	2011/02/11		119	%	60 - 140
		D5-Chlorobenzene	2011/02/11		111	%	60 - 140
		Difluorobenzene	2011/02/11		121	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/11	<0.20		ppbv	
		Carbon Disulfide	2011/02/11	<0.50		ppbv	
		Propene	2011/02/11	<0.30		ppbv	
		Vinyl Acetate	2011/02/11	<0.20		ppbv	
		Vinyl Bromide	2011/02/11	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/02/11	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/02/11	<0.17		ppbv	
		Chloromethane	2011/02/11	<0.30		ppbv	
		Vinyl Chloride	2011/02/11	<0.18		ppbv	
		Chloroethane	2011/02/11	<0.30		ppbv	
		1,3-Butadiene	2011/02/11	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/02/11	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/02/11	<0.15		ppbv	
		Ethanol	2011/02/11	<2.3		ppbv	
		2-propanol	2011/02/11	<3.0		ppbv	
		2-Propanone	2011/02/11	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/02/11	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/02/11	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/02/11	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/02/11	<0.20		ppbv	
		Ethyl Acetate	2011/02/11	<2.2		ppbv	
		1,1-Dichloroethylene	2011/02/11	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/02/11	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/02/11	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/02/11	0.66, RDL=0.30		ppbv	
		Chloroform	2011/02/11	<0.15		ppbv	
		Carbon Tetrachloride	2011/02/11	<0.30		ppbv	
		1,1-Dichloroethane	2011/02/11	<0.20		ppbv	
		1,2-Dichloroethane	2011/02/11	<0.20		ppbv	
		Ethylene Dibromide	2011/02/11	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/02/11	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/02/11	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/02/11	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/02/11	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/02/11	<0.17		ppbv	
		1,2-Dichloropropane	2011/02/11	<0.40		ppbv	
		Bromomethane	2011/02/11	<0.18		ppbv	
		Bromoform	2011/02/11	<0.20		ppbv	
		Bromodichloromethane	2011/02/11	<0.20		ppbv	
		Dibromochloromethane	2011/02/11	<0.20		ppbv	
		Heptane	2011/02/11	<0.30		ppbv	

Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

## Quality Assurance Report (Continued)

Maxxam Job Number: GB118504

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2405286	MMU	Method Blank					
		Trichloroethylene	2011/02/11	<0.30		ppbv	
		Tetrachloroethylene	2011/02/11	<0.20		ppbv	
		Benzene	2011/02/11	<0.18		ppbv	
		Toluene	2011/02/11	<0.20		ppbv	
		Ethylbenzene	2011/02/11	<0.20		ppbv	
		p+m-Xylene	2011/02/11	<0.37		ppbv	
		o-Xylene	2011/02/11	<0.20		ppbv	
		Styrene	2011/02/11	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/02/11	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/02/11	<0.50		ppbv	
		4-ethyltoluene	2011/02/11	<2.2		ppbv	
		Chlorobenzene	2011/02/11	<0.20		ppbv	
		Benzyl chloride	2011/02/11	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/02/11	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/02/11	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/02/11	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/02/11	<2.0		ppbv	
		Hexachlorobutadiene	2011/02/11	<3.0		ppbv	
		Hexane	2011/02/11	<0.30		ppbv	
		Cyclohexane	2011/02/11	<0.20		ppbv	
		Tetrahydrofuran	2011/02/11	<0.40		ppbv	
		1,4-Dioxane	2011/02/11	<2.0		ppbv	
		Xylene (Total)	2011/02/11	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/02/11	NC		%	25
		Carbon Disulfide	2011/02/11	NC		%	25
		Propene	2011/02/11	NC		%	25
		Vinyl Acetate	2011/02/11	NC		%	25
		Vinyl Bromide	2011/02/11	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/02/11	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/02/11	NC		%	25
		Chloromethane	2011/02/11	NC		%	25
		Vinyl Chloride	2011/02/11	NC		%	25
		Chloroethane	2011/02/11	NC		%	25
		1,3-Butadiene	2011/02/11	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/02/11	NC		%	25
		Trichlorotrifluoroethane	2011/02/11	NC		%	25
		Ethanol	2011/02/11	NC		%	25
		2-propanol	2011/02/11	NC		%	25
		2-Propanone	2011/02/11	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/02/11	NC		%	25
		Methyl Isobutyl Ketone	2011/02/11	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/02/11	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/02/11	NC		%	25
		Ethyl Acetate	2011/02/11	NC		%	25
		1,1-Dichloroethylene	2011/02/11	NC		%	25
		cis-1,2-Dichloroethylene	2011/02/11	NC		%	25
		trans-1,2-Dichloroethylene	2011/02/11	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/02/11	NC		%	25
		Chloroform	2011/02/11	NC		%	25
		Carbon Tetrachloride	2011/02/11	NC		%	25
		1,1-Dichloroethane	2011/02/11	NC		%	25
		1,2-Dichloroethane	2011/02/11	NC		%	25
		Ethylene Dibromide	2011/02/11	NC		%	25

Maxxam Analytics  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

## Quality Assurance Report (Continued)

Maxxam Job Number: GB118504

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2405286 MMU	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/02/11	NC		%	25
		1,1,2-Trichloroethane	2011/02/11	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/02/11	NC		%	25
		cis-1,3-Dichloropropene	2011/02/11	NC		%	25
		trans-1,3-Dichloropropene	2011/02/11	NC		%	25
		1,2-Dichloropropane	2011/02/11	NC		%	25
		Bromomethane	2011/02/11	NC		%	25
		Bromoform	2011/02/11	NC		%	25
		Bromodichloromethane	2011/02/11	NC		%	25
		Dibromochloromethane	2011/02/11	NC		%	25
		Heptane	2011/02/11	NC		%	25
		Trichloroethylene	2011/02/11	NC		%	25
		Tetrachloroethylene	2011/02/11	NC		%	25
		Benzene	2011/02/11	NC		%	25
		Toluene	2011/02/11	NC		%	25
		Ethylbenzene	2011/02/11	NC		%	25
		p+m-Xylene	2011/02/11	NC		%	25
		o-Xylene	2011/02/11	NC		%	25
		Styrene	2011/02/11	NC		%	25
		1,3,5-Trimethylbenzene	2011/02/11	NC		%	25
		1,2,4-Trimethylbenzene	2011/02/11	NC		%	25
		4-ethyltoluene	2011/02/11	NC		%	25
		Chlorobenzene	2011/02/11	NC		%	25
		Benzyl chloride	2011/02/11	NC		%	25
		1,3-Dichlorobenzene	2011/02/11	NC		%	25
		1,4-Dichlorobenzene	2011/02/11	NC		%	25
		1,2-Dichlorobenzene	2011/02/11	NC		%	25
		1,2,4-Trichlorobenzene	2011/02/11	NC		%	25
		Hexachlorobutadiene	2011/02/11	NC		%	25
		Hexane	2011/02/11	NC		%	25
		Cyclohexane	2011/02/11	NC		%	25
		Tetrahydrofuran	2011/02/11	NC		%	25
		1,4-Dioxane	2011/02/11	NC		%	25
		Xylene (Total)	2011/02/11	NC		%	25

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

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

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

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

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

# Maxxam Analytics Inc.

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200  
 Location: 13-16-62-5 W4M Canister ID: 7817  
 Station ID: Lica 33 (Portable) Canister Installation Date/Time: Feb 11, 11 @ 15:02 mst  
 Field Sample ID: LICA VOC/PORT/ Feb 14, 11 Canister Removal Date/Time: Feb 15, 11 @ 9:36 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
14-Feb-11	2/14/2011 0:00	2/15/2011 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 # 06740  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Technician Signature: Ting Xu

Your C.O.C. #: 06740

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

Report Date: 2011/02/25

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B121372****Received: 2011/02/17, 09:26**Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/02/22	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/02/22	BRL SOP-00304	EPA TO-15

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

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

## Encryption Key

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

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

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

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Total cover pages: 1

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Maxxam Job #: B121372  
 Report Date: 2011/02/25

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		IR2445	IR2446	
Sampling Date		2011/02/14	2011/02/14	
		00:00	00:00	
COC Number		06740	06740	
	<b>Units</b>	<b>LICAVOC/CLS/FEB14,11</b>	<b>LICAVOC/PORT/FEB14,11</b>	<b>QC Batch</b>
		<b>#7850</b>	<b>#7817</b>	

<b>Volatile Organics</b>				
Pressure on Receipt	psig	22	22	2412540

QC Batch = Quality Control Batch

Maxxam Job #: B121372  
 Report Date: 2011/02/25

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

Maxxam ID		IR2445				
Sampling Date		2011/02/14 00:00				
COC Number		06740				
	<b>Units</b>	<b>LICAVOC/CLS/FEB14,11 #7850</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	0.76	0.20	3.56	0.934	2412398
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2412398
Propene	ppbv	<0.30	0.30	<0.516	0.516	2412398
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2412398
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2412398
Dichlorodifluoromethane (FREON 12)	ppbv	1.26	0.20	6.22	0.989	2412398
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2412398
Chloromethane	ppbv	1.03	0.30	2.13	0.620	2412398
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2412398
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2412398
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2412398
Trichlorofluoromethane (FREON 11)	ppbv	0.56	0.20	3.13	1.12	2412398
Trichlorotrifluoroethane	ppbv	0.18	0.15	1.37	1.15	2412398
Ethanol	ppbv	6.0	2.3	11.4	4.33	2412398
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2412398
2-Propanone	ppbv	4.66	0.80	11.1	1.90	2412398
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2412398
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2412398
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2412398
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2412398
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2412398
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2412398
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2412398
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2412398
Methylene Chloride(Dichloromethane)	ppbv	0.68	0.30	2.37	1.04	2412398
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2412398
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2412398
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2412398
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2412398
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2412398
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2412398

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B121372  
 Report Date: 2011/02/25

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

Maxxam ID		IR2445				
Sampling Date		2011/02/14 00:00				
COC Number		06740				
	<b>Units</b>	<b>LICAVOC/CLS/FEB14,11 #7850</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2412398
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2412398
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2412398
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2412398
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2412398
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2412398
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2412398
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2412398
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2412398
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2412398
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2412398
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2412398
Benzene	ppbv	0.82	0.18	2.60	0.575	2412398
Toluene	ppbv	1.38	0.20	5.18	0.753	2412398
Ethylbenzene	ppbv	0.20	0.20	0.876	0.868	2412398
p+m-Xylene	ppbv	0.71	0.37	3.07	1.61	2412398
o-Xylene	ppbv	0.26	0.20	1.11	0.868	2412398
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2412398
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2412398
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2412398
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2412398
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2412398
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2412398
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2412398
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2412398
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2412398
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2412398
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2412398
Hexane	ppbv	0.53	0.30	1.87	1.06	2412398
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2412398
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2412398
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2412398
Xylene (Total)	ppbv	0.96	0.60	4.19	2.61	2412398
QC Batch = Quality Control Batch						



Maxxam Job #: B121372  
 Report Date: 2011/02/25

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

Maxxam ID		IR2445				
Sampling Date		2011/02/14 00:00				
COC Number		06740				
	<b>Units</b>	<b>LICAVOC/CLS/FEB14,11 #7850</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	69		N/A	N/A	2412398
D5-Chlorobenzene	%	67		N/A	N/A	2412398
Difluorobenzene	%	69		N/A	N/A	2412398

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

Maxxam Job #: B121372  
 Report Date: 2011/02/25

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

Maxxam ID		IR2446				
Sampling Date		2011/02/14 00:00				
COC Number		06740				
	<b>Units</b>	<b>LICAVOC/PORT/FEB14,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		<b>#7817</b>				

<b>Volatile Organics</b>						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2412398
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2412398
Propene	ppbv	<0.30	0.30	<0.516	0.516	2412398
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2412398
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2412398
Dichlorodifluoromethane (FREON 12)	ppbv	1.23	0.20	6.09	0.989	2412398
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2412398
Chloromethane	ppbv	0.97	0.30	2.00	0.620	2412398
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2412398
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2412398
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2412398
Trichlorofluoromethane (FREON 11)	ppbv	0.52	0.20	2.94	1.12	2412398
Trichlorotrifluoroethane	ppbv	0.15	0.15	1.16	1.15	2412398
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2412398
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2412398
2-Propanone	ppbv	<0.80	0.80	<1.90	1.90	2412398
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2412398
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2412398
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2412398
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2412398
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2412398
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2412398
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2412398
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2412398
Methylene Chloride(Dichloromethane)	ppbv	0.63	0.30	2.17	1.04	2412398
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2412398
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2412398
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2412398
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2412398
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2412398
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2412398
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B121372  
 Report Date: 2011/02/25

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

Maxxam ID		IR2446				
Sampling Date		2011/02/14 00:00				
COC Number		06740				
	<b>Units</b>	<b>LICAVOC/PORT/FEB14,11</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>
		<b>#7817</b>				
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2412398
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2412398
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2412398
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2412398
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2412398
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2412398
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2412398
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2412398
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2412398
Heptane	ppbv	0.74	0.30	3.04	1.23	2412398
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2412398
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2412398
Benzene	ppbv	0.34	0.18	1.10	0.575	2412398
Toluene	ppbv	0.37	0.20	1.38	0.753	2412398
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2412398
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2412398
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2412398
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2412398
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2412398
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2412398
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2412398
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2412398
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2412398
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2412398
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2412398
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2412398
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2412398
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2412398
Hexane	ppbv	1.41	0.30	4.96	1.06	2412398
Cyclohexane	ppbv	1.98	0.20	6.82	0.688	2412398
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2412398
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2412398
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2412398
QC Batch = Quality Control Batch						

Maxxam Job #: B121372  
 Report Date: 2011/02/25

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

Maxxam ID		IR2446				
Sampling Date		2011/02/14 00:00				
COC Number		06740				
	<b>Units</b>	<b>LICAVOC/PORT/FEB14,11 #7817</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	70		N/A	N/A	2412398
D5-Chlorobenzene	%	67		N/A	N/A	2412398
Difluorobenzene	%	69		N/A	N/A	2412398

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

Maxxam Job #: B121372  
 Report Date: 2011/02/25

### Test Summary

**Maxxam ID** IR2445  
**Sample ID** LICAVOC/CLS/FEB14,11 #7850  
**Matrix** AIR  
**Collected** 2011/02/14  
**Shipped**  
**Received** 2011/02/17

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2412540	N/A	2011/02/22	DVO
Volatile Organics in Air (TO-15)	GC/MS	2412398	N/A	2011/02/22	DVO

**Maxxam ID** IR2446  
**Sample ID** LICAVOC/PORT/FEB14,11 #7817  
**Matrix** AIR  
**Collected** 2011/02/14  
**Shipped**  
**Received** 2011/02/17

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2412540	N/A	2011/02/22	DVO
Volatile Organics in Air (TO-15)	GC/MS	2412398	N/A	2011/02/22	DVO

Maxxam Job #: B121372  
Report Date: 2011/02/25

**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: GB121372

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2412398 DVO	Spiked Blank	Bromochloromethane	2011/02/22		101	%	60 - 140
		D5-Chlorobenzene	2011/02/22		101	%	60 - 140
		Difluorobenzene	2011/02/22		103	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/22		97	%	70 - 130
		Carbon Disulfide	2011/02/22		93	%	70 - 130
		Propene	2011/02/22		89	%	70 - 130
		Vinyl Acetate	2011/02/22		100	%	70 - 130
		Vinyl Bromide	2011/02/22		107	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/02/22		95	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/02/22		110	%	70 - 130
		Chloromethane	2011/02/22		94	%	70 - 130
		Vinyl Chloride	2011/02/22		100	%	70 - 130
		Chloroethane	2011/02/22		96	%	70 - 130
		1,3-Butadiene	2011/02/22		103	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/02/22		98	%	70 - 130
		Trichlorotrifluoroethane	2011/02/22		100	%	70 - 130
		Ethanol	2011/02/22		86	%	70 - 130
		2-propanol	2011/02/22		91	%	70 - 130
		2-Propanone	2011/02/22		106	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/02/22		80	%	70 - 130
		Methyl Isobutyl Ketone	2011/02/22		83	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/02/22		78	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/02/22		106	%	70 - 130
		Ethyl Acetate	2011/02/22		97	%	70 - 130
		1,1-Dichloroethylene	2011/02/22		103	%	70 - 130
		cis-1,2-Dichloroethylene	2011/02/22		103	%	70 - 130
		trans-1,2-Dichloroethylene	2011/02/22		106	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/02/22		87	%	70 - 130
		Chloroform	2011/02/22		103	%	70 - 130
		Carbon Tetrachloride	2011/02/22		101	%	70 - 130
		1,1-Dichloroethane	2011/02/22		97	%	70 - 130
		1,2-Dichloroethane	2011/02/22		101	%	70 - 130
		Ethylene Dibromide	2011/02/22		102	%	70 - 130
		1,1,1-Trichloroethane	2011/02/22		101	%	70 - 130
		1,1,2-Trichloroethane	2011/02/22		102	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/02/22		97	%	70 - 130
		cis-1,3-Dichloropropene	2011/02/22		104	%	70 - 130
		trans-1,3-Dichloropropene	2011/02/22		111	%	70 - 130
		1,2-Dichloropropane	2011/02/22		96	%	70 - 130
		Bromomethane	2011/02/22		97	%	70 - 130
		Bromoform	2011/02/22		121	%	70 - 130
		Bromodichloromethane	2011/02/22		98	%	70 - 130
		Dibromochloromethane	2011/02/22		105	%	70 - 130
		Heptane	2011/02/22		93	%	70 - 130
		Trichloroethylene	2011/02/22		96	%	70 - 130
		Tetrachloroethylene	2011/02/22		106	%	70 - 130
		Benzene	2011/02/22		100	%	70 - 130
		Toluene	2011/02/22		105	%	70 - 130
		Ethylbenzene	2011/02/22		105	%	70 - 130
		p+m-Xylene	2011/02/22		103	%	70 - 130
		o-Xylene	2011/02/22		101	%	70 - 130
		Styrene	2011/02/22		90	%	70 - 130
		1,3,5-Trimethylbenzene	2011/02/22		98	%	70 - 130
		1,2,4-Trimethylbenzene	2011/02/22		99	%	70 - 130
		4-ethyltoluene	2011/02/22		102	%	70 - 130

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB121372

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2412398 DVO	Spiked Blank	Chlorobenzene	2011/02/22		99	%	70 - 130
		Benzyl chloride	2011/02/22		112	%	70 - 130
		1,3-Dichlorobenzene	2011/02/22		105	%	70 - 130
		1,4-Dichlorobenzene	2011/02/22		101	%	70 - 130
		1,2-Dichlorobenzene	2011/02/22		100	%	70 - 130
		1,2,4-Trichlorobenzene	2011/02/22		98	%	70 - 130
		Hexachlorobutadiene	2011/02/22		93	%	70 - 130
		Hexane	2011/02/22		97	%	70 - 130
		Cyclohexane	2011/02/22		104	%	70 - 130
		Tetrahydrofuran	2011/02/22		105	%	70 - 130
		1,4-Dioxane	2011/02/22		100	%	70 - 130
	Method Blank	Bromochloromethane	2011/02/22		106	%	60 - 140
		D5-Chlorobenzene	2011/02/22		102	%	60 - 140
		Difluorobenzene	2011/02/22		107	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/22	<0.20		ppbv	
		Carbon Disulfide	2011/02/22	<0.50		ppbv	
		Propene	2011/02/22	<0.30		ppbv	
		Vinyl Acetate	2011/02/22	<0.20		ppbv	
		Vinyl Bromide	2011/02/22	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/02/22	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/02/22	<0.17		ppbv	
		Chloromethane	2011/02/22	<0.30		ppbv	
		Vinyl Chloride	2011/02/22	<0.18		ppbv	
		Chloroethane	2011/02/22	<0.30		ppbv	
		1,3-Butadiene	2011/02/22	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/02/22	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/02/22	<0.15		ppbv	
		Ethanol	2011/02/22	<2.3		ppbv	
		2-propanol	2011/02/22	<3.0		ppbv	
		2-Propanone	2011/02/22	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/02/22	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/02/22	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/02/22	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/02/22	<0.20		ppbv	
		Ethyl Acetate	2011/02/22	<2.2		ppbv	
		1,1-Dichloroethylene	2011/02/22	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/02/22	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/02/22	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/02/22	0.64, RDL=0.30		ppbv	
		Chloroform	2011/02/22	<0.15		ppbv	
		Carbon Tetrachloride	2011/02/22	<0.30		ppbv	
		1,1-Dichloroethane	2011/02/22	<0.20		ppbv	
		1,2-Dichloroethane	2011/02/22	<0.20		ppbv	
		Ethylene Dibromide	2011/02/22	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/02/22	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/02/22	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/02/22	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/02/22	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/02/22	<0.17		ppbv	
		1,2-Dichloropropane	2011/02/22	<0.40		ppbv	
		Bromomethane	2011/02/22	<0.18		ppbv	
		Bromoform	2011/02/22	<0.20		ppbv	
		Bromodichloromethane	2011/02/22	<0.20		ppbv	
		Dibromochloromethane	2011/02/22	<0.20		ppbv	
		Heptane	2011/02/22	<0.30		ppbv	



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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB121372

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2412398	DVO	Method Blank					
		Trichloroethylene	2011/02/22	<0.30		ppbv	
		Tetrachloroethylene	2011/02/22	<0.20		ppbv	
		Benzene	2011/02/22	<0.18		ppbv	
		Toluene	2011/02/22	<0.20		ppbv	
		Ethylbenzene	2011/02/22	<0.20		ppbv	
		p+m-Xylene	2011/02/22	<0.37		ppbv	
		o-Xylene	2011/02/22	<0.20		ppbv	
		Styrene	2011/02/22	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/02/22	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/02/22	<0.50		ppbv	
		4-ethyltoluene	2011/02/22	<2.2		ppbv	
		Chlorobenzene	2011/02/22	<0.20		ppbv	
		Benzyl chloride	2011/02/22	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/02/22	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/02/22	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/02/22	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/02/22	<2.0		ppbv	
		Hexachlorobutadiene	2011/02/22	<3.0		ppbv	
		Hexane	2011/02/22	<0.30		ppbv	
		Cyclohexane	2011/02/22	<0.20		ppbv	
		Tetrahydrofuran	2011/02/22	<0.40		ppbv	
		1,4-Dioxane	2011/02/22	<2.0		ppbv	
		Xylene (Total)	2011/02/22	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/02/22	NC		%	25
		Carbon Disulfide	2011/02/22	NC		%	25
		Propene	2011/02/22	NC		%	25
		Vinyl Acetate	2011/02/22	NC		%	25
		Vinyl Bromide	2011/02/22	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/02/22	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/02/22	NC		%	25
		Chloromethane	2011/02/22	NC		%	25
		Vinyl Chloride	2011/02/22	NC		%	25
		Chloroethane	2011/02/22	NC		%	25
		1,3-Butadiene	2011/02/22	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/02/22	NC		%	25
		Trichlorotrifluoroethane	2011/02/22	NC		%	25
		Ethanol	2011/02/22	NC		%	25
		2-propanol	2011/02/22	NC		%	25
		2-Propanone	2011/02/22	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/02/22	NC		%	25
		Methyl Isobutyl Ketone	2011/02/22	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/02/22	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/02/22	NC		%	25
		Ethyl Acetate	2011/02/22	NC		%	25
		1,1-Dichloroethylene	2011/02/22	NC		%	25
		cis-1,2-Dichloroethylene	2011/02/22	0.8		%	25
		trans-1,2-Dichloroethylene	2011/02/22	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/02/22	NC		%	25
		Chloroform	2011/02/22	NC		%	25
		Carbon Tetrachloride	2011/02/22	NC		%	25
		1,1-Dichloroethane	2011/02/22	NC		%	25
		1,2-Dichloroethane	2011/02/22	NC		%	25
		Ethylene Dibromide	2011/02/22	NC		%	25

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB121372

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2412398 DVO	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/02/22	NC		%	25
		1,1,2-Trichloroethane	2011/02/22	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/02/22	NC		%	25
		cis-1,3-Dichloropropene	2011/02/22	NC		%	25
		trans-1,3-Dichloropropene	2011/02/22	NC		%	25
		1,2-Dichloropropane	2011/02/22	NC		%	25
		Bromomethane	2011/02/22	NC		%	25
		Bromoform	2011/02/22	NC		%	25
		Bromodichloromethane	2011/02/22	NC		%	25
		Dibromochloromethane	2011/02/22	NC		%	25
		Heptane	2011/02/22	NC		%	25
		Trichloroethylene	2011/02/22	0.4		%	25
		Tetrachloroethylene	2011/02/22	NC		%	25
		Benzene	2011/02/22	NC		%	25
		Toluene	2011/02/22	6.1		%	25
		Ethylbenzene	2011/02/22	NC		%	25
		p+m-Xylene	2011/02/22	NC		%	25
		o-Xylene	2011/02/22	NC		%	25
		Styrene	2011/02/22	NC		%	25
		1,3,5-Trimethylbenzene	2011/02/22	NC		%	25
		1,2,4-Trimethylbenzene	2011/02/22	NC		%	25
		4-ethyltoluene	2011/02/22	NC		%	25
		Chlorobenzene	2011/02/22	NC		%	25
		Benzyl chloride	2011/02/22	NC		%	25
		1,3-Dichlorobenzene	2011/02/22	NC		%	25
		1,4-Dichlorobenzene	2011/02/22	NC		%	25
		1,2-Dichlorobenzene	2011/02/22	NC		%	25
		1,2,4-Trichlorobenzene	2011/02/22	NC		%	25
		Hexachlorobutadiene	2011/02/22	NC		%	25
		Hexane	2011/02/22	NC		%	25
		Cyclohexane	2011/02/22	NC		%	25
		Tetrahydrofuran	2011/02/22	NC		%	25
		1,4-Dioxane	2011/02/22	NC		%	25
		Xylene (Total)	2011/02/22	NC		%	25

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

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

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

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

# Maxxam Analytics Inc.

## 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: Feb 18, 11 @ 9:27 mst  
Field Sample ID: LICA VOC/PORT/ Feb 20, 11 Canister Removal Date/Time: Feb 22, 11 @11:50 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
20-Feb-11	2/20/2011 0:00	2/21/2011 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)
-30	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 #06775  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Technician Signature: Ting Xu\_\_\_\_\_



Your C.O.C. #: 06775

**Attention: Michael Bisaga**

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

**Report Date: 2011/03/03**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B124486**

**Received: 2011/02/24, 09:30**

Sample Matrix: AIR  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/02/25	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/02/25	BRL SOP-00304	EPA TO-15

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

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

**Encryption Key**

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

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

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

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Total cover pages: 1

Maxxam Job #: B124486  
 Report Date: 2011/03/03

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		IS6321	IS6322	
Sampling Date		2011/02/20	2011/02/20	
COC Number		06775	06775	
	<b>Units</b>	<b>LICA VOC\CLS\ FEB 20,11 - 7815</b>	<b>LICA VOC\PORT\FEB 20,11 - 7837</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	21	22	2416841
QC Batch = Quality Control Batch				

Maxxam Job #: B124486  
 Report Date: 2011/03/03

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

Maxxam ID		IS6321			IS6322				
Sampling Date		2011/02/20			2011/02/20				
COC Number		06775			06775				
	<b>Units</b>	<b>LICA VOC\CLS\ FEB 20,11 - 7815</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>LICA VOC\PORT\FEB 20,11 - 7837</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	2416983
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2416983
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2416983
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2416983
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2416983
Dichlorodifluoromethane (FREON 12)	ppbv	0.77	3.81	0.989	0.77	0.20	3.80	0.989	2416983
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2416983
Chloromethane	ppbv	0.69	1.42	0.620	0.72	0.30	1.48	0.620	2416983
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2416983
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2416983
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2416983
Trichlorofluoromethane (FREON 11)	ppbv	0.36	2.02	1.12	0.36	0.20	2.03	1.12	2416983
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2416983
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2416983
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2416983
2-Propanone	ppbv	2.59	6.14	1.90	2.89	0.80	6.86	1.90	2416983
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2416983
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2416983
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2416983
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2416983
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2416983
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2416983
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2416983
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2416983
Methylene Chloride(Dichloromethane)	ppbv	0.47	1.64	1.04	0.48	0.30	1.66	1.04	2416983
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2416983
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2416983
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2416983
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2416983
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2416983

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch

Maxxam Job #: B124486  
 Report Date: 2011/03/03

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

Maxxam ID		IS6321			IS6322				
Sampling Date		2011/02/20			2011/02/20				
COC Number		06775			06775				
	Units	LICA VOC\CLS\ FEB 20,11 - 7815	ug/m3	DL (ug/m3)	LICA VOC\PORT\FEB 20,11 - 7837	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2416983
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2416983
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2416983
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2416983
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2416983
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2416983
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2416983
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2416983
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2416983
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2416983
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2416983
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2416983
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2416983
Benzene	ppbv	0.34	1.10	0.575	0.30	0.18	0.951	0.575	2416983
Toluene	ppbv	0.22	0.845	0.753	<0.20	0.20	<0.753	0.753	2416983
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2416983
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2416983
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2416983
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2416983
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2416983
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2416983
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2416983
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2416983
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2416983
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2416983
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2416983
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2416983
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2416983
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2416983
Hexane	ppbv	<0.30	<1.06	1.06	0.31	0.30	1.11	1.06	2416983
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.34	0.20	1.16	0.688	2416983
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2416983
QC Batch = Quality Control Batch									

Maxxam Job #: B124486  
 Report Date: 2011/03/03

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

Maxxam ID		IS6321			IS6322				
Sampling Date		2011/02/20			2011/02/20				
COC Number		06775			06775				
	<b>Units</b>	<b>LICA VOC\CLS\ FEB 20,11 - 7815</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>LICA VOC\PORT\FEB 20,11 - 7837</b>	<b>RDL</b>	<b>ug/m3</b>	<b>DL (ug/m3)</b>	<b>QC Batch</b>

1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2416983
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2416983
<b>Surrogate Recovery (%)</b>									
Bromochloromethane	%	81	N/A	N/A	80		N/A	N/A	2416983
D5-Chlorobenzene	%	81	N/A	N/A	80		N/A	N/A	2416983
Difluorobenzene	%	82	N/A	N/A	81		N/A	N/A	2416983

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



Maxxam Job #: B124486  
 Report Date: 2011/03/03

**Test Summary**

**Maxxam ID** IS6321 **Collected** 2011/02/20  
**Sample ID** LICA VOC\CLS\FEB 20,11 - 7815 **Shipped**  
**Matrix** AIR **Received** 2011/02/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2416841	N/A	2011/02/25	LSY
Volatile Organics in Air (TO-15)	GC/MS	2416983	N/A	2011/02/25	LSY

**Maxxam ID** IS6322 **Collected** 2011/02/20  
**Sample ID** LICA VOC\PORT\FEB 20,11 - 7837 **Shipped**  
**Matrix** AIR **Received** 2011/02/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2416841	N/A	2011/02/25	LSY
Volatile Organics in Air (TO-15)	GC/MS	2416983	N/A	2011/02/25	LSY

Maxxam Job #: B124486  
Report Date: 2011/03/03

**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: GB124486

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2416983 LSY	Spiked Blank	Bromochloromethane	2011/02/25		99	%	60 - 140
		D5-Chlorobenzene	2011/02/25		98	%	60 - 140
		Difluorobenzene	2011/02/25		101	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/25		99	%	70 - 130
		Carbon Disulfide	2011/02/25		94	%	70 - 130
		Propene	2011/02/25		89	%	70 - 130
		Vinyl Acetate	2011/02/25		98	%	70 - 130
		Vinyl Bromide	2011/02/25		103	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/02/25		101	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/02/25		116	%	70 - 130
		Chloromethane	2011/02/25		99	%	70 - 130
		Vinyl Chloride	2011/02/25		100	%	70 - 130
		Chloroethane	2011/02/25		99	%	70 - 130
		1,3-Butadiene	2011/02/25		85	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/02/25		100	%	70 - 130
		Trichlorotrifluoroethane	2011/02/25		100	%	70 - 130
		Ethanol	2011/02/25		71	%	70 - 130
		2-propanol	2011/02/25		91	%	70 - 130
		2-Propanone	2011/02/25		100	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/02/25		97	%	70 - 130
		Methyl Isobutyl Ketone	2011/02/25		94	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/02/25		94	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/02/25		100	%	70 - 130
		Ethyl Acetate	2011/02/25		98	%	70 - 130
		1,1-Dichloroethylene	2011/02/25		97	%	70 - 130
		cis-1,2-Dichloroethylene	2011/02/25		96	%	70 - 130
		trans-1,2-Dichloroethylene	2011/02/25		99	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/02/25		88	%	70 - 130
		Chloroform	2011/02/25		101	%	70 - 130
		Carbon Tetrachloride	2011/02/25		103	%	70 - 130
		1,1-Dichloroethane	2011/02/25		99	%	70 - 130
		1,2-Dichloroethane	2011/02/25		98	%	70 - 130
		Ethylene Dibromide	2011/02/25		97	%	70 - 130
		1,1,1-Trichloroethane	2011/02/25		98	%	70 - 130
		1,1,2-Trichloroethane	2011/02/25		99	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/02/25		91	%	70 - 130
		cis-1,3-Dichloropropene	2011/02/25		100	%	70 - 130
		trans-1,3-Dichloropropene	2011/02/25		97	%	70 - 130
		1,2-Dichloropropane	2011/02/25		97	%	70 - 130
		Bromomethane	2011/02/25		94	%	70 - 130
		Bromoform	2011/02/25		112	%	70 - 130
		Bromodichloromethane	2011/02/25		103	%	70 - 130
		Dibromochloromethane	2011/02/25		110	%	70 - 130
		Heptane	2011/02/25		96	%	70 - 130
		Trichloroethylene	2011/02/25		97	%	70 - 130
		Tetrachloroethylene	2011/02/25		98	%	70 - 130
		Benzene	2011/02/25		98	%	70 - 130
		Toluene	2011/02/25		98	%	70 - 130
		Ethylbenzene	2011/02/25		99	%	70 - 130
		p+m-Xylene	2011/02/25		97	%	70 - 130
		o-Xylene	2011/02/25		98	%	70 - 130
		Styrene	2011/02/25		95	%	70 - 130
		1,3,5-Trimethylbenzene	2011/02/25		87	%	70 - 130
		1,2,4-Trimethylbenzene	2011/02/25		83	%	70 - 130
		4-ethyltoluene	2011/02/25		93	%	70 - 130

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB124486

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2416983 LSY	Spiked Blank	Chlorobenzene	2011/02/25		98	%	70 - 130
		Benzyl chloride	2011/02/25		84	%	70 - 130
		1,3-Dichlorobenzene	2011/02/25		85	%	70 - 130
		1,4-Dichlorobenzene	2011/02/25		85	%	70 - 130
		1,2-Dichlorobenzene	2011/02/25		80	%	70 - 130
		1,2,4-Trichlorobenzene	2011/02/25		82	%	70 - 130
		Hexachlorobutadiene	2011/02/25		100	%	70 - 130
		Hexane	2011/02/25		98	%	70 - 130
		Cyclohexane	2011/02/25		97	%	70 - 130
		Tetrahydrofuran	2011/02/25		96	%	70 - 130
		1,4-Dioxane	2011/02/25		89	%	70 - 130
	Method Blank	Bromochloromethane	2011/02/25		89	%	60 - 140
		D5-Chlorobenzene	2011/02/25		88	%	60 - 140
		Difluorobenzene	2011/02/25		91	%	60 - 140
		2,2,4-Trimethylpentane	2011/02/25	<0.20		ppbv	
		Carbon Disulfide	2011/02/25	<0.50		ppbv	
		Propene	2011/02/25	<0.30		ppbv	
		Vinyl Acetate	2011/02/25	<0.20		ppbv	
		Vinyl Bromide	2011/02/25	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/02/25	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/02/25	<0.17		ppbv	
		Chloromethane	2011/02/25	<0.30		ppbv	
		Vinyl Chloride	2011/02/25	<0.18		ppbv	
		Chloroethane	2011/02/25	<0.30		ppbv	
		1,3-Butadiene	2011/02/25	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/02/25	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/02/25	<0.15		ppbv	
		Ethanol	2011/02/25	<2.3		ppbv	
		2-propanol	2011/02/25	<3.0		ppbv	
		2-Propanone	2011/02/25	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/02/25	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/02/25	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/02/25	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/02/25	<0.20		ppbv	
		Ethyl Acetate	2011/02/25	<2.2		ppbv	
		1,1-Dichloroethylene	2011/02/25	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/02/25	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/02/25	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/02/25	0.41, RDL=0.30		ppbv	
		Chloroform	2011/02/25	<0.15		ppbv	
		Carbon Tetrachloride	2011/02/25	<0.30		ppbv	
		1,1-Dichloroethane	2011/02/25	<0.20		ppbv	
		1,2-Dichloroethane	2011/02/25	<0.20		ppbv	
		Ethylene Dibromide	2011/02/25	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/02/25	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/02/25	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/02/25	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/02/25	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/02/25	<0.17		ppbv	
		1,2-Dichloropropane	2011/02/25	<0.40		ppbv	
		Bromomethane	2011/02/25	<0.18		ppbv	
		Bromoform	2011/02/25	<0.20		ppbv	
		Bromodichloromethane	2011/02/25	<0.20		ppbv	
		Dibromochloromethane	2011/02/25	<0.20		ppbv	
		Heptane	2011/02/25	<0.30		ppbv	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB124486

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2416983 LSY	Method Blank	Trichloroethylene	2011/02/25	<0.30		ppbv	
		Tetrachloroethylene	2011/02/25	<0.20		ppbv	
		Benzene	2011/02/25	<0.18		ppbv	
		Toluene	2011/02/25	<0.20		ppbv	
		Ethylbenzene	2011/02/25	<0.20		ppbv	
		p+m-Xylene	2011/02/25	<0.37		ppbv	
		o-Xylene	2011/02/25	<0.20		ppbv	
		Styrene	2011/02/25	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/02/25	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/02/25	<0.50		ppbv	
		4-ethyltoluene	2011/02/25	<2.2		ppbv	
		Chlorobenzene	2011/02/25	<0.20		ppbv	
		Benzyl chloride	2011/02/25	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/02/25	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/02/25	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/02/25	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/02/25	<2.0		ppbv	
		Hexachlorobutadiene	2011/02/25	<3.0		ppbv	
		Hexane	2011/02/25	<0.30		ppbv	
		Cyclohexane	2011/02/25	<0.20		ppbv	
		Tetrahydrofuran	2011/02/25	<0.40		ppbv	
		1,4-Dioxane	2011/02/25	<2.0		ppbv	
		Xylene (Total)	2011/02/25	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/02/25	NC		%	25
		Carbon Disulfide	2011/02/25	NC		%	25
		Propene	2011/02/25	NC		%	25
		Vinyl Acetate	2011/02/25	NC		%	25
		Vinyl Bromide	2011/02/25	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/02/25	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/02/25	NC		%	25
		Chloromethane	2011/02/25	NC		%	25
		Vinyl Chloride	2011/02/25	NC		%	25
		Chloroethane	2011/02/25	NC		%	25
		1,3-Butadiene	2011/02/25	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/02/25	NC		%	25
		Trichlorotrifluoroethane	2011/02/25	NC		%	25
		Ethanol	2011/02/25	NC		%	25
		2-propanol	2011/02/25	NC		%	25
		2-Propanone	2011/02/25	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/02/25	NC		%	25
		Methyl Isobutyl Ketone	2011/02/25	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/02/25	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/02/25	NC		%	25
		Ethyl Acetate	2011/02/25	NC		%	25
		1,1-Dichloroethylene	2011/02/25	NC		%	25
		cis-1,2-Dichloroethylene	2011/02/25	NC		%	25
		trans-1,2-Dichloroethylene	2011/02/25	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/02/25	NC		%	25
		Chloroform	2011/02/25	NC		%	25
		Carbon Tetrachloride	2011/02/25	NC		%	25
		1,1-Dichloroethane	2011/02/25	NC		%	25
		1,2-Dichloroethane	2011/02/25	NC		%	25
		Ethylene Dibromide	2011/02/25	NC		%	25

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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB124486

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2416983 LSY	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/02/25	NC		%	25
		1,1,2-Trichloroethane	2011/02/25	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/02/25	NC		%	25
		cis-1,3-Dichloropropene	2011/02/25	NC		%	25
		trans-1,3-Dichloropropene	2011/02/25	NC		%	25
		1,2-Dichloropropane	2011/02/25	NC		%	25
		Bromomethane	2011/02/25	NC		%	25
		Bromoform	2011/02/25	NC		%	25
		Bromodichloromethane	2011/02/25	NC		%	25
		Dibromochloromethane	2011/02/25	NC		%	25
		Heptane	2011/02/25	NC		%	25
		Trichloroethylene	2011/02/25	NC		%	25
		Tetrachloroethylene	2011/02/25	NC		%	25
		Benzene	2011/02/25	NC		%	25
		Toluene	2011/02/25	NC		%	25
		Ethylbenzene	2011/02/25	NC		%	25
		p+m-Xylene	2011/02/25	NC		%	25
		o-Xylene	2011/02/25	NC		%	25
		Styrene	2011/02/25	NC		%	25
		1,3,5-Trimethylbenzene	2011/02/25	NC		%	25
		1,2,4-Trimethylbenzene	2011/02/25	NC		%	25
		4-ethyltoluene	2011/02/25	NC		%	25
		Chlorobenzene	2011/02/25	NC		%	25
		Benzyl chloride	2011/02/25	NC		%	25
		1,3-Dichlorobenzene	2011/02/25	NC		%	25
		1,4-Dichlorobenzene	2011/02/25	NC		%	25
		1,2-Dichlorobenzene	2011/02/25	NC		%	25
		1,2,4-Trichlorobenzene	2011/02/25	NC		%	25
		Hexachlorobutadiene	2011/02/25	NC		%	25
		Hexane	2011/02/25	NC		%	25
		Cyclohexane	2011/02/25	NC		%	25
		Tetrahydrofuran	2011/02/25	NC		%	25
		1,4-Dioxane	2011/02/25	NC		%	25
		Xylene (Total)	2011/02/25	NC		%	25

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

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

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

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

# Maxxam Analytics Inc.

## Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200  
 Location: 13-16-62-5 W4M Canister ID: 7808  
 Station ID: Lica 33 (Portable) Canister Installation Date/Time: Feb 25, 11 @ 10:28 mst  
 Field Sample ID: LICA VOC/PORT/ Feb 26, 11 Canister Removal Date/Time: Feb 28, 11 @ 12:11 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
26-Feb-11	2/26/2011 0:00	2/27/2011 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 # 06642  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Technician Signature: Ting Xu

Your C.O.C. #: 06642

**Attention: Michael Bisaga**Maxxam Analytics  
2608 6A Ave.  
Cold Lake, AB  
CANADA T9M 2C7**Report Date: 2011/03/10****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B127520****Received: 2011/03/02, 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	2011/03/08	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/03/08	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 #: B127520  
 Report Date: 2011/03/10

**RESULTS OF ANALYSES OF AIR**

Maxxam ID		IU0522	IU0523	
Sampling Date		2011/02/26 00:00	2011/02/26 00:00	
COC Number		06642	06642	
	<b>Units</b>	<b>LICA VOC\CLS\FEB 26,11</b>	<b>LICA VOC\PORT\FEB 26,11</b>	<b>QC Batch</b>

<b>Volatile Organics</b>				
Pressure on Receipt	psig	20	21	2423759

QC Batch = Quality Control Batch

Maxxam Job #: B127520  
 Report Date: 2011/03/10

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

Maxxam ID		IU0522				
Sampling Date		2011/02/26 00:00				
COC Number		06642				
	<b>Units</b>	<b>LICA VOC\CLS\FEB 26,11</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	2424055
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2424055
Propene	ppbv	<0.30	0.30	<0.516	0.516	2424055
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2424055
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2424055
Dichlorodifluoromethane (FREON 12)	ppbv	0.74	0.20	3.68	0.989	2424055
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2424055
Chloromethane	ppbv	0.61	0.30	1.26	0.620	2424055
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2424055
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2424055
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2424055
Trichlorofluoromethane (FREON 11)	ppbv	0.36	0.20	2.04	1.12	2424055
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2424055
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2424055
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2424055
2-Propanone	ppbv	1.08	0.80	2.57	1.90	2424055
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2424055
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2424055
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2424055
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2424055
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2424055
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2424055
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2424055
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2424055
Methylene Chloride(Dichloromethane)	ppbv	0.38	0.30	1.33	1.04	2424055
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2424055
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2424055
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2424055
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2424055
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2424055
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B127520  
 Report Date: 2011/03/10

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

Maxxam ID		IU0522				
Sampling Date		2011/02/26 00:00				
COC Number		06642				
	<b>Units</b>	<b>LICA VOC\CLS\FEB 26,11</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	2424055
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2424055
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2424055
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2424055
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2424055
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2424055
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2424055
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2424055
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2424055
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2424055
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2424055
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2424055
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2424055
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2424055
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2424055
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2424055
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2424055
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2424055
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2424055
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2424055
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2424055
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2424055
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2424055
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2424055
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2424055
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2424055
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2424055
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2424055
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2424055
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2424055
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2424055
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2424055
QC Batch = Quality Control Batch						

Maxxam Job #: B127520  
 Report Date: 2011/03/10

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

Maxxam ID		IU0522				
Sampling Date		2011/02/26 00:00				
COC Number		06642				
	<b>Units</b>	<b>LICA VOC\CLS\FEB 26,11</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	2424055
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2424055
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	71		N/A	N/A	2424055
D5-Chlorobenzene	%	68		N/A	N/A	2424055
Difluorobenzene	%	72		N/A	N/A	2424055
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B127520  
 Report Date: 2011/03/10

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

Maxxam ID		IU0523				
Sampling Date		2011/02/26 00:00				
COC Number		06642				
	<b>Units</b>	<b>LICA VOC\PORT\FEB 26,11</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	2424055
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2424055
Propene	ppbv	<0.30	0.30	<0.516	0.516	2424055
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2424055
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2424055
Dichlorodifluoromethane (FREON 12)	ppbv	0.70	0.20	3.48	0.989	2424055
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2424055
Chloromethane	ppbv	0.61	0.30	1.26	0.620	2424055
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2424055
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2424055
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2424055
Trichlorofluoromethane (FREON 11)	ppbv	0.37	0.20	2.07	1.12	2424055
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2424055
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2424055
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2424055
2-Propanone	ppbv	1.34	0.80	3.17	1.90	2424055
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2424055
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2424055
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2424055
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2424055
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2424055
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2424055
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2424055
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2424055
Methylene Chloride(Dichloromethane)	ppbv	0.35	0.30	1.22	1.04	2424055
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2424055
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2424055
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2424055
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2424055
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2424055
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B127520  
 Report Date: 2011/03/10

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

Maxxam ID		IU0523				
Sampling Date		2011/02/26 00:00				
COC Number		06642				
	<b>Units</b>	<b>LICA VOC\PORT\FEB 26,11</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	2424055
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2424055
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2424055
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2424055
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2424055
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2424055
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2424055
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2424055
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2424055
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2424055
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2424055
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2424055
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2424055
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2424055
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2424055
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2424055
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2424055
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2424055
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2424055
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2424055
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2424055
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2424055
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2424055
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2424055
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2424055
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2424055
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2424055
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2424055
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2424055
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2424055
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2424055
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2424055
QC Batch = Quality Control Batch						

Maxxam Job #: B127520  
 Report Date: 2011/03/10

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

Maxxam ID		IU0523				
Sampling Date		2011/02/26 00:00				
COC Number		06642				
	<b>Units</b>	<b>LICA</b> <b>VOC\PORT\FEB</b> <b>26,11</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	2424055
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2424055
<b>Surrogate Recovery (%)</b>						
Bromochloromethane	%	69		N/A	N/A	2424055
D5-Chlorobenzene	%	65		N/A	N/A	2424055
Difluorobenzene	%	69		N/A	N/A	2424055
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B127520  
 Report Date: 2011/03/10

### Test Summary

**Maxxam ID** IU0522 **Collected** 2011/02/26  
**Sample ID** LICA VOC\CLS\FEB 26,11 **Shipped**  
**Matrix** AIR **Received** 2011/03/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2423759	N/A	2011/03/08	S_S
Volatile Organics in Air (TO-15)	GC/MS	2424055	N/A	2011/03/08	S_S

**Maxxam ID** IU0523 **Collected** 2011/02/26  
**Sample ID** LICA VOC\PORT\FEB 26,11 **Shipped**  
**Matrix** AIR **Received** 2011/03/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2423759	N/A	2011/03/08	S_S
Volatile Organics in Air (TO-15)	GC/MS	2424055	N/A	2011/03/08	S_S



Maxxam Job #: B127520  
Report Date: 2011/03/10

**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: GB127520

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2424055 S_S	Spiked Blank	Bromochloromethane	2011/03/08		105	%	60 - 140
		D5-Chlorobenzene	2011/03/08		111	%	60 - 140
		Difluorobenzene	2011/03/08		107	%	60 - 140
		2,2,4-Trimethylpentane	2011/03/08		97	%	70 - 130
		Carbon Disulfide	2011/03/08		95	%	70 - 130
		Propene	2011/03/08		90	%	70 - 130
		Vinyl Acetate	2011/03/08		103	%	70 - 130
		Vinyl Bromide	2011/03/08		109	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/03/08		115	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/03/08		131 (1)	%	70 - 130
		Chloromethane	2011/03/08		113	%	70 - 130
		Vinyl Chloride	2011/03/08		109	%	70 - 130
		Chloroethane	2011/03/08		109	%	70 - 130
		1,3-Butadiene	2011/03/08		108	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/03/08		118	%	70 - 130
		Trichlorotrifluoroethane	2011/03/08		108	%	70 - 130
		Ethanol	2011/03/08		105	%	70 - 130
		2-propanol	2011/03/08		100	%	70 - 130
		2-Propanone	2011/03/08		130	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/03/08		112	%	70 - 130
		Methyl Isobutyl Ketone	2011/03/08		100	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/03/08		101	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/03/08		105	%	70 - 130
		Ethyl Acetate	2011/03/08		100	%	70 - 130
		1,1-Dichloroethylene	2011/03/08		108	%	70 - 130
		cis-1,2-Dichloroethylene	2011/03/08		105	%	70 - 130
		trans-1,2-Dichloroethylene	2011/03/08		104	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/03/08		96	%	70 - 130
		Chloroform	2011/03/08		111	%	70 - 130
		Carbon Tetrachloride	2011/03/08		111	%	70 - 130
		1,1-Dichloroethane	2011/03/08		105	%	70 - 130
		1,2-Dichloroethane	2011/03/08		115	%	70 - 130
		Ethylene Dibromide	2011/03/08		105	%	70 - 130
		1,1,1-Trichloroethane	2011/03/08		113	%	70 - 130
		1,1,2-Trichloroethane	2011/03/08		103	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/03/08		95	%	70 - 130
		cis-1,3-Dichloropropene	2011/03/08		107	%	70 - 130
		trans-1,3-Dichloropropene	2011/03/08		108	%	70 - 130
		1,2-Dichloropropane	2011/03/08		100	%	70 - 130
		Bromomethane	2011/03/08		108	%	70 - 130
		Bromoform	2011/03/08		102	%	70 - 130
		Bromodichloromethane	2011/03/08		111	%	70 - 130
		Dibromochloromethane	2011/03/08		111	%	70 - 130
		Heptane	2011/03/08		99	%	70 - 130
		Trichloroethylene	2011/03/08		102	%	70 - 130
		Tetrachloroethylene	2011/03/08		104	%	70 - 130
		Benzene	2011/03/08		102	%	70 - 130
		Toluene	2011/03/08		103	%	70 - 130
		Ethylbenzene	2011/03/08		101	%	70 - 130
		p+m-Xylene	2011/03/08		100	%	70 - 130
		o-Xylene	2011/03/08		101	%	70 - 130
		Styrene	2011/03/08		90	%	70 - 130
		1,3,5-Trimethylbenzene	2011/03/08		98	%	70 - 130
		1,2,4-Trimethylbenzene	2011/03/08		94	%	70 - 130
		4-ethyltoluene	2011/03/08		99	%	70 - 130

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB127520

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2424055 S_S	Spiked Blank	Chlorobenzene	2011/03/08		97	%	70 - 130
		Benzyl chloride	2011/03/08		97	%	70 - 130
		1,3-Dichlorobenzene	2011/03/08		89	%	70 - 130
		1,4-Dichlorobenzene	2011/03/08		91	%	70 - 130
		1,2-Dichlorobenzene	2011/03/08		90	%	70 - 130
		1,2,4-Trichlorobenzene	2011/03/08		85	%	70 - 130
		Hexachlorobutadiene	2011/03/08		91	%	70 - 130
		Hexane	2011/03/08		100	%	70 - 130
		Cyclohexane	2011/03/08		98	%	70 - 130
		Tetrahydrofuran	2011/03/08		99	%	70 - 130
		1,4-Dioxane	2011/03/08		102	%	70 - 130
	Method Blank	Bromochloromethane	2011/03/08		112	%	60 - 140
		D5-Chlorobenzene	2011/03/08		109	%	60 - 140
		Difluorobenzene	2011/03/08		116	%	60 - 140
		2,2,4-Trimethylpentane	2011/03/08	<0.20		ppbv	
		Carbon Disulfide	2011/03/08	<0.50		ppbv	
		Propene	2011/03/08	<0.30		ppbv	
		Vinyl Acetate	2011/03/08	<0.20		ppbv	
		Vinyl Bromide	2011/03/08	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/03/08	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/03/08	<0.17		ppbv	
		Chloromethane	2011/03/08	<0.30		ppbv	
		Vinyl Chloride	2011/03/08	<0.18		ppbv	
		Chloroethane	2011/03/08	<0.30		ppbv	
		1,3-Butadiene	2011/03/08	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/03/08	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/03/08	<0.15		ppbv	
		Ethanol	2011/03/08	<2.3		ppbv	
		2-propanol	2011/03/08	<3.0		ppbv	
		2-Propanone	2011/03/08	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/03/08	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/03/08	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/03/08	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/03/08	<0.20		ppbv	
		Ethyl Acetate	2011/03/08	<2.2		ppbv	
		1,1-Dichloroethylene	2011/03/08	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/03/08	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/03/08	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/03/08	0.31, RDL=0.30		ppbv	
		Chloroform	2011/03/08	<0.15		ppbv	
		Carbon Tetrachloride	2011/03/08	<0.30		ppbv	
		1,1-Dichloroethane	2011/03/08	<0.20		ppbv	
		1,2-Dichloroethane	2011/03/08	<0.20		ppbv	
		Ethylene Dibromide	2011/03/08	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/03/08	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/03/08	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/03/08	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/03/08	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/03/08	<0.17		ppbv	
		1,2-Dichloropropane	2011/03/08	<0.40		ppbv	
		Bromomethane	2011/03/08	<0.18		ppbv	
		Bromoform	2011/03/08	<0.20		ppbv	
		Bromodichloromethane	2011/03/08	<0.20		ppbv	
		Dibromochloromethane	2011/03/08	<0.20		ppbv	
		Heptane	2011/03/08	<0.30		ppbv	

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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB127520

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2424055 S_S	Method Blank	Trichloroethylene	2011/03/08	<0.30		ppbv	
		Tetrachloroethylene	2011/03/08	<0.20		ppbv	
		Benzene	2011/03/08	<0.18		ppbv	
		Toluene	2011/03/08	<0.20		ppbv	
		Ethylbenzene	2011/03/08	<0.20		ppbv	
		p+m-Xylene	2011/03/08	<0.37		ppbv	
		o-Xylene	2011/03/08	<0.20		ppbv	
		Styrene	2011/03/08	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/03/08	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/03/08	<0.50		ppbv	
		4-ethyltoluene	2011/03/08	<2.2		ppbv	
		Chlorobenzene	2011/03/08	<0.20		ppbv	
		Benzyl chloride	2011/03/08	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/03/08	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/03/08	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/03/08	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/03/08	<2.0		ppbv	
		Hexachlorobutadiene	2011/03/08	<3.0		ppbv	
		Hexane	2011/03/08	<0.30		ppbv	
		Cyclohexane	2011/03/08	<0.20		ppbv	
		Tetrahydrofuran	2011/03/08	<0.40		ppbv	
		1,4-Dioxane	2011/03/08	<2.0		ppbv	
		Xylene (Total)	2011/03/08	<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.

# **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/Feb 02, 11

Puf+ s/n: 100-1015  
 Motor s/n: 1139  
 Installation Date/Time: Feb 01, 2011 @ 8:30 mst  
 Removal Date/Time: Feb 03, 2011 @ 10:26 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
02-Feb-11	02/02/2011 0:00	03/02/2011 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
31-Jan-11	03-Feb-11	16-Feb-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	-4.7	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 # 06637

GB0H2741 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Feb 02, 11

- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 06637

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

Report Date: 2011/02/15

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B115780****Received: 2011/02/05, 10:15**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/02/09	2011/02/11	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

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Maxxam Job #: B115780  
 Report Date: 2011/02/15

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

Maxxam ID		IO5700	IO5701		
Sampling Date		2011/02/02 00:00	2011/02/02 00:00		
COC Number		06637	06637		
	<b>Units</b>	<b>LICA PUF/CLS/FEB 02,11</b>	<b>LICA PUF/PORT/FEB 02,11</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2401060
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2401060
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2401060
2-Methylantracene	ug	<0.10	<0.10	0.10	2401060
2-Methylnaphthalene	ug	0.14	0.10	0.10	2401060
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2401060
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2401060
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2401060
Acenaphthene	ug	<0.050	<0.050	0.050	2401060
Acenaphthylene	ug	<0.050	<0.050	0.050	2401060
Anthracene	ug	<0.050	<0.050	0.050	2401060
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2401060
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2401060
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2401060
Benzo(b)fluoranthene	ug	<0.050	0.074	0.050	2401060
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2401060
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2401060
Benzo(g,h,i)perylene	ug	<0.050	0.056	0.050	2401060
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2401060
Biphenyl	ug	0.16	0.15	0.10	2401060
Chrysene	ug	<0.050	0.062	0.050	2401060
Coronene	ug	<0.10	<0.10	0.10	2401060
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2401060
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2401060
Fluoranthene	ug	0.110	0.256	0.050	2401060
Fluorene	ug	0.210	0.212	0.050	2401060
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2401060
m-Terphenyl	ug	<0.10	<0.10	0.10	2401060
Naphthalene	ug	0.142	0.140	0.072	2401060
o-Terphenyl	ug	<0.10	<0.10	0.10	2401060
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					



Maxxam Job #: B115780  
 Report Date: 2011/02/15

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

Maxxam ID		IO5700	IO5701		
Sampling Date		2011/02/02 00:00	2011/02/02 00:00		
COC Number		06637	06637		
	<b>Units</b>	<b>LICA PUF/CLS/FEB 02,11</b>	<b>LICA PUF/PORT/FEB 02,11</b>	<b>RDL</b>	<b>QC Batch</b>

Perylene	ug	<0.10	<0.10	0.10	2401060
Phenanthrene	ug	0.456	0.594	0.050	2401060
p-Terphenyl	ug	<0.10	<0.10	0.10	2401060
Pyrene	ug	0.066	0.134	0.050	2401060
Quinoline	ug	<0.40	<0.40	0.40	2401060
Tetralin	ug	<0.10	<0.10	0.10	2401060
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	62	70		2401060
D10-Fluoranthene	%	84	88		2401060
D10-Fluorene (FS)	%	21 (1)	25 (1)		2401060
D10-Phenanthrene	%	78	82		2401060
D12-Benzo(a)anthracene	%	94	96		2401060
D12-Benzo(a)pyrene	%	94	96		2401060
D12-Benzo(b)fluoranthene	%	88	90		2401060
D12-Benzo(ghi)perylene	%	88	92		2401060
D12-Benzo(k)fluoranthene	%	84	86		2401060
D12-Chrysene	%	80	80		2401060
D12-Indeno(1,2,3-cd)pyrene	%	90	94		2401060
D12-Perylene	%	86	90		2401060
D14-Dibenzo(a,h)anthracene	%	90	92		2401060
D14-Terphenyl (FS)	%	83	87		2401060
D8-Acenaphthylene	%	72	76		2401060
D8-Naphthalene	%	58	70		2401060

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 #: B115780  
 Report Date: 2011/02/15

**Test Summary**

**Maxxam ID** IO5700 **Collected** 2011/02/02  
**Sample ID** LICA PUF/CLS/FEB 02,11 **Shipped**  
**Matrix** PUF AND FILTER **Received** 2011/02/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2401060	2011/02/09	2011/02/11	WZ

**Maxxam ID** IO5701 **Collected** 2011/02/02  
**Sample ID** LICA PUF/PORT/FEB 02,11 **Shipped**  
**Matrix** PUF AND FILTER **Received** 2011/02/05

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2401060	2011/02/09	2011/02/11	WZ

Maxxam Job #: B115780  
Report Date: 2011/02/15

#### GENERAL COMMENTS

PAHMS-F

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

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

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

Sample IO5700-01: PAHMS-F

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

Sample IO5701-01: 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: GB115780

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2401060 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/02/11		72	%	50 - 150
		D10-Fluoranthene	2011/02/11		84	%	50 - 150
		D10-Phenanthrene	2011/02/11		80	%	50 - 150
		D12-Benzo(a)anthracene	2011/02/11		96	%	50 - 150
		D12-Benzo(a)pyrene	2011/02/11		100	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/02/11		90	%	50 - 150
		D12-Benzo(ghi)perylene	2011/02/11		88	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/02/11		84	%	50 - 150
		D12-Chrysene	2011/02/11		80	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/02/11		90	%	50 - 150
		D12-Perylene	2011/02/11		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/02/11		88	%	50 - 150
		RPD	Acenaphthylene	2011/02/11		76	%
	D8-Naphthalene		2011/02/11		74	%	50 - 150
	Acenaphthene		2011/02/11		71	%	60 - 130
	Acenaphthene		2011/02/11	2.4		%	50
	Acenaphthylene		2011/02/11		75	%	60 - 130
	Acenaphthylene		2011/02/11	3.6		%	50
	Anthracene		2011/02/11		70	%	60 - 130
	Anthracene		2011/02/11	1.1		%	50
	Benzo(a)anthracene		2011/02/11		83	%	60 - 130
	Benzo(a)anthracene		2011/02/11	0.6		%	50
	Benzo(a)pyrene		2011/02/11		81	%	60 - 130
	Benzo(a)pyrene		2011/02/11	0.6		%	50
	Benzo(b)fluoranthene		2011/02/11		81	%	60 - 130
	Benzo(b)fluoranthene		2011/02/11	0.3		%	50
	Benzo(g,h,i)perylene		2011/02/11		82	%	60 - 130
	Benzo(g,h,i)perylene		2011/02/11	0.6		%	50
	Benzo(k)fluoranthene		2011/02/11		83	%	60 - 130
	Benzo(k)fluoranthene	2011/02/11	1.2		%	50	
	Spiked Blank	Chrysene	2011/02/11		78	%	60 - 130
		Chrysene	2011/02/11	0.6		%	50
		Dibenz(a,h)anthracene	2011/02/11		83	%	60 - 130
		Dibenz(a,h)anthracene	2011/02/11	2.4		%	50
		Fluoranthene	2011/02/11		78	%	60 - 130
		Fluoranthene	2011/02/11	2.6		%	50
		Fluorene	2011/02/11		72	%	60 - 130
		Fluorene	2011/02/11	1.4		%	50
		Indeno(1,2,3-cd)pyrene	2011/02/11		83	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/02/11	1.2		%	50
Naphthalene		2011/02/11		85	%	60 - 130	
Naphthalene		2011/02/11	15.1		%	50	
Phenanthrene		2011/02/11		73	%	60 - 130	
Phenanthrene		2011/02/11	2.8		%	50	
Pyrene		2011/02/11		80	%	60 - 130	
Pyrene		2011/02/11	1.6		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/02/11		76	%	50 - 150	
	D10-Fluoranthene	2011/02/11		90	%	50 - 150	
	D10-Phenanthrene	2011/02/11		84	%	50 - 150	
	D12-Benzo(a)anthracene	2011/02/11		100	%	50 - 150	
	D12-Benzo(a)pyrene	2011/02/11		106	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/02/11		92	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/02/11		92	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/02/11		88	%	50 - 150	
	D12-Chrysene	2011/02/11		82	%	50 - 150	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB115780

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2401060 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/02/11		96	%	50 - 150
		D12-Perylene	2011/02/11		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/02/11		92	%	50 - 150
		D8-Acenaphthylene	2011/02/11		80	%	50 - 150
		D8-Naphthalene	2011/02/11		74	%	50 - 150
		1-Methylnaphthalene	2011/02/11	<0.10		ug	
		1-Methylphenanthrene	2011/02/11	<0.10		ug	
		2-Chloronaphthalene	2011/02/11	<0.10		ug	
		2-Methylanthracene	2011/02/11	<0.10		ug	
		2-Methylnaphthalene	2011/02/11	<0.10		ug	
		3-Methylcholanthrene	2011/02/11	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/02/11	<0.10		ug	
		9,10-Dimethylanthracene	2011/02/11	<0.40		ug	
		Acenaphthene	2011/02/11	<0.050		ug	
		Acenaphthylene	2011/02/11	<0.050		ug	
		Anthracene	2011/02/11	<0.050		ug	
		Benzo(a)anthracene	2011/02/11	<0.050		ug	
		Benzo(a)fluorene	2011/02/11	<0.10		ug	
		Benzo(a)pyrene	2011/02/11	<0.050		ug	
		Benzo(b)fluoranthene	2011/02/11	<0.050		ug	
		Benzo(b)fluorene	2011/02/11	<0.10		ug	
		Benzo(e)pyrene	2011/02/11	<0.10		ug	
		Benzo(g,h,i)perylene	2011/02/11	0.050, RDL=0.050		ug	
		Benzo(k)fluoranthene	2011/02/11	<0.050		ug	
		Biphenyl	2011/02/11	<0.10		ug	
		Chrysene	2011/02/11	<0.050		ug	
		Coronene	2011/02/11	<0.10		ug	
		Dibenz(a,h)anthracene	2011/02/11	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/02/11	<0.20		ug	
		Fluoranthene	2011/02/11	<0.050		ug	
		Fluorene	2011/02/11	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/02/11	<0.050		ug	
		m-Terphenyl	2011/02/11	<0.10		ug	
		Naphthalene	2011/02/11	<0.072		ug	
		o-Terphenyl	2011/02/11	<0.10		ug	
		Perylene	2011/02/11	<0.10		ug	
		Phenanthrene	2011/02/11	<0.050		ug	
		p-Terphenyl	2011/02/11	<0.10		ug	
		Pyrene	2011/02/11	<0.050		ug	
		Quinoline	2011/02/11	<0.40		ug	
		Tetralin	2011/02/11	<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/Feb 08, 11

Puf+ s/n: 100-1015  
 Motor s/n: 1139  
 Installation Date/Time: Feb 07, 2011 @ 10:58 mst  
 Removal Date/Time: Feb 09, 2011 @ 10:23 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
08-Feb-11	08/02/2011 0:00	09/02/2011 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
03-Feb-11	09-Feb-11	16-Feb-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> )
723	229	-18.8	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 # 06706

GB113181 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Feb 08, 11

- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Site: LICA - COLD LAKE SOUTH  
Your C.O.C. #: 06706

**Attention: Michael Bisaga**

Lakeland Industry & Community Assoc.  
P.O. Box 8237  
Bonnyville, AB  
CANADA T9N 2J5

**Report Date: 2011/02/17**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B118668**

**Received: 2011/02/11, 08:31**

Sample Matrix: PUF AND FILTER

# Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/02/14	2011/02/15	BRL SOP-00201	CARB429(ARBM1,M2)mod
PAH's in Air (CARB429mod)	1	2011/02/14	2011/02/16	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====  
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Total cover pages: 1

Page 1 of 7

Page 196 of 218

Maxxam Job #: B118668  
 Report Date: 2011/02/17

Lakeland Industry &amp; Community Assoc.

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0855	IQ0856	IQ0857		
Sampling Date		2011/02/08 00:00	2011/02/08 00:00	2011/02/08 00:00		
COC Number		06706	06706	06706		
	<b>Units</b>	<b>LICA</b>	<b>LICA</b>	<b>102MM</b>	<b>RDL</b>	<b>QC Batch</b>
		<b>PUFF/QFF/CLS/FEB08,11</b>	<b>PUFF/QFF/PORT/FEB08,11</b>			

<b>Semivolatile Organics</b>						
1-Methylnaphthalene	ug	0.64	0.28	<0.10	0.10	2404930
1-Methylphenanthrene	ug	<0.10	<0.10	<0.10	0.10	2404930
2-Chloronaphthalene	ug	<0.10	<0.10	<0.10	0.10	2404930
2-Methylantracene	ug	<0.10	<0.10	<0.10	0.10	2404930
2-Methylnaphthalene	ug	1.13	0.45	<0.10	0.10	2404930
3-Methylcholanthrene	ug	<2.0	<2.0	<2.0	2.0	2404930
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	<0.10	0.10	2404930
9,10-Dimethylantracene	ug	<0.40	<0.40	<0.40	0.40	2404930
Acenaphthene	ug	0.080	0.054	<0.050	0.050	2404930
Acenaphthylene	ug	0.110	0.054	<0.050	0.050	2404930
Anthracene	ug	<0.050	<0.050	<0.050	0.050	2404930
Benzo(a)anthracene	ug	<0.050	<0.050	<0.050	0.050	2404930
Benzo(a)fluorene	ug	<0.10	<0.10	<0.10	0.10	2404930
Benzo(a)pyrene	ug	<0.050	<0.050	<0.050	0.050	2404930
Benzo(b)fluoranthene	ug	0.064	0.056	<0.050	0.050	2404930
Benzo(b)fluorene	ug	<0.10	<0.10	<0.10	0.10	2404930
Benzo(e)pyrene	ug	<0.10	<0.10	<0.10	0.10	2404930
Benzo(g,h,i)perylene	ug	0.060	0.054	<0.050	0.050	2404930
Benzo(k)fluoranthene	ug	<0.050	<0.050	<0.050	0.050	2404930
Biphenyl	ug	0.63	0.39	<0.10	0.10	2404930
Chrysene	ug	0.066	0.082	<0.050	0.050	2404930
Coronene	ug	<0.10	<0.10	<0.10	0.10	2404930
Dibenz(a,h)anthracene	ug	<0.050	<0.050	<0.050	0.050	2404930
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	<0.20	0.20	2404930
Fluoranthene	ug	0.148	0.214	<0.050	0.050	2404930
Fluorene	ug	0.210	0.156	<0.050	0.050	2404930
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	<0.050	0.050	2404930
m-Terphenyl	ug	<0.10	<0.10	<0.10	0.10	2404930
Naphthalene	ug	1.69	1.10	<0.072	0.072	2404930
o-Terphenyl	ug	<0.10	<0.10	<0.10	0.10	2404930
Perylene	ug	<0.10	<0.10	<0.10	0.10	2404930

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch



Maxxam Job #: B118668  
 Report Date: 2011/02/17

Lakeland Industry &amp; Community Assoc.

Project name: LICA - COLD LAKE SOUTH

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

Maxxam ID		IQ0855	IQ0856	IQ0857		
Sampling Date		2011/02/08 00:00	2011/02/08 00:00	2011/02/08 00:00		
COC Number		06706	06706	06706		
	<b>Units</b>	<b>LICA</b>	<b>LICA</b>	<b>102MM</b>	<b>RDL</b>	<b>QC Batch</b>
		<b>PUFF/QFF/CLS/FEB08,11</b>	<b>PUFF/QFF/PORT/FEB08,11</b>			

Phenanthrene	ug	0.424	0.400	<0.050	0.050	2404930
p-Terphenyl	ug	<0.10	<0.10	<0.10	0.10	2404930
Pyrene	ug	0.094	0.122	<0.050	0.050	2404930
Quinoline	ug	<0.40	<0.40	<0.40	0.40	2404930
Tetralin	ug	<0.10	<0.10	<0.10	0.10	2404930
<b>Surrogate Recovery (%)</b>						
D10-2-Methylnaphthalene	%	62	66	80		2404930
D10-Fluoranthene	%	88	88	82		2404930
D10-Fluorene (FS)	%	60	68			2404930
D10-Phenanthrene	%	80	80	78		2404930
D12-Benzo(a)anthracene	%	96	94	86		2404930
D12-Benzo(a)pyrene	%	94	100	86		2404930
D12-Benzo(b)fluoranthene	%	90	88	88		2404930
D12-Benzo(ghi)perylene	%	92	92	88		2404930
D12-Benzo(k)fluoranthene	%	86	88	88		2404930
D12-Chrysene	%	80	82	88		2404930
D12-Indeno(1,2,3-cd)pyrene	%	94	94	90		2404930
D12-Perylene	%	90	88	88		2404930
D14-Dibenzo(a,h)anthracene	%	92	92	88		2404930
D14-Terphenyl (FS)	%	86	86			2404930
D8-Acenaphthylene	%	68	68	84		2404930
D8-Naphthalene	%	64	64	80		2404930

QC Batch = Quality Control Batch

Maxxam Job #: B118668  
 Report Date: 2011/02/17

Lakeland Industry & Community Assoc.

Project name: LICA - COLD LAKE SOUTH

### Test Summary

**Maxxam ID** IQ0855  
**Sample ID** LICA PUFF/QFF/CLS/FEB08,11  
**Matrix** PUF AND FILTER  
**Collected** 2011/02/08  
**Shipped**  
**Received** 2011/02/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2404930	2011/02/14	2011/02/15	JIW

**Maxxam ID** IQ0856  
**Sample ID** LICA PUFF/QFF/PORT/FEB08,11  
**Matrix** PUF AND FILTER  
**Collected** 2011/02/08  
**Shipped**  
**Received** 2011/02/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2404930	2011/02/14	2011/02/15	JIW

**Maxxam ID** IQ0857  
**Sample ID** 102MM  
**Matrix** PUF AND FILTER  
**Collected** 2011/02/08  
**Shipped**  
**Received** 2011/02/11

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2404930	2011/02/14	2011/02/16	JIW

**GENERAL COMMENTS**

PAHMS-F(WS:2404930)

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

Benzo(g,h,i)perylene positive found in Blank. Samples should be considered to be possibly contaminated to the level found in the Blank.

Not calibrated for Benzo(b)Anthracene, Picene, Dibenzo(a,c) anthracene and Triphenylene. An estimated mdl for each of these compounds is 0.1ug.

Sample IQ0855-01: PAHMS-F(WS:2404930)

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene and Triphenylene with Chrysene each would have a value below estimated mdl.

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

Sample IQ0856-01: PAHMS-F(WS:2404930)

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene and Triphenylene with Chrysene each would have a value below estimated mdl.

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

Sample IQ0857-01: PAHMS-F(WS:2404930)

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene and Triphenylene with Chrysene each would have a value below estimated mdl.

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

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

Lakeland Industry & Community Assoc.  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

Quality Assurance Report  
 Maxxam Job Number: GB118668

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2404930 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/02/15		68	%	50 - 150
		D10-Fluoranthene	2011/02/15		88	%	50 - 150
		D10-Phenanthrene	2011/02/15		80	%	50 - 150
		D12-Benzo(a)anthracene	2011/02/15		92	%	50 - 150
		D12-Benzo(a)pyrene	2011/02/15		100	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/02/15		88	%	50 - 150
		D12-Benzo(ghi)perylene	2011/02/15		88	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/02/15		84	%	50 - 150
		D12-Chrysene	2011/02/15		80	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/02/15		92	%	50 - 150
		D12-Perylene	2011/02/15		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/02/15		90	%	50 - 150
		D8-Acenaphthylene	2011/02/15		72	%	50 - 150
		D8-Naphthalene	2011/02/15		68	%	50 - 150
		RPD	Acenaphthene	2011/02/15		68	%
	RPD	Acenaphthene	2011/02/15	3.3		%	50
	Spiked Blank	Acenaphthylene	2011/02/15		70	%	60 - 130
	RPD	Acenaphthylene	2011/02/15	4.2		%	50
	Spiked Blank	Anthracene	2011/02/15		74	%	60 - 130
	RPD	Anthracene	2011/02/15	3.1		%	50
	Spiked Blank	Benzo(a)anthracene	2011/02/15		80	%	60 - 130
	RPD	Benzo(a)anthracene	2011/02/15	1.9		%	50
	Spiked Blank	Benzo(a)pyrene	2011/02/15		78	%	60 - 130
	RPD	Benzo(a)pyrene	2011/02/15	1		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/02/15		80	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/02/15	0.6		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/02/15		81	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/02/15	4.5		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/02/15		86	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/02/15	0.3		%	50
	Spiked Blank	Chrysene	2011/02/15		76	%	60 - 130
	RPD	Chrysene	2011/02/15	2.0		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/02/15		82	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/02/15	4.5		%	50
	Spiked Blank	Fluoranthene	2011/02/15		82	%	60 - 130
	RPD	Fluoranthene	2011/02/15	0.3		%	50
	Spiked Blank	Fluorene	2011/02/15		70	%	60 - 130
	RPD	Fluorene	2011/02/15	4.9		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/02/15		82	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/02/15	3.6		%	50
	Spiked Blank	Naphthalene	2011/02/15		73	%	60 - 130
	RPD	Naphthalene	2011/02/15	7.6		%	50
	Spiked Blank	Phenanthrene	2011/02/15		73	%	60 - 130
	RPD	Phenanthrene	2011/02/15	3.4		%	50
	Spiked Blank	Pyrene	2011/02/15		86	%	60 - 130
RPD	Pyrene	2011/02/15	0		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/02/15		70	%	50 - 150	
	D10-Fluoranthene	2011/02/15		84	%	50 - 150	
	D10-Phenanthrene	2011/02/15		76	%	50 - 150	
	D12-Benzo(a)anthracene	2011/02/15		94	%	50 - 150	
	D12-Benzo(a)pyrene	2011/02/15		94	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/02/15		88	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/02/15		86	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/02/15		86	%	50 - 150	
	D12-Chrysene	2011/02/15		82	%	50 - 150	

Lakeland Industry & Community Assoc.  
 Attention: Michael Bisaga  
 Client Project #:  
 P.O. #:  
 Project name: LICA - COLD LAKE SOUTH

## Quality Assurance Report (Continued)

Maxxam Job Number: GB118668

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2404930	JIW	Method Blank					
		D12-Indeno(1,2,3-cd)pyrene	2011/02/15		90	%	50 - 150
		D12-Perylene	2011/02/15		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/02/15		86	%	50 - 150
		D8-Acenaphthylene	2011/02/15		76	%	50 - 150
		D8-Naphthalene	2011/02/15		68	%	50 - 150
		1-Methylnaphthalene	2011/02/15	<0.10		ug	
		1-Methylphenanthrene	2011/02/15	<0.10		ug	
		2-Chloronaphthalene	2011/02/15	<0.10		ug	
		2-Methylanthracene	2011/02/15	<0.10		ug	
		2-Methylnaphthalene	2011/02/15	<0.10		ug	
		3-Methylcholanthrene	2011/02/15	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/02/15	<0.10		ug	
		9,10-Dimethylanthracene	2011/02/15	<0.40		ug	
		Acenaphthene	2011/02/15	<0.050		ug	
		Acenaphthylene	2011/02/15	<0.050		ug	
		Anthracene	2011/02/15	<0.050		ug	
		Benzo(a)anthracene	2011/02/15	<0.050		ug	
		Benzo(a)fluorene	2011/02/15	<0.10		ug	
		Benzo(a)pyrene	2011/02/15	<0.050		ug	
		Benzo(b)fluoranthene	2011/02/15	<0.050		ug	
		Benzo(b)fluorene	2011/02/15	<0.10		ug	
		Benzo(e)pyrene	2011/02/15	<0.10		ug	
		Benzo(g,h,i)perylene	2011/02/15	0.056, RDL=0.050		ug	
		Benzo(k)fluoranthene	2011/02/15	<0.050		ug	
		Biphenyl	2011/02/15	<0.10		ug	
		Chrysene	2011/02/15	<0.050		ug	
		Coronene	2011/02/15	<0.10		ug	
		Dibenz(a,h)anthracene	2011/02/15	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/02/15	<0.20		ug	
		Fluoranthene	2011/02/15	<0.050		ug	
		Fluorene	2011/02/15	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/02/15	<0.050		ug	
		m-Terphenyl	2011/02/15	<0.10		ug	
		Naphthalene	2011/02/15	<0.072		ug	
		o-Terphenyl	2011/02/15	<0.10		ug	
		Perylene	2011/02/15	<0.10		ug	
		Phenanthrene	2011/02/15	<0.050		ug	
		p-Terphenyl	2011/02/15	<0.10		ug	
		Pyrene	2011/02/15	<0.050		ug	
		Quinoline	2011/02/15	<0.40		ug	
		Tetralin	2011/02/15	<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/Feb 20, 11

Puf+ s/n: 100-1015  
 Motor s/n: 1139  
 Installation Date/Time: Feb 18, 2011 @ 9:43 mst  
 Removal Date/Time: Feb 22, 2011 @ 11:56 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
20-Feb-11	20/02/2011 0:00	21/02/2011 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
17-Feb-11	22-Feb-11	03-Mar-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> )
717	229	-25.0	330.34

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

Comments: COC # 06776

GB114730 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Feb 20, 11

- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 06776

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

Report Date: 2011/03/02

**CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B124780****Received: 2011/02/24, 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	2011/02/25	2011/03/01	BRL SOP-00201	CARB429(ARBM1,M2)mod

## Encryption Key

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

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

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Total cover pages: 1

Maxxam Job #: B124780  
 Report Date: 2011/03/02

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

Maxxam ID		IS7614	IS7615		
Sampling Date		2011/02/20	2011/02/20		
COC Number		06776	06776		
	<b>Units</b>	<b>LICA</b>	<b>LICA</b>	<b>RDL</b>	<b>QC Batch</b>
		<b>PUFF+QFF/CLS/FEB</b>	<b>PUFF+QFF/PORT/FEB20,11</b>		
		<b>20,11</b>			

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	0.85	0.45	0.10	2414900
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2414900
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2414900
2-Methylanthracene	ug	<0.10	<0.10	0.10	2414900
2-Methylnaphthalene	ug	1.68	0.72	0.10	2414900
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2414900
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2414900
9,10-Dimethylanthracene	ug	<0.40	<0.40	0.40	2414900
Acenaphthene	ug	0.104	<0.050	0.050	2414900
Acenaphthylene	ug	<0.050	<0.050	0.050	2414900
Anthracene	ug	<0.050	<0.050	0.050	2414900
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2414900
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2414900
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2414900
Benzo(b)fluoranthene	ug	0.050	<0.050	0.050	2414900
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2414900
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2414900
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2414900
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2414900
Biphenyl	ug	0.48	0.45	0.10	2414900
Chrysene	ug	<0.050	<0.050	0.050	2414900
Coronene	ug	<0.10	<0.10	0.10	2414900
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2414900
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2414900
Fluoranthene	ug	0.108	0.116	0.050	2414900
Fluorene	ug	0.138	0.178	0.050	2414900
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2414900
m-Terphenyl	ug	<0.10	<0.10	0.10	2414900
Naphthalene	ug	1.55	0.996	0.072	2414900
o-Terphenyl	ug	<0.10	<0.10	0.10	2414900
Perylene	ug	<0.10	<0.10	0.10	2414900

 RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch



Maxxam Job #: B124780  
 Report Date: 2011/03/02

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

Maxxam ID		IS7614	IS7615		
Sampling Date		2011/02/20	2011/02/20		
COC Number		06776	06776		
	Units	LICA PUFF+QFF/CLS/FEB 20,11	LICA PUFF+QFF/PORT/FEB20,11	RDL	QC Batch
Phenanthrene	ug	0.280	0.352	0.050	2414900
p-Terphenyl	ug	<0.10	<0.10	0.10	2414900
Pyrene	ug	0.058	0.060	0.050	2414900
Quinoline	ug	<0.40	<0.40	0.40	2414900
Tetralin	ug	<0.10	<0.10	0.10	2414900
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	60	60		2414900
D10-Fluoranthene	%	88	88		2414900
D10-Fluorene (FS)	%	69	71		2414900
D10-Phenanthrene	%	78	78		2414900
D12-Benzo(a)anthracene	%	90	92		2414900
D12-Benzo(a)pyrene	%	84	86		2414900
D12-Benzo(b)fluoranthene	%	94	94		2414900
D12-Benzo(ghi)perylene	%	94	94		2414900
D12-Benzo(k)fluoranthene	%	76	76		2414900
D12-Chrysene	%	76	78		2414900
D12-Indeno(1,2,3-cd)pyrene	%	98	100		2414900
D12-Perylene	%	80	82		2414900
D14-Dibenzo(a,h)anthracene	%	100	104		2414900
D14-Terphenyl (FS)	%	87	90		2414900
D8-Acenaphthylene	%	64	66		2414900
D8-Naphthalene	%	58	56		2414900
QC Batch = Quality Control Batch					

Maxxam Job #: B124780  
Report Date: 2011/03/02

### Test Summary

**Maxxam ID** IS7614  
**Sample ID** LICA PUFF+QFF/CLS/FEB 20,11  
**Matrix** PUF AND FILTER  
**Collected** 2011/02/20  
**Shipped**  
**Received** 2011/02/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2414900	2011/02/25	2011/03/01	JIW

**Maxxam ID** IS7615  
**Sample ID** LICA PUFF+QFF/PORT/FEB20,11  
**Matrix** PUF AND FILTER  
**Collected** 2011/02/20  
**Shipped**  
**Received** 2011/02/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2414900	2011/02/25	2011/03/01	JIW

Maxxam Job #: B124780  
Report Date: 2011/03/02

#### GENERAL COMMENTS

PAHMS-F(WS:2414900)

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

Low recovery of Benzo(a)pyrene in Spike and low recovery of Naphthalene, Acenaphthylene, Acenaphthene and Fluorene in Spike:dup due to relatively low level in Method Spike.

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

Not calibrated for Benzo(b)Anthracene, Picene, Dibenzo(a,c) anthracene and Triphenylene. An estimated mdl for each of these compounds is 0.1ug.

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene and Triphenylene with Chrysene each would have a value below estimated mdl.

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

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

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

Quality Assurance Report  
 Maxxam Job Number: GB124780

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2414900 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/02/28		66	%	50 - 150
		D10-Fluoranthene	2011/02/28		80	%	50 - 150
		D10-Phenanthrene	2011/02/28		72	%	50 - 150
		D12-Benzo(a)anthracene	2011/02/28		84	%	50 - 150
		D12-Benzo(a)pyrene	2011/02/28		80	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/02/28		86	%	50 - 150
		D12-Benzo(ghi)perylene	2011/02/28		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/02/28		72	%	50 - 150
		D12-Chrysene	2011/02/28		74	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/02/28		92	%	50 - 150
		D12-Perylene	2011/02/28		78	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/02/28		94	%	50 - 150
		D8-Acenaphthylene	2011/02/28		64	%	50 - 150
		D8-Naphthalene	2011/02/28		64	%	50 - 150
		Acenaphthene	2011/02/28		62	%	60 - 130
	RPD	Acenaphthene	2011/03/01	8.8		%	50
	Spiked Blank	Acenaphthylene	2011/02/28		62	%	60 - 130
	RPD	Acenaphthylene	2011/03/01	10.1		%	50
	Spiked Blank	Anthracene	2011/02/28		63	%	60 - 130
	RPD	Anthracene	2011/03/01	0.4		%	50
	Spiked Blank	Benzo(a)anthracene	2011/02/28		73	%	60 - 130
	RPD	Benzo(a)anthracene	2011/03/01	6.3		%	50
	Spiked Blank	Benzo(a)pyrene	2011/02/28		60 (1)	%	60 - 130
	RPD	Benzo(a)pyrene	2011/03/01	8.5		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/02/28		72	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/03/01	8.0		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/02/28		74	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/03/01	5.2		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/02/28		70	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/03/01	6.5		%	50
	Spiked Blank	Chrysene	2011/02/28		71	%	60 - 130
	RPD	Chrysene	2011/03/01	6.1		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/02/28		78	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/03/01	5.6		%	50
	Spiked Blank	Fluoranthene	2011/02/28		74	%	60 - 130
	RPD	Fluoranthene	2011/03/01	4.7		%	50
	Spiked Blank	Fluorene	2011/02/28		62	%	60 - 130
	RPD	Fluorene	2011/03/01	6.7		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/02/28		75	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/03/01	6.4		%	50
	Spiked Blank	Naphthalene	2011/02/28		64	%	60 - 130
	RPD	Naphthalene	2011/03/01	12.1		%	50
	Spiked Blank	Phenanthrene	2011/02/28		65	%	60 - 130
	RPD	Phenanthrene	2011/03/01	1.9		%	50
	Spiked Blank	Pyrene	2011/02/28		72	%	60 - 130
	RPD	Pyrene	2011/03/01	5.4		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/03/01		60	%	50 - 150
		D10-Fluoranthene	2011/03/01		86	%	50 - 150
		D10-Phenanthrene	2011/03/01		70	%	50 - 150
		D12-Benzo(a)anthracene	2011/03/01		90	%	50 - 150
		D12-Benzo(a)pyrene	2011/03/01		84	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/03/01		90	%	50 - 150
		D12-Benzo(ghi)perylene	2011/03/01		90	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/03/01		78	%	50 - 150
		D12-Chrysene	2011/03/01		78	%	50 - 150

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

### Quality Assurance Report (Continued)

Maxxam Job Number: GB124780

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2414900 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/03/01		96	%	50 - 150
		D12-Perylene	2011/03/01		82	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/03/01		98	%	50 - 150
		D8-Acenaphthylene	2011/03/01		60	%	50 - 150
		D8-Naphthalene	2011/03/01		58	%	50 - 150
		1-Methylnaphthalene	2011/03/01	<0.10		ug	
		1-Methylphenanthrene	2011/03/01	<0.10		ug	
		2-Chloronaphthalene	2011/03/01	<0.10		ug	
		2-Methylanthracene	2011/03/01	<0.10		ug	
		2-Methylnaphthalene	2011/03/01	<0.10		ug	
		3-Methylcholanthrene	2011/03/01	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/03/01	<0.10		ug	
		9,10-Dimethylanthracene	2011/03/01	<0.40		ug	
		Acenaphthene	2011/03/01	<0.050		ug	
		Acenaphthylene	2011/03/01	<0.050		ug	
		Anthracene	2011/03/01	<0.050		ug	
		Benzo(a)anthracene	2011/03/01	<0.050		ug	
		Benzo(a)fluorene	2011/03/01	<0.10		ug	
		Benzo(a)pyrene	2011/03/01	<0.050		ug	
		Benzo(b)fluoranthene	2011/03/01	<0.050		ug	
		Benzo(b)fluorene	2011/03/01	<0.10		ug	
		Benzo(e)pyrene	2011/03/01	<0.10		ug	
		Benzo(g,h,i)perylene	2011/03/01	<0.050		ug	
		Benzo(k)fluoranthene	2011/03/01	<0.050		ug	
		Biphenyl	2011/03/01	<0.10		ug	
		Chrysene	2011/03/01	<0.050		ug	
		Coronene	2011/03/01	<0.10		ug	
		Dibenz(a,h)anthracene	2011/03/01	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/03/01	<0.20		ug	
		Fluoranthene	2011/03/01	<0.050		ug	
		Fluorene	2011/03/01	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/03/01	<0.050		ug	
		m-Terphenyl	2011/03/01	<0.10		ug	
		Naphthalene	2011/03/01	0.102, RDL=0.072		ug	
		o-Terphenyl	2011/03/01	<0.10		ug	
		Perylene	2011/03/01	<0.10		ug	
		Phenanthrene	2011/03/01	<0.050		ug	
		p-Terphenyl	2011/03/01	<0.10		ug	
		Pyrene	2011/03/01	<0.050		ug	
		Quinoline	2011/03/01	<0.40		ug	
		Tetralin	2011/03/01	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.  
 Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.  
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.  
 Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.  
 ( 1 ) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

# 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/Feb 26, 11

Puf+ s/n: 100-1015  
 Motor s/n: 1139  
 Installation Date/Time: Feb 25, 2011 @ 10:40 mst  
 Removal Date/Time: Feb 28, 2011 @ 12:17 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
26-Feb-11	26/02/2011 0:00	27/02/2011 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
24-Feb-11	28-Feb-11	15-Mar-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> )
694	229	-9.2	330.33

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

Comments: COC # 06643

GB119532 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Feb 26, 11

- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 06643

**Attention: Michael Bisaga**Maxxam Analytics  
2608 6A Ave.  
Cold Lake, AB  
CANADA T9M 2C7**Report Date: 2011/03/10****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B128004****Received: 2011/03/02, 09:10**

Sample Matrix: PUF AND FILTER

# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/03/05	2011/03/07	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

Page 1 of 7

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

Maxxam ID		IU2500	IU2501		
Sampling Date		2011/02/26	2011/02/26		
COC Number		06643	06643		
	<b>Units</b>	<b>LICA PUFF+QFF/CLS/FEB 26, 11</b>	<b>LICA PUFF+QFF/PORT/FEB 26, 11</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Semivolatile Organics</b>					
1-Methylnaphthalene	ug	0.20	0.10	0.10	2422100
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2422100
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2422100
2-Methylantracene	ug	<0.10	<0.10	0.10	2422100
2-Methylnaphthalene	ug	0.44	0.18	0.10	2422100
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2422100
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2422100
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2422100
Acenaphthene	ug	<0.050	<0.050	0.050	2422100
Acenaphthylene	ug	<0.050	<0.050	0.050	2422100
Anthracene	ug	<0.050	<0.050	0.050	2422100
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2422100
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2422100
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2422100
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2422100
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2422100
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2422100
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2422100
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2422100
Biphenyl	ug	0.17	0.20	0.10	2422100
Chrysene	ug	<0.050	<0.050	0.050	2422100
Coronene	ug	<0.10	<0.10	0.10	2422100
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2422100
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2422100
Fluoranthene	ug	<0.050	0.068	0.050	2422100
Fluorene	ug	0.104	0.124	0.050	2422100
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2422100
m-Terphenyl	ug	<0.10	<0.10	0.10	2422100
Naphthalene	ug	0.486	0.256	0.072	2422100
o-Terphenyl	ug	<0.10	<0.10	0.10	2422100
Perylene	ug	<0.10	<0.10	0.10	2422100

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch



Maxxam Job #: B128004  
 Report Date: 2011/03/10

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

Maxxam ID		IU2500	IU2501		
Sampling Date		2011/02/26	2011/02/26		
COC Number		06643	06643		
	Units	LICA PUFF+QFF/CLS/FEB 26, 11	LICA PUFF+QFF/PORT/FEB 26, 11	RDL	QC Batch
Phenanthrene	ug	0.190	0.294	0.050	2422100
p-Terphenyl	ug	<0.10	<0.10	0.10	2422100
Pyrene	ug	<0.050	<0.050	0.050	2422100
Quinoline	ug	<0.40	<0.40	0.40	2422100
Tetralin	ug	<0.10	<0.10	0.10	2422100
<b>Surrogate Recovery (%)</b>					
D10-2-Methylnaphthalene	%	70	68		2422100
D10-Fluoranthene	%	86	90		2422100
D10-Fluorene (FS)	%	67	69		2422100
D10-Phenanthrene	%	78	80		2422100
D12-Benzo(a)anthracene	%	102	96		2422100
D12-Benzo(a)pyrene	%	92	94		2422100
D12-Benzo(b)fluoranthene	%	90	90		2422100
D12-Benzo(ghi)perylene	%	94	104		2422100
D12-Benzo(k)fluoranthene	%	86	88		2422100
D12-Chrysene	%	86	80		2422100
D12-Indeno(1,2,3-cd)pyrene	%	94	104		2422100
D12-Perylene	%	90	94		2422100
D14-Dibenzo(a,h)anthracene	%	94	106		2422100
D14-Terphenyl (FS)	%	83	89		2422100
D8-Acenaphthylene	%	72	72		2422100
D8-Naphthalene	%	68	66		2422100
QC Batch = Quality Control Batch					

Maxxam Job #: B128004  
 Report Date: 2011/03/10

**Test Summary**

**Maxxam ID** IU2500 **Collected** 2011/02/26  
**Sample ID** LICA PUFF+QFF/CLS/FEB 26, 11 **Shipped**  
**Matrix** PUF AND FILTER **Received** 2011/03/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2422100	2011/03/05	2011/03/07	WZ

**Maxxam ID** IU2501 **Collected** 2011/02/26  
**Sample ID** LICA PUFF+QFF/PORT/FEB 26, 11 **Shipped**  
**Matrix** PUF AND FILTER **Received** 2011/03/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2422100	2011/03/05	2011/03/07	WZ

Maxxam Job #: B128004  
Report Date: 2011/03/10

#### GENERAL COMMENTS

PAHMM5-TR

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

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

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

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

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

### Quality Assurance Report

Maxxam Job Number: GB128004

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2422100 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/03/07		84	%	50 - 150
		D10-Fluoranthene	2011/03/07		92	%	50 - 150
		D10-Phenanthrene	2011/03/07		86	%	50 - 150
		D12-Benzo(a)anthracene	2011/03/07		96	%	50 - 150
		D12-Benzo(a)pyrene	2011/03/07		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/03/07		90	%	50 - 150
		D12-Benzo(ghi)perylene	2011/03/07		104	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/03/07		88	%	50 - 150
		D12-Chrysene	2011/03/07		82	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/03/07		104	%	50 - 150
		D12-Perylene	2011/03/07		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/03/07		108	%	50 - 150
		RPD	D8-Acenaphthylene	2011/03/07		82	%
	D8-Naphthalene		2011/03/07		82	%	50 - 150
	Spiked Blank	Acenaphthene	2011/03/07		78	%	60 - 130
		Acenaphthene	2011/03/07	3.3		%	50
	RPD	Acenaphthylene	2011/03/07		78	%	60 - 130
		Acenaphthylene	2011/03/07	2.6		%	50
	Spiked Blank	Anthracene	2011/03/07		72	%	60 - 130
		Anthracene	2011/03/07	3.4		%	50
	Spiked Blank	Benzo(a)anthracene	2011/03/07		78	%	60 - 130
		Benzo(a)anthracene	2011/03/07	1.9		%	50
	Spiked Blank	Benzo(a)pyrene	2011/03/07		71	%	60 - 130
		Benzo(a)pyrene	2011/03/07	0.4		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/03/07		74	%	60 - 130
		Benzo(b)fluoranthene	2011/03/07	1.4		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/03/07		81	%	60 - 130
		Benzo(g,h,i)perylene	2011/03/07	1.9		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/03/07		78	%	60 - 130
		Benzo(k)fluoranthene	2011/03/07	0.3		%	50
	Spiked Blank	Chrysene	2011/03/07		77	%	60 - 130
		Chrysene	2011/03/07	1.6		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/03/07		81	%	60 - 130
		Dibenz(a,h)anthracene	2011/03/07	3.4		%	50
	Spiked Blank	Fluoranthene	2011/03/07		84	%	60 - 130
		Fluoranthene	2011/03/07	4.6		%	50
	Spiked Blank	Fluorene	2011/03/07		77	%	60 - 130
		Fluorene	2011/03/07	4.3		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/03/07		82	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/03/07	3.1		%	50
Spiked Blank	Naphthalene	2011/03/07		78	%	60 - 130	
	Naphthalene	2011/03/07	2.9		%	50	
Spiked Blank	Phenanthrene	2011/03/07		77	%	60 - 130	
	Phenanthrene	2011/03/07	4.0		%	50	
Spiked Blank	Pyrene	2011/03/07		78	%	60 - 130	
	Pyrene	2011/03/07	3.6		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/03/07		82	%	50 - 150	
	D10-Fluoranthene	2011/03/07		92	%	50 - 150	
	D10-Phenanthrene	2011/03/07		84	%	50 - 150	
	D12-Benzo(a)anthracene	2011/03/07		94	%	50 - 150	
	D12-Benzo(a)pyrene	2011/03/07		96	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/03/07		92	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/03/07		104	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/03/07		86	%	50 - 150	
	D12-Chrysene	2011/03/07		80	%	50 - 150	

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

## Quality Assurance Report (Continued)

Maxxam Job Number: GB128004

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2422100 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/03/07		106	%	50 - 150
		D12-Perylene	2011/03/07		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/03/07		108	%	50 - 150
		D8-Acenaphthylene	2011/03/07		82	%	50 - 150
		D8-Naphthalene	2011/03/07		80	%	50 - 150
		1-Methylnaphthalene	2011/03/07	<0.10		ug	
		1-Methylphenanthrene	2011/03/07	<0.10		ug	
		2-Chloronaphthalene	2011/03/07	<0.10		ug	
		2-Methylanthracene	2011/03/07	<0.10		ug	
		2-Methylnaphthalene	2011/03/07	<0.10		ug	
		3-Methylcholanthrene	2011/03/07	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/03/07	<0.10		ug	
		9,10-Dimethylanthracene	2011/03/07	<0.40		ug	
		Acenaphthene	2011/03/07	<0.050		ug	
		Acenaphthylene	2011/03/07	<0.050		ug	
		Anthracene	2011/03/07	<0.050		ug	
		Benzo(a)anthracene	2011/03/07	<0.050		ug	
		Benzo(a)fluorene	2011/03/07	<0.10		ug	
		Benzo(a)pyrene	2011/03/07	<0.050		ug	
		Benzo(b)fluoranthene	2011/03/07	<0.050		ug	
		Benzo(b)fluorene	2011/03/07	<0.10		ug	
		Benzo(e)pyrene	2011/03/07	<0.10		ug	
		Benzo(g,h,i)perylene	2011/03/07	<0.050		ug	
		Benzo(k)fluoranthene	2011/03/07	<0.050		ug	
		Biphenyl	2011/03/07	<0.10		ug	
		Chrysene	2011/03/07	<0.050		ug	
		Coronene	2011/03/07	<0.10		ug	
		Dibenz(a,h)anthracene	2011/03/07	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/03/07	<0.20		ug	
		Fluoranthene	2011/03/07	<0.050		ug	
		Fluorene	2011/03/07	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/03/07	<0.050		ug	
		m-Terphenyl	2011/03/07	<0.10		ug	
		Naphthalene	2011/03/07	<0.072		ug	
		o-Terphenyl	2011/03/07	<0.10		ug	
		Perylene	2011/03/07	<0.10		ug	
		Phenanthrene	2011/03/07	<0.050		ug	
		p-Terphenyl	2011/03/07	<0.10		ug	
		Pyrene	2011/03/07	<0.050		ug	
		Quinoline	2011/03/07	<0.40		ug	
		Tetralin	2011/03/07	<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

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

Prepared By:



March 3, 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: February 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 – February 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	0.62	6
H2S (PPB)	10	3	0	0	0.18	2	25	17	11.6	299(WNW)	1.0	25	100.0		
THC (PPM)	-	-	-	-	2.17	3.4	14	21	9.5	46(NE)	2.5	14	100.0		
OZONE (PPB)	82	-	0	-	32.23	43	13, 26	VAR	VAR	VAR	39.3	26	100.0		
NOx (PPB)	-	-	-	-	3.74	23	1	5	5.4	269(W)	12.7	1	100.0		
NO (PPB)	-	-	-	-	0.46	7	9	12	13.2	333(NNW)	2.0	25	100.0		
NO2 (PPB)	212	106	0	0	3.08	22	1, 2	5, 3	5.4, 13.6	269(W), 298(WNW)	11.4	1	100.0		
PM2.5 (ug/m3)	-	30	-	0	5.35	23.7	9	0	10.3	346(NNW)	13.4	9	100.0		
TEMPERATURE (DEGREE C)	-	-	-	-	-12.64	7.4	2	15	20.2	291(WNW)	2.5	3	100.0		
BP (MILLIBAR)	-	-	-	-	924	946	6	VAR	VAR	VAR	943.0	6	100.0		
RH (%)	-	-	-	-	65.58	90	4	VAR	VAR	VAR	81.0	5	100.0		
PRECIPITATION (MM)	-	-	-	-	0.01	0.5	17	6	9	198(SSW)	2.2	5	100.0		
VECTOR WS (KPH)	-	-	-	-	10.38	26.3	15	4	-	67(ENE)	14.4	5	100.0		
VECTOR WD (DEGREES)	-	-	-	-	286(WNW)	-	-	-	-	-	-	-	100.0		

VAR-VARIOUS

# General Monthly Summary

## Equipment Operation

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

### AQM STATION – LICA – St. Lina

#### Sulphur Dioxide (PPB)

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

No operational issue was observed during this month. The inlet filter was changed before the monthly calibration was started. The 24-hour objective was changed from 57 ppb to 48 ppb on February 15<sup>th</sup> as per Alberta Environment guidelines.

#### Hydrogen Sulphide (PPB)

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

No operational issue was observed during this 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, S/N: 77021-384

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

# General Monthly Summary

## AQM STATION – LICA – 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. 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. 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 February 24<sup>th</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.

### Temperature (Degree C)

- Analyzer make / model – Met One 060

No operational issue was observed during the month.

# General Monthly Summary

## AQM STATION – LICA – St. Lina

### Barometric Pressure (Millibar)

- Analyzer make / model - Met One 092

No operational issue was observed during this month.

### Relative Humidity (%)

- Analyzer make / model - Met One 083

No operational issue was observed during this month.

### Precipitation (MM)

- Analyzer make / model - Met One 387

No operational issue was observed during this month.

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

- System make / model – Met 50.5, S/N: H12635

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

### 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 February 24<sup>th</sup>.

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

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. All AQI values recorded in February 2011 were within the Good range. The highest hourly concentration of PM2.5 was 23.7ug/m3 and an AQI value of 20, hour 0 on February 9<sup>th</sup>. The highest hourly concentration of Ozone was 43 ppb and an AQI value of 23, on February 13<sup>th</sup> and 26<sup>th</sup>, in various hours.

# Continuous Monitoring

# Monthly Summaries, Graphs & Wind Roses



# Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 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	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	MAX
1	12	11	12	13	10	13	14	12	14	16	17	18	18	18	18	17	17	16	16	-	15	14	14	13	18		
2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	
3	O3	O3	PM2	PM2	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3		
4	19	18	18	18	18	16	13	12	13	14	15	16	17	17	18	19	-	18	18	18	18	18	18	18	18		
5	O3	O3	O3	O3	O3	O3	O3	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3		
6	18	18	18	18	18	18	18	18	18	18	18	18	18	18	19	-	19	18	18	18	18	18	18	18	18		
7	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		
8	15	14	13	14	15	15	16	16	17	17	18	18	-	19	18	18	17	16	16	16	16	16	16	16	16		
9	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	PM2		
10	20	16	14	12	10	12	13	14	15	15	15	-	18	17	14	16	18	18	18	18	18	18	19	19	20		
11	PM2	PM2	PM2	PM2	O3	PM2	PM2	PM2	PM2	PM2	PM2	NA	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	PM2		
12	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3		
13	17	17	16	16	15	14	15	-	17	19	19	20	20	21	21	21	22	22	22	22	22	21	20	19	22		
14	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3		
15	19	19	19	18	18	17	-	17	17	17	18	19	19	19	19	20	19	18	17	17	16	16	16	16	20		
16	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3		
17	14	12	13	14	15	-	16	16	15	15	16	16	16	16	16	16	16	15	15	14	14	14	14	16	17		
18	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3		
19	16	16	16	16	-	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16		
20	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3		
21	15	14	13	-	13	13	13	13	14	15	16	16	16	16	16	16	16	15	15	15	15	15	15	15	16		
22	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3		
23	15	15	-	15	14	13	13	13	14	15	15	16	16	17	17	17	17	15	15	16	16	16	16	15	17		
24	O3	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3		
25	15	-	14	14	13	16	18	13	12	14	14	14	15	15	16	16	15	15	13	12	13	14	15	15	18		
26	O3	NA	O3	O3	O3	PM2	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	PM2		
27	-	15	15	14	15	15	15	16	16	16	16	16	16	17	17	17	17	17	17	17	17	17	17	17	17		
28	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA		
29	17	17	17	16	16	16	16	15	15	15	14	15	15	14	14	14	14	14	14	14	14	14	14	14	17		
30	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3		
31	16	15	16	17	17	17	17	17	18	19	20	20	20	20	21	20	21	20	21	20	20	20	20	20	21		
32	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		
33	20	20	20	20	20	20	20	20	20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
34	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	O3		
35	19	18	17	16	15	14	13	13	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
36	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	NA	NA	NA	NA	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3		
37	14	14	14	13	12	12	12	11	12	13	14	15	15	16	16	16	15	15	-	14	14	16	17	17			
38	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		
39	16	18	18	19	18	18	18	18	17	19	20	20	21	21	21	22	22	-	22	22	21	22	22	21	22		
40	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		
41	21	21	20	19	18	18	18	18	16	15	14	13	11	10	9	9	-	12	13	13	14	15	15	15	21		
42	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3		
43	15	15	14	14	14	16	16	16	16	16	16	16	17	17	16	-	15	14	12	11	11	11	12	12	17		
44	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		
45	21	21	20	20	20	20	20	20	20	20	20	20	21	21	21	22	22	22	22	22	22	22	22	22	21		
46	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	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
GOOD (1-25)	597	88.8%	22	VAR	13,26	34	5.1%	20	0	9	0	0.0%	-	-	-	0	0.0%	-	-	-	631	93.9%
OVERALL	597	88.8%	-	-	-	34	5.1%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	631	93.9%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41	6.1%

# Sulphur Dioxide

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA**  
**FEBRUARY 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	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	2	2	2	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	IZS	1	1	1	1	1	2	0.9	24	
2	1	2	2	3	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	3	0.5	24	
3	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	0.4	24	
4	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	1	0.5	24	
5	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	IZS	0	0	0	1	1	1	1	1	4	4	0.4	24	
6	4	3	2	2	1	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	4	0.9	24	
7	2	2	1	1	1	1	1	1	1	1	2	2	2	IZS	0	0	0	0	0	0	0	0	0	0	0	2	0.8	24	
8	1	1	1	1	1	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	1	1	1	2	2	0.4	24
9	2	3	3	2	2	1	1	1	1	1	1	1	IZS	1	1	1	1	0	0	0	0	1	1	1	1	3	1.1	24	
10	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24	
11	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	1	1	1	0	1	2	2	0.3	24	
12	3	2	1	1	0	0	1	1	IZS	2	3	3	3	3	3	4	3	3	2	1	1	1	1	1	1	4	1.8	24	
13	1	1	1	1	1	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24	
14	0	0	0	0	0	0	IZS	0	0	0	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	0.4	24	
15	1	0	0	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0.3	24		
16	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	
17	0	0	1	IZS	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	
18	0	0	IZS	0	1	2	3	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.4	24	
19	0	IZS	0	0	0	1	0	0	0	0	0	2	2	2	3	6	5	1	1	1	2	2	2	2	2	6	1.4	24	
20	IZS	3	4	4	3	4	5	1	1	2	4	4	3	3	1	1	1	1	1	1	1	1	1	1	IZS	5	2.3	24	
21	0	1	1	1	1	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1	IZS	1	2	1.5	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	IZS	0	0	1	0.0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0.0	24	
24	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	IZS	0	0	0	0	0	0.0	24	
25	0	0	0	0	0	0	1	1	1	1	2	3	3	2	2	2	2	3	IZS	1	1	1	1	0	3	1.2	24		
26	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	1	0.3	24	
27	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	IZS	1	1	1	1	0	0	0	1	0.3	24		
28	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		
HOURLY MAX	4	3	4	4	3	4	5	2	1	2	4	4	3	3	4	6	5	3	2	2	2	2	2	4					
HOURLY AVG	0.7	0.8	0.8	0.8	0.7	0.7	0.8	0.5	0.4	0.5	0.7	0.8	0.8	0.6	0.6	0.7	0.6	0.5	0.4	0.4	0.5	0.4	0.4	0.6					

**STATUS FLAG CODES**

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

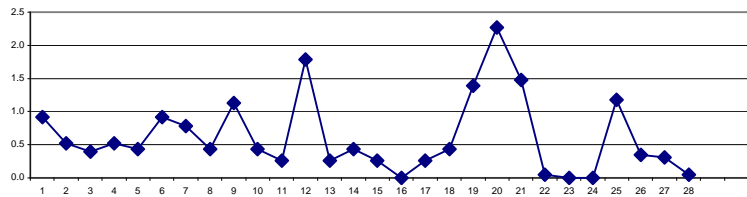
OBJECTIVE LIMIT:

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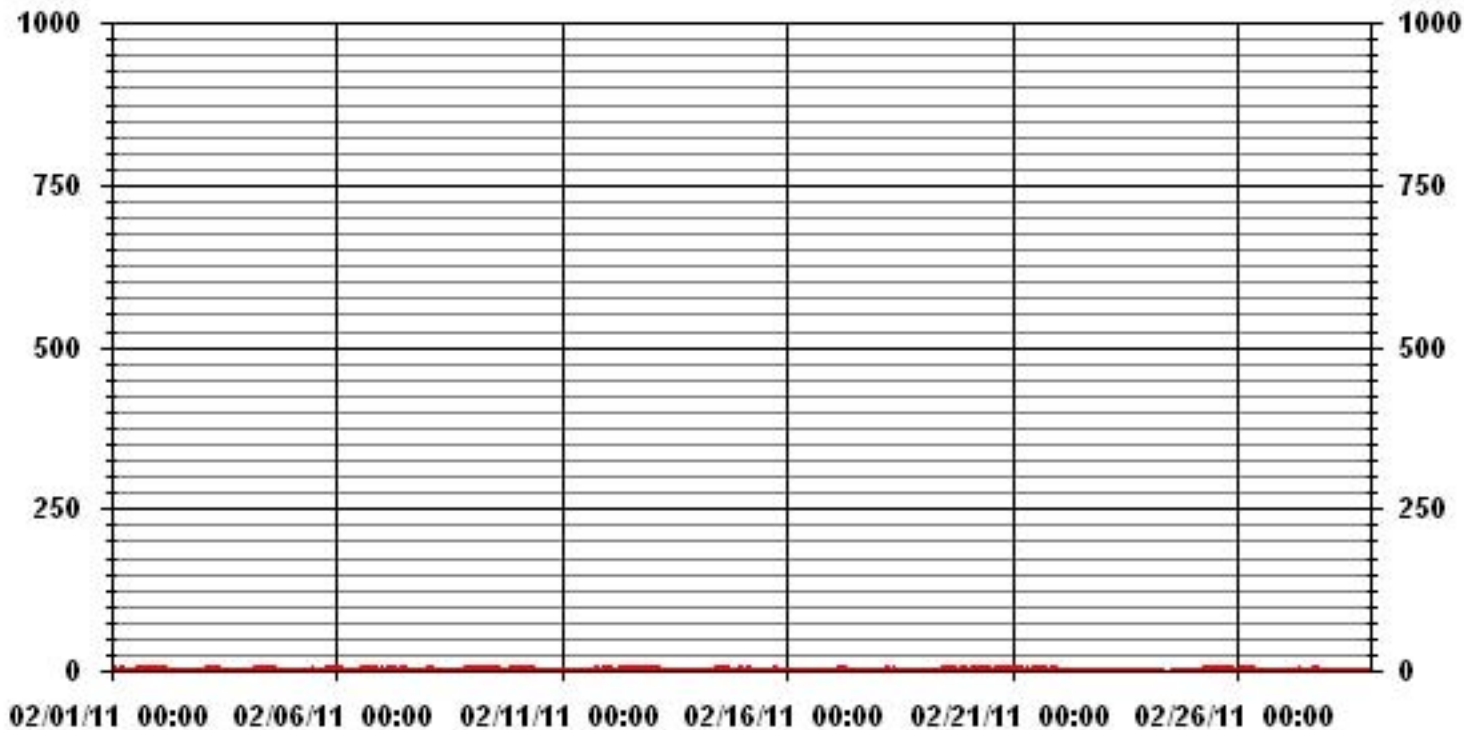
**MONTHLY SUMMARY**

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	269
MAXIMUM 1-HR AVERAGE:	6 PPB @ HOUR(S) 15 ON DAY(S) 19
MAXIMUM 24-HR AVERAGE:	2.3 PPB ON DAY(S) 20
IZS CALIBRATION TIME:	29 HRS
OPERATIONAL TIME:	672 HRS
MONTHLY CALIBRATION TIME:	5 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.91
MONTHLY AVERAGE:	0.62 PPB

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA31 SO2\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 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		2	3	3	3	3	2	2	1	1	1	1	1	1	2	2	2	1	2	2	IZS	2	2	2	2	2	3	1.9	24	
2		3	3	4	4	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	4	1.6	24	
3		1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	IZS	1	1	1	1	1	2	1.4	24		
4		1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	IZS	0	1	1	1	1	0	0	2	1.3	24		
5		0	0	0	0	0	0	0	1	1	1	2	2	2	1	0	IZS	0	1	1	2	1	2	3	5	5	1.1	24		
6		5	4	3	3	3	1	1	0	0	0	0	0	1	1	IZS	2	2	2	2	2	2	2	2	2	5	1.7	24		
7		3	2	2	2	2	2	2	2	2	2	4	3	3	IZS	1	1	1	1	1	1	1	1	1	1	4	1.8	24		
8		2	2	2	2	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	2	2	3	3	3	1.4	24		
9		3	4	4	3	2	2	2	2	2	2	2	IZS	2	2	2	2	1	1	1	1	2	2	1	1	4	2.0	24		
10		1	2	2	2	2	2	2	1	2	2	IZS	0	0	1	1	0	0	1	1	1	1	0	0	0	2	1.0	24		
11		0	0	0	0	0	0	0	0	0	0	IZS	0	1	1	1	1	1	1	2	2	2	2	4	4	0.9	24			
12		4	4	2	2	1	1	2	2	IZS	4	4	4	4	3	6	4	4	3	2	2	2	2	2	2	6	2.9	24		
13		2	2	2	2	2	2	1	IZS	1	1	1	1	1	1	0	0	0	0	3	0	0	0	1	1	2	1.0	24		
14		1	1	1	1	1	1	IZS	1	1	1	1	1	2	1	1	1	2	1	2	1	1	1	1	1	2	1.1	24		
15		1	1	1	2	2	IZS	0	0	0	0	0	0	0	0	0	1	2	2	2	2	1	1	0	0	2	0.7	24		
16		0	0	0	0	IZS	0	1	1	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	1	1	0.3	24		
17		1	1	3	IZS	3	2	2	2	2	2	1	1	1	1	0	0	1	0	0	1	1	0	0	3	1.1	24			
18		0	0	IZS	1	2	4	4	4	2	1	1	1	1	1	1	1	1	1	0	1	0	0	0	4	1.2	24			
19		0	IZS	1	1	1	2	2	1	1	1	2	3	3	4	4	12	7	4	2	2	3	3	3	3	12	2.8	24		
20		IZS	4	5	5	4	8	9	2	2	4	5	5	5	5	3	2	2	2	2	2	2	2	2	2	IZS	9	3.7	24	
21		1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2	IZS	2	3	2.4	24	
22		2	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	2	0.5	24
23		1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	IZS	0	0	1	0.7	24
24		0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	IZS	0	0	1	0.1	24
25		1	1	1	1	1	1	2	2	2	2	3	4	4	3	3	3	3	4	IZS	2	2	3	3	1	4	2.3	24		
26		1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	2	1.3	24		
27		1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	IZS	1	2	2	2	1	0	1	2	1.3	24	
28		1	0	0	0	0	0	0	0	0	0	0	0	3	1	0	IZS	1	1	1	1	1	1	0	0	3	0.4	24		
HOURLY MAX		5	4	5	5	4	8	9	4	2	4	5	5	5	5	6	12	7	4	3	3	3	3	3	5					
HOURLY AVG		1.4	1.6	1.6	1.6	1.6	1.6	1.7	1.3	1.2	1.4	1.6	1.5	1.7	1.5	1.4	1.6	1.3	1.3	1.2	1.2	1.3	1.2	1.1	1.3					

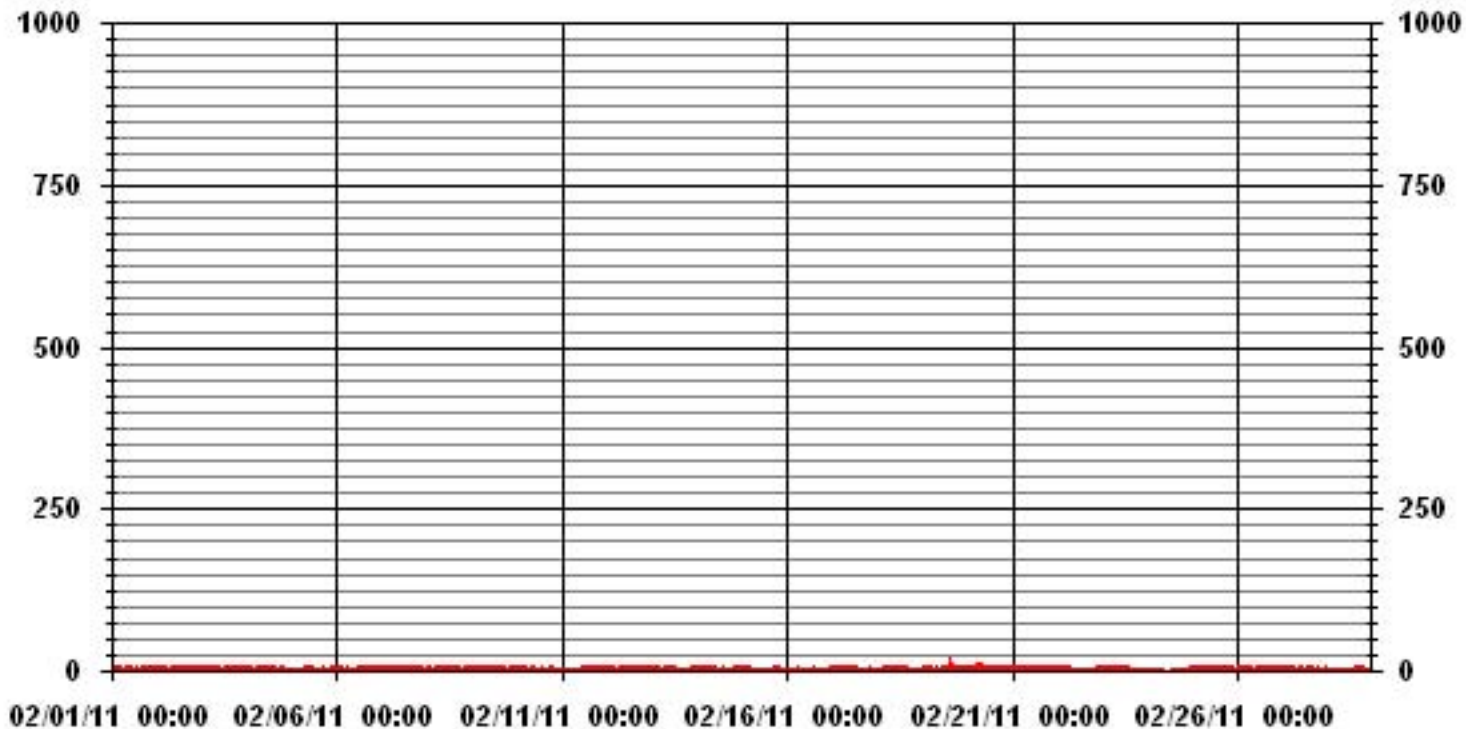
**STATUS FLAG CODES**

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:	501					
MAXIMUM INSTANTANEOUS VALUE:	12	PPB	@ HOUR(S)	15	ON DAY(S)	19
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	1.28					

### 01 Hour Averages



— LICA31 SO2MAX PPB

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

February 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	4.85	4.54	4.85	3.44	2.50	5.01	3.60	.94	4.23	6.11	12.06	8.30	9.24	12.22	10.50	7.52	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	4.85	4.54	4.85	3.44	2.50	5.01	3.60	.94	4.23	6.11	12.06	8.30	9.24	12.22	10.50	7.52	

Calm : .00 %

Total # Operational Hours : 638

Distribution By Samples

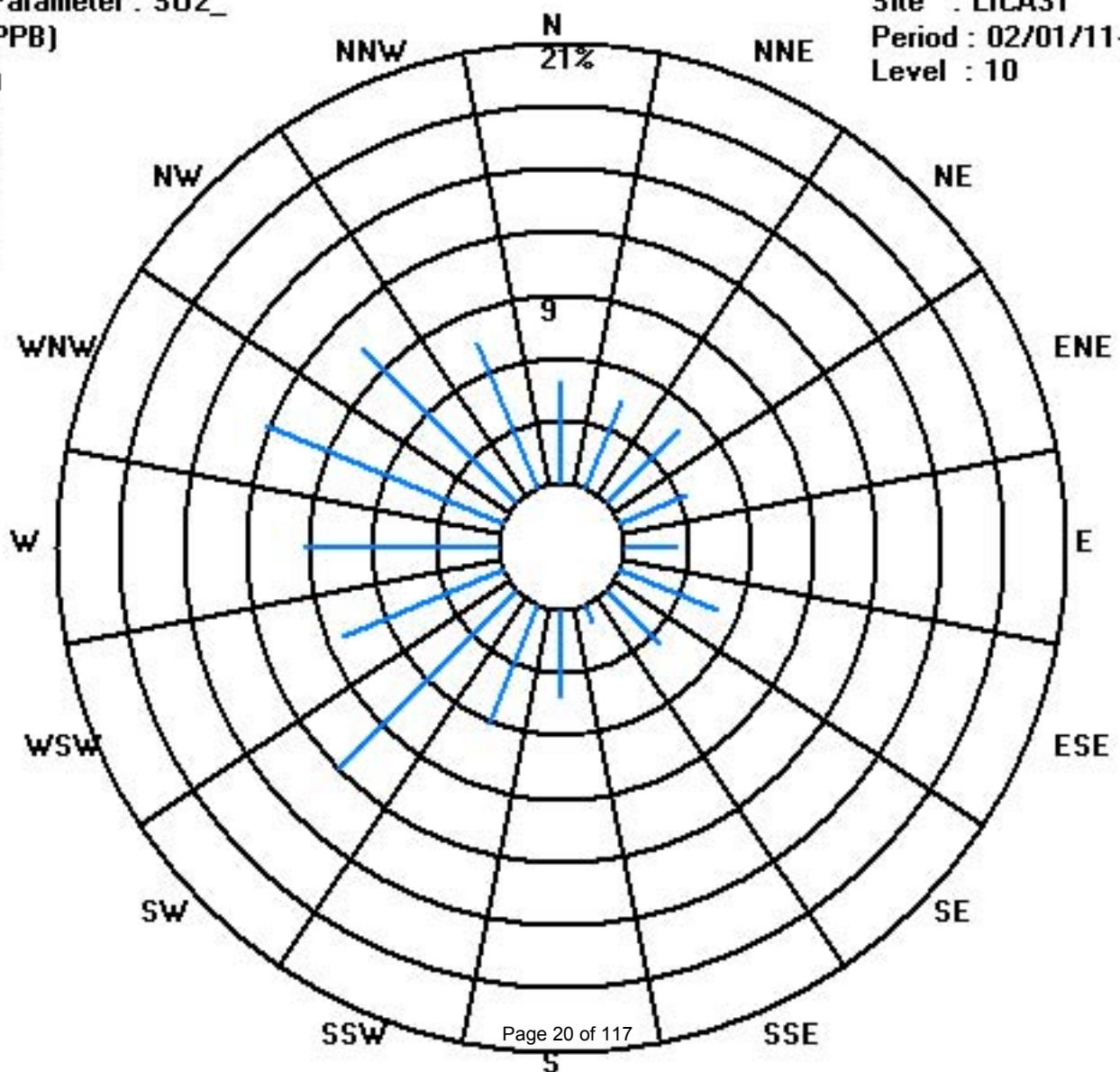
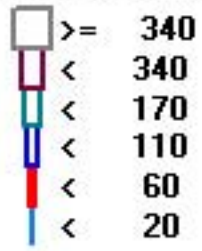
Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	31	29	31	22	16	32	23	6	27	39	77	53	59	78	67	48	638
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	31	29	31	22	16	32	23	6	27	39	77	53	59	78	67	48	

Calm : .00 %

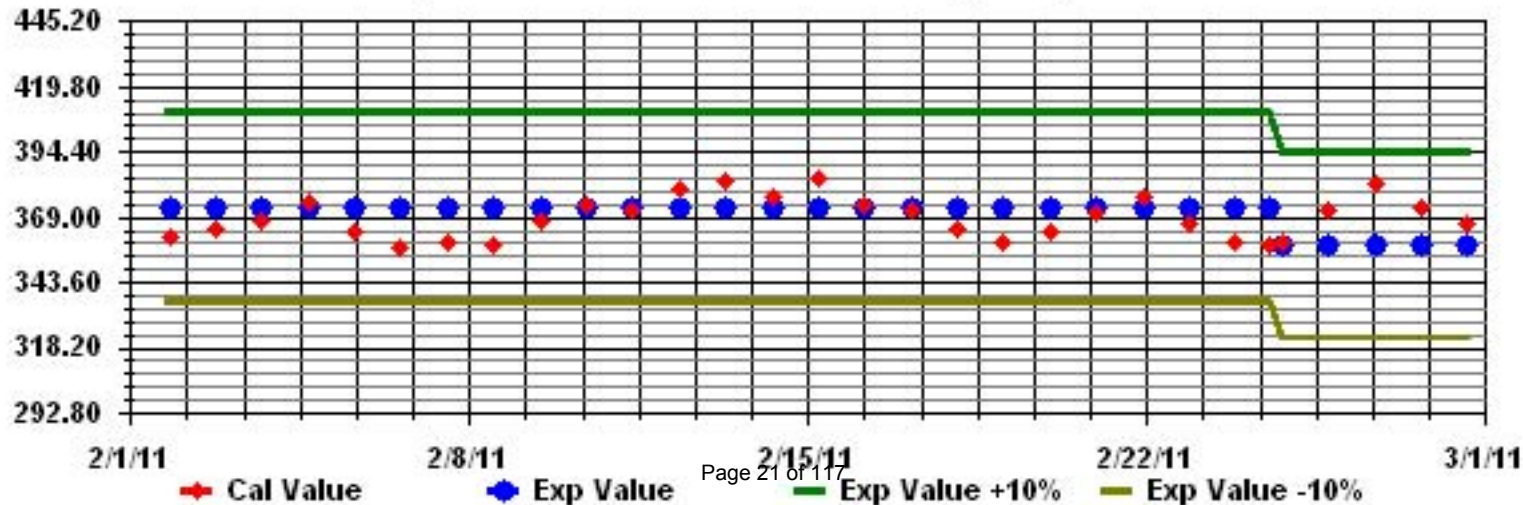
Total # Operational Hours : 638



Class Limits (PPB)



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



# Hydrogen Sulphide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 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		
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	IZS	0	0	0	0	1	0.1	24	
2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	IZS	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	IZS	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	IZS	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	IZS	0	0	0	0	0	1	1	1	1	1	0.2	24	
7		1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	1	1	1	1	1	0.7	24
8		1	1	1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	1	1	1	1	1	1	0.4	24
9		1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	0.5	24
10		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	
11		0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	1	1	0	1	1	1	1	1	0.3	24	
12		1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
13		0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
14		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	
15		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	
16		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	
17		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	
18		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	
19		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	
20		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	
21		0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	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	24	
23		0	0	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	IZS	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	IZS	0	0	1	1	1	0.1	24
25		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	IZS	1	1	1	1	1	1	2	1.0	24
26		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	1	0.7	24
27		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	
28		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	
HOURLY MAX		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1			
HOURLY AVG		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2				

### STATUS FLAG CODES

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

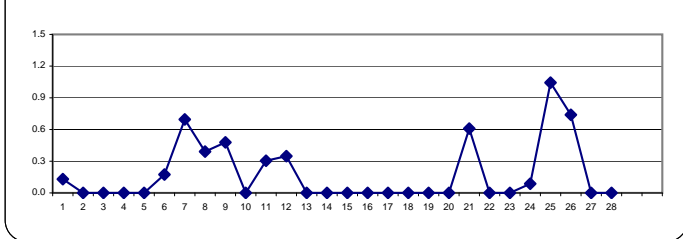
OBJECTIVE LIMIT:

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:	114					
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	17	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	1.0	PPB			ON DAY(S)	25
					VAR-VARIOUS	
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.39		MONTHLY AVERAGE:	0.18	PPB	

24 HOUR AVERAGES FOR FEBRUARY 2011





# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 2011

## HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

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

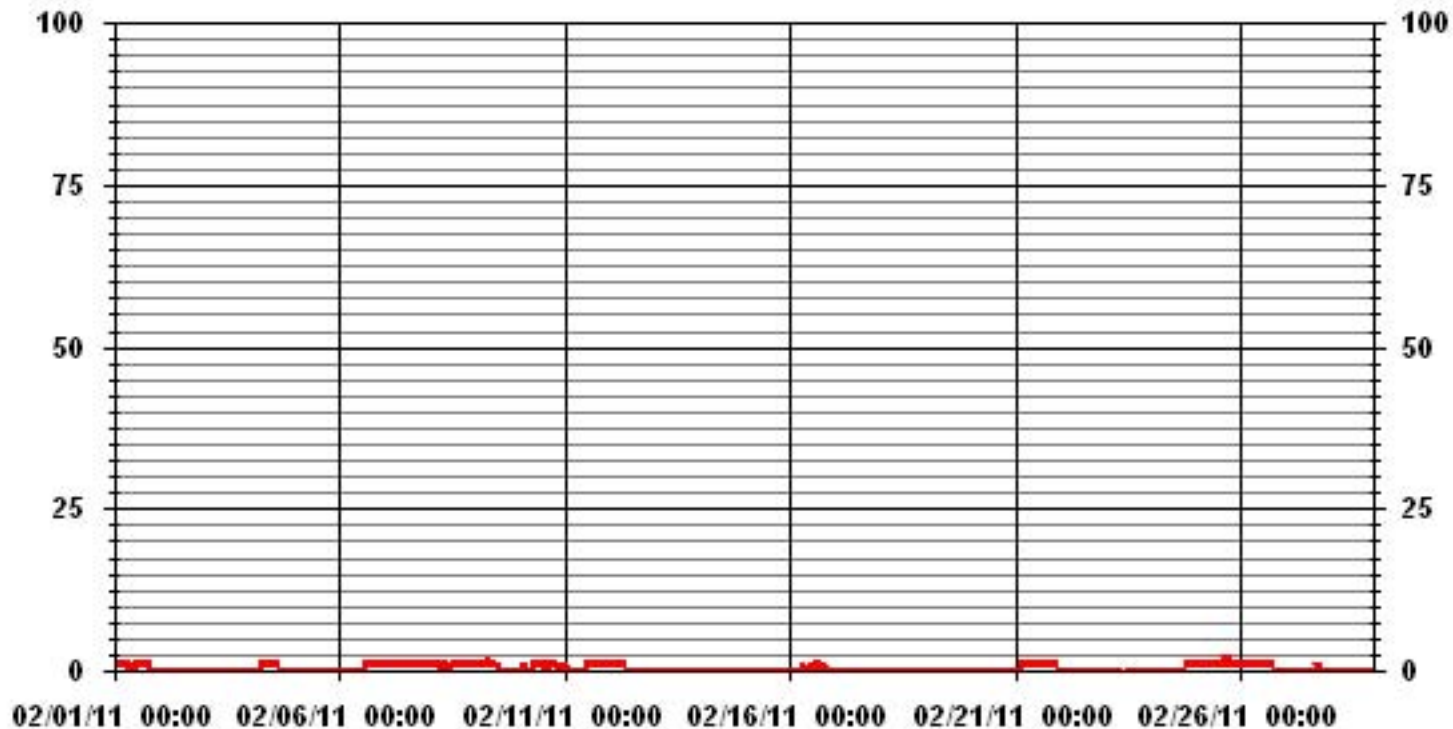
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	190					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	9, 25
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.47					

### 01 Hour Averages



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

February 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	4.85	4.53	4.85	3.44	2.50	5.00	3.59	.93	4.22	6.10	12.36	8.60	8.60	12.36	10.48	7.51	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	4.85	4.53	4.85	3.44	2.50	5.00	3.59	.93	4.22	6.10	12.36	8.60	8.60	12.36	10.48	7.51	

Calm : .00 %

Total # Operational Hours : 639

Distribution By Samples

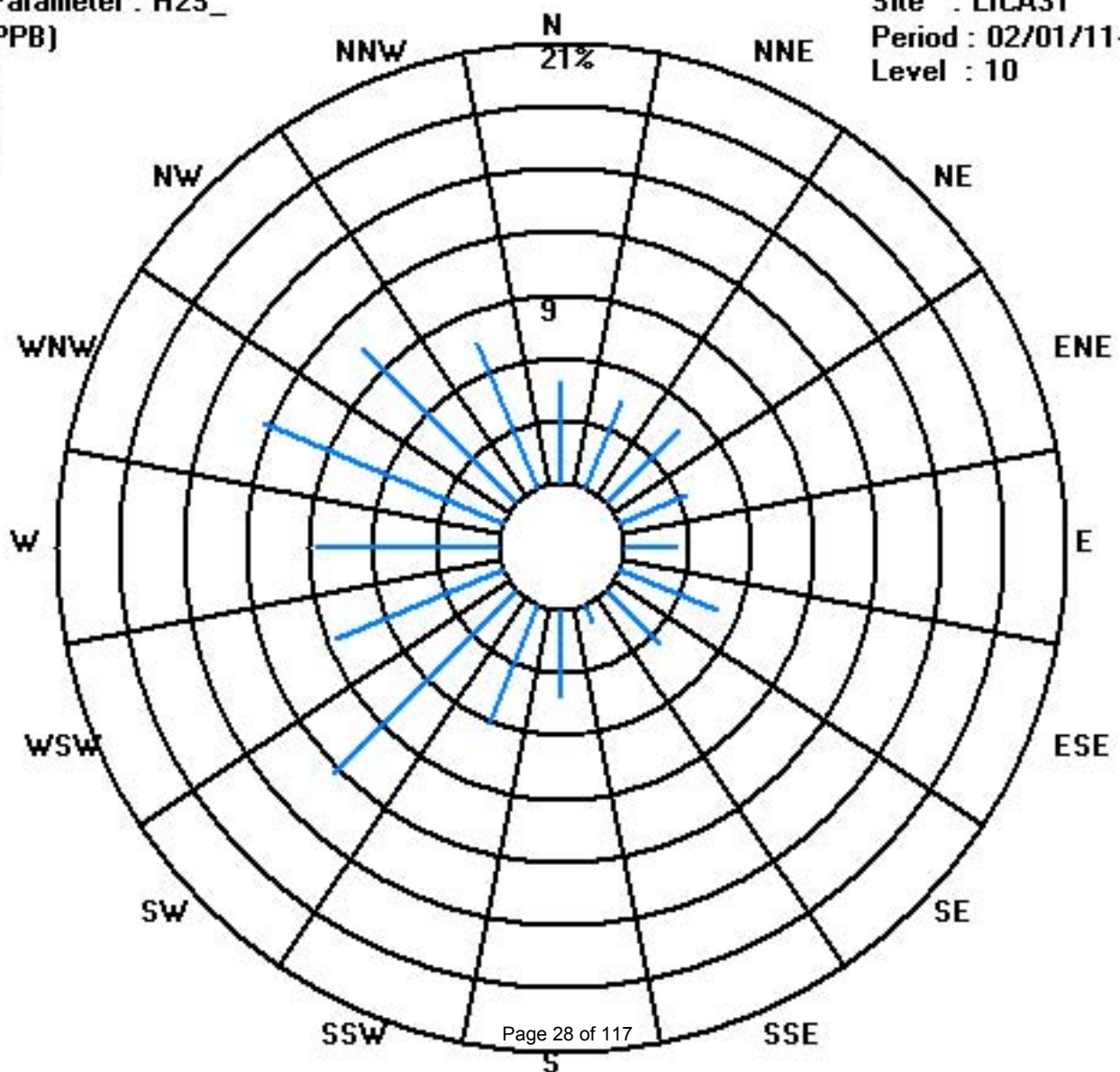
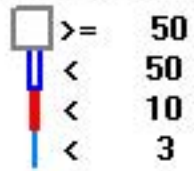
	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	31	29	31	22	16	32	23	6	27	39	79	55	55	79	67	48	639
< 10																	
< 50																	
>= 50																	
Totals	31	29	31	22	16	32	23	6	27	39	79	55	55	79	67	48	

Calm : .00 %

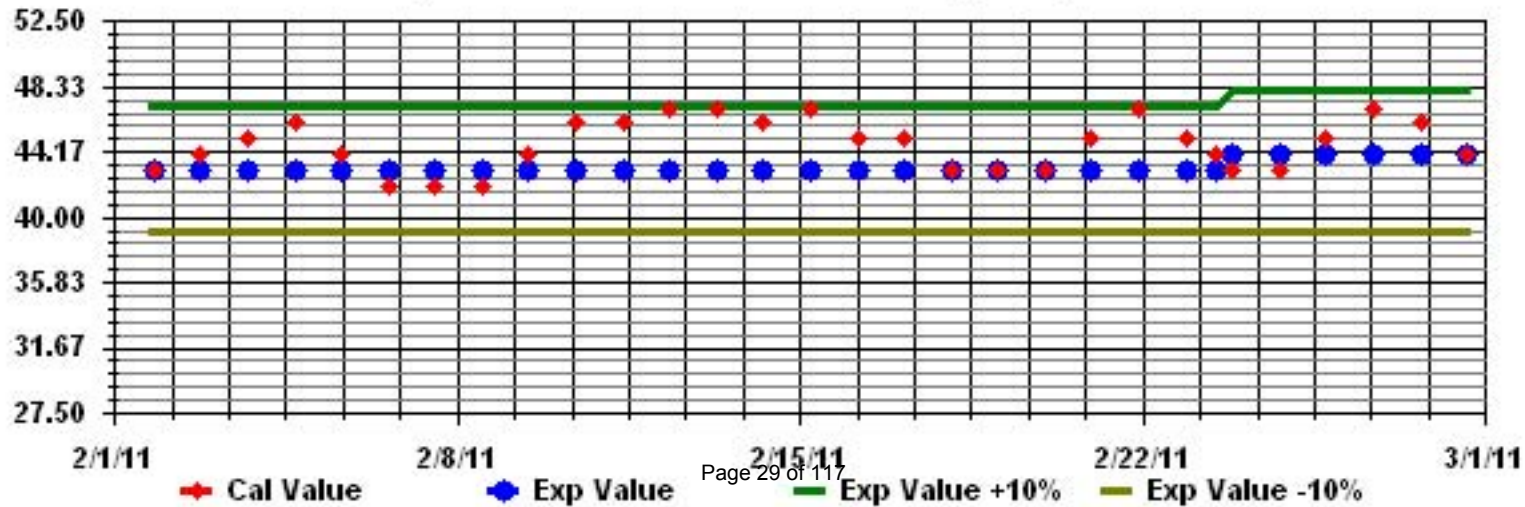
Total # Operational Hours : 639



Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: H2S\_ Sequence: H2S Phase: SPAll



# Total Hydrocarbons

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

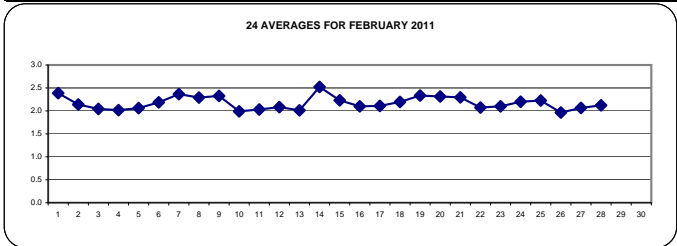
FEBRUARY 2011

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	2.7	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.7	2.4	24		
2	2.3	2.4	2.5	2.5	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.5	2.1	24		
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	2	2	2	2	2	2	2	2	2	2	2	2.1	2.0	24		
4	2	2.1	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	1.9	2	2	2	2	2	2	2	2	2	2.1	2.0	24	
5	2	2.1	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2.1	2.1	24		
6	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	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	24	
7	2.1	2.2	2.3	2.3	2.3	2.5	2.6	2.5	2.4	2.5	2.6	2.5	2.4	2	2	2	2	2	2	2	2	2	2	2	2	2.4	2.6	2.4	24	
8	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2	2	2	2	2	2	2	2	2	2	2	2	2.4	2.4	2.3	24	
9	2.4	2.4	2.5	2.5	2.4	2.5	2.5	2.6	2.5	2.5	2.5	2.5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.6	2.3	24	
10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.9	2	2	2	2	2	2	2	2	2	2	2.0	2.0	24	
11	2	2	2	2	2	2	2	2	2	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.0	24		
12	2.1	2.1	2.2	2.2	2.1	2	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	24	
13	2.1	2	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	2.1	2.2	2.0	24	
14	2.1	2.1	2.1	2.1	2.1	2.2	2	2.2	2.3	2.3	2.4	2.3	2.2	2.2	2.5	2.6	2.5	2.9	3.1	3.2	3	3	3	3	3	3.4	3.2	3	24	
15	3	3.3	3.1	2.7	2.4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	3.3	2.2	24	
16	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24	
17	2.1	2.1	2.1	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	24	
18	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24
19	2.2	2	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.6	2.5	2.4	2.3	2.3	2.6	2.3	24	
20	2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.6	2.6	2.6	2.4	2.3	2	2.6	2.3	24		
21	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2	2	2.1	2.4	2.3	24	
22	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.2	2.1	24	
23	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	2	2	2.1	2.1	2.1	24	
24	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	24	
25	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.3	2.2	24	
26	2.2	2.1	2.1	2	2	2	2	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2.2	2.0	24	
27	2	2	2	2	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
28	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	24
HOURLY MAX	3.0	3.3	3.1	2.7	2.5	2.5	2.6	2.6	2.6	2.5	2.5	2.6	2.5	2.4	2.4	2.5	2.6	2.5	2.9	3.1	3.2	3.0	3.4	3.2	3.0	3.4	3.2	2.4	24	
HOURLY AVG	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24

**STATUS FLAG CODES**

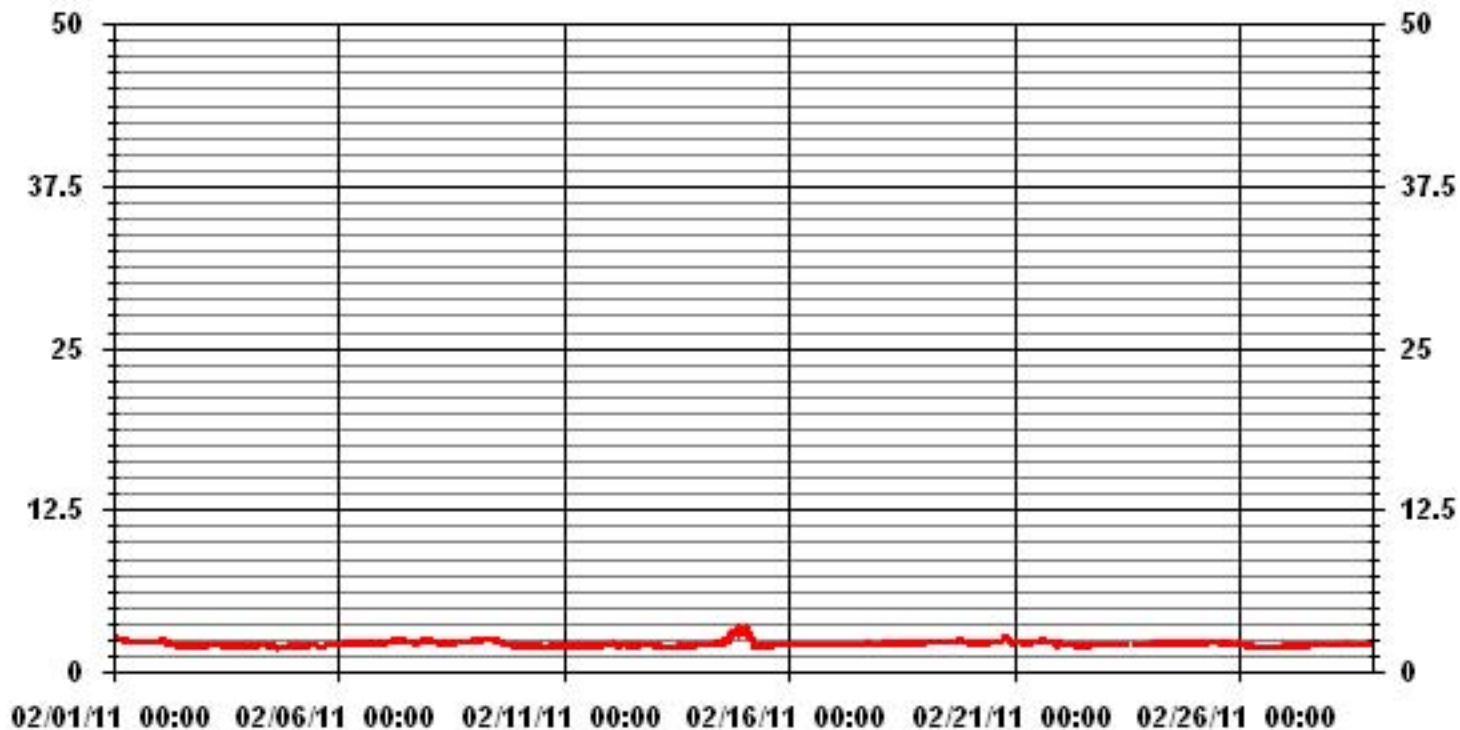
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	638
MAXIMUM 1-HR AVERAGE:	3.4 PPM @ HOUR(S) 21 ON DAY(S) 14
MAXIMUM 24-HR AVERAGE:	2.5 PPM ON DAY(S) 14
	VAR- VARIOUS
IZS CALIBRATION TIME:	29 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.19
OPERATIONAL TIME:	672 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	2.17 PPM

### 01 Hour Averages



— LICA31 THC PPM

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 2011

## TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
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		2.7	2.7	2.6	2.6	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.7	2.4	24	
2		2.4	2.4	2.6	2.6	2.5	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.6	2.2	24	
3		2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2.2	2.1	24	
4		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	2	2	2	2	2	2.1	2	2	2	2	2.1	2.1	24	
5		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	2.1	2.1	2.1	2.1	2.2	2.2	2.1	24	
6		2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.5	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.5	2.3	24	
7		2.2	2.9	3.9	2.9	2.5	2.5	2.9	2.7	2.5	2.6	2.6	2.6	2.5	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	3.9	2.5	24	
8		2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.5	2.3	24	
9		2.5	2.5	2.5	2.5	2.5	2.7	2.7	3	2.6	2.5	2.5	2.5	2.7	2.6	2.5	2.5	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2	3	2.4	24		
10		2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.0	24	
11		2.1	2	2	2.1	2.1	2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.2	2.1	24	
12		2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2	2	2	2	2	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.8	2.8	2.2	24	
13		2.2	2.1	4.8	2.2	2.3	2.2	2.1	2.1	1.9	1.9	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2	2.1	4.8	2.2	24		
14		2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.3	2.3	2.6	4.1	3.8	3.4	4.2	4.3	4.2	3.2	5.3	3.3	3.2	5.3	3.0	24		
15		3.2	3.3	3.2	3	2.6	2.3	2	2.2	2.1	2.1	2	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	3.3	2.3	24		
16		2.2	2.1	2.1	2.3	2.2	2.1	2.1	2.1	2.3	2.4	2.4	2.4	2.4	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	
17		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	2.1	2.2	2.3	2.4	2.2	2.2	2.2	2.2	2.4	2.2	24		
18		2.2	2.2	2.2	2.4	2.2	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.3	2.2	2.4	2.2	2.3	2.2	2.3	2.3	2.3	2.4	2.2	2.2	2.2	2.5	2.3	24	
19		2.2	2.2	2.3	2.3	2.4	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.6	2.6	2.6	2.5	2.4	2.3	2.6	2.4	24	
20		2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.6	2.6	2.6	2.5	2.4	2.4	2.4	2.4	2.4	2.4	24	
21		2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	24	
22		2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.1	24	
23		2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	24	
24		2.2	2.3	2.3	2.3	2.3	2.2	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.6	2.3	2.2	2.2	2.2	2.2	2.4	2.3	2.6	2.3	23		
25		2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.2	2.4	2.3	24	
26		2.2	2.1	2.1	2.1	2.1	2	2	2	2	2	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2	2	2	2	2	2	2	2.2	2.0	24
27		2	2.1	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	2.1	2.1	2.2	2.1	24
28		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.2	24	
HOURLY MAX		3	3	5	3	3	3	3	3	3	3	3	3	3	3	4	4	3	4	4	4	4	3	5	3	3				
HOURLY AVG		2.3	2.3	2.4	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.3	2.2	2.2				

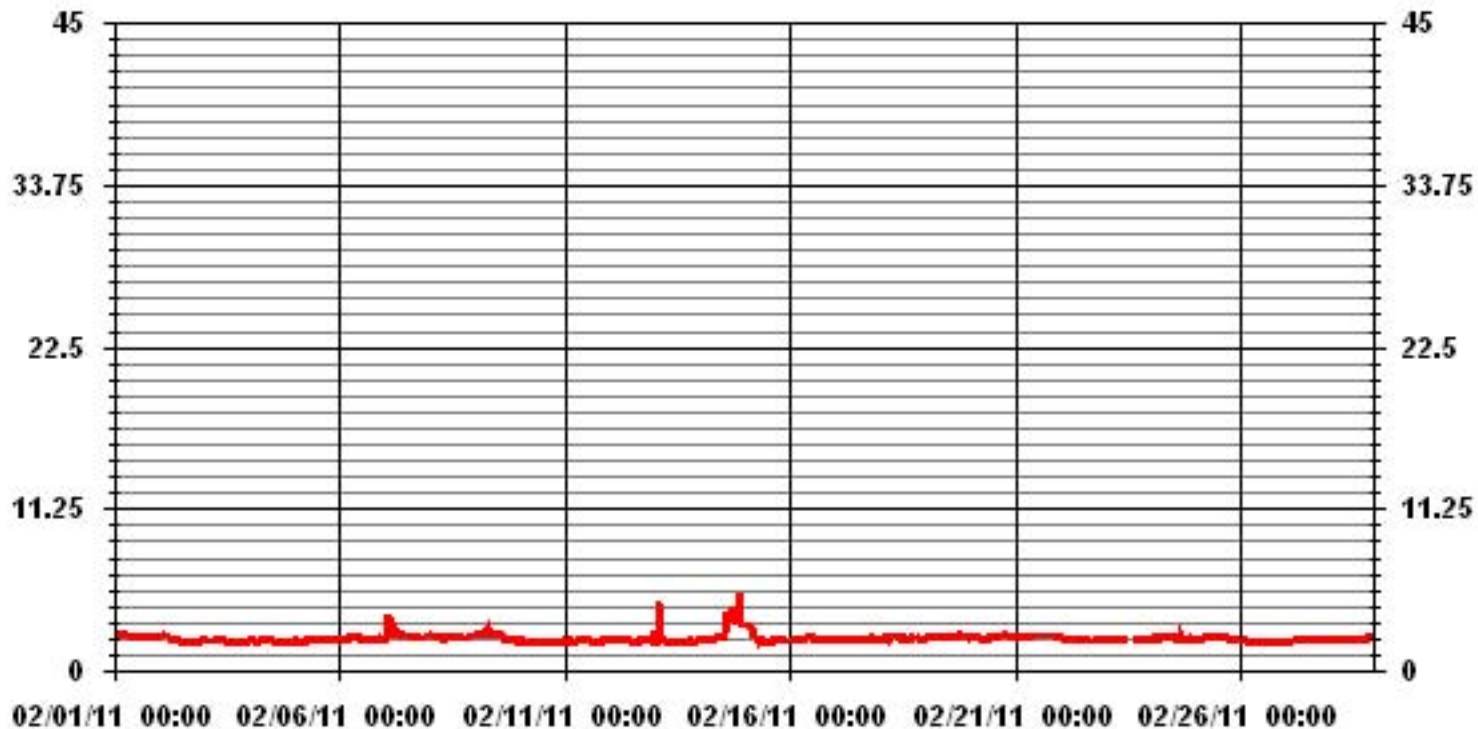
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	637					
MAXIMUM INSTANTANEOUS VALUE:	5.3	PPM	@ HOUR(S)	21	ON DAY(S)	14
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.32					

### 01 Hour Averages



— LICA31 THCMAX PPM

LICA31  
 THC / WDR Joint Frequency Distribution (Percent)

February 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	4.85	4.54	4.23	2.97	2.50	4.70	3.60	.94	4.23	6.11	12.38	8.62	8.46	12.38	10.50	7.52	98.58
< 10.0	.00	.00	.62	.47	.00	.31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.41
< 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	4.85	4.54	4.85	3.44	2.50	5.01	3.60	.94	4.23	6.11	12.38	8.62	8.46	12.38	10.50	7.52	

Calm : .00 %

Total # Operational Hours : 638

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	31	29	27	19	16	30	23	6	27	39	79	55	54	79	67	48	629
< 10.0			4	3		2											9
< 50.0																	
>= 50.0																	
Totals	31	29	31	22	16	32	23	6	27	39	79	55	54	79	67	48	

Calm : .00 %

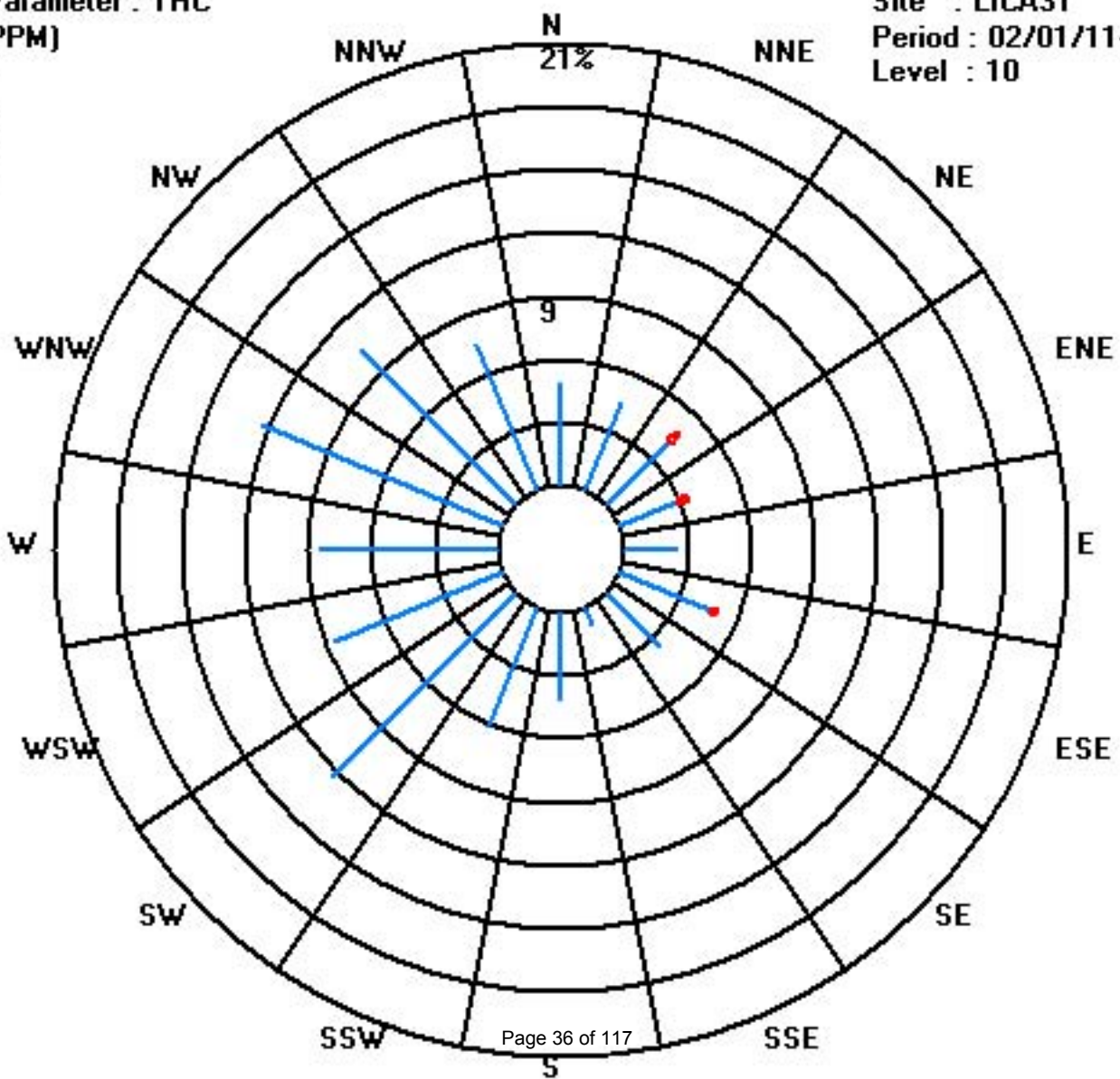
Total # Operational Hours : 638



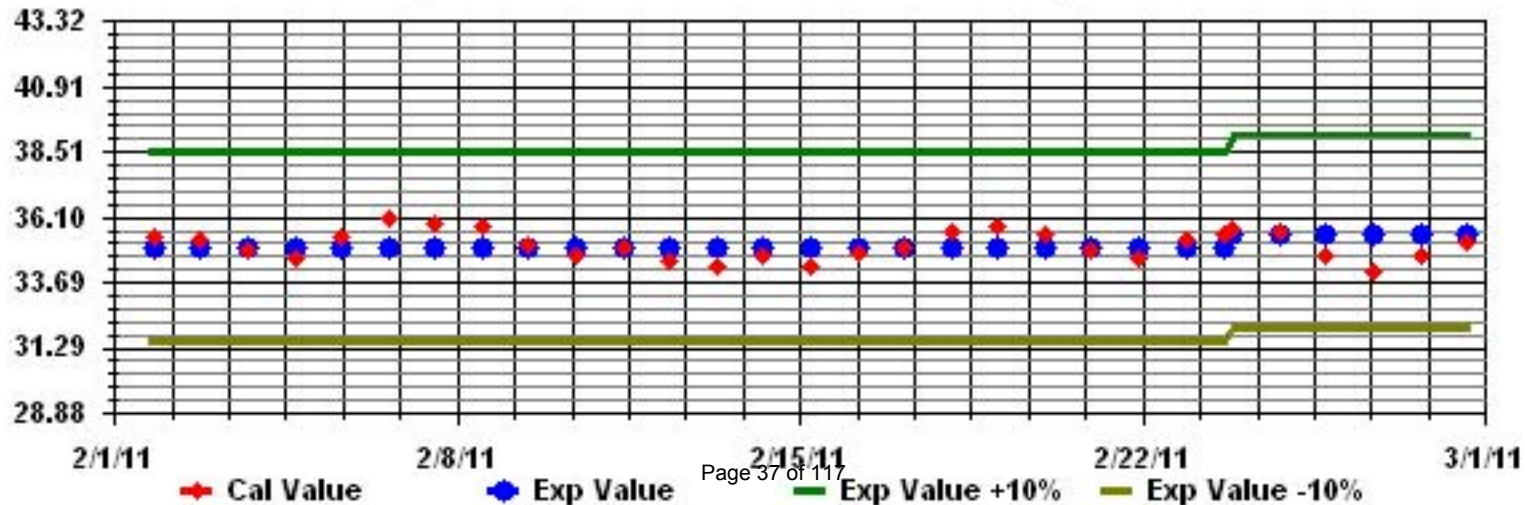
Class Limits (PPM)

Period : 02/01/11-02/28/11

Level : 10



Calibration Graph for Site: LICA31 Parameter: THC Sequence: THC Phase: SPAll



# Ozone

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 2011

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

MST

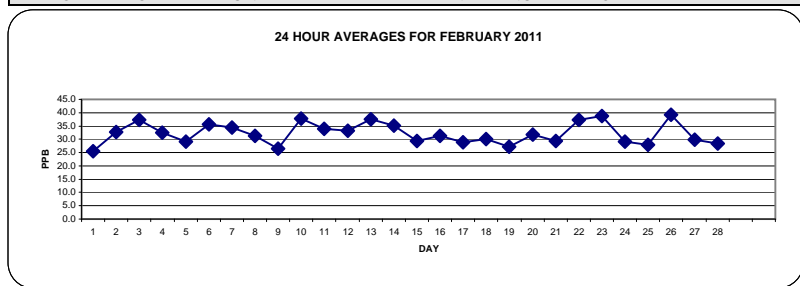
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	9	10	13	14	13	14	17	23	28	32	34	35	35	35	35	34	34	32	31	<b>IZS</b>	29	28	27	25	35	25.5	24	
2	23	21	18	15	17	23	28	31	33	35	36	38	41	41	41	41	41	41	<b>IZS</b>	39	39	38	37	37	41	32.8	24	
3	39	39	38	36	32	31	33	34	36	36	34	36	40	41	41	41	41	<b>IZS</b>	39	39	38	39	38	38	41	37.3	24	
4	37	35	36	35	35	32	26	23	25	28	29	31	33	33	36	37	<b>IZS</b>	36	35	36	35	35	32	27	37	32.5	24	
5	24	26	25	27	27	28	27	25	25	25	26	28	28	32	31	<b>IZS</b>	34	28	31	32	34	35	36	35	36	29.1	24	
6	36	36	36	36	35	35	35	35	35	35	35	36	36	37	<b>IZS</b>	37	36	37	36	35	34	34	34	36	37	35.5	24	
7	37	36	36	34	33	30	30	32	34	33	33	34	34	<b>IZS</b>	37	38	37	37	37	37	37	36	33	32	31	38	34.4	24
8	30	28	26	27	29	30	32	32	33	34	35	36	<b>IZS</b>	37	36	36	34	32	32	32	32	31	27	21	37	31.4	24	
9	19	17	18	18	20	19	18	17	18	21	23	<b>IZS</b>	25	28	28	31	35	35	35	35	37	37	38	39	39	26.6	24	
10	39	39	38	38	37	37	37	36	36	37	<b>IZS</b>	38	38	39	39	38	39	38	38	38	38	38	38	38	38	39	37.9	24
11	37	37	36	36	36	35	34	33	31	<b>IZS</b>	32	33	31	31	34	34	34	36	37	36	34	32	32	31	37	34.0	24	
12	29	26	25	26	29	34	34	29	<b>IZS</b>	30	33	37	39	39	39	38	37	36	35	34	35	33	33	33	39	33.2	24	
13	34	34	31	31	30	28	30	<b>IZS</b>	34	37	38	39	40	42	42	42	42	43	43	43	43	42	40	37	<b>43</b>	37.6	24	
14	38	38	37	36	35	34	<b>IZS</b>	33	33	33	34	36	37	38	38	38	39	37	35	33	33	32	31	31	39	35.2	24	
15	28	24	25	28	29	<b>IZS</b>	32	31	30	30	31	31	31	32	31	31	30	29	27	28	28	28	31	33	33	29.5	24	
16	32	32	32	32	<b>IZS</b>	31	32	32	32	31	31	31	32	32	32	32	32	31	31	31	31	31	30	29	32	31.4	24	
17	29	28	26	<b>IZS</b>	26	27	25	25	26	28	30	31	32	32	31	31	31	30	29	29	30	30	30	30	30	32	29.0	24
18	30	30	<b>IZS</b>	29	27	26	25	26	28	29	30	31	32	34	34	34	33	30	30	31	31	31	31	31	30	34	30.1	24
19	30	<b>IZS</b>	28	27	26	26	23	20	23	27	27	28	29	29	30	31	29	30	26	24	25	28	29	30	31	27.2	24	
20	<b>IZS</b>	30	29	28	29	29	29	32	32	32	31	31	33	32	33	34	34	34	33	33	34	34	33	<b>IZS</b>	34	31.8	24	
21	33	33	33	32	32	32	31	30	29	29	27	26	27	27	28	27	27	27	28	27	28	28	<b>IZS</b>	34	34	29.3	24	
22	31	30	32	34	34	34	34	34	34	35	37	39	40	40	40	40	41	40	41	40	40	40	<b>IZS</b>	40	40	41	37.2	24
23	40	40	40	40	39	39	39	39	39	39	38	39	39	39	39	39	39	39	38	38	<b>IZS</b>	38	37	37	40	38.8	24	
24	37	35	33	31	29	27	26	26	26	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	27	28	28	28	28	28	<b>IZS</b>	29	29	28	30	37	29.2	24	
25	28	28	28	26	24	23	23	22	24	26	28	29	30	31	32	31	29	29	<b>IZS</b>	27	28	31	33	33	33	28.0	24	
26	32	35	36	37	36	36	35	34	37	40	40	40	41	41	42	43	43	<b>IZS</b>	43	43	42	43	43	42	<b>43</b>	<b>39.3</b>	24	
27	42	41	39	38	36	36	36	35	32	29	28	25	22	20	18	18	<b>IZS</b>	24	25	26	27	29	29	30	42	29.8	24	
28	29	29	28	28	28	32	31	31	31	31	32	33	33	33	32	<b>IZS</b>	29	28	23	22	22	22	23	24	33	28.4	24	
HOURLY MAX	42	41	40	40	39	39	39	39	39	40	40	40	41	42	42	43	43	43	43	43	43	43	43	43	42			
HOURLY AVG	31.6	31.0	30.4	30.3	29.7	29.9	29.7	29.6	30.6	31.7	32.1	33.5	33.8	34.4	34.3	34.8	34.9	33.4	33.3	33.4	33.0	32.9	33.0	32.6				

**STATUS FLAG CODES**

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

OBJECTIVE LIMIT:

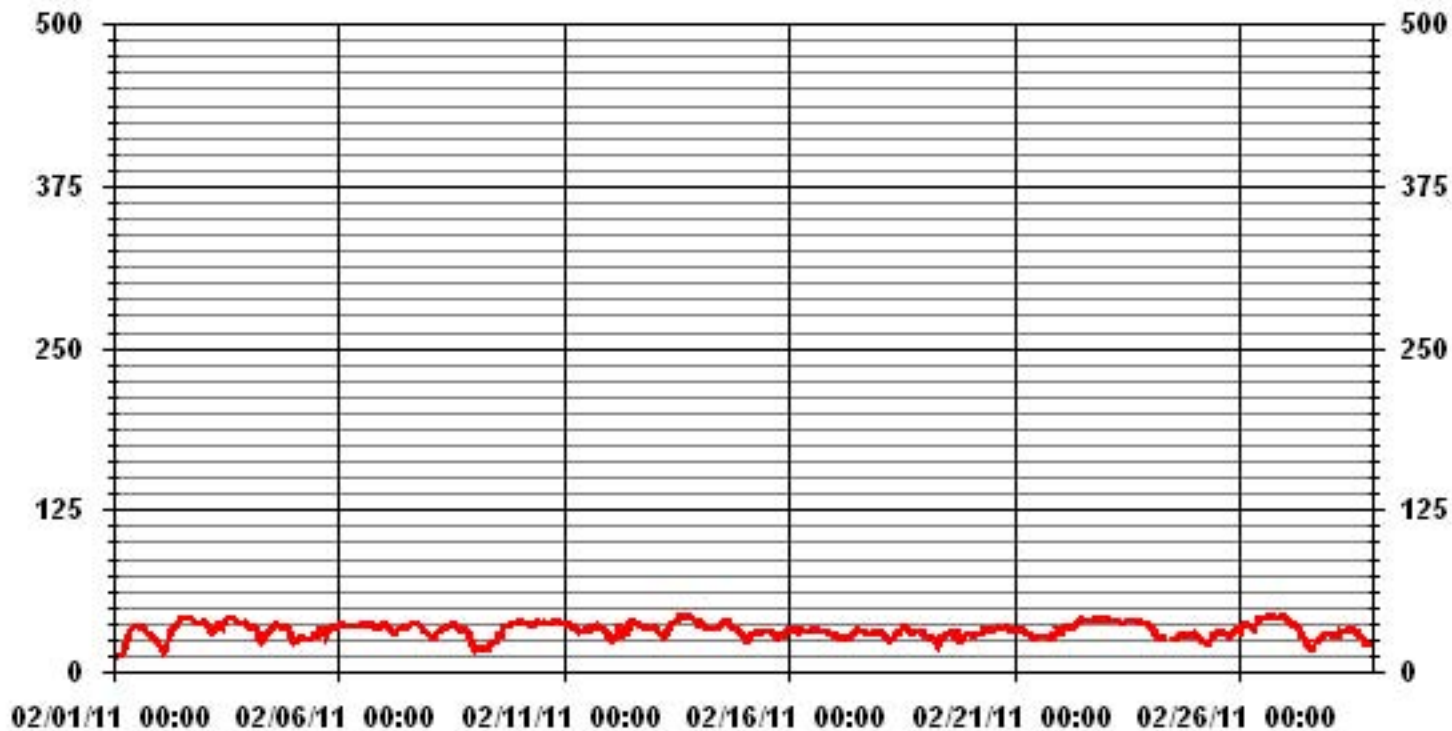
ALBERTA ENVIRONMENT: 1-HR 82 PPB



**MONTHLY SUMMARY**

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	638				
MAXIMUM 1-HR AVERAGE:	43	PPB	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	39.3	PPB			ON DAY(S)
					VAR-VARIOUS
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME	100.0	%
STANDARD DEVIATION	5.69		MONTHLY AVERAGE	32.23	PPB

### 01 Hour Averages



— LICA31 03\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 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	10	11	14	14	14	16	20	27	31	33	35	35	36	36	36	35	34	33	31	<b>IZS</b>	30	29	27	26	36	26.7	24	
2	25	23	20	17	21	26	31	32	34	36	37	39	42	41	41	41	41	<b>IZS</b>	<b>IZS</b>	40	40	39	38	39	42	34.1	24	
3	39	40	39	38	34	31	34	36	37	37	35	38	42	42	42	41	41	<b>IZS</b>	<b>IZS</b>	39	39	39	39	39	42	38.2	24	
4	38	36	36	36	36	34	30	24	26	30	30	33	35	34	38	38	<b>IZS</b>	<b>IZS</b>	37	36	36	36	36	34	29	38	33.8	24
5	26	26	26	28	29	29	29	27	26	27	27	29	31	34	32	<b>IZS</b>	35	32	32	33	35	35	37	36	37	30.5	24	
6	36	36	36	36	36	36	35	35	35	36	36	37	37	38	<b>IZS</b>	37	37	38	38	35	35	35	36	37	38	36.2	24	
7	38	37	36	35	34	31	31	34	34	34	34	35	36	<b>IZS</b>	<b>IZS</b>	38	38	38	38	38	37	37	35	32	32	38	35.3	24
8	31	29	27	28	30	31	32	33	34	35	36	37	<b>IZS</b>	<b>IZS</b>	39	36	37	36	33	32	33	33	32	31	23	39	32.5	24
9	21	18	18	20	21	21	19	18	21	22	25	<b>IZS</b>	<b>IZS</b>	29	29	29	34	36	36	36	37	37	38	39	39	39	28.0	24
10	39	39	39	38	38	38	38	37	37	37	<b>IZS</b>	<b>IZS</b>	38	39	39	39	39	39	39	39	38	39	39	39	38	39	38.4	24
11	37	37	37	36	36	36	35	35	32	<b>IZS</b>	<b>IZS</b>	33	34	33	32	35	35	38	38	37	36	33	32	32	38	35.0	24	
12	31	27	26	28	32	35	35	32	<b>IZS</b>	31	36	38	40	40	39	39	38	37	36	35	35	34	33	33	40	34.3	24	
13	37	37	32	32	31	30	32	<b>IZS</b>	36	38	38	40	41	42	43	43	43	44	44	44	44	43	42	40	<b>44</b>	39.0	24	
14	39	39	38	37	36	35	<b>IZS</b>	34	33	34	35	37	38	39	39	39	40	38	36	34	34	33	32	32	40	36.1	24	
15	31	25	26	29	32	<b>IZS</b>	32	32	31	31	31	32	32	33	32	32	31	30	28	29	29	29	33	33	33	30.6	24	
16	33	32	32	32	<b>IZS</b>	32	33	33	32	32	32	32	33	32	33	32	32	32	32	32	31	31	31	31	30	33	32.0	24
17	29	29	27	<b>IZS</b>	28	28	26	26	27	29	31	32	32	32	32	31	31	31	30	30	30	31	31	31	31	32	29.7	24
18	31	31	<b>IZS</b>	30	29	26	26	27	29	29	31	32	34	34	34	35	34	31	32	32	32	32	32	31	35	31.0	24	
19	31	<b>IZS</b>	29	28	27	27	25	23	26	27	28	28	30	30	31	33	29	31	31	24	26	29	30	31	33	28.4	24	
20	<b>IZS</b>	31	29	29	29	29	32	33	33	33	32	32	33	33	34	35	35	35	34	34	34	34	34	<b>IZS</b>	35	32.6	24	
21	34	34	33	33	32	32	31	30	30	29	28	27	27	28	28	28	27	28	29	28	28	28	<b>IZS</b>	37	37	30.0	24	
22	35	32	33	35	35	34	34	34	37	37	40	40	40	40	41	41	41	41	41	41	40	<b>IZS</b>	40	40	41	37.9	24	
23	40	40	40	40	40	39	39	39	39	39	39	39	40	40	39	40	39	39	39	39	<b>IZS</b>	38	38	37	40	39.2	24	
24	37	36	35	32	30	28	27	27	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	28	28	29	28	28	<b>IZS</b>	30	30	30	30	37	30.0	24		
25	30	29	29	27	25	24	23	24	26	27	29	30	31	32	33	34	30	30	<b>IZS</b>	28	31	32	34	34	34	29.2	24	
26	33	36	37	37	37	37	36	35	39	41	41	41	42	42	43	43	43	<b>IZS</b>	44	43	43	43	43	43	<b>44</b>	40.1	24	
27	42	42	41	38	37	37	36	36	35	30	29	27	23	21	19	21	<b>IZS</b>	26	26	26	31	31	30	31	42	31.1	24	
28	30	29	29	29	32	32	32	31	31	32	33	33	33	34	34	<b>IZS</b>	30	31	25	23	23	23	24	25	34	29.5	24	
HOURLY MAX	42	42	41	40	40	39	39	39	39	41	41	41	42	42	43	43	43	44	44	44	44	43	43	43				
HOURLY AVG	32.7	31.9	31.3	31.2	31.1	30.9	30.9	30.9	31.8	32.5	33.1	34.4	35.0	35.2	35.1	35.7	35.5	34.5	34.4	34.1	34.0	33.7	34.1	33.6				

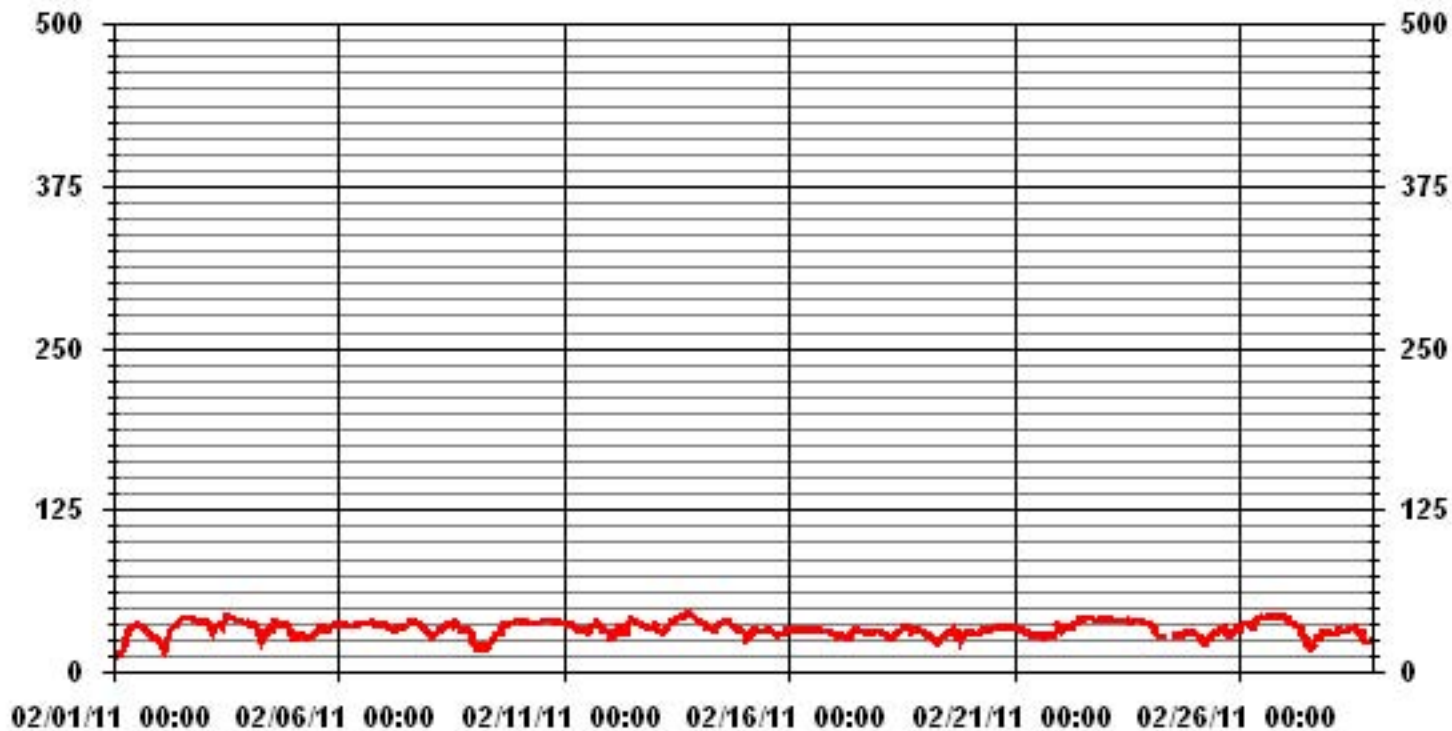
**STATUS FLAG CODES**

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:	638					
MAXIMUM INSTANTANEOUS VALUE:	44	PPB	@ HOUR(S)	VAR	ON DAY(S)	13, 26
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION	5.47					

### 01 Hour Averages



— LICA31 O3MAX PPB

LICA31  
 O3\_ / WDR Joint Frequency Distribution (Percent)

February 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	4.85	4.54	4.85	3.44	2.50	5.01	3.60	.94	4.23	6.11	12.06	8.30	9.24	12.22	10.50	7.52	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	4.85	4.54	4.85	3.44	2.50	5.01	3.60	.94	4.23	6.11	12.06	8.30	9.24	12.22	10.50	7.52	

Calm : .00 %

Total # Operational Hours : 638

Distribution By Samples

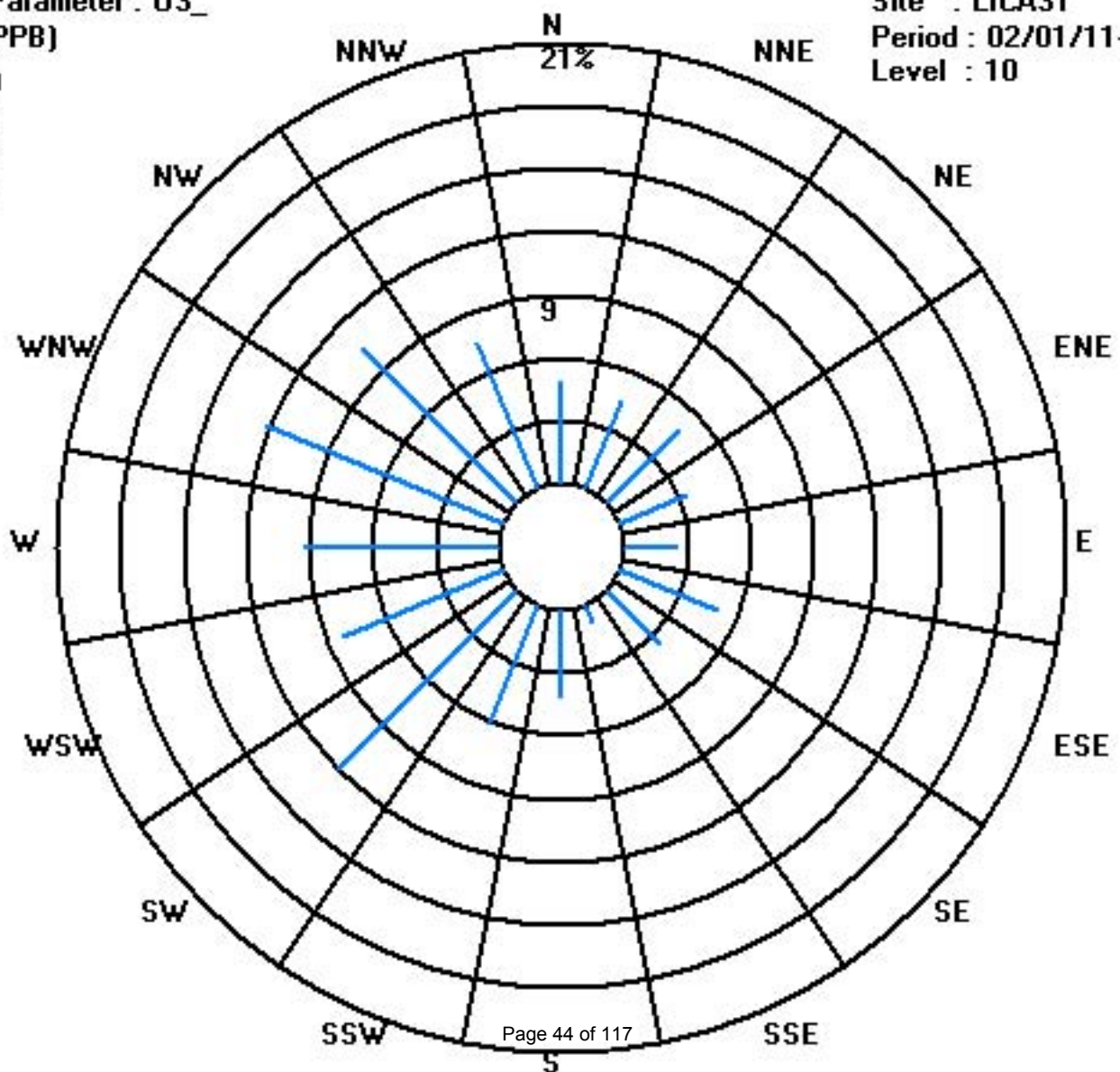
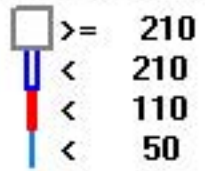
	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	31	29	31	22	16	32	23	6	27	39	77	53	59	78	67	48	638
< 110																	
< 210																	
>= 210																	
Totals	31	29	31	22	16	32	23	6	27	39	77	53	59	78	67	48	

Calm : .00 %

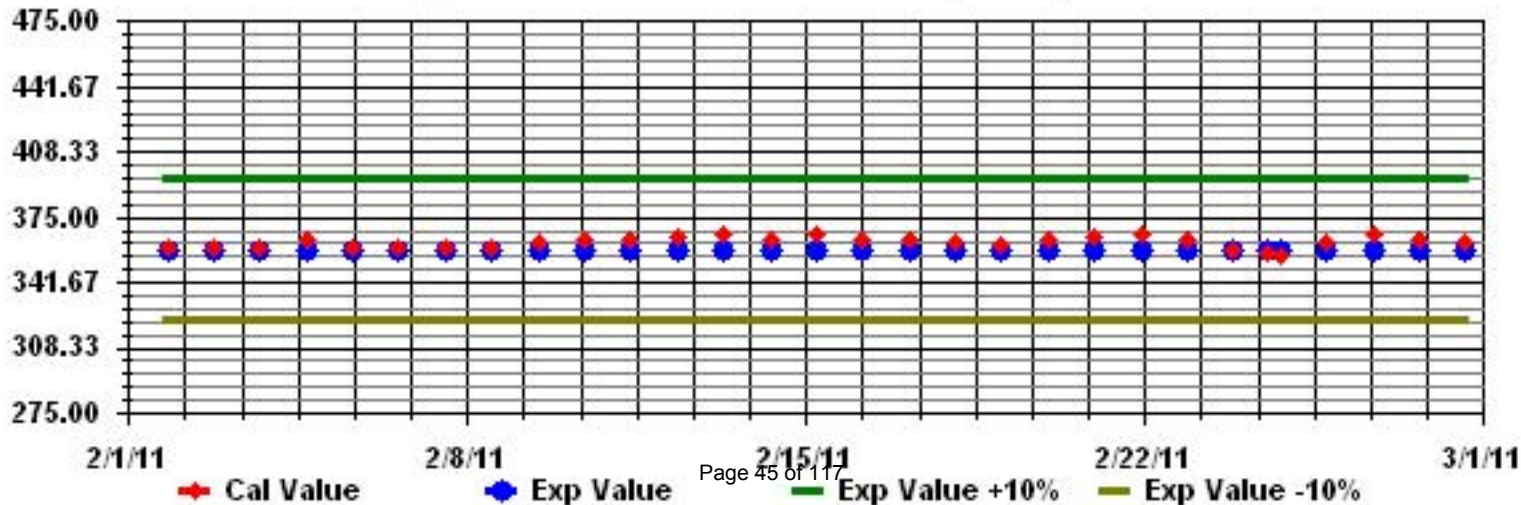
Total # Operational Hours : 638



Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: 03\_ Sequence: 03 Phase: SPAN



# Nitrogen Dioxide

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 2011

## NITROGEN DIOXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	20	19	17	18	20	22	19	13	8	6	5	5	5	6	7	8	9	10	IZS	9	10	10	10	11	22	11.4	24	
2	13	15	18	22	20	14	8	5	3	2	1	0	0	0	0	0	0	0	IZS	1	1	1	2	1	22	5.5	24	
3	1	1	1	1	4	5	4	3	3	3	4	3	1	0	0	0	0	IZS	1	1	1	1	0	1	5	1.7	24	
4	1	2	1	1	1	1	4	7	6	4	4	3	2	2	1	0	IZS	1	1	0	0	0	0	0	7	1.8	24	
5	1	1	0	0	0	0	1	1	1	2	3	3	2	1	1	IZS	1	2	2	3	3	2	2	3	3	1.5	24	
6	2	2	2	2	2	2	1	1	1	1	1	1	1	1	IZS	1	1	1	2	2	3	4	3	2	4	1.7	24	
7	1	2	2	2	3	4	5	4	3	3	3	2	2	IZS	1	1	1	1	1	1	1	3	4	4	5	2.3	24	
8	5	6	9	8	6	5	4	3	3	2	2	1	IZS	1	3	3	5	5	5	4	5	7	13	13	4.8	24		
9	15	16	14	13	11	11	11	13	12	10	8	IZS	7	6	7	5	3	3	2	3	2	2	1	0	16	7.6	24	
10	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	0	0	0	0	1	1	2	IZS	2	1	3	4	3	4	6	5	4	4	4	5	5	6	6	2.6	24	
12	7	9	10	9	6	3	3	6	IZS	7	5	3	3	4	5	6	6	6	7	5	6	6	6	6	10	5.7	24	
13	5	4	4	4	3	4	2	IZS	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	3	5	1.5	24	
14	2	2	2	3	3	3	IZS	3	4	4	4	4	4	4	4	5	5	6	7	7	7	7	7	7	6	7	4.5	24
15	8	10	9	7	4	IZS	1	1	1	2	1	1	1	0	1	1	1	2	3	2	2	0	0	10	2.6	24		
16	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	
17	0	1	2	IZS	3	2	3	3	2	1	1	0	0	0	1	1	1	2	2	2	2	2	2	2	3	1.4	24	
18	2	2	IZS	1	3	3	3	3	2	1	1	1	0	0	0	0	1	2	2	1	2	2	2	3	3	1.6	24	
19	3	IZS	4	5	6	6	8	11	8	5	4	4	4	4	5	6	5	7	9	8	6	4	4	11	5.7	24		
20	IZS	4	4	5	4	4	4	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	IZS	5	2.7	24	
21	1	2	1	1	2	2	2	2	2	3	5	6	6	6	7	7	9	12	10	9	7	7	IZS	6	12	5.0	24	
22	7	6	3	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	7	1.0	24	
23	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	1	1	1	IZS	0	1	1	1	1	0.3	24	
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	2	3	2	3	1.2	24	
25	4	4	4	5	7	7	8	8	7	6	6	7	7	7	9	11	12	IZS	11	10	8	7	6	12	7.3	24		
26	7	6	5	4	4	4	4	4	3	1	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	7	1.8	24	
27	0	0	0	0	1	0	0	0	1	1	1	0	0	1	1	1	IZS	2	2	2	3	3	2	1	3	1.0	24	
28	1	2	2	2	2	1	1	2	2	2	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	2	1.3	24	
HOURLY MAX	20	19	18	22	20	22	19	13	12	10	8	7	7	7	9	11	12	10	11	10	10	10	10	13				
HOURLY AVG	4.0	4.3	4.3	4.3	4.3	3.9	3.7	3.6	2.9	2.7	2.5	1.9	2.0	1.9	2.1	2.3	2.7	3.1	2.8	2.9	3.0	3.0	2.7	3.0				

### 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

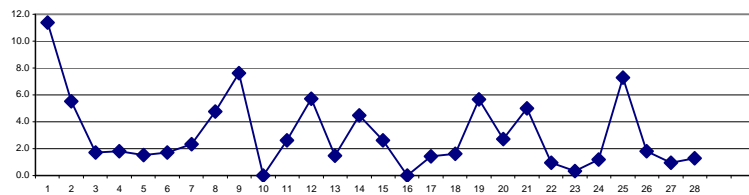
### OBJECTIVE LIMIT:

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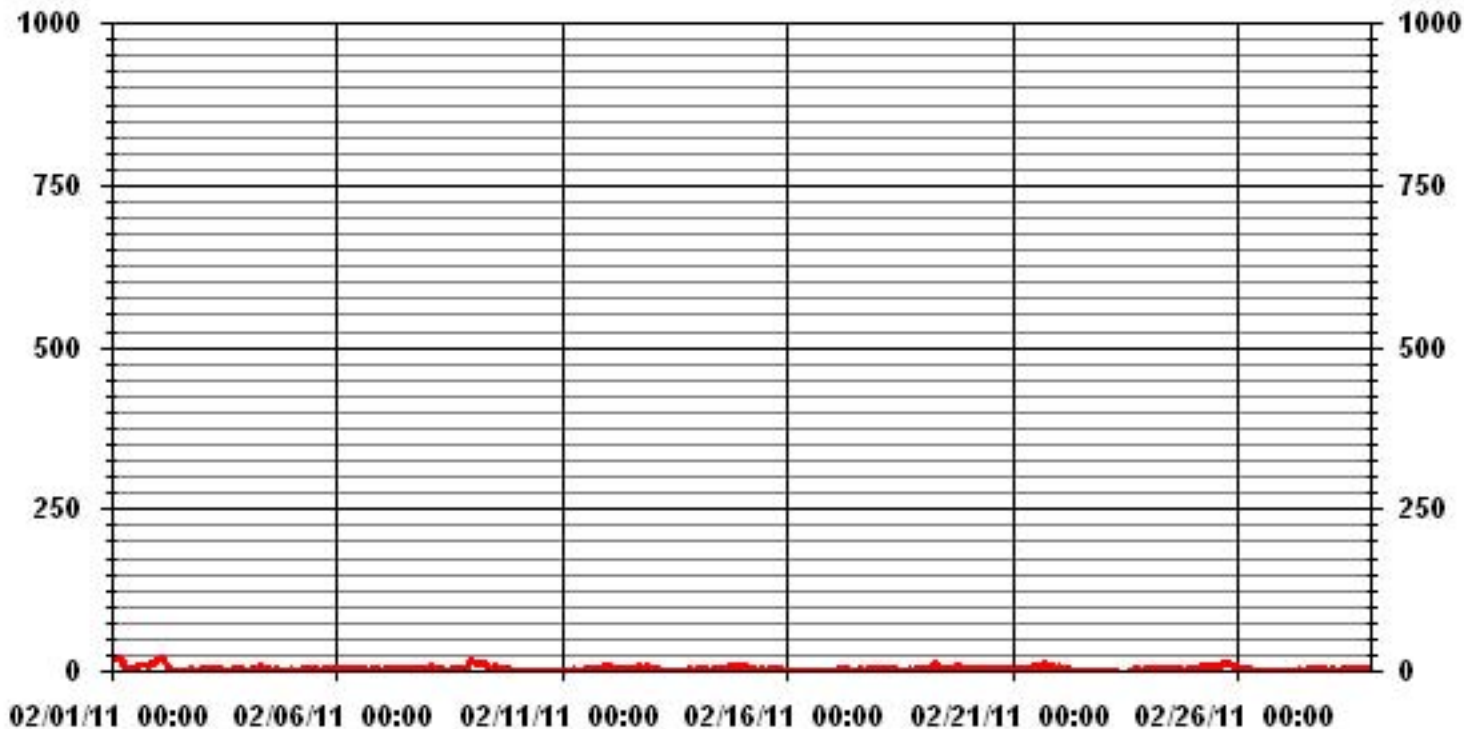
### MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	492					
MAXIMUM 1-HR AVERAGE:	22	PPB	@ HOUR(S)	5, 3	ON DAY(S)	1, 2
MAXIMUM 24-HR AVERAGE:	11.4	PPB			ON DAY(S)	1
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	3.67		MONTHLY AVERAGE:	3.08	PPB	

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA31 NO2\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 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	21	20	19	19	21	23	22	16	10	7	6	5	5	6	13	9	9	10	11	IZS	10	11	11	12	23	12.9	24	
2	14	17	21	23	23	18	11	6	5	3	2	1	1	1	0	1	1	IZS	2	2	2	2	3	3	23	7.0	24	
3	1	2	2	3	6	7	6	4	4	4	9	4	3	1	1	1	1	IZS	2	2	3	1	1	1	9	3.0	24	
4	2	2	2	2	2	2	6	8	7	5	5	4	6	3	3	1	IZS	2	1	1	1	1	1	1	8	3.0	24	
5	2	2	1	1	1	1	1	2	2	3	4	3	3	2	2	IZS	2	3	4	4	3	3	3	4	4	2.4	24	
6	3	3	2	2	2	2	2	2	2	8	1	1	1	3	IZS	2	2	2	3	3	4	5	5	3	8	2.7	24	
7	2	2	3	3	4	5	5	5	3	3	4	3	18	IZS	2	2	1	2	1	2	3	5	5	5	18	3.8	24	
8	6	8	10	9	8	6	5	4	4	3	3	2	IZS	3	4	4	6	13	5	5	5	8	11	14	14	6.3	24	
9	18	18	15	14	12	12	13	21	14	17	9	IZS	9	8	8	7	4	4	4	4	3	3	2	1	21	9.6	24	
10	1	1	0	0	0	0	0	0	0	7	IZS	1	2	1	1	5	1	1	1	2	1	1	1	1	7	1.2	24	
11	1	1	1	1	1	1	1	2	9	IZS	3	2	4	5	10	6	7	7	5	4	5	6	6	7	10	4.1	24	
12	10	10	11	10	8	5	4	8	IZS	8	8	4	4	4	5	6	7	7	9	9	6	7	7	7	11	7.1	24	
13	6	5	5	5	4	5	4	IZS	1	1	1	1	1	1	1	1	1	1	1	2	2	3	2	4	6	2.5	24	
14	4	3	3	3	4	4	IZS	5	5	5	15	8	5	4	5	5	6	7	8	8	8	8	8	7	15	6.0	24	
15	10	12	11	9	6	IZS	2	2	2	3	2	1	1	1	1	2	2	3	3	3	3	3	2	0	12	3.7	24	
16	0	0	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24	
17	1	2	3	IZS	4	4	4	4	3	2	2	1	1	1	1	1	3	2	3	3	3	3	2	2	2	4	2.3	24
18	2	3	IZS	2	4	4	4	4	3	2	1	1	1	1	1	1	2	3	3	2	3	3	3	4	4	2.5	24	
19	4	IZS	5	6	6	7	10	13	11	5	5	5	5	5	7	6	6	9	10	9	7	6	4	13	6.8	24		
20	IZS	5	5	6	5	5	6	2	2	3	3	3	3	3	3	3	4	3	4	3	3	3	3	IZS	6	3.6	24	
21	2	2	2	2	2	2	3	3	3	4	6	7	7	7	8	8	12	13	12	10	8	8	IZS	9	13	6.1	24	
22	9	7	5	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1	1	IZS	1	1	9	2.1	24	
23	1	1	1	0	0	1	1	1	1	C	C	C	C	C	C	C	2	2	1	IZS	2	1	1	2	1.1	24		
24	1	2	2	2	1	1	2	4	1	2	2	1	M	1	2	1	2	2	6	IZS	2	3	4	3	6	2.1	23	
25	5	5	6	7	8	8	9	9	8	7	7	7	14	7	8	12	12	14	IZS	12	12	9	8	8	14	8.8	24	
26	8	7	5	11	5	5	5	6	5	2	1	1	1	1	1	1	1	IZS	1	1	2	1	1	0	11	3.1	24	
27	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	2	IZS	3	3	3	4	4	4	2	4	1.8	24	
28	2	2	3	3	2	2	2	2	2	2	2	2	2	1	1	IZS	2	2	2	2	2	2	2	2	3	2.0	24	
HOURLY MAX	21	20	21	23	23	23	22	21	14	17	15	8	18	8	13	12	12	14	12	12	12	11	11	14				
HOURLY AVG	5.1	5.3	5.4	5.5	5.3	5.0	4.9	5.1	4.1	4.2	4.0	2.7	4.0	2.8	3.5	3.6	3.8	4.5	4.0	3.9	4.0	4.1	3.9	4.0				

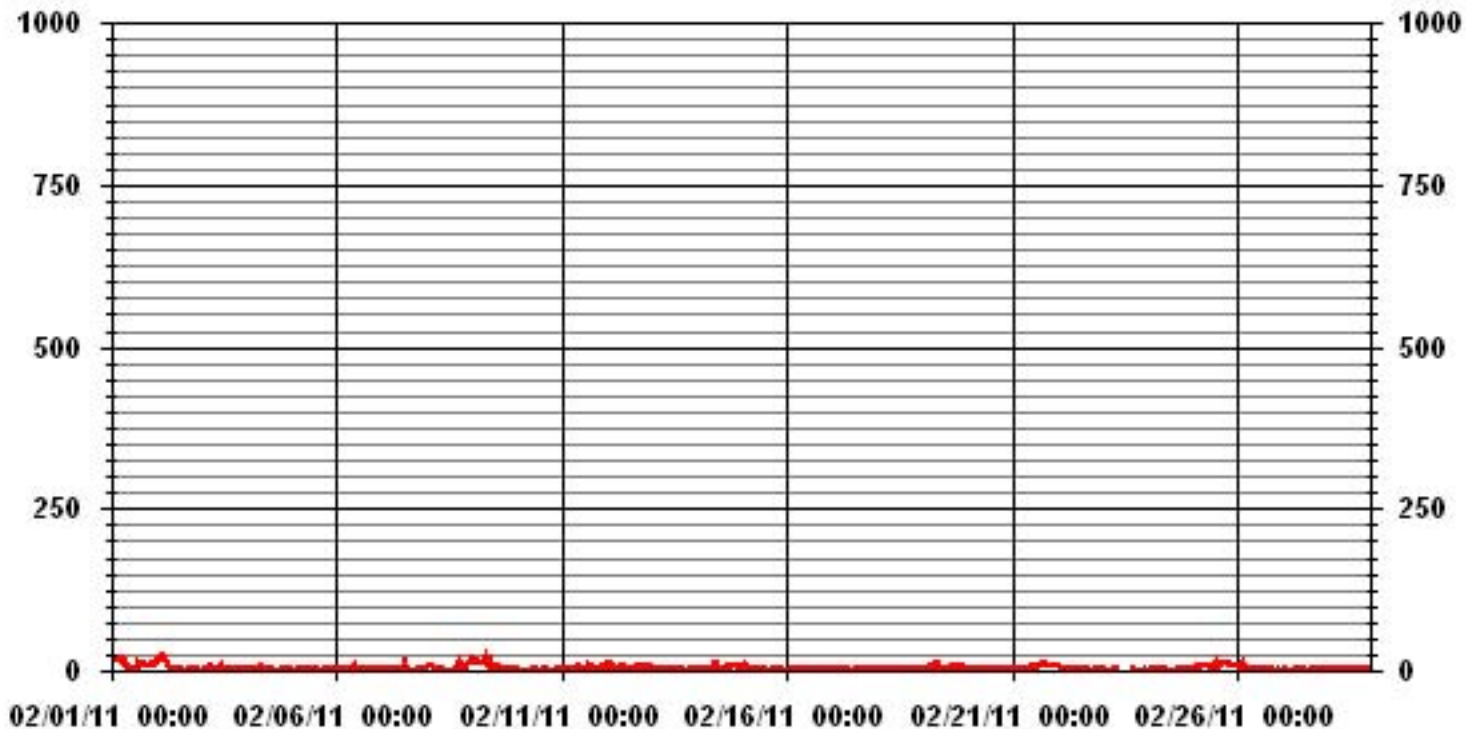
**STATUS FLAG CODES**

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:	620					
MAXIMUM INSTANTANEOUS VALUE:	23	PPB	@ HOUR(S)	VAR	ON DAY(S)	1, 2
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	4.11					

### 01 Hour Averages



— LICA31 HO2MAX PPB

LICA31  
NO2\_ / WDR Joint Frequency Distribution (Percent)

February 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	4.87	4.55	4.87	3.45	2.51	5.03	3.61	.94	4.24	6.13	12.42	8.64	8.17	12.42	10.53	7.54	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	4.87	4.55	4.87	3.45	2.51	5.03	3.61	.94	4.24	6.13	12.42	8.64	8.17	12.42	10.53	7.54	

Calm : .00 %

Total # Operational Hours : 636

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	31	29	31	22	16	32	23	6	27	39	79	55	52	79	67	48	636
< 110																	
< 210																	
>= 210																	
Totals	31	29	31	22	16	32	23	6	27	39	79	55	52	79	67	48	

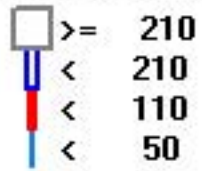
Calm : .00 %

Total # Operational Hours : 636

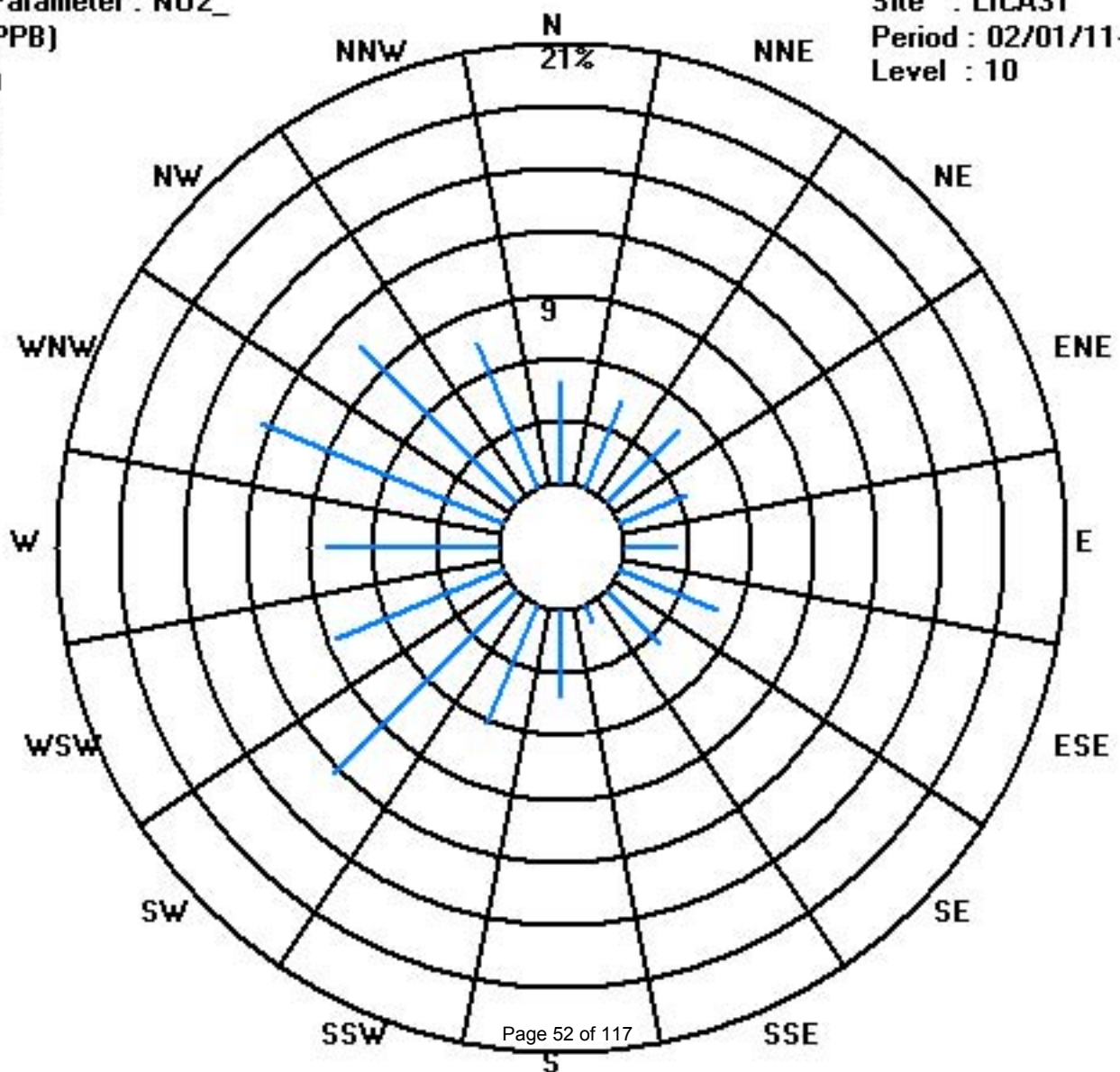


Class Limits (PPB)

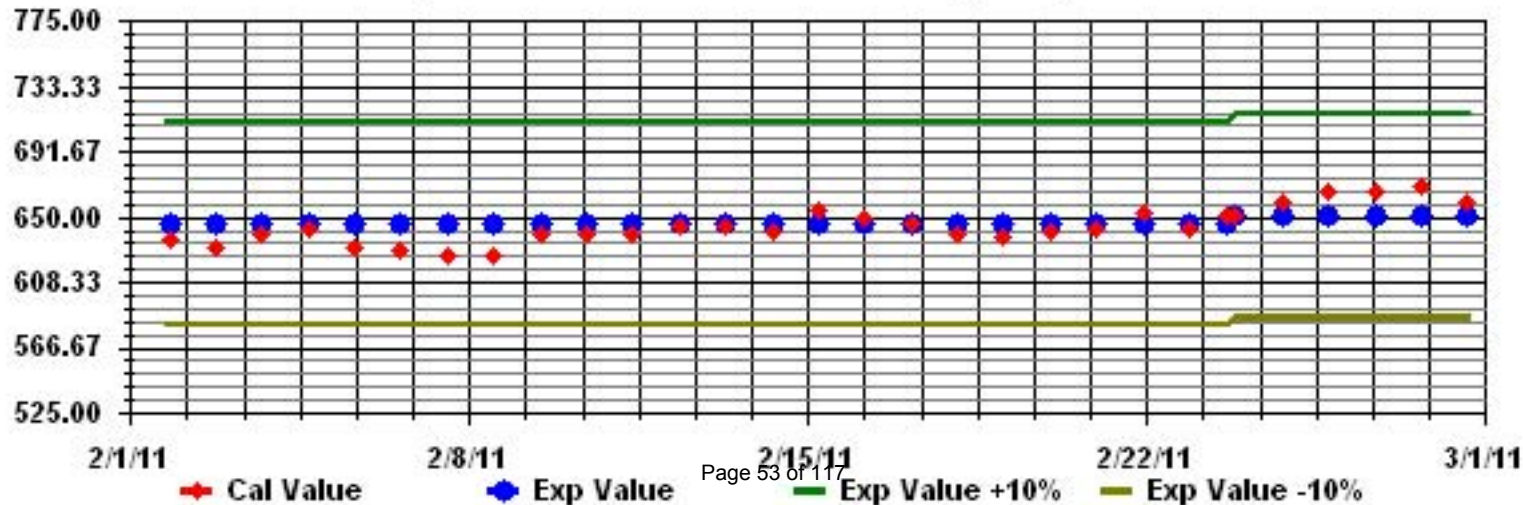
Period : 02/01/11-02/28/11



Level : 10



Calibration Graph for Site: LICA31 Parameter: NO2\_ Sequence: NO2 Phase: SPAN



# Nitric Oxide

# LAKELAND INDUSTRY & COMMUNICATY ASSOCIATION - ST. LINA

FEBRUARY 2011

NITRIC OXIDE hourly averages in ppb

MST

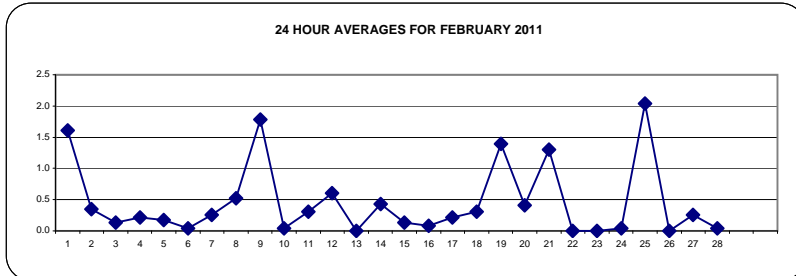
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	2	1	2	1	1	1	1	1	1	2	2	3	3	3	3	3	1	1	1	<b>IZS</b>	1	1	1	1	3	1.6	24	
2	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	<b>IZS</b>	<b>IZS</b>	0	0	0	0	0	1	0.3	24
3	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	<b>IZS</b>	<b>IZS</b>	0	0	0	0	0	0	1	0.1	24	
4	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	<b>IZS</b>	0	0	0	0	0	0	0	1	0.2	24	
5	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	<b>IZS</b>	0	0	0	0	0	0	0	0	1	0.2	24	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<b>IZS</b>	1	0	0	0	0	0	0	0	0	1	0.0	24	
7	0	0	0	0	0	0	0	0	0	1	1	1	1	<b>IZS</b>	1	1	0	0	0	0	0	0	0	0	1	0.3	24	
8	0	0	0	1	0	0	0	0	1	1	1	1	<b>IZS</b>	1	2	1	1	1	0	0	0	0	0	1	2	0.5	24	
9	1	1	1	1	1	1	1	1	2	5	6	<b>IZS</b>	7	5	5	2	1	0	0	0	0	0	0	0	7	1.8	24	
10	0	0	0	0	0	0	0	0	0	0	<b>IZS</b>	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
11	0	0	0	0	0	0	0	0	0	<b>IZS</b>	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	0.3	24	
12	0	0	0	0	0	0	0	0	<b>IZS</b>	2	2	2	2	2	2	1	1	0	0	0	0	0	0	0	2	0.6	24	
13	0	0	0	0	0	0	0	<b>IZS</b>	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	<b>IZS</b>	0	0	1	2	2	1	1	1	1	1	0	0	0	0	0	0	0	2	0.4	24	
15	0	0	0	0	0	<b>IZS</b>	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	0.1	24	
16	0	0	0	0	<b>IZS</b>	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
17	0	0	0	<b>IZS</b>	1	0	0	0	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0.2	24	
18	0	0	<b>IZS</b>	1	0	0	0	0	1	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	1	0.3	24	
19	0	<b>IZS</b>	1	0	1	1	1	1	2	3	3	3	3	3	3	3	2	1	0	0	1	0	0	0	3	1.4	24	
20	<b>IZS</b>	1	0	0	0	0	0	0	0	1	1	1	1	2	1	1	0	0	0	0	0	0	0	0	<b>IZS</b>	2	0.4	24
21	0	0	0	0	0	0	0	0	1	2	4	5	4	4	4	3	3	3	1	0	0	0	0	<b>IZS</b>	0	5	1.3	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<b>IZS</b>	0	0	0.0	24	
23	0	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>	<b>C</b>	0	0	0	0	<b>IZS</b>	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	<b>IZS</b>	1	0	0	0	1	0.0	24	
25	0	0	0	0	0	0	0	1	2	4	5	6	6	5	5	5	5	2	<b>IZS</b>	1	0	0	0	0	6	<b>2.0</b>	24	
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<b>IZS</b>	0	0	0	0	0	0	0	0.0	24	
27	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	<b>IZS</b>	1	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	<b>IZS</b>	1	0	0	0	0	0	0	0	1	0.0	24	
HOURLY MAX	2	1	2	1	1	1	1	1	2	5	6	6	7	5	5	5	5	2	1	1	1	1	1	1	1			
HOURLY AVG	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.4	1.1	1.3	1.2	1.2	1.1	1.1	1.0	0.7	0.3	0.0	0.0	0.1	0.0	0.0	0.1				

STATUS FLAG CODES

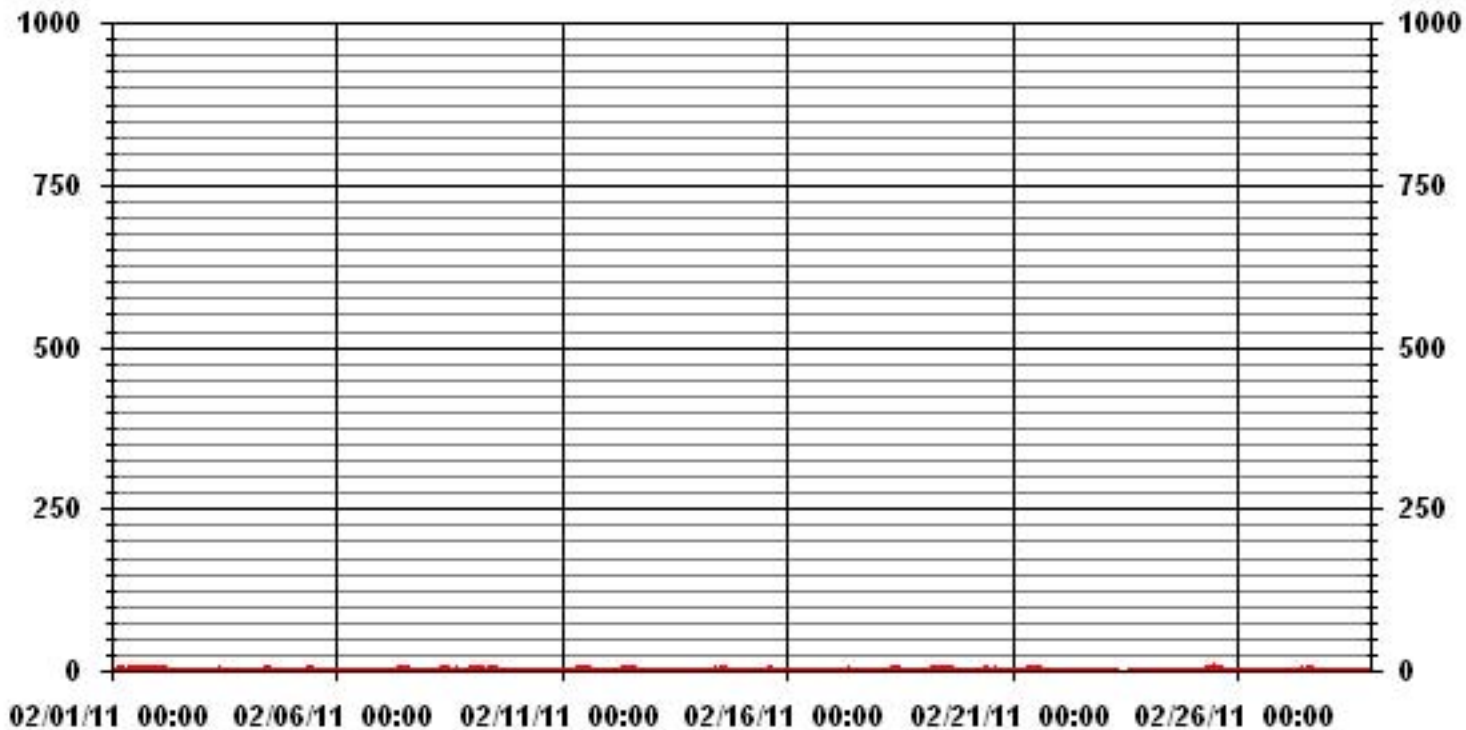
S	- OUT OF SERVICE	<b>IZS</b>	- <b>IZS</b> - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	172					
MAXIMUM 1-HR AVERAGE:	7	PPB	@ HOUR(S)	12	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	2.0	PPB			ON DAY(S)	25
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	1.01		MONTHLY AVERAGE:	0.46	PPB	



### 01 Hour Averages



— LICA31 NO\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 2011

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	2	2	2	2	2	2	2	2	2	3	3	3	4	4	4	4	2	1	1	<b>IZS</b>	2	2	1	1	4	2.3	24	
2	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	<b>IZS</b>	<b>IZS</b>	1	1	1	2	1	2	1.2	24	
3	1	1	1	1	1	1	1	1	2	2	9	2	1	1	1	1	<b>IZS</b>	<b>IZS</b>	1	1	1	1	1	1	9	1.5	24	
4	1	1	1	1	1	1	1	1	1	2	2	2	11	2	1	1	<b>IZS</b>	1	1	1	1	1	1	1	11	1.6	24	
5	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	<b>IZS</b>	2	1	1	1	1	1	1	1	2	1.2	24	
6	1	1	1	1	1	1	1	1	2	7	1	1	1	2	<b>IZS</b>	2	1	1	1	1	1	1	1	1	7	1.4	24	
7	1	1	1	0	1	1	1	1	1	1	2	2	7	<b>IZS</b>	2	2	1	2	1	2	1	2	1	1	7	1.5	24	
8	1	1	1	1	1	1	1	1	2	2	3	1	<b>IZS</b>	2	3	2	3	7	1	1	1	1	1	1	7	1.7	24	
9	1	1	1	1	1	1	1	18	4	17	7	<b>IZS</b>	10	6	6	4	1	1	1	1	1	1	1	1	18	3.8	24	
10	1	1	1	0	0	1	1	18	1	2	<b>IZS</b>	2	2	1	1	10	1	1	1	7	1	0	0	0	18	2.3	24	
11	0	0	1	0	0	1	1	1	16	<b>IZS</b>	2	1	2	3	5	1	2	2	0	1	1	1	1	1	16	1.9	24	
12	1	1	1	1	1	0	0	2	<b>IZS</b>	3	3	3	2	2	3	2	2	2	1	1	1	1	1	1	3	1.5	24	
13	1	0	1	1	1	1	1	<b>IZS</b>	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	0.8	24	
14	1	0	1	1	1	1	<b>IZS</b>	1	1	1	15	5	3	2	2	2	1	1	1	1	1	1	1	1	15	2.0	24	
15	1	1	1	1	1	<b>IZS</b>	1	1	1	2	1	1	1	2	1	2	1	1	1	1	1	1	0	1	2	1.1	24	
16	1	1	0	0	<b>IZS</b>	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	2	0.9	24	
17	1	1	1	<b>IZS</b>	2	1	1	2	2	2	2	1	1	1	1	4	1	1	1	1	1	1	1	1	4	1.3	24	
18	1	1	<b>IZS</b>	1	1	1	1	1	2	1	1	2	2	1	1	1	1	2	1	1	1	1	1	1	2	1.2	24	
19	1	<b>IZS</b>	2	1	1	1	1	2	3	4	4	4	4	4	4	3	2	1	1	1	1	1	1	1	4	2.2	24	
20	<b>IZS</b>	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	<b>IZS</b>	2	1.2	24
21	1	1	1	1	1	1	1	2	3	3	6	6	5	4	5	4	4	3	1	1	1	1	<b>IZS</b>	1	6	2.5	24	
22	1	1	1	1	0	1	1	1	0	0	1	0	1	1	1	1	0	1	1	1	0	<b>IZS</b>	1	0	1	0.7	24	
23	1	0	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>	1	1	1	<b>IZS</b>	1	1	1	1	1	0.9	24	
24	1	1	1	0	1	1	1	<b>19</b>	1	1	1	1	<b>M</b>	1	1	1	1	1	11	<b>IZS</b>	2	1	1	1	<b>19</b>	2.3	23	
25	1	1	1	1	1	1	1	3	3	5	6	7	14	6	6	7	7	3	<b>IZS</b>	2	1	1	1	1	14	3.5	24	
26	1	1	1	5	1	1	1	1	1	1	1	2	1	1	1	0	1	<b>IZS</b>	1	1	1	0	1	0	5	1.1	24	
27	0	1	0	0	0	1	0	1	1	1	1	1	1	2	2	2	<b>IZS</b>	1	1	0	1	1	1	1	2	0.9	24	
28	0	1	1	1	1	1	0	0	1	1	1	1	1	1	1	<b>IZS</b>	2	2	2	1	1	1	1	1	2	1.0	24	
HOURLY MAX	2	2	2	5	2	2	2	19	16	17	15	7	14	6	6	10	7	7	11	7	2	2	2	1				
HOURLY AVG	0.9	0.9	1.0	1.0	1.0	1.0	0.9	3.1	2.1	2.5	3.0	2.1	3.2	2.1	2.2	2.3	1.8	1.6	1.4	1.2	1.0	1.0	0.9	0.9				

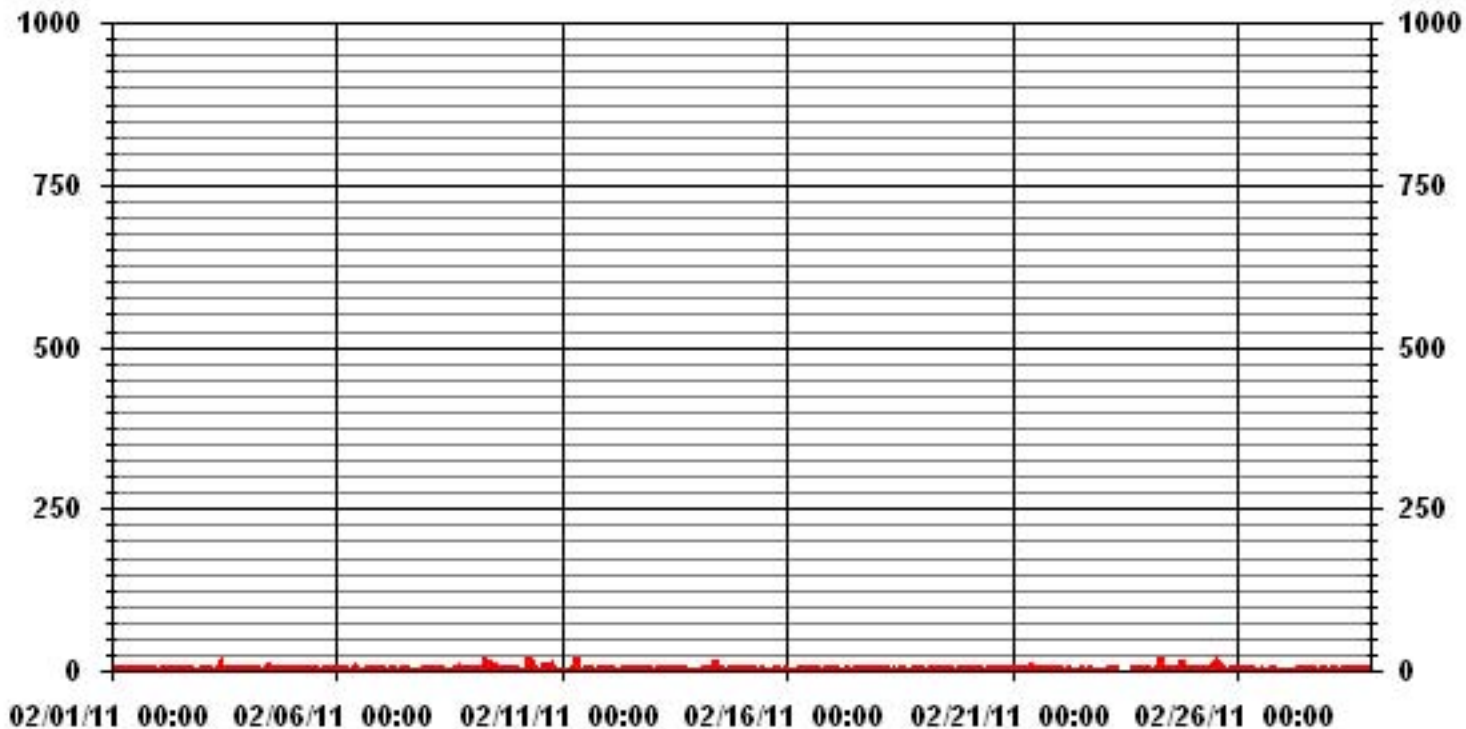
**STATUS FLAG CODES**

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:	591					
MAXIMUM INSTANTANEOUS VALUE:	19	PPB	@ HOUR(S)	7	ON DAY(S)	24
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	2.12					

### 01 Hour Averages



LICA31  
 NO\_ / WDR Joint Frequency Distribution (Percent)

February 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	4.87	4.55	4.87	3.45	2.51	5.03	3.61	.94	4.24	6.13	12.42	8.64	8.17	12.42	10.53	7.54	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	4.87	4.55	4.87	3.45	2.51	5.03	3.61	.94	4.24	6.13	12.42	8.64	8.17	12.42	10.53	7.54	

Calm : .00 %

Total # Operational Hours : 636

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	31	29	31	22	16	32	23	6	27	39	79	55	52	79	67	48	636
< 110																	
< 210																	
>= 210																	
Totals	31	29	31	22	16	32	23	6	27	39	79	55	52	79	67	48	

Calm : .00 %

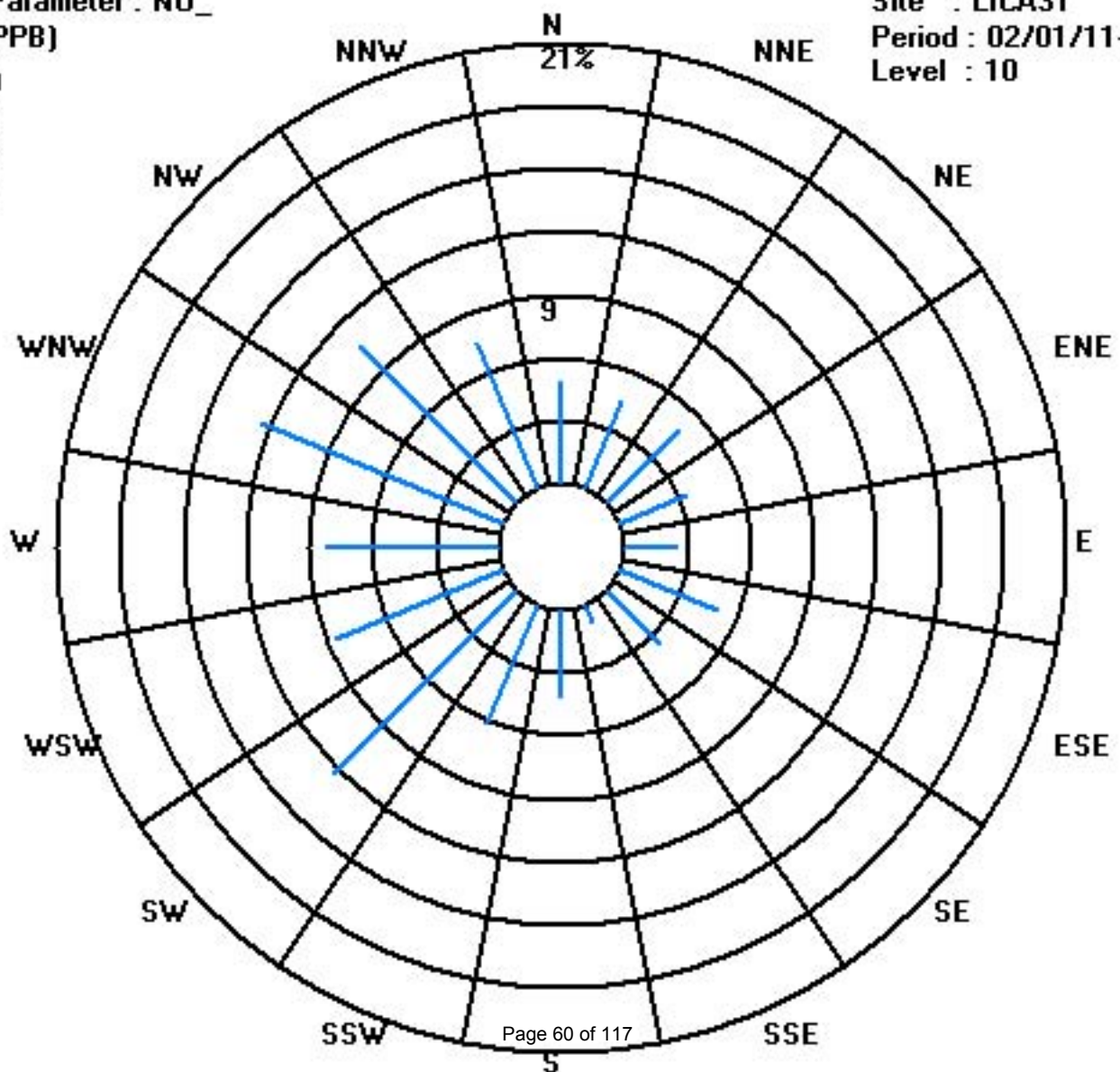
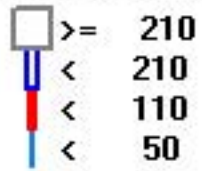
Total # Operational Hours : 636



Class Limits (PPB)

Period : 02/01/11-02/28/11

Level : 10



# Oxides of Nitrogen

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA**  
**FEBRUARY 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	21	20	18	19	22	23	20	13	9	8	7	7	8	8	9	9	9	10	10	IZS	10	10	11	12	23	12.7	24
2	13	16	19	22	21	15	9	5	3	2	1	1	0	0	0	0	0	0	IZS	2	1	1	2	1	22	5.8	24
3	1	1	1	2	4	5	5	3	3	3	5	4	2	0	1	0	0	IZS	1	1	1	1	0	0	5	1.9	24
4	1	2	1	1	1	1	5	7	6	5	5	5	3	3	2	1	IZS	1	1	0	0	0	0	1	7	2.3	24
5	1	1	0	0	0	0	1	1	2	2	4	4	3	1	1	IZS	1	1	1	2	2	2	1	2	4	1.4	24
6	1	1	1	1	1	1	0	0	0	0	0	0	0	0	IZS	2	1	2	2	2	3	4	3	2	4	1.2	24
7	1	2	2	2	3	4	5	4	3	3	4	4	4	IZS	3	2	2	2	2	2	2	4	5	5	5	3.0	24
8	6	7	10	9	7	6	5	4	4	3	4	3	IZS	2	5	5	6	5	4	5	5	8	13	13	5.7	24	
9	16	17	15	13	11	12	12	14	14	15	14	IZS	14	11	11	7	4	3	3	3	2	2	1	0	17	9.3	24
10	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	0	0	0	0	0	0	0	0	0	0	1	0.1	24
11	0	0	0	0	0	0	1	1	3	IZS	4	3	5	6	5	6	8	7	5	5	5	6	6	7	8	3.6	24
12	9	10	11	10	8	4	3	7	IZS	9	7	6	5	5	6	6	7	6	7	7	6	6	6	6	11	6.8	24
13	5	4	5	4	4	4	2	IZS	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	3	5	1.6	24
14	2	2	2	3	3	3	IZS	4	4	5	6	6	5	5	5	6	5	6	7	7	7	8	7	6	8	5.0	24
15	8	11	10	7	5	IZS	1	1	1	2	1	1	1	1	1	1	2	2	3	2	2	0	0	11	2.8	24	
16	0	0	0	0	IZS	2	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	1.0	24
17	2	2	3	IZS	4	4	4	4	4	3	2	2	1	1	2	2	3	2	3	3	3	3	3	3	4	2.7	24
18	3	3	IZS	3	4	5	4	4	3	3	2	2	2	2	2	1	2	3	3	2	3	4	3	4	5	2.9	24
19	4	IZS	5	5	6	6	9	11	10	7	7	7	7	7	7	8	7	5	8	9	8	6	5	4	11	6.9	24
20	IZS	3	4	4	3	3	3	0	1	1	3	3	2	3	2	2	2	2	2	2	2	2	2	IZS	4	2.3	24
21	3	3	3	3	3	3	3	4	4	6	10	12	11	11	11	12	14	14	11	10	9	9	IZS	6	14	7.6	24
22	6	5	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0.6	24
23	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	C	C	0	0	0	IZS	1	1	1	1	0.2	24
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	2	3	2	3	1.2	24
25	4	4	5	6	7	8	8	9	9	9	11	12	13	12	11	14	16	13	IZS	12	11	8	7	7	16	9.4	24
26	8	6	5	5	4	5	4	5	3	1	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	8	2.3	24
27	1	1	1	1	2	1	1	1	2	2	2	2	1	3	3	3	IZS	2	2	2	3	3	2	1	3	1.8	24
28	1	2	2	2	2	1	1	1	2	2	2	1	1	1	1	IZS	2	1	1	1	1	1	1	1	2	1.3	24
HOURLY MAX	21	20	19	22	22	23	20	14	14	15	14	12	14	12	11	14	16	14	11	12	11	10	11	13			
HOURLY AVG	4.4	4.6	4.7	4.6	4.7	4.3	4.0	3.9	3.4	3.6	4.0	3.4	3.5	3.2	3.5	3.6	3.6	3.5	3.1	3.1	3.4	3.4	3.0	3.3			

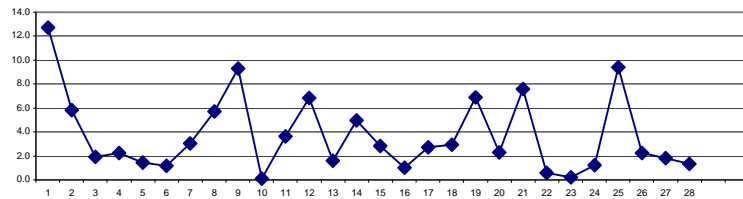
**STATUS FLAG CODES**

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

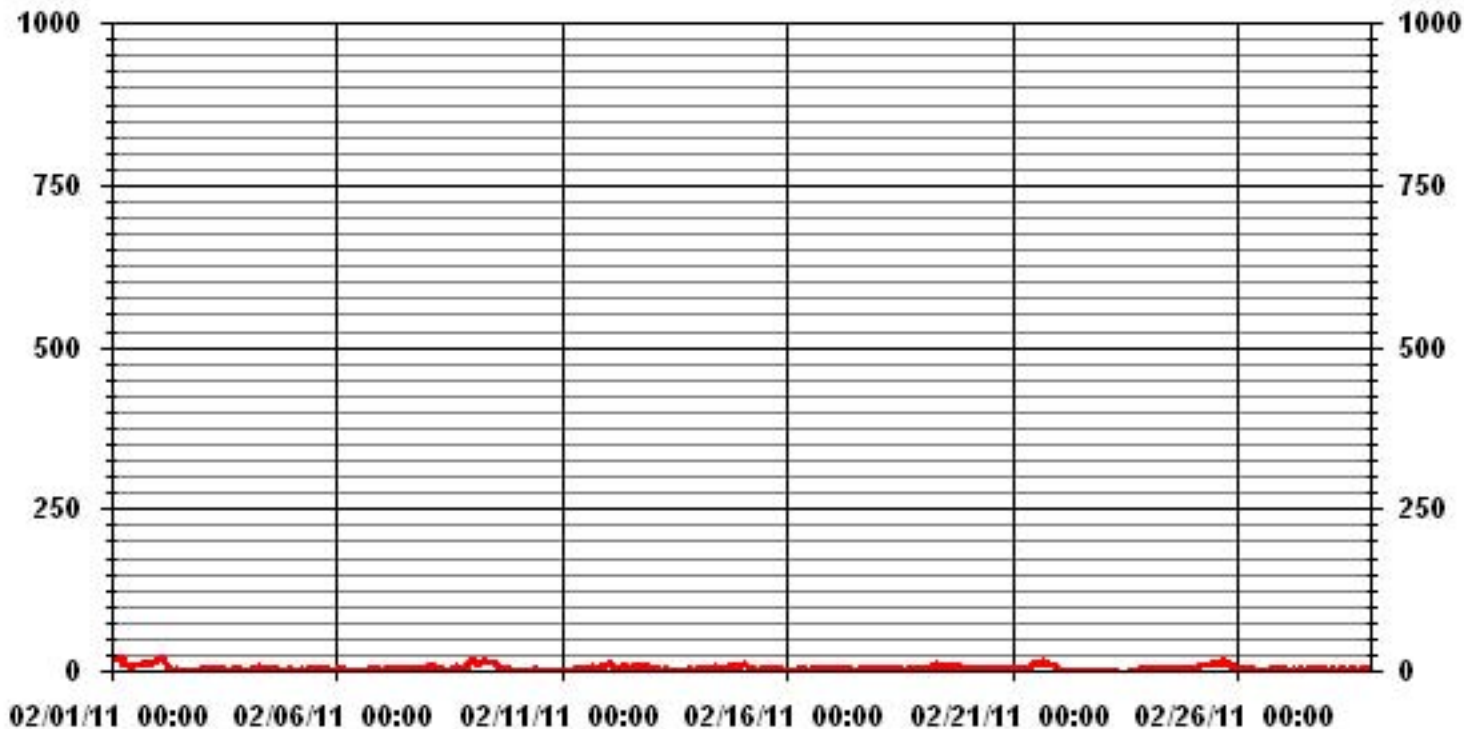
**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	526					
MAXIMUM 1-HR AVERAGE:	23	PPB	@ HOUR(S)	5	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	12.7	PPB			ON DAY(S)	1
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	4.13		MONTHLY AVERAGE	3.74	PPB	

**24 HOUR AVERAGES FOR FEBRUARY 2011**



### 01 Hour Averages



— LICA31 NOX\_ PPB

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 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	22	21	20	20	23	24	22	17	11	9	8	8	8	10	16	12	10	11	11	IZS	11	11	12	13	24	14.3	24
2	15	18	22	24	23	18	12	7	4	3	2	2	1	1	1	1	1	1	IZS	2	2	2	5	2	24	7.3	24
3	2	2	2	3	6	7	6	5	4	5	16	5	3	1	1	1	1	IZS	2	2	3	1	1	1	16	3.5	24
4	2	2	2	2	2	2	7	8	7	6	6	6	13	4	4	2	IZS	2	1	1	1	1	2	1	13	3.7	24
5	2	2	1	1	1	1	1	2	2	3	5	4	4	3	2	IZS	2	2	3	3	2	2	2	3	5	2.3	24
6	2	2	2	1	1	2	1	1	3	12	1	1	0	3	IZS	3	2	3	3	3	4	5	5	3	12	2.7	24
7	2	2	2	3	4	5	5	5	3	4	5	5	24	IZS	4	4	3	4	2	2	5	6	6	6	24	4.8	24
8	7	9	11	11	9	7	6	5	5	5	5	4	IZS	4	6	6	8	18	6	5	5	9	11	15	18	7.7	24
9	18	18	16	15	13	12	13	33	16	26	16	IZS	18	13	13	10	5	4	4	4	3	2	2	1	33	12.0	24
10	1	1	1	0	0	0	0	18	0	8	IZS	3	3	1	2	11	1	1	1	2	1	1	1	1	18	2.5	24
11	1	1	1	1	1	2	1	2	24	IZS	6	4	7	8	12	8	10	9	6	6	6	7	7	8	24	6.0	24
12	11	11	12	12	9	6	4	9	IZS	10	10	8	6	6	7	7	8	8	9	9	6	7	7	6	12	8.2	24
13	6	5	5	5	4	5	4	IZS	2	2	1	1	1	1	1	1	1	2	2	2	4	2	4	6	2.7	24	
14	3	3	3	4	4	4	IZS	5	5	6	28	13	7	6	6	7	6	7	8	8	8	8	8	7	28	7.1	24
15	10	12	11	9	7	IZS	3	2	2	5	3	1	1	3	2	3	3	4	3	3	3	2	0	12	4.1	24	
16	0	1	1	1	IZS	3	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	3	2.0	24	
17	2	3	4	IZS	5	5	5	6	5	4	4	2	2	3	3	3	7	3	4	5	4	3	3	3	7	3.8	24
18	3	4	IZS	3	5	5	5	5	5	4	3	3	3	2	2	2	3	5	4	4	5	5	4	5	5	3.9	24
19	5	IZS	6	6	7	7	10	14	12	8	8	8	8	8	10	8	7	9	10	10	10	8	6	5	14	8.2	24
20	IZS	4	5	5	4	4	5	1	1	2	4	3	3	4	3	2	2	3	3	3	3	2	2	IZS	5	3.1	24
21	3	3	3	3	3	3	4	5	7	8	13	14	13	12	12	13	16	15	13	11	9	10	IZS	8	16	8.7	24
22	8	6	4	1	1	1	1	1	0	0	0	0	0	0	1	0	0	0	2	0	0	IZS	1	1	8	1.2	24
23	1	1	1	0	1	1	1	1	0	C	C	C	C	C	C	C	1	1	1	IZS	2	1	1	2	0.9	24	
24	1	2	1	1	1	1	2	23	2	2	2	2	M	2	2	1	2	2	14	IZS	3	3	4	3	23	3.5	23
25	5	5	6	7	8	9	10	12	10	11	12	13	24	13	13	18	18	15	IZS	14	13	9	8	8	24	11.3	24
26	8	7	5	13	5	6	5	6	5	2	1	2	1	1	1	1	IZS	3	3	3	2	2	2	13	3.7	24	
27	2	2	2	2	2	2	2	2	2	3	3	2	3	4	4	4	IZS	3	3	3	4	4	4	2	4	2.8	24
28	2	2	3	3	2	2	2	2	2	3	3	2	2	2	2	IZS	3	3	3	2	2	2	1	2	3	2.3	24
HOURLY MAX	22	21	22	24	23	24	22	33	24	26	28	14	24	13	16	18	18	18	14	14	13	11	12	15			
HOURLY AVG	5.3	5.5	5.6	5.8	5.6	5.3	5.1	7.4	5.2	5.9	6.5	4.6	6.3	4.5	5.0	5.3	4.9	5.1	4.7	4.2	4.4	4.5	4.1	4.2			

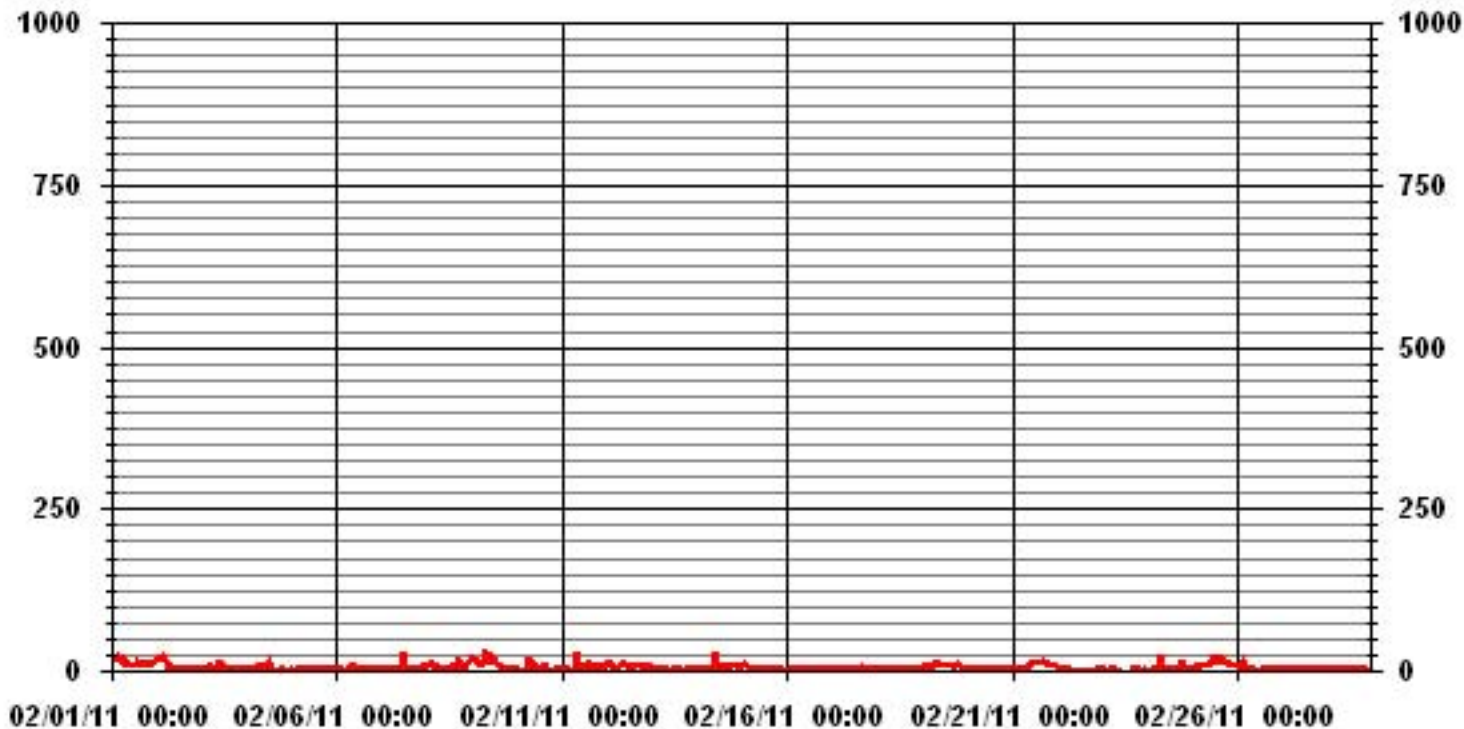
**STATUS FLAG CODES**

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

**MONTHLY SUMMARY**

NUMBER OF NON-ZERO READINGS:	613					
MAXIMUM INSTANTANEOUS VALUE:	33	PPB	@ HOUR(S)	7	ON DAY(S)	9
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	671	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	5.03					

### 01 Hour Averages



— LICA31 NOXMAX PPB

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

February 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	4.87	4.55	4.87	3.45	2.51	5.03	3.61	.94	4.24	6.13	12.42	8.64	8.17	12.42	10.53	7.54	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	4.87	4.55	4.87	3.45	2.51	5.03	3.61	.94	4.24	6.13	12.42	8.64	8.17	12.42	10.53	7.54	

Calm : .00 %

Total # Operational Hours : 636

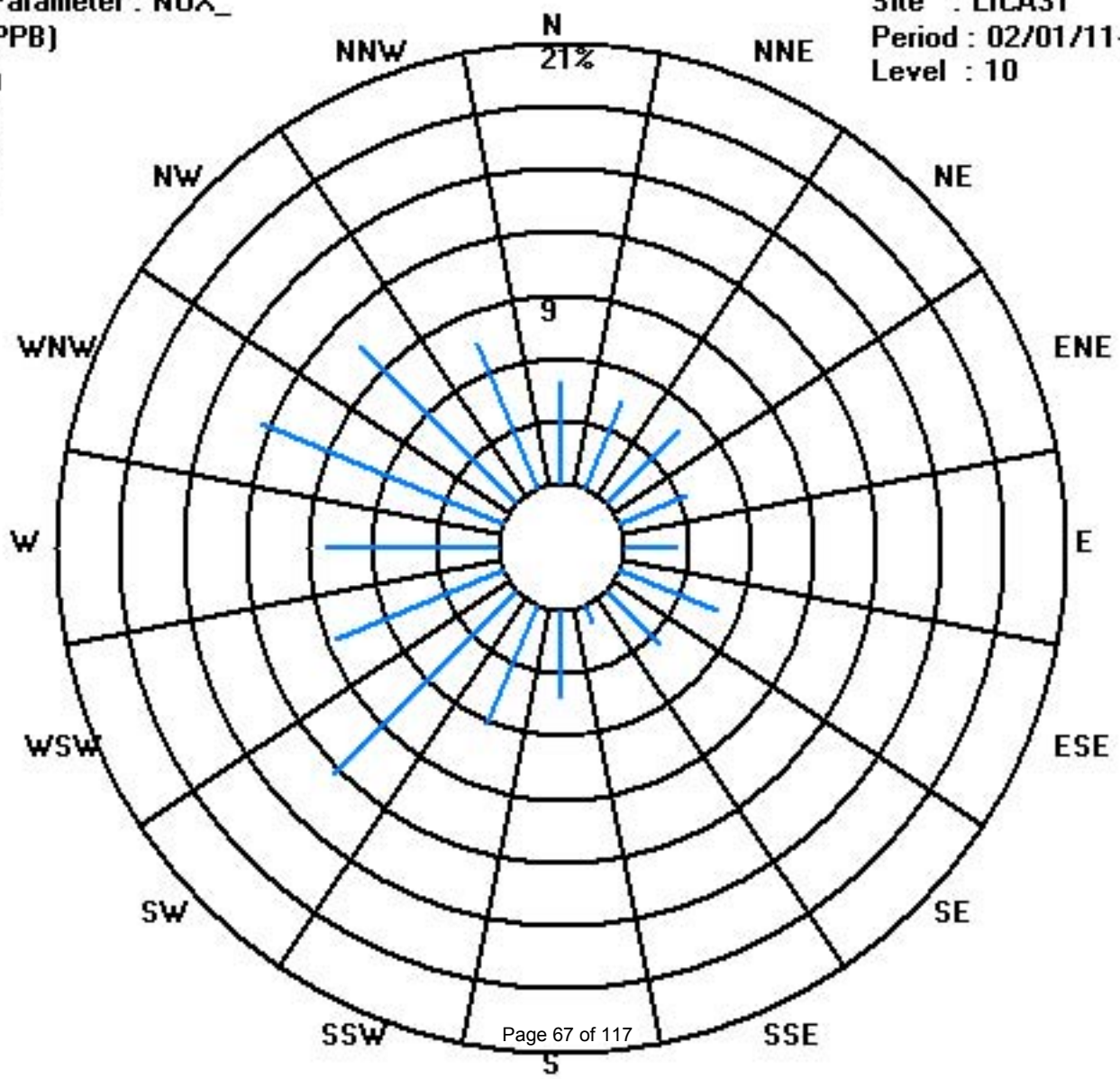
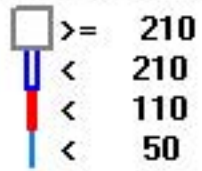
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	31	29	31	22	16	32	23	6	27	39	79	55	52	79	67	48	636
< 110																	
< 210																	
>= 210																	
Totals	31	29	31	22	16	32	23	6	27	39	79	55	52	79	67	48	

Calm : .00 %

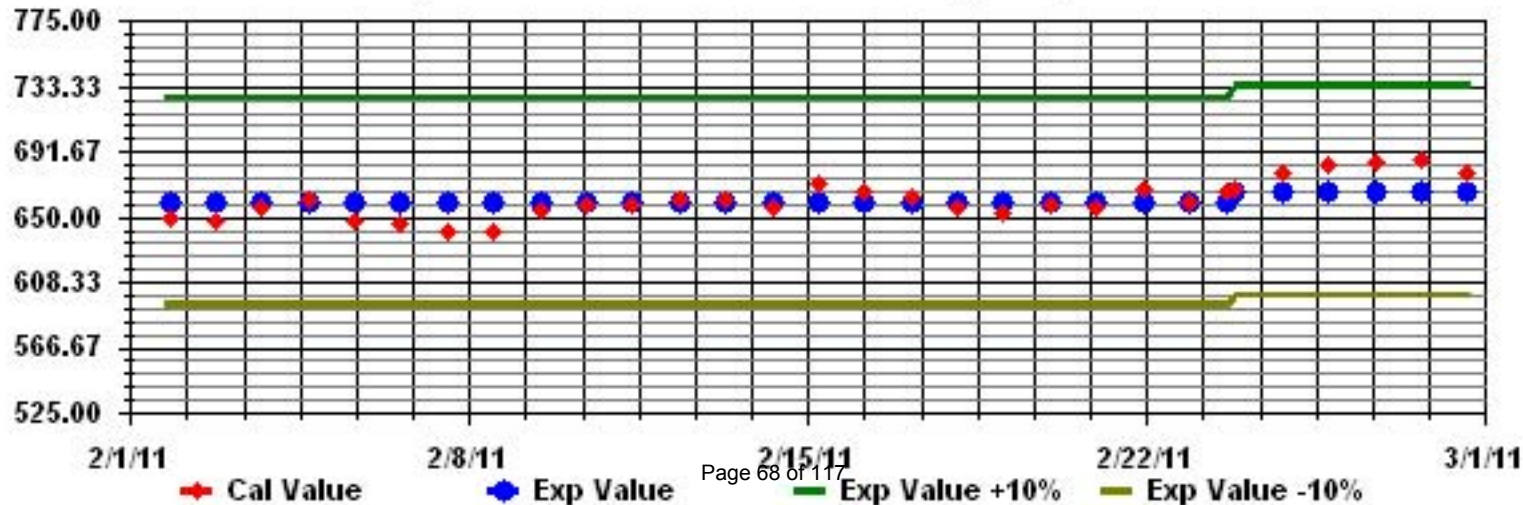
Total # Operational Hours : 636

Class Limits (PPB)





Calibration Graph for Site: LICA31 Parameter: NOX\_ Sequence: NO2 Phase: SPAN



# Particulate Matter 2.5

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA**  
**FEBRUARY 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	13.8	12.9	14	16	11.7	15.5	17	14.5	10.3	7.9	7	9.4	6.8	6.3	7.6	8.7	10	9.4	8.7	8.3	9.2	9.8	10.2	9.1	17.0	10.6	24
2	9.9	11	15.3	18.4	21	18.6	15.6	9.8	8.4	6.7	7.4	5	3.7	0.6	1.2	0.8	3.3	1.4	1.6	0.6	3.1	3	2.4	1	21.0	7.1	24
3	1.5	2.4	2.7	2.8	5.2	8.9	10.6	9	6.4	5.2	3.6	8.6	4.7	1.9	0.3	2.7	2.1	1	0.1	2.1	0.6	3	1.6	1.2	10.6	3.7	24
4	1.4	3.4	2.7	4.4	4.1	3.6	9.1	14.7	15.3	5.8	13.9	10.2	3.1	3.2	3.5	0.9	1.9	1	2.4	2.5	3.5	0.9	3.8	3.6	15.3	5.0	24
5	2.6	4.2	1.9	1.5	2	3.3	6	2.4	3.3	6.6	6.1	4.9	5.5	4.4	4.8	3.2	1.6	1.4	3.2	1.5	0.4	0.7	2.7	2.8	6.6	3.2	24
6	4.8	4.3	2.8	5	1.7	1.6	2.1	4	5.1	4.1	2.5	2	3.4	2.7	1.6	1	3.3	2.8	2.9	5.4	4.7	5.6	5.4	5.3	5.6	0.0	24
7	2.5	2.3	4.2	5.7	2.7	3.2	5.3	2.3	2.4	3.1	3.1	5	6.1	3.9	4.1	3.9	1.6	1	2.3	2.1	3.6	3.7	4.4	4	6.1	3.4	24
8	8.2	10.1	12.3	13.1	12.4	9.7	9.3	6.6	4.6	4.3	4.7	4.8	4.1	4.9	4.9	13.4	14.1	15	10.6	9.8	8.4	11.7	15.3	19.2	19.2	9.6	24
9	<b>23.7</b>	19.5	17.3	14.1	11.6	13.8	15.9	16.9	17.8	17.9	18.4	19.1	21.4	19.8	15.7	15.8	10.9	8	5.8	5.5	3.8	4.9	2.9	1.5	<b>23.7</b>	<b>13.4</b>	24
10	2.4	0.6	1.1	0.9	0.6	1.5	1.5	1.8	0	0.5	1	3.5	3.9	0	0.6	1.6	2.3	0.5	0.2	0.1	1.6	0.2	2.4	1.3	3.9	1.3	24
11	0	1.3	0	1.4	1.2	0.4	1.7	0.4	1.6	0.9	2.3	2	3.8	8.2	5.8	3.9	2.2	0.9	2.5	2.5	3.8	6.6	6.7	3	8.2	2.6	24
12	6.7	8.7	12	10.1	7.8	4.5	2.5	4.6	7.1	8	5.2	2.7	0	1.2	4.5	4.8	2.5	2.6	4.1	5.5	5.8	3.4	4.6	6.2	12.0	5.2	24
13	7.2	7.7	9.2	8.7	7.7	8.3	7	4.2	3.1	0.7	0	0	0	0	0	0.9	0	2.2	1.3	1.5	3.2	2.2	1.6	0.9	9.2	3.2	24
14	2.9	3.9	5.4	5	7.3	7.7	8.4	7.4	7.9	12	9.9	9.1	8.6	8.2	10.5	11.2	11.7	10.7	11.4	12	11	12.1	13.2	12.8	13.2	9.2	24
15	14.2	10.9	10.5	6.5	5.1	1.6	4.1	7.7	8.4	0.5	5.3	5.7	3.5	0	1.8	1.5	1.9	4.1	4.3	5.6	2.7	2	1.9	8.2	14.2	4.9	24
16	4.9	2.2	2.7	1.3	2.7	3	5	2.3	1	4.4	1.4	3.7	5.7	5.6	2.1	2.9	3.2	3.5	3.6	4.1	5.3	2.6	3	1.9	5.7	3.3	24
17	2.8	4.3	3.5	3.4	3.8	4.1	4.6	3.9	3.2	3.9	3.6	3.8	3.3	5.7	4.5	5.1	4.2	4.1	5.9	4.2	4.7	2.3	1.9	4.6	5.9	4.0	24
18	2.6	3.4	3.7	4.8	5.5	6	6.3	4.8	3.6	2.5	5.6	5.3	2.2	3.9	3.1	4.4	5	4.9	6	3.4	5.3	4.5	3.7	3.6	6.3	4.3	24
19	5	6.6	7.9	8.2	11.4	18.7	21.5	15.7	12.6	9.8	9.6	8.8	8.9	8.5	7.7	9.2	12.3	9.1	9	11.7	12.2	11.7	10.1	10	21.5	10.7	24
20	9.2	6.4	6.2	7.7	8.3	6.2	5.4	6.3	3.5	5.5	6.8	5.8	5.5	7.9	5.4	5.5	7.1	5.8	4.1	4.9	6.8	5.1	4.7	5.5	9.2	6.1	24
21	4.2	6.8	6.1	4.5	5.3	8.7	7.3	6.9	6	9	15.1	18.4	18.3	15.9	14.2	16.8	17.2	15.8	16.2	14	10.8	11.1	10.6	10.9	18.4	11.3	24
22	8.5	9.3	7.8	4.4	2.4	0.9	1.5	1.4	3.6	3.3	0.5	1.2	1.2	2.2	2.7	1.5	1.4	2.9	1.3	1.3	0.3	0.8	0.4	0	9.3	2.5	24
23	0.2	0.8	1.8	2.3	1.8	1.9	2.4	0.3	0	0	1.9	0.3	0	1.6	0.6	1.1	0.8	0.6	1.7	2.1	2.5	2.2	2.1	1.7	2.5	1.3	24
24	0.9	0.9	1.2	2.1	2.4	2	1.5	3.8	2.1	4.4	3.7	2.2	C	C	7.4	4.6	2.8	1.3	0	0.1	2.2	2.9	3.5	3.1	7.4	2.5	24
25	3	6	5.5	5.3	6.7	6.7	6.3	6.2	6.9	5.5	7.5	12.2	12.9	10.9	10.3	10.6	12.3	11.3	9.7	9.8	9.7	7.3	5.6	3.5	12.9	8.0	24
26	3.3	7.8	6.9	5.6	8.6	6.7	3.4	5.8	4.2	2.8	0.6	1	2.5	2	2.1	0	0.1	1.9	0.4	0	1.9	0	1.4	2.3	8.6	3.0	24
27	2.7	0	2.3	0.5	0.5	0.1	2.2	3.8	3.6	2.2	1.9	3.3	3.7	5	5.2	5.6	4.4	4.1	4.6	5	5.4	3.8	4.4	2.1	5.6	3.2	24
28	3.6	3.1	3.1	0	1.2	3.1	3.4	4.3	6.3	4.1	0.2	3	2.9	3.1	2.7	2.7	1.1	2	4.4	7	7.4	7.5	6	5.1	7.5	3.6	24
HOURLY MAX	24	20	17	18	21	19	22	17	18	18	18	19	21	20	16	17	17	16	16	14	12	12	15	19			
HOURLY AVG	5.5	5.7	6.1	5.8	5.8	6.1	6.7	6.1	5.7	5.1	5.3	5.8	5.4	5.1	4.8	5.2	5.0	4.6	4.6	4.7	5.0	4.7	4.9	4.8			

**STATUS FLAG CODES**

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

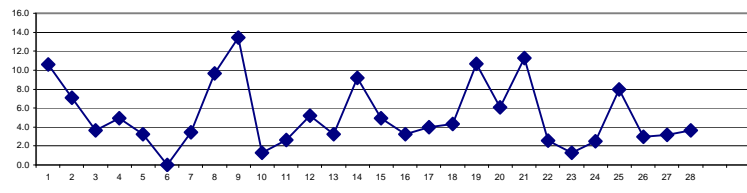
**OBJECTIVE LIMIT:**

<b>ALBERTA ENVIRONMENT:</b>	1-HR	-	ug/m3	24-HR	30	ug/m3
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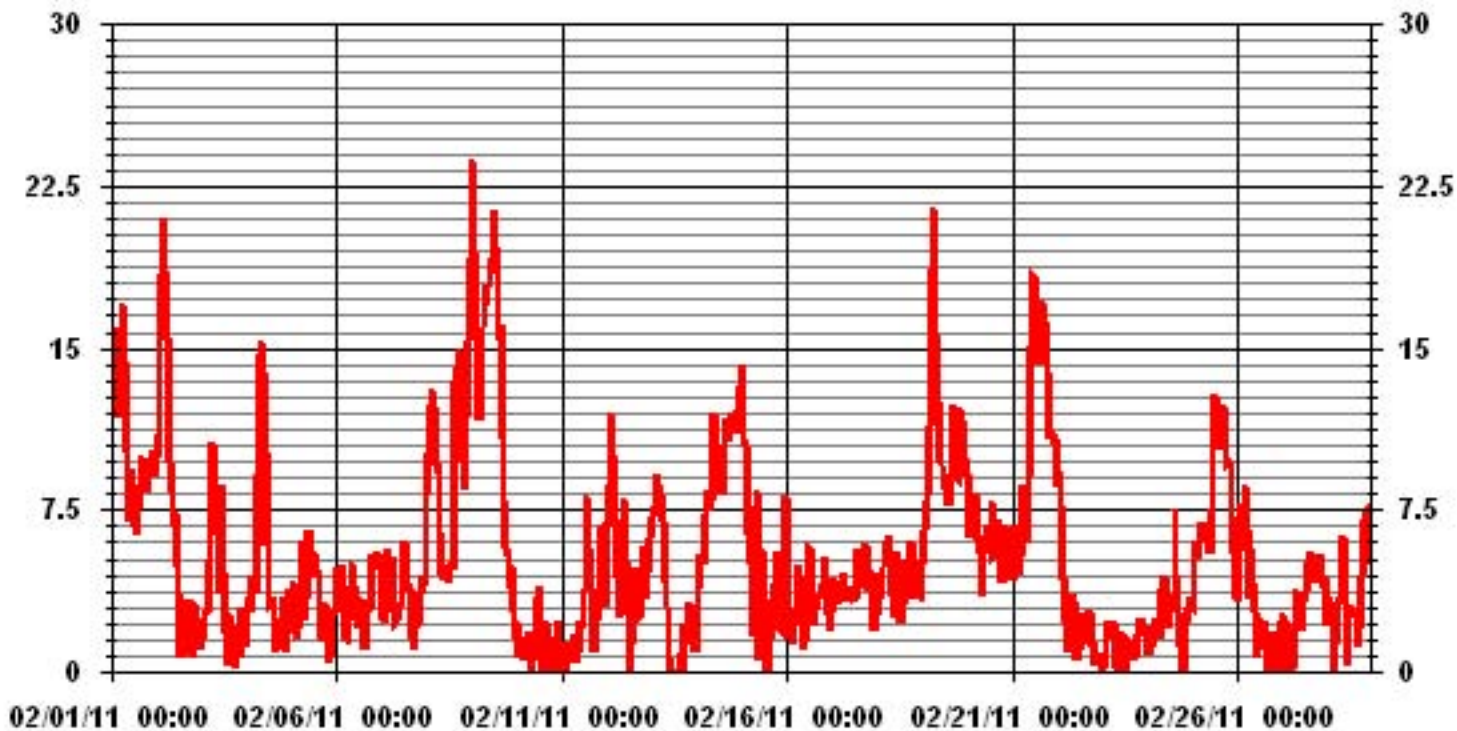
**MONTHLY SUMMARY**

NUMBER OF 1-HR EXCEEDENCES:	-
NUMBER OF 24-HR EXCEEDENCES:	0 PROPOSED CANADA WIDE GUIDELINE
NUMBER OF NON-ZERO READINGS:	648
MAXIMUM 1-HR AVERAGE:	23.7 UG/M <sup>3</sup> @ HOUR(S) 0 ON DAY(S) 9
MAXIMUM 24-HR AVERAGE:	13.4 UG/M <sup>3</sup> ON DAY(S) 9
IZS CALIBRATION TIME:	0 HRS
MONTHLY CALIBRATION TIME:	2 HRS
STANDARD DEVIATION:	4.44
OPERATIONAL TIME:	672 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	5.35 UG/M <sup>3</sup>

**24 HOUR AVERAGES FOR FEBRUARY 2011**



### 01 Hour Averages



— LICA31 PM2 UG/M3

LICA31  
PM2 / WDR Joint Frequency Distribution (Percent)

February 2011

Distribution By % Of Samples

Logger Id : 31  
Site Name : LICA31  
Parameter : PM2  
Units : UG/M3

Wind Parameter : WDR  
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	4.77	4.32	4.62	3.58	2.68	4.77	3.58	.89	4.17	5.97	13.13	8.20	8.95	12.08	10.59	7.61	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	4.77	4.32	4.62	3.58	2.68	4.77	3.58	.89	4.17	5.97	13.13	8.20	8.95	12.08	10.59	7.61	

Calm : .00 %

Total # Operational Hours : 670

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	32	29	31	24	18	32	24	6	28	40	88	55	60	81	71	51	670
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	32	29	31	24	18	32	24	6	28	40	88	55	60	81	71	51	

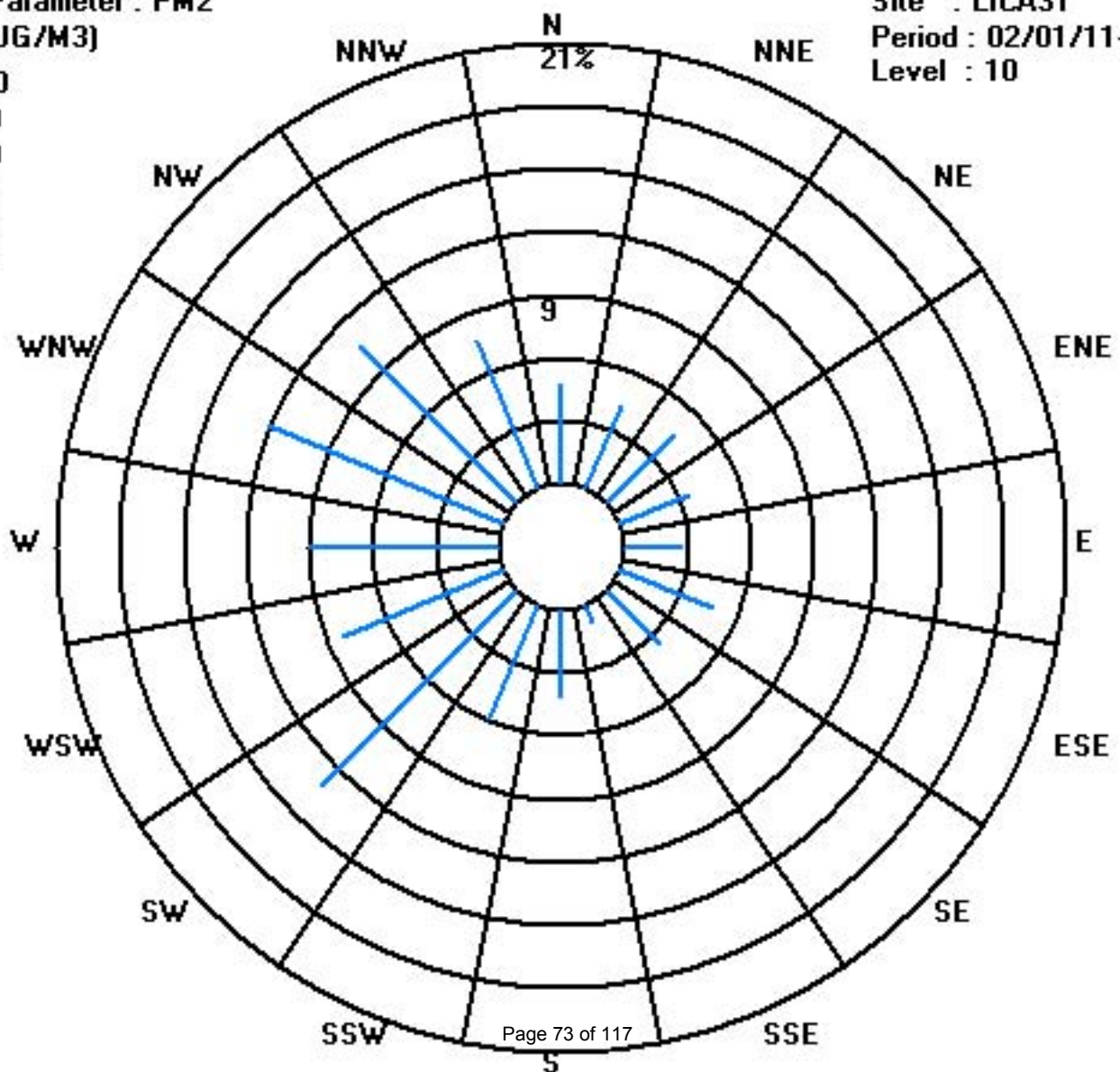
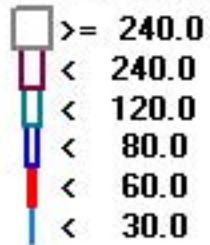
Calm : .00 %

Total # Operational Hours : 670

Class Limits (UG/M3)

Period : 02/01/11-02/28/11

Level : 10



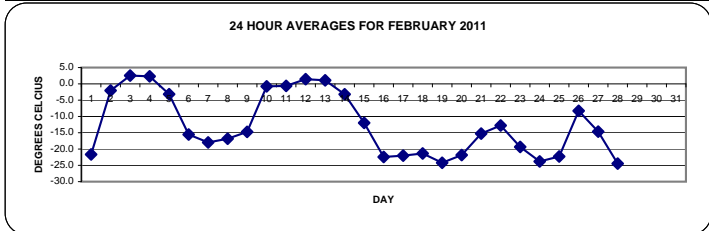
# Temperature

**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA**  
**FEBRUARY 2011**  
**AMBIENT TEMPERATURE hourly averages (Degrees C)**

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS	
DAY																													
1		-27.7	-27.4	-27.3	-27.3	-26.9	-26.5	-26.3	-25.8	-25	-23	-20.9	-19.5	-18.2	-16.9	-16.3	-16.2	-17.2	-18.3	-18.5	-18.6	-18.9	-19	-19.1	-19	-16.2	-21.7	24	
2		-18.1	-16.8	-14.5	-12.5	-10.4	-7.8	-6.6	-5.9	-3.8	-1.2	0.8	4.1	6.8	7.4	7.2	<b>7.4</b>	6.4	4.3	2.7	1.2	1.1	0.5	-0.7	-0.9	<b>7.4</b>	-2.1	24	
3		-0.5	0.2	0.5	-0.6	0.2	1.4	2.2	1.6	2.1	3.4	3.5	4.6	6.2	7	6.5	5.9	5.1	3.6	2.3	2	1.7	1.3	0.6	0.1	7.0	<b>2.5</b>	24	
4		-0.6	-0.7	-0.1	0.6	1.1	0.3	-0.2	0.4	0.5	1.2	3.2	5.6	6.6	6	5.7	5.4	3.9	3.2	3.2	3	2.5	1.9	1.5	1.2	6.6	2.3	24	
5		0.6	0	0	0	-0.2	-0.7	-1	-0.8	-0.8	-0.5	0	0.2	0.2	0	-1.2	-2.3	-3.4	-4.8	-6.8	-8.3	-10	-11	-11.9	-13.3	0.6	-3.2	24	
6		-14	-14.9	-15.7	-16.7	-17.2	-18.1	-18.7	-19.2	-18.5	-16.9	-14.6	-12.2	-10.2	-9.3	-7.7	-10.4	-13.3	-15.3	-16.2	-17.9	-18.4	-19.2	-19.3	-19	-7.7	-15.5	24	
7		-18.2	-19	-19.7	-20.4	-21.2	-21.6	-21.2	-20.1	-18.5	-16.6	-14	-13.3	-13	-13.1	-13.3	-13.2	-14.1	-16.6	-18.2	-19.2	-20.5	-22.1	-22.1	-22	-22	-13.0	-18.0	24
8		-22.5	-23.3	-22.2	-20.8	-20.2	-20.1	-19.6	-19.6	-19	-17	-15.1	-12.2	-10.1	-8.8	-10.6	-11.4	-12.3	-14.9	-16	-16.4	-16.6	-16.8	-18.8	-19.7	-8.8	-16.8	24	
9		-20.7	-21.2	-21.3	-21.3	-21.1	-22.4	-23.4	-23.1	-21.3	-19.2	-16.8	-14.4	-12.3	-11.9	-10.8	-9.9	-9.5	-10.1	-9.9	-8.9	-7.9	-6.6	-5.1	-4.6	-4.6	-14.7	24	
10		-4	-3.8	-3.4	-3.4	-3.3	-3	-2.5	-2.4	-2.1	-1.1	0	1	1.2	0.8	0.6	0.6	1	1	0.9	1.1	1.4	1.1	0.4	-0.5	1.4	-0.8	24	
11		-1.5	-2.5	-2.5	-2.9	-3.1	-3.7	-4	-4.3	-4	-2.8	-1.5	-0.8	-0.9	0.5	1.8	2.7	3.1	2.5	2.5	2.2	1.3	0.3	0.9	1.7	3.1	-0.6	24	
12		1.6	0.8	0.4	0.1	-0.4	-0.5	-1	-0.8	-0.1	1	3	5.2	6.1	6.6	5.8	4.8	3.9	1.8	0.1	-0.5	-0.4	-1.3	-1	-0.8	6.6	1.4	24	
13		-0.2	0.9	-0.6	-0.6	-0.6	-0.5	-0.1	0	0.4	2.3	3.9	4.5	4.9	5.3	5	5.2	4.4	2	0.1	-0.9	-1.3	-2.2	-2.5	-3.3	5.3	1.1	24	
14		-3.2	-3.2	-3.9	-4.3	-4.7	-5.4	-5.6	-5.6	-5.4	-4.7	-2	0.4	2.1	2.7	1.8	1	-1.7	-2.9	-3.9	-4.7	-5	-5.5	-6.3	-6.7	2.7	-3.2	24	
15		-6.9	-7.3	-6.8	-6.6	-7.1	-7.2	-7.8	-8.6	-9.3	-9.4	-8.7	-8.6	-9.2	-9.6	-12.1	-13.1	-14.8	-16.7	-17.7	-18.5	-19.3	-19.9	-20.7	-21.6	-6.6	-12.0	24	
16		-22.3	-23.2	-23.4	-24	-24.8	-25.5	-24.8	-24.4	-23.9	-23	-22.6	-22.2	-21.1	-20.5	-20.6	-20.6	-20.7	-21.1	-21.1	-21.1	-21.6	-22.2	-21.9	-21.8	-20.5	-22.4	24	
17		-22.1	-22.4	-23.1	-23.5	-23.8	-23.8	-24.7	-25.8	-24.5	-23.4	-22.1	-20.8	-19.3	-18.7	-18.8	-19.2	-20.1	-22.3	-22.8	-22.3	-21.5	-21	-21.1	-21.2	-18.7	-22.0	24	
18		-21.6	-22.1	-22.6	-23.6	-24	-23.7	-24.2	-25	-22.5	-21.2	-18.8	-17	-15.3	-14.9	-14.4	-15.8	-18.4	-20.5	-22.5	-23.5	-24.6	-25.2	-25.1	-26	-14.4	-21.4	24	
19		-26.2	-28.1	-28.1	-28.8	-29	-28.2	-29	-28.8	-27	-24.8	-23	-21.2	-19.9	-18.5	-18.1	-18.1	-18.6	-20.5	-22.8	-24.2	-24.5	-24.4	-24.5	-24.9	-18.1	-24.2	24	
20		-25	-25	-25.3	-25.5	-26	-26	-25.6	-25.4	-24.5	-22.4	-21.1	-19.1	-17.3	-17.1	-16.9	-17.1	-18.1	-19.8	-21.3	-21.6	-21.6	-21.2	-20.9	-20.6	-16.9	-21.9	24	
21		-20.8	-20.8	-21.5	-22	-22.1	-22.4	-22.9	-22.8	-21.4	-18.9	-16.2	-13.5	-12.4	-10.6	-9.2	-8.7	-9.1	-9.8	-10.3	-11.3	-11.8	-11.7	-9.4	-6.7	-6.7	-15.3	24	
22		-7.7	-9.3	-9.8	-11	-11.5	-11.7	-12.5	-12.7	-12.6	-12.3	-12.3	-12.5	-12	-12	-11.5	-11.8	-12.8	-13.6	-15.1	-15.2	-15.8	-16.6	-16.9	-17.2	-7.7	-12.8	24	
23		-17.7	-19	-19.8	-20.5	-21	-21.3	-21.8	-21.5	-19.4	-18.7	-17.6	-16.9	-16.5	-16.2	-16.2	-16.6	-17.1	-18.5	-19.9	-20.7	-21.3	-21.3	-22.1	-23	-16.2	-19.4	24	
24		-23.9	-24.6	-25.2	-25.7	-26.2	-26.5	-27.2	-27.9	-26.4	-24.3	-22.4	-21	-20	-19.4	-18.6	-18.2	-19.2	-21.1	-23.1	-24.9	-25.8	-25.9	-26.8	-27.1	-18.2	-23.8	24	
25		-27.5	-28.2	-29.1	-29.4	-30	-30.1	<b>-30.4</b>	-30.3	-28.2	-25.4	-22.5	-19.9	-17.5	-16.2	-15.7	-16.4	-17	-17.6	-18.4	-18	-16.9	-16.5	-16.9	-16.8	-15.7	-22.3	24	
26		-16.2	-15.4	-14.1	-13.3	-12.7	-11.8	-11.4	-11.1	-9.2	-6.3	-5.5	-5.3	-4.6	-4.2	-3.5	-3.4	-4.2	-4.9	-5.6	-5.8	-6.2	-7	-8.4	-8.7	-3.4	-8.3	24	
27		-8.3	-8.8	-9.7	-10.9	-12.1	-12.9	-14	-14.6	-14.1	-13.7	-13.4	-14	-13.4	-13	-14.5	-15.3	-15.9	-17	-17.4	-18.1	-18.9	-19.8	-20.5	-21.4	-8.3	-14.7	24	
28		-22.1	-22.6	-23	-23.4	-24.1	-25.6	-26	-26.2	-25.9	-25.2	-23.5	-22.5	-22.1	-21.7	-22.1	-23	-23.1	-23.9	-25.3	-26.3	-26.8	-27.1	-27.5	-28.1	-21.7	-24.5	24	
HOURLY MAX		1.6	0.9	0.5	0.6	1.1	1.4	2.2	1.6	2.1	3.4	3.9	5.6	6.8	7.4	7.2	7.4	6.4	4.3	3.2	3.0	2.5	1.9	1.5	1.7				
HOURLY AVG		-14.2	-14.6	-14.7	-14.9	-15.1	-15.2	-15.4	-15.4	-14.4	-13.0	-11.4	-10.0	-9.0	-8.4	-8.5	-8.8	-9.7	-11.1	-12.2	-12.8	-13.1	-13.5	-13.8	-14.0				

**STATUS FLAG CODES**

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

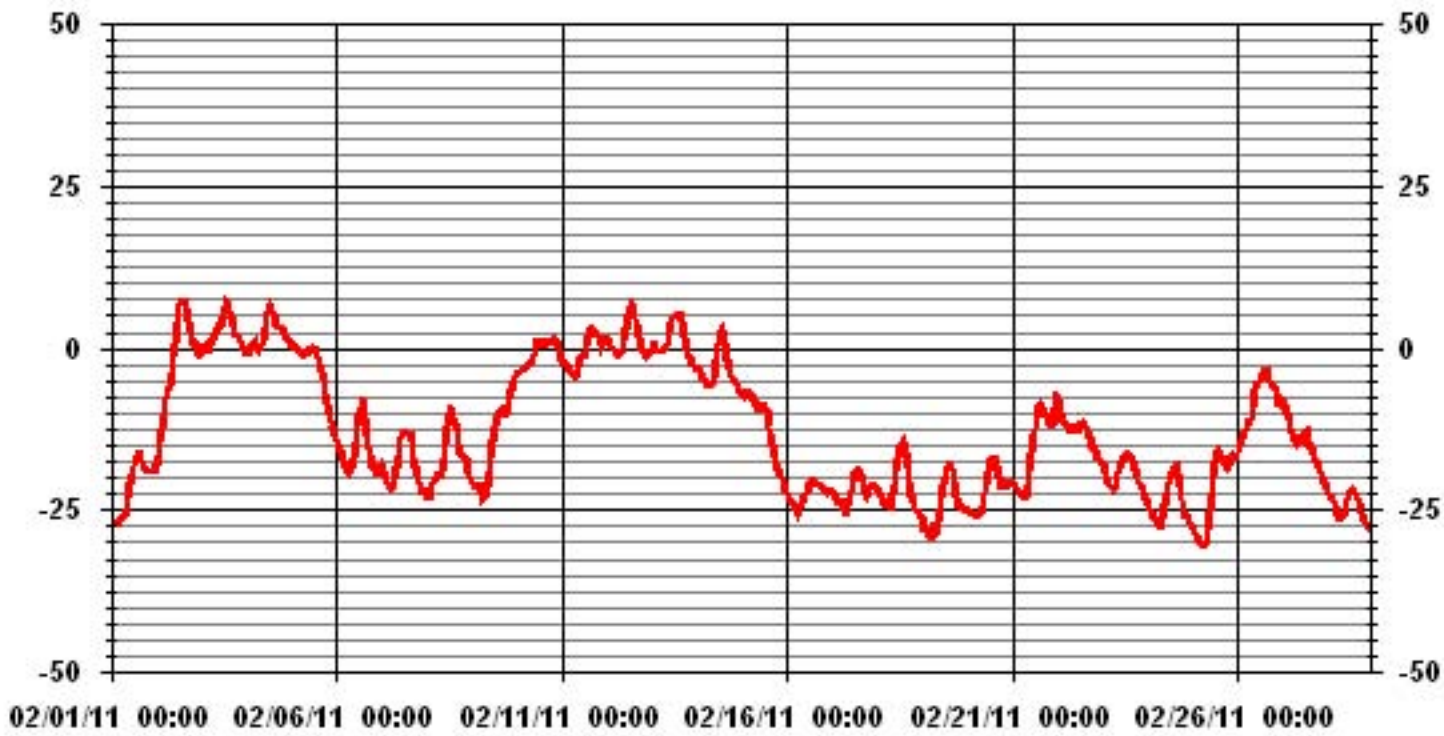


**MONTHLY SUMMARY**

MINIMUM 1-HR AVERAGE:	-30.4 °C	@ HOUR(S)	6	ON DAY(S)	25
MAXIMUM 1-HR AVERAGE:	7.4 °C	@ HOUR(S)	15	ON DAY(S)	2
MAXIMUM 24-HR AVERAGE:	2.5 °C			ON DAY(S)	3
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	672 HRS		
STANDARD DEVIATION:	10.12	AMD OPERATION UPTIME:	100.0 %		
		MONTHLY AVERAGE:	-12.64 °C		



### 01 Hour Averages



— LICA31 TPX DGC

# Barometric Pressure

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 2011

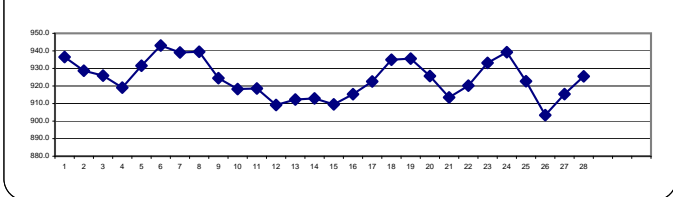
## BAROMETRIC PRESSURE hourly averages (millibar)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY	24-HOUR	
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	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	945	944	943	943	942	941	940	939	938	938	938	937	936	935	935	934	934	933	932	931	931	930	929	928	928	945	936.5	24	
2	928	927	927	927	927	927	927	927	927	928	929	929	930	930	930	930	931	931	930	930	930	929	929	929	929	929	931	928.7	24
3	929	929	929	928	927	927	927	926	926	926	926	926	926	925	925	925	925	925	925	924	924	924	924	924	924	929	925.9	24	
4	924	924	923	923	922	921	920	919	918	918	918	917	917	917	917	917	917	917	917	918	918	919	920	924	924	924	919.1	24	
5	921	922	923	924	926	927	927	928	929	930	930	931	932	932	933	934	935	936	937	938	939	940	941	942	942	942	942	931.5	24
6	942	943	944	944	944	944	945	945	945	945	946	946	946	946	945	945	943	942	941	940	939	938	938	937	946	943.0	24		
7	936	936	936	935	935	935	936	937	937	938	940	941	941	941	941	942	942	942	942	941	941	941	941	941	941	941	941	939.1	24
8	941	941	941	941	941	941	941	941	941	942	942	942	941	941	941	940	939	938	938	937	936	935	934	933	942	939.5	24		
9	932	931	930	929	928	927	926	926	925	925	925	925	925	924	924	923	923	922	921	920	919	919	919	919	919	919	919	924.5	24
10	919	918	918	918	918	918	918	918	918	917	918	918	918	918	918	918	918	918	918	918	919	919	920	920	920	920	918.3	24	
11	920	921	921	921	921	922	921	921	921	921	921	921	920	919	918	918	917	916	916	915	914	914	913	914	922	918.6	24		
12	914	913	913	913	913	913	912	912	912	912	912	912	911	911	910	909	908	907	906	904	902	901	900	900	914	909.2	24		
13	899	900	900	901	902	903	906	908	910	911	913	915	916	917	918	919	920	920	920	920	919	919	919	919	920	919	920	912.3	24
14	919	918	917	916	916	916	915	914	914	914	913	914	914	914	913	912	911	910	910	909	909	908	907	907	907	919	912.9	24	
15	907	908	908	907	906	905	906	906	905	907	907	908	909	909	910	911	912	913	913	914	914	914	914	915	915	915	915	909.5	24
16	916	915	915	915	915	915	915	915	915	915	916	916	915	915	915	915	915	915	915	915	915	915	916	916	916	917	915.3	24	
17	917	917	918	918	919	919	920	920	920	921	922	923	923	924	924	924	925	925	925	926	927	928	928	929	929	929	922.6	24	
18	930	931	931	932	932	932	933	933	934	935	936	936	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	935.0	24
19	937	937	937	937	937	937	936	937	937	937	937	937	937	937	936	936	935	935	935	934	933	933	933	932	932	937	935.6	24	
20	931	931	930	929	929	928	928	927	927	927	926	926	926	926	925	924	923	923	923	922	922	921	920	919	931	925.7	24		
21	918	917	916	916	915	914	913	913	913	913	913	913	913	913	912	912	912	912	912	912	912	912	913	913	918	913.5	24		
22	913	914	914	915	916	917	917	918	918	919	920	921	921	921	922	922	923	923	924	924	925	926	926	926	926	926	920.2	24	
23	927	928	928	929	929	930	930	931	932	932	933	933	934	934	934	935	935	936	936	937	937	938	939	939	939	939	933.2	24	
24	940	940	940	940	941	941	941	941	941	942	942	941	941	940	940	939	938	937	937	936	935	934	933	942	939.3	24			
25	932	932	931	930	930	929	928	927	926	925	925	925	924	923	922	921	920	919	917	915	914	912	910	908	932	922.7	24		
26	907	905	903	901	900	899	899	898	898	899	900	901	902	903	904	905	905	906	906	907	907	908	908	909	909	909	903.4	24	
27	910	910	911	911	912	912	913	913	914	915	915	916	916	917	917	917	917	918	918	919	919	919	920	920	920	920	915.4	24	
28	920	921	921	922	922	923	923	924	924	924	925	925	925	925	926	926	926	927	928	929	930	931	932	933	933	925.5	24		
HOURLY MAX	945	944	944	944	944	944	945	945	945	945	946	946	946	946	945	945	943	942	942	941	941	941	941	942					
HOURLY AVG	924	924	924	924	924	924	924	924	924	924	925	925	925	925	925	925	925	924	924	924	924	924	924	924					

### STATUS FLAG CODES

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

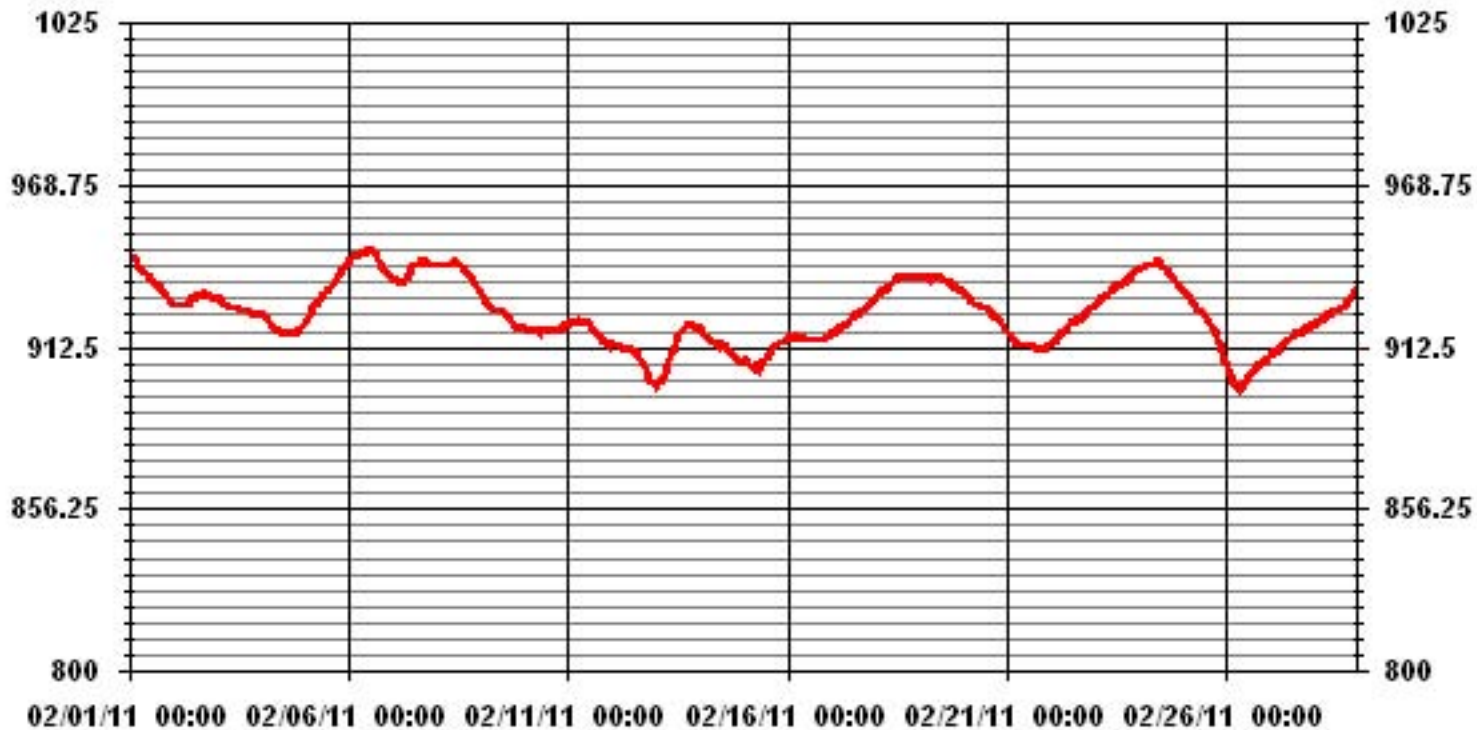
24 HOUR AVERAGES FOR FEBRUARY 2011



### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	946	MB	@ HOUR(S)	VAR	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	943.0	MB			ON DAY(S)	6
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	672	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	11.17		MONTHLY AVERAGE:	924	MB	

### 01 Hour Averages



— LICA31 BP MB

# Relative Humidity

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 2011

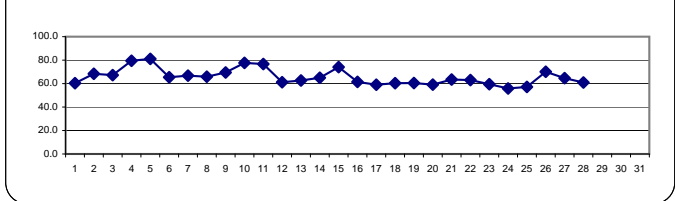
### RELATIVE HUMIDITY hourly averages (%)

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	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	65	65	65	65	66	66	66	66	66	65	63	57	52	50	49	49	53	57	59	59	61	61	61	62	66	60.3	24
2	2	63	65	68	71	75	77	79	80	78	71	68	60	56	55	55	54	57	64	68	73	73	75	78	78	80	68.4	24
3	3	75	73	74	77	74	70	66	66	65	61	62	60	59	57	59	61	64	68	72	72	70	68	69	71	77	67.2	24
4	4	73	75	74	78	81	85	88	90	90	90	80	68	63	65	69	73	78	79	78	81	85	86	89	89	90	79.5	24
5	5	89	89	89	89	87	86	86	87	85	81	78	76	76	74	82	82	81	81	79	79	78	75	72	64	89	81.0	24
6	6	62	64	67	69	71	75	76	75	73	70	65	58	51	46	40	49	58	63	66	71	74	76	76	75	76	65.4	24
7	7	72	71	72	72	74	74	74	74	72	68	62	56	56	56	56	53	55	62	67	69	72	73	72	71	74	66.8	24
8	8	71	71	71	70	71	71	72	72	70	66	63	58	52	47	51	53	55	63	68	70	71	73	76	76	76	65.9	24
9	9	75	73	73	73	73	72	71	71	70	66	68	66	65	64	58	59	64	74	72	66	66	75	74	79	79	69.5	24
10	10	82	85	85	86	87	87	85	83	80	75	70	67	68	75	82	85	80	77	77	73	67	67	69	72	87	77.7	24
11	11	74	78	78	79	80	82	84	84	85	82	78	80	84	82	79	73	70	71	70	70	70	73	68	66	85	76.7	24
12	12	66	69	69	69	70	68	68	68	66	62	56	48	45	43	45	47	49	57	63	66	67	69	69	69	70	61.2	24
13	13	66	69	75	80	83	86	89	89	87	71	60	51	45	40	40	38	40	45	52	56	56	59	60	66	89	62.6	24
14	14	67	67	70	71	70	71	72	71	70	67	59	52	47	46	49	51	58	62	66	69	72	75	78	79	79	65.0	24
15	15	79	80	79	79	83	84	83	82	82	81	82	81	77	67	66	65	61	63	67	68	71	72	66	59	84	74.0	24
16	16	62	65	65	66	67	70	66	63	62	59	57	56	52	50	50	51	54	59	66	68	68	66	65	68	70	61.5	24
17	17	68	68	66	66	66	66	66	66	62	58	54	51	47	43	43	45	47	55	58	60	61	64	68	69	69	59.0	24
18	18	69	69	69	71	70	69	68	68	65	60	53	48	43	41	40	41	49	57	62	65	67	68	67	69	71	60.3	24
19	19	68	68	67	67	67	67	67	66	63	61	60	58	50	47	48	48	49	54	58	63	65	64	63	63	68	60.5	24
20	20	62	63	64	64	63	63	62	62	59	55	54	52	48	48	50	52	54	58	62	63	64	64	66	67	67	59.1	24
21	21	67	68	70	71	71	71	71	70	68	67	63	56	55	53	51	51	53	56	59	62	63	64	73	70	73	63.5	24
22	22	68	69	68	72	74	73	75	75	72	66	63	56	52	54	51	50	55	54	58	62	63	60	61	61	75	63.0	24
23	23	64	64	66	68	68	70	71	69	61	57	50	49	46	46	46	47	54	62	65	68	63	63	65	71	59.5	24	
24	24	64	64	65	66	66	66	66	62	57	51	45	42	41	39	38	40	45	51	58	61	61	63	63	66	55.8	24	
25	25	63	64	64	63	64	63	63	62	57	52	48	45	41	40	42	46	49	56	63	67	66	65	65	64	67	57.2	24
26	26	64	62	64	68	75	78	79	80	80	78	73	68	65	66	62	60	65	65	66	68	71	73	75	77	80	70.1	24
27	27	75	75	78	78	78	75	76	78	68	63	59	56	50	48	48	49	50	57	61	64	67	65	66	68	78	64.7	24
28	28	66	66	66	64	64	61	62	63	62	60	56	54	53	51	52	56	60	61	62	64	64	65	65	65	66	60.9	24
HOURLY MAX		89	89	89	89	87	87	89	90	90	90	82	81	84	82	82	85	81	81	79	81	85	86	89	89			
HOURLY AVG		69.3	70.0	70.8	71.9	72.8	73.1	73.3	73.1	70.7	66.8	62.7	58.3	55.0	53.4	53.6	54.5	57.0	61.3	64.7	66.8	67.9	68.5	69.2	69.5			

#### 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

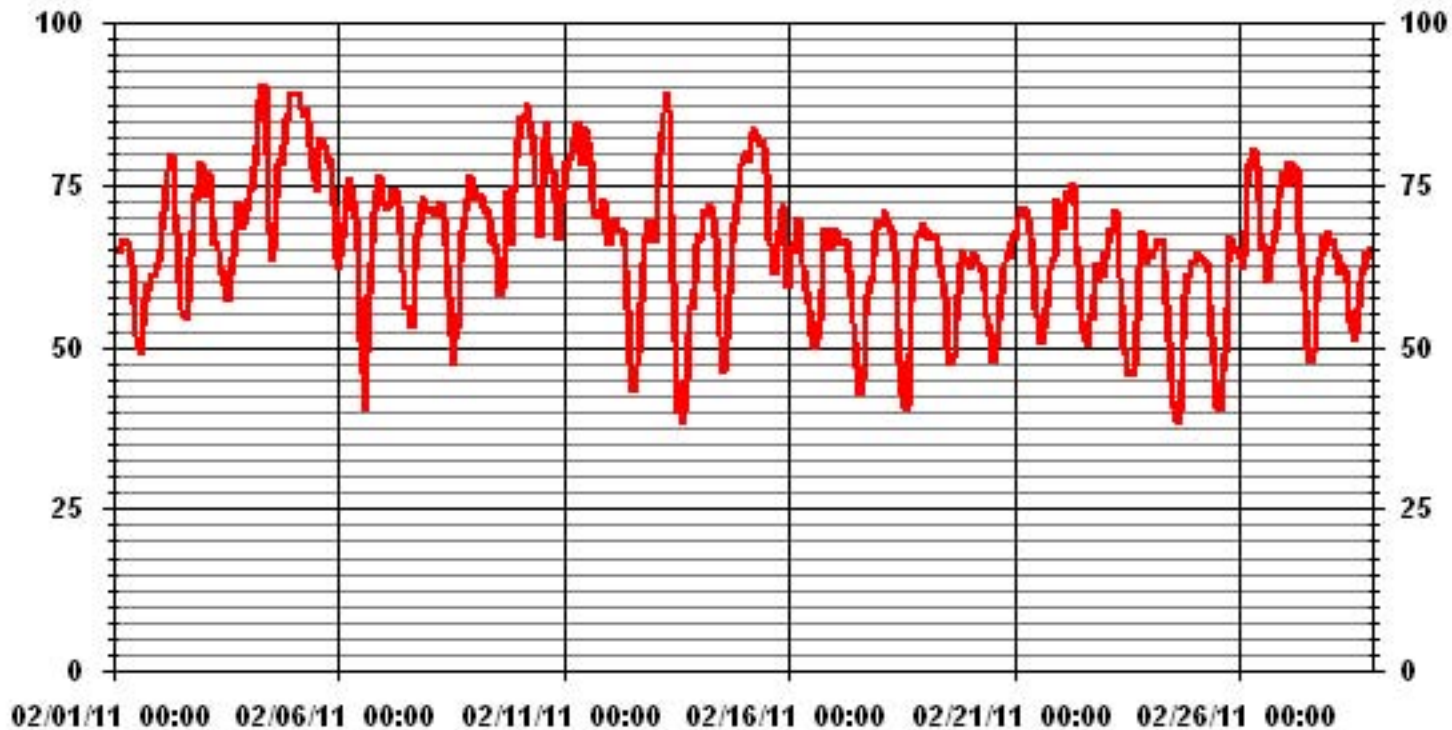
24 HOUR AVERAGES FOR FEBRUARY 2011



#### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	90	%	@ HOUR(S)	VAR	ON DAY(S)	4
MAXIMUM 24-HR AVERAGE:	81.0	%			ON DAY(S)	5
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	672	HRS	
STANDARD DEVIATION:	10.72		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	65.58	%	

### 01 Hour Averages



— LICA31 RH %FS

# Precipitation



**LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA**  
**FEBRUARY 2011**  
**PRECIPITATION hourly averages (mm)**

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY		
HOURLY MAX	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	TOTAL	RDGS.	
	DAY																												
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	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	0.2	0	0	0.1	0	0	0	0	0	0	0	0	0	0.2	0.3	0.1	0.2	0.3	1.1	24
	5	0.1	0.3	0.1	0	0	0	0	0	0	0	0	0	0	0	0.4	0.4	0.1	0.3	0.1	0.1	0.3	0	0	0	0.4	2.2	24	
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	10	0	0	0	0	0.1	0	0	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0.1	0.3	24	
	11	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4	24	
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	13	0	0	0.1	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4	24	
	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	15	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24	
	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0.1	0.1	24	
	17	0	0	0	0	0.1	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.5	0.7	24
	18	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.2	24	
	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	26	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24	
	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0.1	24	
	28	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.1	0.3	24	
HOURLY MAX		0.1	0.3	0.1	0.1	0.1	0.1	0.5	0.0	0.2	0.0	0.1	0.1	0.3	0.1	0.4	0.4	0.1	0.3	0.1	0.1	0.3	0.3	0.1	0.2				

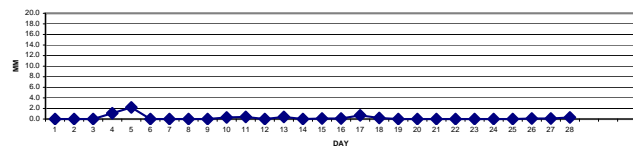
**STATUS FLAG CODES**

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

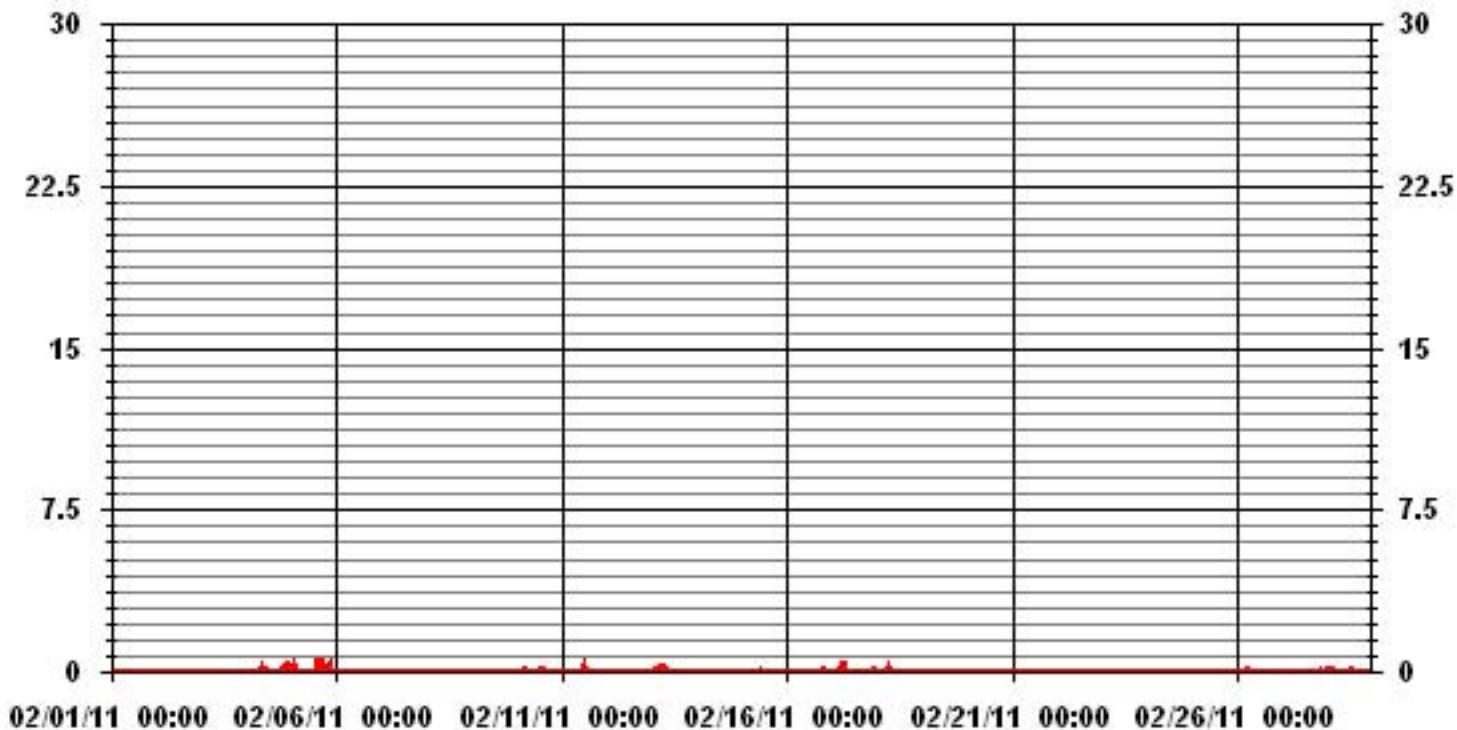
**MONTHLY SUMMARY**

MAXIMUM 1-HR AVERAGE:	0.5	MM	HOUR(S)	6	ON DAY(S)	17
MAXIMUM DAILY TOTAL	2.2	MM			ON DAY(S)	5
MONTHLY TOTAL	6.0	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	672	HRS	
STANDARD DEVIATION:	0.05		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.01	MM	

**DAILY TOTALS FOR FEBRUARY 2011**



### 01 Hour Averages



# Vector Wind Speed

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

FEBRUARY 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	5.1	6.7	6.3	4.2	5.9	5.4	6.2	8.6	8.8	8.2	11	11.5	12.3	10.6	11.3	9.3	9.1	9.7	10.9	8.8	8.5	8.8	9.7	9.5	12.3	8.3	24
2	8.7	12.1	15.6	13.6	18.2	20.2	17.8	15.5	16	16.6	17.1	14.8	20.5	21.7	20.6	20.2	12.9	11.5	11.5	11	11	9.6	11.5	9	21.7	14	24
3	13	14.6	13.3	9.3	14.2	15.8	17.5	16.8	19.7	19	16.6	14.9	19.5	6	2.9	2.9	6.4	7.2	6.3	2.6	4.8	5.3	6	5.2	19.7	6.6	24
4	6.2	5.5	6.4	5.9	8.5	14.5	13.9	14.7	14.8	12.4	8	7.2	7	4.9	6.9	9	10.9	10.1	8.1	13.4	11.5	10.2	13.1	14.8	14.8	8.1	24
5	9.5	14.3	16.4	13.8	14.8	15	13.9	14.6	15.4	15.2	14.7	14.6	14	11.9	13.5	16.4	15.6	20	22.7	21.1	21.9	21.4	20.6	20.4	22.7	<b>14.4</b>	24
6	19	18.5	17.6	16.5	12.3	12.9	7.2	6.3	12.4	11.6	11.3	12.4	6.6	13.3	1.9	12.8	12.1	12.1	9.9	11.8	10.1	10.1	10	9.2	19	5.2	24
7	10.5	14.3	13.8	13.3	12.6	11	10.6	9.5	3.9	15.9	16.2	12.8	12.4	11.6	14.1	8.9	9.7	8.7	9.8	12.3	13.1	11.6	14	13.9	16.2	2.9	24
8	13.2	13.8	14.3	16.8	15.2	13.3	14	13.5	13.3	15	14.8	9.4	9.5	9	9.9	10.9	9.9	9.4	10.3	14.5	14.9	13.9	9.7	4.7	16.8	11	24
9	10.3	10.2	9.8	7.8	8.5	10.8	13.1	15.5	12.9	6.6	6.7	12.5	13.2	12.2	12.4	14.4	15.7	14.5	14.7	14.3	14.9	15.1	12.6	11.9	15.7	11.4	24
10	12	11.4	11.2	10.2	9.8	8.6	10.6	11	11.2	10.1	14.3	15.1	15.5	13.6	13.4	12.2	17.8	15.4	15.2	13.9	17.3	18.2	14.4	13.9	18.2	12.9	24
11	10.7	9.2	10.8	9.3	8.2	5.4	6.8	3.6	12.2	13.2	14.9	12	11.7	12.9	11.6	12	11.3	9.6	13.3	12	11	10.2	12.8	10.1	14.9	9.1	24
12	10.5	9	11	11.1	11.7	10.4	12.5	11	9	9.5	10	11.7	18.2	15.2	15.8	9.3	6.9	7.7	9.1	8.3	9.4	9.9	1.1	11.3	18.2	8.9	24
13	4.1	4.1	6.8	1.4	6.9	10.4	16.4	12.6	13.3	18.9	13.8	11.6	11.7	11.1	11	6.2	7.4	4.7	6.5	10.3	12.2	16.1	1.8	7.7	18.9	3.6	24
14	5.3	5.5	6	8.8	6.6	8	8.7	11.4	9.5	8.3	10.4	11.6	14.3	6.6	5.1	7.3	8	6.7	6.3	6.6	11.4	9.5	9.4	11.9	14.3	6.2	24
15	10.3	12	14.2	21.7	<b>26.3</b>	22.1	8.3	9.8	10.2	13.4	9.2	11.3	11.5	15.6	16.4	15.2	18.5	14	15.9	14.9	5.6	9.3	10.6	11.9	<b>26.3</b>	9.7	24
16	12	10	10.4	10.5	9.6	7.6	8	8	8.1	7.3	8.3	4.6	9.8	9.1	7.5	9.6	9.8	9.1	10.3	10.6	10.2	8.4	7	8.2	12	8.3	24
17	9.2	8.5	5.9	7.9	8.2	8.8	9	10.2	7.3	7.3	6.2	9.4	10	9	7.4	8.2	9.7	10.8	6.8	7.3	11.6	10.3	11	14.1	14.1	8.3	24
18	13	13.5	8.9	7.4	6.7	9.7	8.2	12.7	6.4	6.9	8.4	8.2	8	5.4	5.9	10.2	9.7	9.7	6.7	7.9	7.9	7.5	8.8	6.4	13.5	7.3	24
19	7.2	8.4	4.4	11.4	11.5	11.2	9.1	10.4	11.3	9.5	7.8	7.3	7	7.6	6.7	4.9	7.7	8.5	5.2	1.4	2.3	1.8	1.2	1.6	11.5	5.4	24
20	3.3	4.9	5.8	4.1	3.9	4.1	5.6	6	4.9	4.8	3.8	1.9	7.5	8.5	8.9	8.7	8.2	9.1	9.9	8.8	7.8	6.4	3.4	1.8	9.9	2.3	24
21	3	4.7	3.4	4.2	6	7	7.9	8.9	9	10.9	11.2	10.1	9.6	9.7	9.3	10.3	8	9.3	8.7	8.4	9.5	14.3	11.4	7.7	14.3	7.4	24
22	13.1	4.8	4.2	4.8	7.4	4.9	7.1	9.6	6.6	8.9	11.3	11.7	12.3	13.5	14.7	10.6	9.9	12	12.4	8.3	8.8	12	10.9	11.4	14.7	8.9	24
23	11	10.8	11.8	10.4	8.7	10.4	9.7	10.4	10	11.4	11.2	11.3	13	12.3	12.3	12.2	9.5	7.5	8.7	9.4	9.8	9.3	8.9	9.8	13	9.6	24
24	10.2	10.7	11.1	10.5	11.7	10.6	11.4	10.8	11.6	9.8	11.6	11.7	10.4	12.2	11.4	8.6	9.3	8.7	6.4	8.5	9.6	9.5	10.1	10.5	12.2	9.1	24
25	10.7	4.4	9.7	9.8	9.6	9.6	9.1	8.8	8.9	9.6	10.4	10.9	10.1	8.8	10.3	15.8	15.8	11.6	8.2	7.2	7	5.4	4.8	3.9	15.8	8.3	24
26	3.6	5	9.2	9.3	11.6	11	10.1	11.2	9.6	11.4	11.7	7.7	7.5	8	8.8	9.1	10.1	11.5	13.1	11.9	9.4	10	13.1	7.1	13.1	7.2	24
27	7.1	6	6.7	10	10.2	10.4	11.1	11	11.2	9.8	9.6	8.5	10.3	13.3	14.1	12.2	9	11.8	11.8	11	12.2	11.2	9.9	9.1	14.1	9.3	24
28	10.9	12.1	11.3	12.2	11.8	13.1	10.6	10.6	10.1	11.4	9	6.2	6.3	5.6	5.9	7.4	10	10.1	10.5	10.4	9.5	9.5	7.1	7.9	13.1	4.8	24
HOURLY MAX	19.0	18.5	17.6	21.7	26.3	22.1	17.8	16.8	19.7	19.0	17.1	15.1	20.5	21.7	20.6	20.2	18.5	20.0	22.7	21.1	21.9	21.4	20.6	20.4			
HOURLY AVG	9.4	9.5	9.9	9.9	10.6	10.8	10.5	10.8	10.6	11.2	11.1	10.5	11.4	10.7	10.4	10.5	10.7	10.4	10.3	10.2	10.5	10.5	9.5	9.5			

### STATUS FLAG CODES

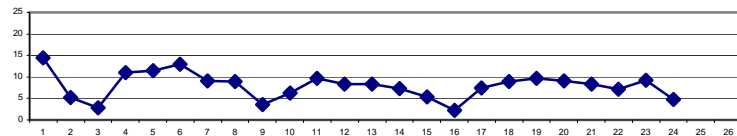
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: June 17, 2010

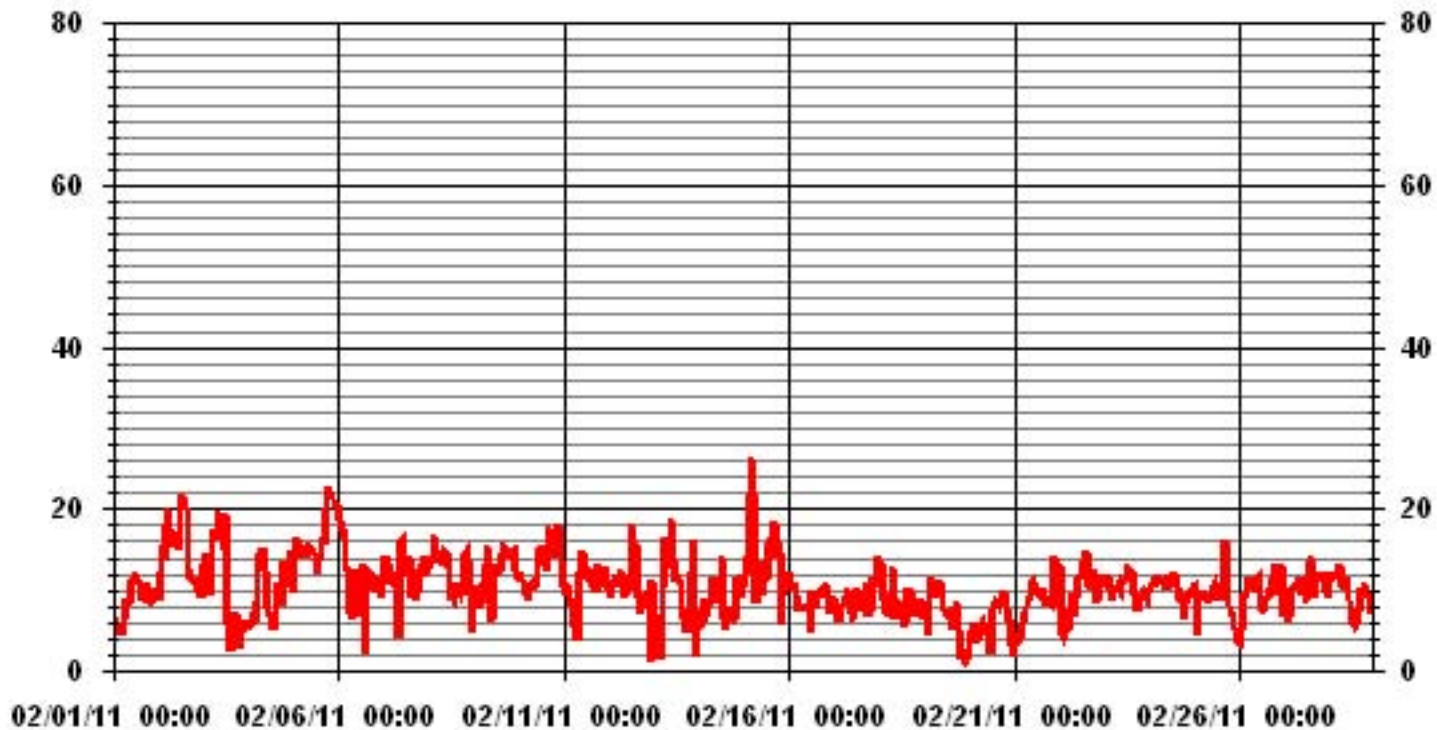
### MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	26.3	KPH	@ HOUR(S)	4	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	14.4	KPH			ON DAY(S)	5
CALMS (≤ 0 KPH)	0.00	%	OPERATIONAL TIME:	672	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	3.74		MONTHLY AVERAGE	10.38	KPH	

24 HOUR AVERAGES FOR FEBRUARY 2011



### 01 Hour Averages



— LICA31 WSP KPH

## LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

FEBRUARY 2011

### VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY
HOUR START		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
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		21.5	19.5	19.5	19.3	34.6	27	34.4	21.9	23.2	22.6	24.8	25.4	24.4	21.9	21	19.3	18.2	19.3	20	14.7	12.7	13.2	15.8	13.4	34.6
2		20.2	17.5	22.3	20.6	26.9	28	27.6	24.3	28.5	27.8	29.1	28	45.4	44.7	46.2	42	29.3	23.6	18.2	15.4	18.4	15.6	16.2	15.1	46.2
3		20	22.6	21.4	20.6	23.2	25	24.3	29.1	33.1	30.4	28.7	35.3	49.9	41.6	40.9	35.9	16.9	16.7	12.7	11.2	16.2	15.1	11.8	11.6	49.9
4		9.6	11	15.5	14	13.2	19.1	18.2	21.2	26.1	21	15.2	18.2	16.4	16.4	36.6	30.4	17.4	16.7	17.7	28.9	22.6	21.7	22.3	27.2	36.6
5		28.5	25.2	28.7	32.2	31.1	30.2	26.3	27.5	27.2	26.9	28	30.5	29.8	31.4	33.5	37.2	37	41.2	46.4	44.9	45.1	44.7	44.7	49	49
6		47.8	41.8	36.6	30.9	28.5	22.4	15.6	16.3	18.7	18.9	24.6	23.7	24.5	25.8	26.7	21.7	21.5	13.8	21.3	20.8	19.5	18.9	19.5	19.1	47.8
7		18.4	18.9	20.2	22.4	20.8	20	18.9	14.7	21.7	26.3	29.4	17.1	16.7	16.2	19.7	20.2	13.6	14	16.9	18	18	15.8	25.6	23.2	29.4
8		17.6	16.9	25	27.6	27.8	26.1	27	27.2	28.9	31.6	28.3	23	20	22.1	15.8	16.7	15.1	15.6	18.9	23.4	26.3	25.6	13.4	14	31.6
9		18.7	18.4	18.9	18.4	16.2	18.4	20.8	18.7	19.3	20.8	18.7	25.2	21	17.3	23.2	20.4	20.6	19.5	19.1	19.9	21	24.3	28.3	25.6	28.3
10		24.3	25.4	21	20.4	20.8	21.2	22.8	19.1	23.9	19.9	30.9	34.4	37.7	31.2	25.6	24.1	42	36.6	34.4	32.9	41.6	39.2	33.7	28.9	42
11		21	17.3	19.5	18	16.7	12.5	9	17.5	16.7	22.2	23.2	21.9	20.6	19.1	17.1	21.9	18.2	20.6	22.6	20.4	19.8	16.4	21	26.7	26.7
12		19.9	20.6	17.5	16.9	23.2	17.1	16.9	16.3	16.9	18.8	19.3	23.2	29.4	33.1	25	17.7	13.6	11.6	18.5	12.7	23.9	21	21.2	21.5	33.1
13		28.5	21.7	22.1	22.8	13.4	23.9	38.5	32.2	33.5	46.2	49.1	49.2	47.5	42.2	45.3	28.9	18.8	15.3	11	19.5	24.3	19.9	24.7	16.2	49.2
14		13.6	15.3	18	18.2	17.1	15.1	17.1	18.2	18.2	18.9	19.3	20.4	22.1	21.9	18	12.5	13.2	14.2	14.3	19.1	18.2	18.6	13.6	17.5	22.1
15		17.5	18	29.2	38.1	47.1	63.3	35.9	26.3	29.6	31.8	29.6	32.7	32	36.8	35.9	37	43.4	33.6	31.1	28.3	19.3	18	25	26.5	63.3
16		20.2	21.9	28.5	22.4	18.2	16.5	19.3	22.8	<b>138.4</b>	54.4	24.6	27	22.4	26.7	23	23	25	24.3	25.5	26.3	25	23.9	24.8	22.1	<b>138.4</b>
17		23.7	23.9	23	23.9	23.9	24.8	24.6	24.1	25.6	23.9	27	27.2	25.6	25.4	26.7	23.7	23.9	21.9	17.3	22.8	27.8	25.4	23	58.3	58.3
18		22.8	25.9	49.7	16.5	23.2	36.2	18.2	17.8	60.7	80.6	19.7	24.1	24.5	24.3	25	27.6	14	15.1	9.9	11	11.4	9.5	17.8	14.3	80.6
19		13.4	10.1	15.1	21.1	20.4	20.6	29	22.4	22.2	21.1	20.2	20	18.7	19.1	20.6	17.5	20.2	20	18.7	42.3	40.6	43.9	38.4	39.9	43.9
20		47.6	51.3	48	46	49.5	45.4	48	48.6	50.6	46.9	42.4	38.6	19.7	20.6	21.9	21.9	22	22.8	23.9	19.6	18.2	20.8	47.8	41.2	51.3
21		33.3	37.3	34.6	18.9	20.4	17.3	16.2	18.9	16.2	16.5	17.3	17.8	14.5	16.9	15.3	19.3	18.9	17.1	18.9	17.8	18.7	17.3	20.2	19.3	37.3
22		24.3	20.2	19.1	18.4	18.9	21.7	20.8	21.5	34	29.2	29.4	28.5	27.2	31.6	36.4	25.4	22.3	26.3	17.3	18	22.1	17.8	18.3	17.8	36.4
23		21.5	19.5	19.5	20.8	27.2	19.7	18.2	25.4	27.2	31	38.8	33.1	35.5	35.1	38.3	39.2	43	24.1	19.3	18	19.5	20.9	21.3	23.7	43
24		23.2	18.9	21.1	22.8	21.5	20.8	20.6	20.6	24.8	23.5	21.3	28.5	26.1	28.3	22.6	25.7	21	19.1	19.5	16.7	20	14.5	16	14.1	28.5
25		16.5	19.5	19.3	15.4	13	16.9	14.3	14.5	14.1	18.2	16.5	16.9	16.9	19.3	25	27.6	25.2	21.3	14.3	16	18	20.8	16.5	16.5	27.6
26		17.4	38.8	23.7	22.4	25.8	19.7	17.1	16.3	18.4	29.8	39.9	51.9	39.2	43.8	29.1	28.3	22.6	25.4	19.5	19.1	18.5	21.7	22.6	13.6	51.9
27		14.1	22.1	22.3	19.7	17.8	19.3	16.2	15.8	25.4	23.2	43.8	23.7	30	27.6	26.8	24.1	21.3	18.9	18.7	19.1	27.8	27.8	23	23.4	43.8
28		27.8	27	27.4	32.2	30.7	28.5	25.6	22.4	21.5	28.1	21.5	21.3	22.6	32.5	20.8	23	19.7	21.9	20.4	18.9	19.3	17.3	18.9	20.9	32.5
PEAK		47.8	51.3	49.7	46.0	49.5	63.3	48.0	48.6	138.4	80.6	49.1	51.9	49.9	44.7	46.2	42.0	43.4	41.2	46.4	44.9	45.1	44.7	47.8	58.3	

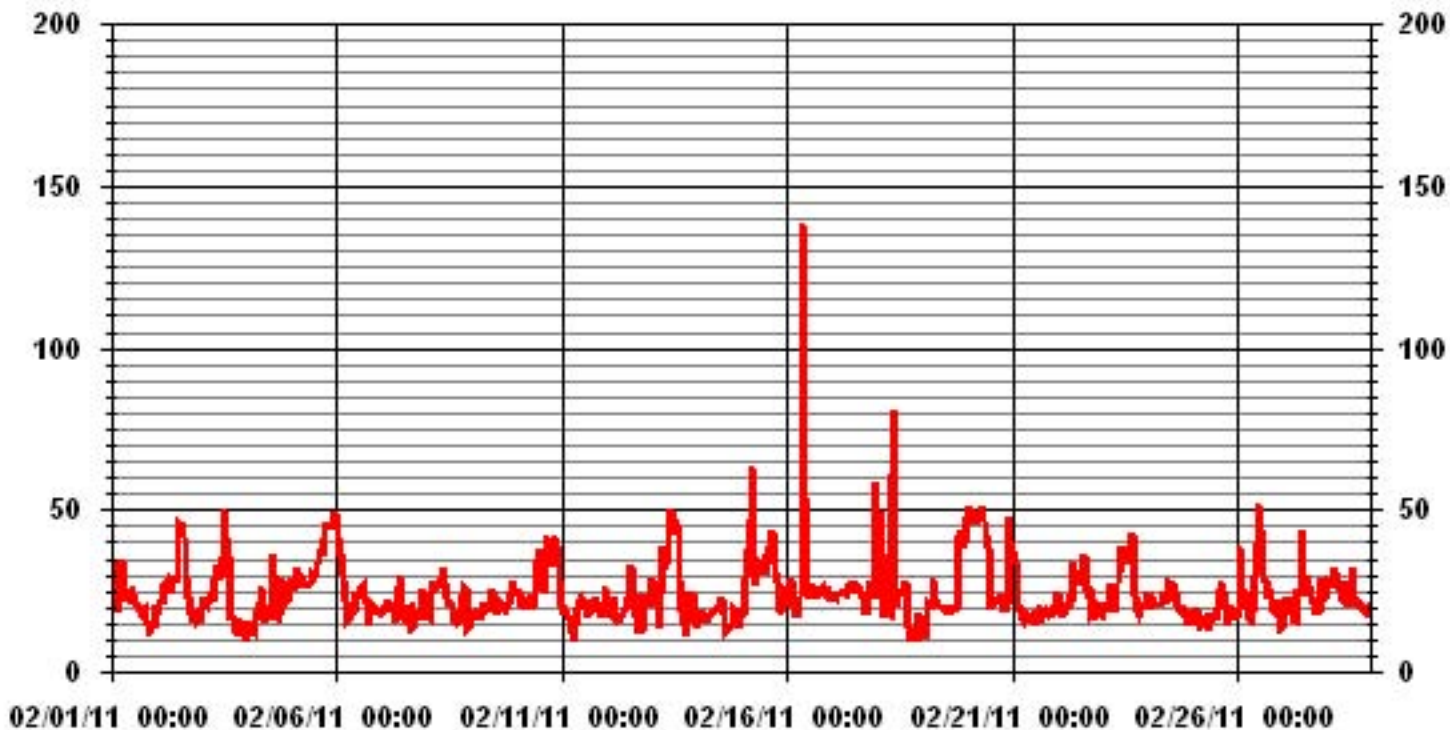
**STATUS FLAG CODES**

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	138.4	KPH	@ HOUR(S)	8
			ON DAY(S)	16

### 01 Hour Averages



— LICA31 WSMAX KPH

LICA31  
WSP / WDR Joint Frequency Distribution (Percent)

February 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	.44	.59	.44	.89	.74	.14	.74	.14	.29	1.19	1.19	.74	.59	.74	.89	.44	10.26
< 12.0	3.12	1.19	1.63	1.78	1.63	3.42	2.08	.59	3.27	4.31	10.11	5.50	4.91	7.14	5.50	5.05	61.30
< 20.0	1.19	1.48	2.52	.44	.29	1.19	.74	.14	.59	.44	1.78	2.23	3.42	3.42	4.16	2.08	26.19
< 29.0	.00	1.04	.00	.44	.00	.00	.00	.00	.00	.00	.00	.00	.00	.74	.00	.00	2.23
< 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	4.76	4.31	4.61	3.57	2.67	4.76	3.57	.89	4.16	5.95	13.09	8.48	8.92	12.05	10.56	7.58	

Calm : .00 %

Total # Operational Hours : 672

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	3	4	3	6	5	1	5	1	2	8	8	5	4	5	6	3	69
< 12.0	21	8	11	12	11	23	14	4	22	29	68	37	33	48	37	34	412
< 20.0	8	10	17	3	2	8	5	1	4	3	12	15	23	23	28	14	176
< 29.0		7		3										5			15
< 39.0																	
>= 39.0																	
Totals	32	29	31	24	18	32	24	6	28	40	88	57	60	81	71	51	

Calm : .00 %

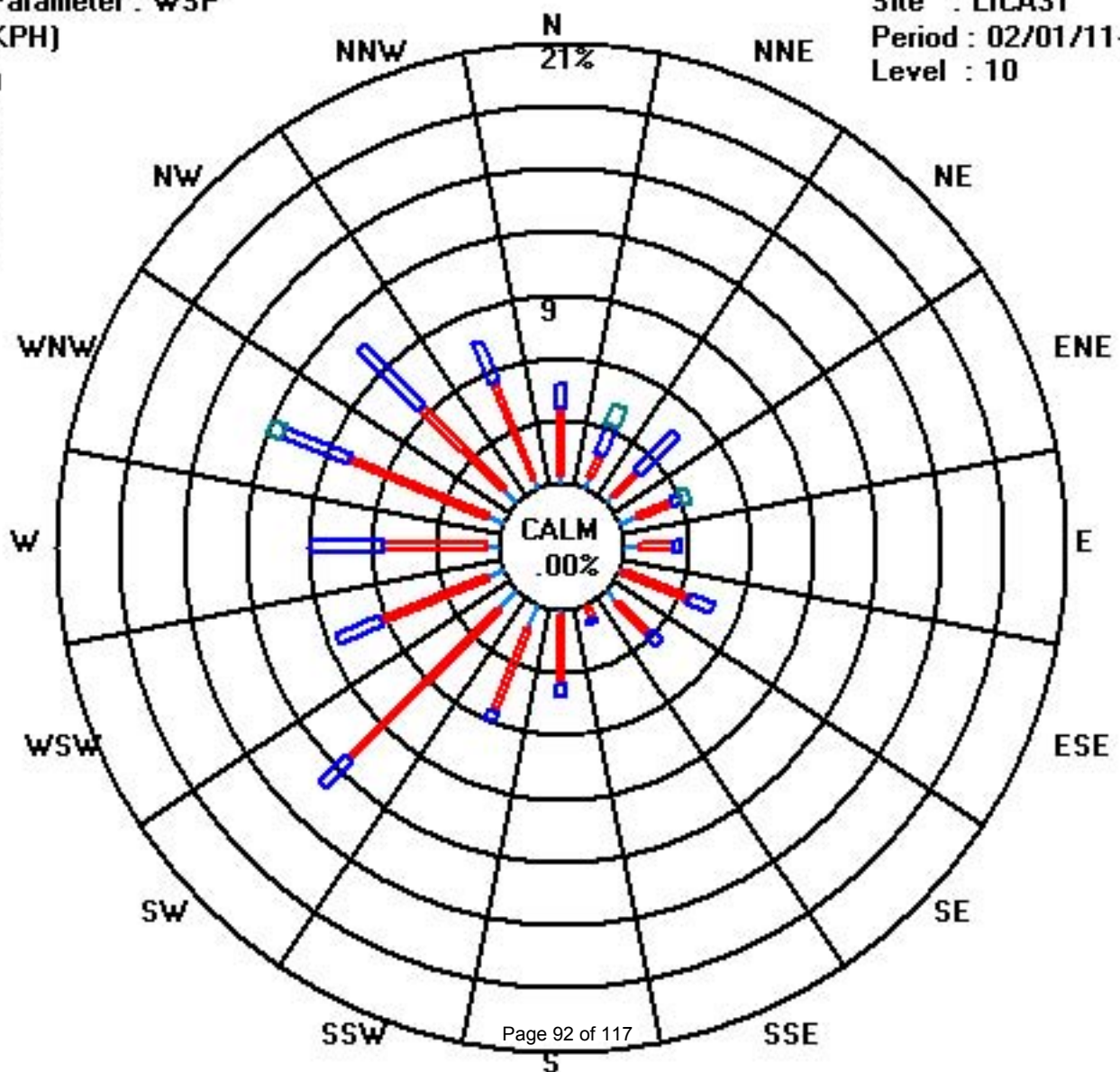
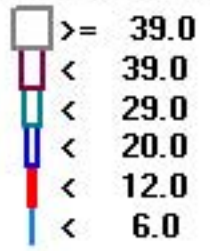
Total # Operational Hours : 672



Class Limits (KPH)

Period : 02/01/11-02/28/11

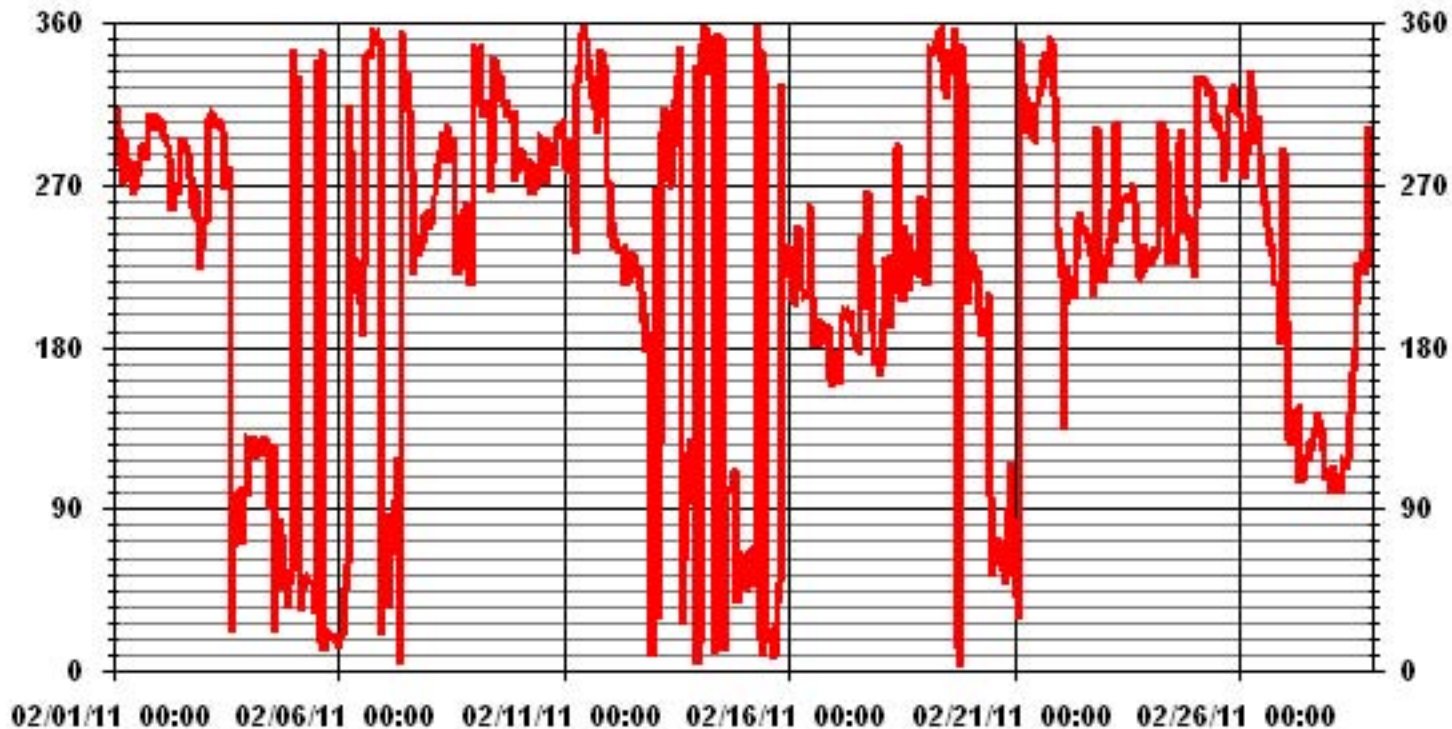
Level : 10



# Vector Wind Direction



### 01 Hour Averages



— LICA31 WDR DEG

# Standard Deviation Wind Direction

# LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

FEBRUARY 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	41	30	34	52	39	41	34	26	24	26	21	20	17	20	15	18	17	14	12	13	11	10	9	7	
2	11	5	4	4	5	5	12	6	9	9	8	11	15	15	15	14	14	12	6	5	8	8	5	7	
3	7	6	9	23	7	7	7	9	11	14	33	20	12	67	75	71	39	21	21	57	40	32	15	21	
4	12	15	14	29	7	6	6	11	21	10	13	27	25	31	42	24	11	9	16	16	17	25	15	22	
5	41	13	19	42	36	16	17	25	21	22	25	34	44	55	45	42	46	27	27	27	27	30	33	31	
6	39	38	40	29	47	9	32	25	10	13	10	40	13	43	6	7	3	28	6	12	12	10	9	9	
7	9	6	6	15	5	6	5	7	40	6	10	4	6	8	7	20	5	5	6	4	5	5	5	5	
8	4	3	4	6	9	11	12	12	12	12	12	28	25	26	7	7	6	5	6	5	5	4	6	32	
9	7	9	9	33	21	10	6	3	14	7	18	20	7	6	5	7	6	5	6	6	7	26	28	13	
10	14	14	15	14	14	13	15	10	12	12	15	16	15	15	14	14	15	15	14	16	14	14	13	12	
11	13	12	11	12	12	11	8	15	6	7	5	11	15	6	8	9	8	15	9	11	13	10	8	17	
12	10	13	8	6	6	6	6	7	9	12	11	9	8	9	8	10	9	6	6	5	10	8	32	35	
13	64	54	19	28	10	12	12	15	13	13	44	45	43	43	37	48	32	38	13	12	10	6	41	27	
14	33	31	42	29	27	18	18	13	24	21	17	15	8	57	29	12	8	9	12	34	11	24	7	6	
15	8	6	7	9	8	23	41	27	38	45	61	45	24	20	18	20	17	21	16	15	23	27	21	19	
16	13	17	17	34	30	13	34	32	23	50	36	52	26	35	45	25	26	30	22	23	19	30	39	28	
17	25	36	53	41	31	29	23	15	42	40	50	29	26	29	26	23	20	12	23	31	16	24	16	22	
18	7	18	66	19	21	36	28	6	25	20	16	46	48	42	44	20	10	6	5	7	6	5	8	6	
19	7	4	19	8	6	8	20	19	15	18	29	28	36	31	49	55	41	32	42	87	82	84	86	94	
20	78	58	58	69	70	79	72	70	74	75	77	77	36	28	27	29	28	22	20	20	25	35	67	76	
21	59	48	66	68	39	27	17	19	14	10	9	12	12	12	11	11	18	15	24	37	33	3	16	27	
22	18	62	60	53	40	58	42	22	45	28	27	27	23	22	20	25	26	20	8	15	31	12	13	12	
23	18	16	14	19	26	19	11	11	29	27	29	28	25	26	28	29	35	36	21	18	19	24	26	23	
24	17	17	16	18	16	19	11	12	13	29	17	21	26	22	20	33	26	13	17	5	5	6	4	4	
25	5	38	12	7	7	9	9	10	12	11	9	9	14	21	21	12	11	11	16	23	24	45	47	56	
26	58	47	29	25	16	14	10	6	15	14	36	48	47	41	38	32	26	19	11	12	19	16	13	10	
27	10	40	32	16	14	14	10	10	21	23	27	29	27	18	16	16	26	13	13	14	16	23	24	24	
28	23	20	20	20	22	19	23	20	20	20	29	46	49	54	52	38	22	20	17	14	13	12	23	23	

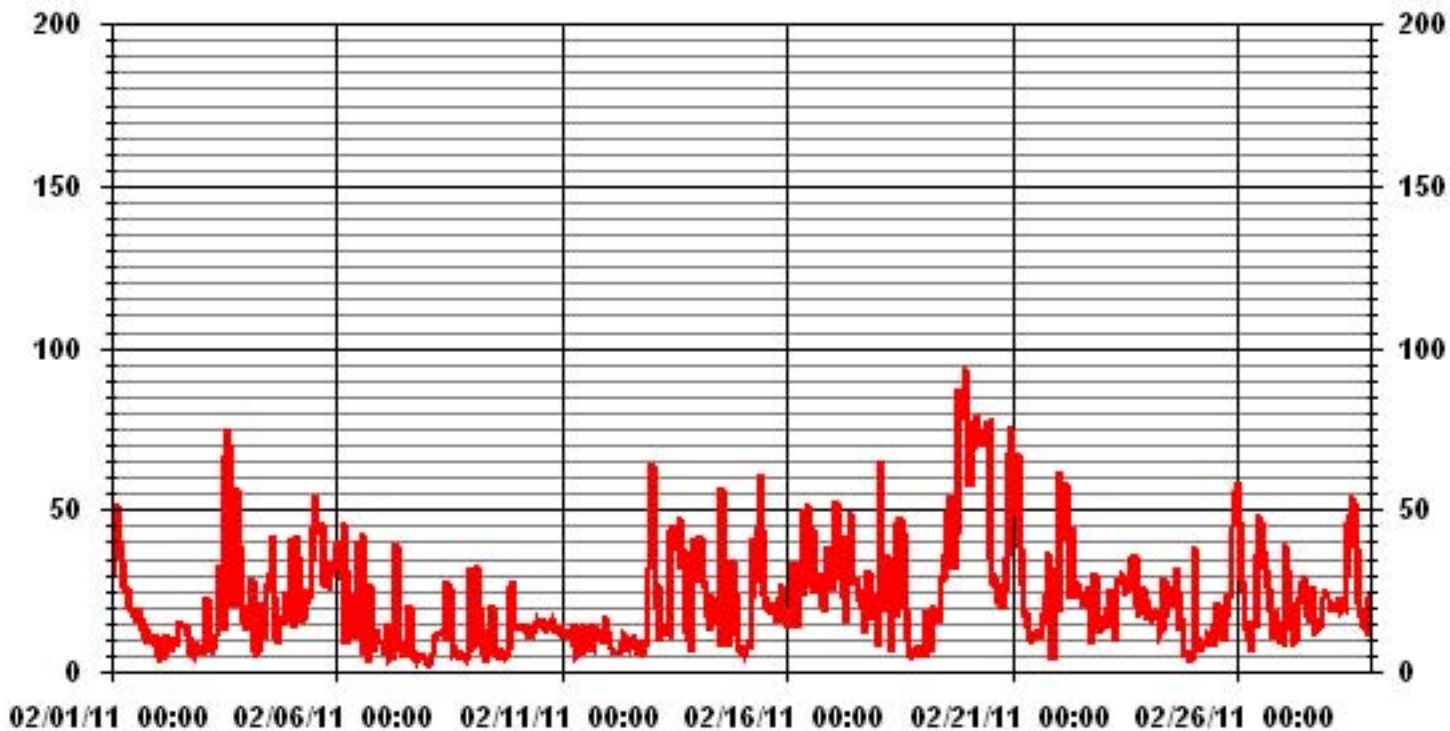
### STATUS FLAG CODES

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

LAST CALIBRATION: June 17, 2010

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 672 HRS

### 01 Hour Averages



— LICA31 STDWDIR DEG

# Calibration Reports



# Sulphur Dioxide

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

#### Station Information

Calibration Date	February 24, 2011	Previous Calibration	January 20, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	9:32	End Time (MST)	13:18
Reason:	Monthly Calibration		
Barometric Pressure	942 mmHg	Station Temperature	25 Deg C
Cal Gas	51.4 ppm	Cal Gas Expiry date	August 13, 2011
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	540 ccm 34.1 Deg C	537 ccm 35.1 Deg C	
HVPS / Lamp Setting	52 2465	529 2462	
PMT / RxCell Temp	7.8 Deg C 50 Deg C	7.8 Deg C 50 Deg C	
Converter / IZS Temp	NA Deg C 40 Deg C	NA Deg C 40 Deg C	
Offset / Slope	64.1 1.138	62.5 1.137	

#### 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
4928	72.9	749	748	1.0017
4960	38.9	400	394	1.0152
4981	16.5	170	170	0.9983
4998	0	0	0	N/A
Sum of Least Squares				1.0044
New Correction Factor				1.0017

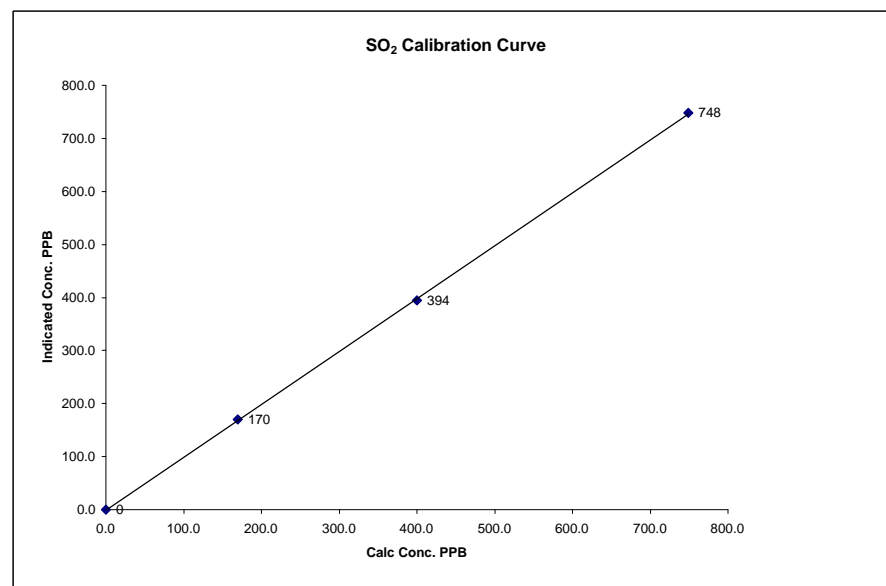
	Before Calibration	After Calibration
Auto Zero	-0.2	0.7
Auto Span	360	358
Sample Lines Connected		YES
Percent Change from Previous Calibration		-0.5%

Calibration Performed by: Ting Xu

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

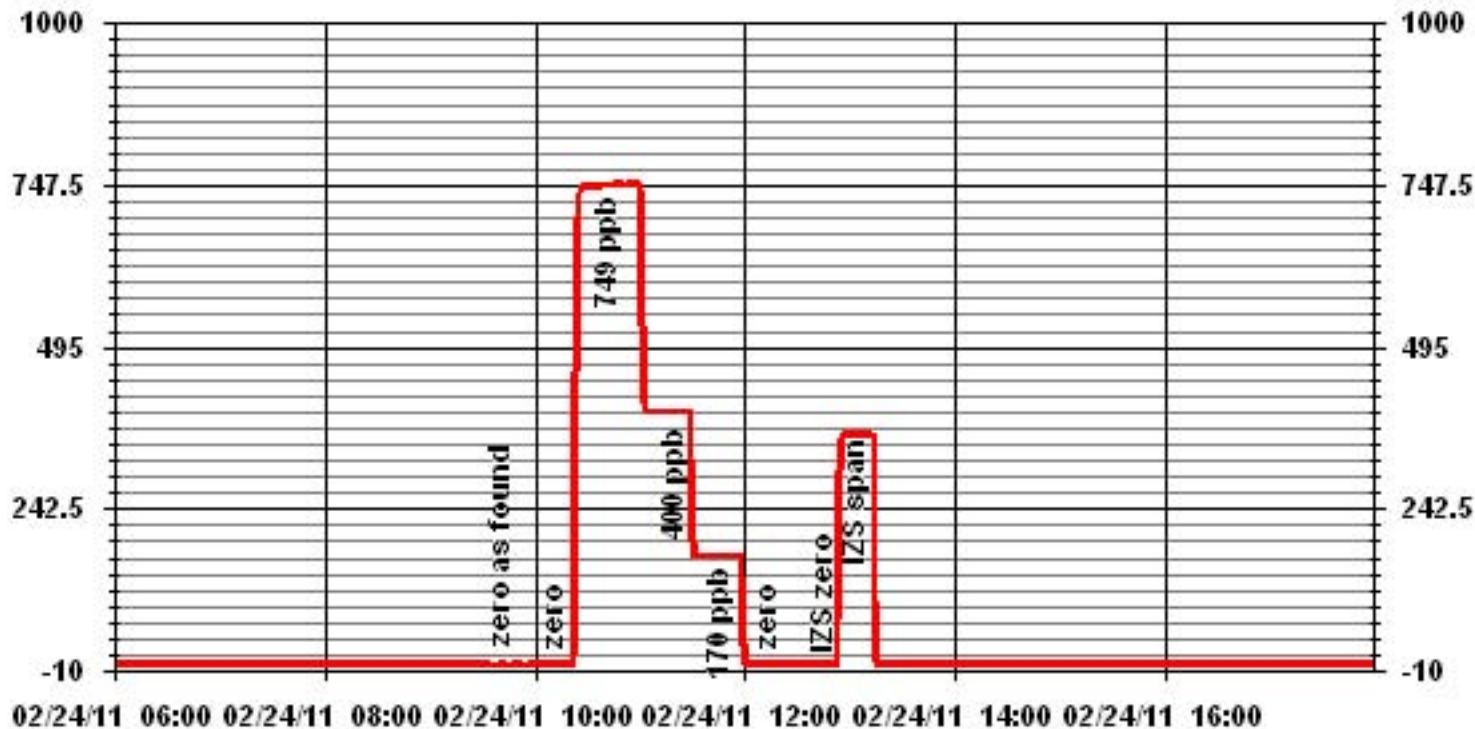
Calibration Date	February 24, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST. LINA
Start Time (MST)	9:32
End Time (MST)	13:18

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999929
0	0	n/a	Intercept	(± 3% F.S.)	-0.691435
170	170	0.9983			
400	394	1.0152			
749	748	1.0017			



Notes:

### 01 Minute Averages



# Hydrogen Sulphide

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

### Station Information

Calibration Date	February 23, 2011	Previous Calibration	January 19, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST.LINA		
Start Time (MST)	9:40	End Time (MST)	12:58
Reason:	Monthly Calibration		
Barometric Pressure	933 mmHg	Station Temperature	22 Deg C
Cal Gas	10.6 ppm	Cal Gas Expiry date	05/12/2011
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	552 ccm	36.5 Deg C	552 ccm	37.1 Deg C	
HVPS / Lamp Setting	518	2571	518	2571	
PMT / RxCell Temp	8.4 Deg C	50 Deg C	8.4 Deg C	50 Deg C	
Converter / IZS Temp	315 Deg C	45 Deg C	315.6 Deg C	45 Deg C	
Offset / Slope	56.8	1.006	56.8	1.006	

### Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	N/A
4958	37.7	80	80	0.9999
4979	18.9	40	41	0.9777
4985	10.8	23	24	0.9548
4994	0	0	0	N/A
Sum of Least Squares				0.9928
New Correction Factor				0.9999

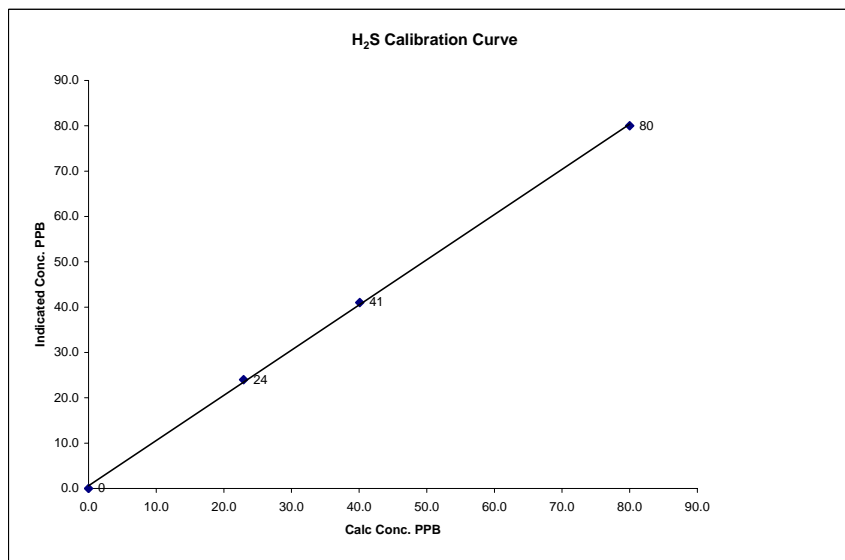
		Before Calibration	After Calibration
Auto Zero		1.2	0.9
Auto Span		45	44
Sample Lines Connected			YES
Percent Change from Previous Calibration			0.0%

Calibration Performed by: Ting Xu

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

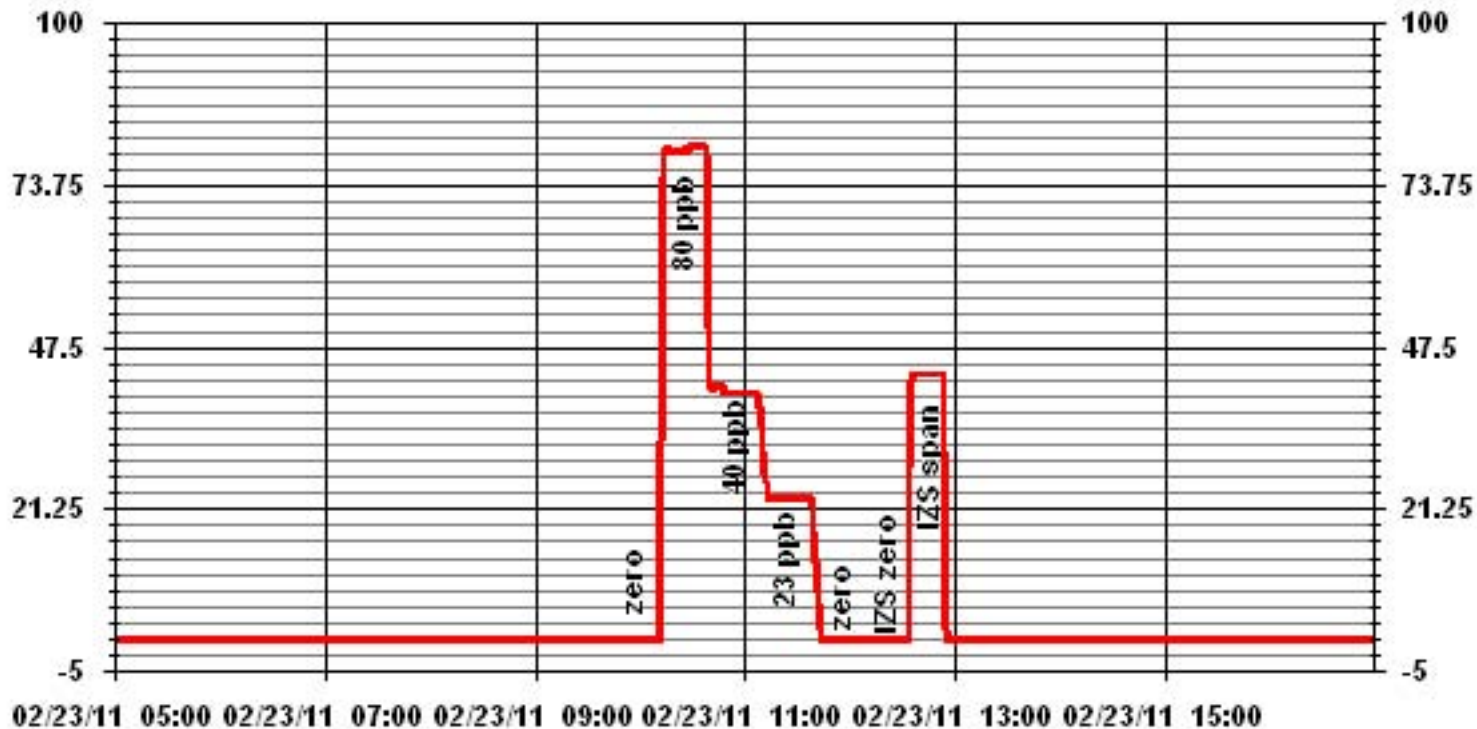
Calibration Date	February 23, 2011		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST.LINA		
Start Time (MST)	9:40	End Time (MST)	12:58

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999712
0	0	n/a	Intercept	(± 3% F.S.)	0.602501
23	24	0.9548			
40	41	0.9777			
80	80	0.9999			



Notes:

### 01 Minute Averages



# Total Hydrocarbons

### THC Calibration Report

Station Information			
Calibration Date:	February 23, 2011	Previous Calibration	January 19, 2011
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	ST. LINA		
:	(MST) 12:18	End Time	(MST) 16:29
Reason:	Monthly Calibration		
Barometric Pressure:	934 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
1999	0	0.0	0.5	N/A
1999	0.0	0.0	0.0	N/A
1999	70.0	39.6	40.7	0.9736
1999	70.0	39.6	40.1	0.9882
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:				0.9882

Previous Calibration Correction Factor:	0.9931
Current Correction Factor Before Span Adjust:	0.9736
Percent Change:	2.01%

### IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	35.3	35.5
Sample Lines Connected		YES

### Cylinder Pressures

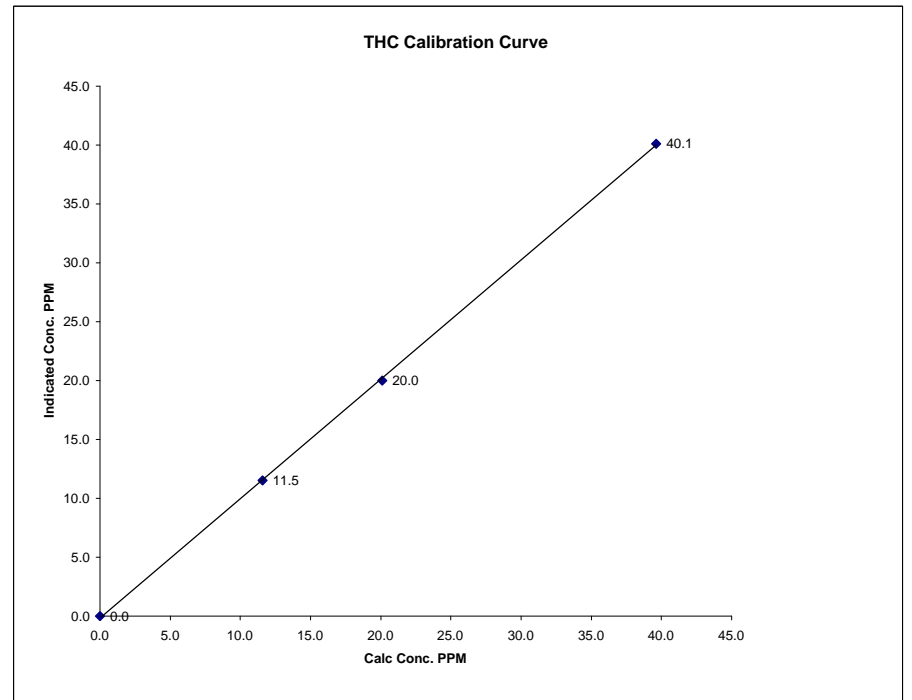
Span	1000	psi	
Hydrogen	2000	psi	
Zero Air	34	psi	Unlimited API 701

Calibration Performed by: Ting Xu

### THC Calibration Curve

Calibration Date	February 23, 2011		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	12:18	End Time (MST)	16:29

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		0.999897	1.012800	-0.159907
11.6	11.5	1.0087			
20.1	20.0	1.0050			
39.6	40.1	0.9882			

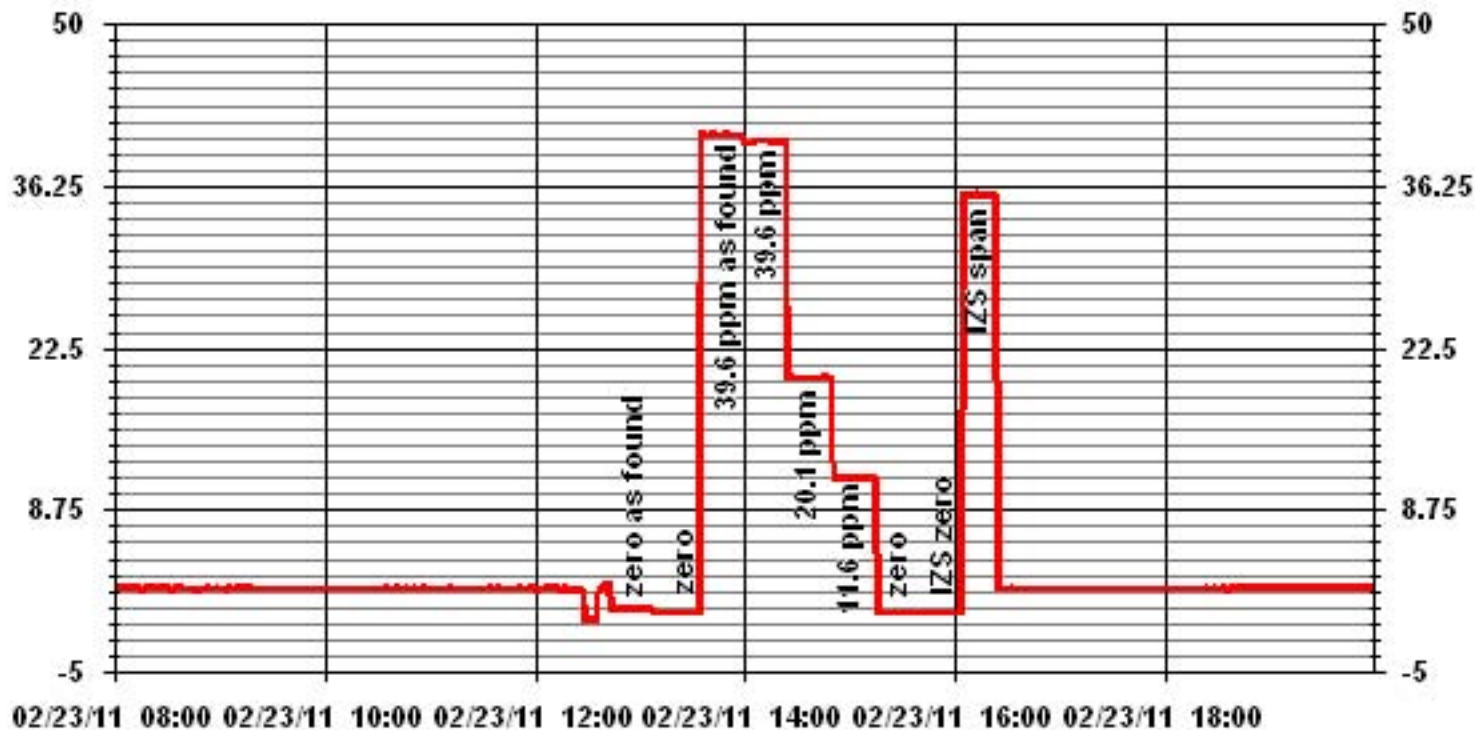


### Notes:

The H2 gas cylinder was replaced before the monthly calibration was started.



### 01 Minute Averages



# Nitrogen Dioxide

**NOx - NO- NO2 Calibration Report**

**Station Information**

Calibration Date	February 23, 2011	Previous Calibration	January 19, 2011
Company	LICA	Plant/Location	St. Lina
Start Time (MST)	9:40	End Time (MST)	16:07
Reason:	Monthly Calibration	Other	
Barometric Pressure	933 mmHg	Station Temperature	22 Deg C
Cal Gas Concentration	NOx 50.8 ppm	NO 50.4 ppm	Cal Gas Expiry date 05-Aug-12
DAS Output Voltage	0 - 1	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	481 ccm	314.7 Deg C		475 ccm	313.8 Deg C		
Ozone Flow / Vacuum	73 ccm	4.5 "Hg-A		73 ccm	4.6 "Hg-A		
HVPS / A ZERO	662 Volts	19.4 MV		662 Volts	19.7 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	31.4 Deg C	45.3 Deg C		34.2 Deg C	45.1 Deg C		
Offset	2.5 NOx	0.5 NO		2.5 NOx	0.5 NO		
Slope	1.003 NOx	0.992 NO		1.030 NOx	1.019 NO		
NO2 COEF / Conv Efficiency	NA NO2	0.993		NA NO2	0.993		

**Dilution Calibration Data**

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	----	0	0	0	0	0	0	----	----
4919	74.2	----	755	749	----	734	728	6	1.0285	1.0288
4919	74.2	----	755	749	----	755	749	6	0.9999	0.9999
4961	34.6	----	352	349	----	352	350	3	0.9996	0.9974
4978	16.8	----	171	170	----	172	171	1	0.9934	0.9913
4996	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	----	755	749	----	755	750	5	----	----
4921	74.2	550	755	----	520	757	235	522	0.9962	100.39%
4921	74.2	300	755	----	286	756	469	287	0.9965	100.36%
4921	74.2	100	755	----	115	756	640	116	0.9914	100.91%

Linearity OK?	Yes	No	Sum of Least Squares	NOx= 1.000	NO= 0.999	NO2= 0.996
			Correction Factors:	NOx= 0.9999	NO= 0.9999	NO2= 0.9962
				Average Converter Efficiency= 100.55%		

Before Calibration				After Calibration			
Auto Zero	-0.1 NOx	-0.5 NO2		-0.5 NOx	-1.5 NO2		
Auto Span	659 NOx	643 NO2		667 NOx	651 NO2		
	Sample Lines Connected YES						
Percent Change from Previous Calibration	NOx -2.7%	NO -2.7%	NO2 0.0%				

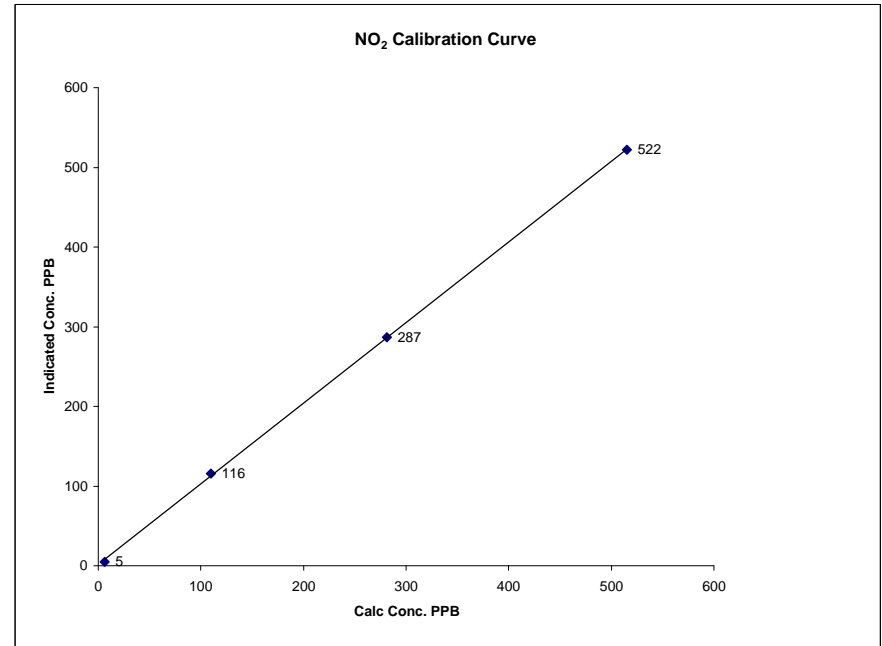
Notes Additional GPT point done for ozone calibration. O3 set point 450, NO=331, NO2=426

Calibration Performed by: Ting Xu

**NO2 Calibration Curve**

Calibration Date	February 23, 2011	<b>LICA</b>	
Company		<b>St. Lina</b>	
Plant / Location		End Time (MST)	16:07
Start Time (MST)	9:40		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	
6	5	N/A	Slope	0.999881
110	116	0.9483	Intercept	1.012407
281	287	0.9791		1.67124
515	522	0.9866		

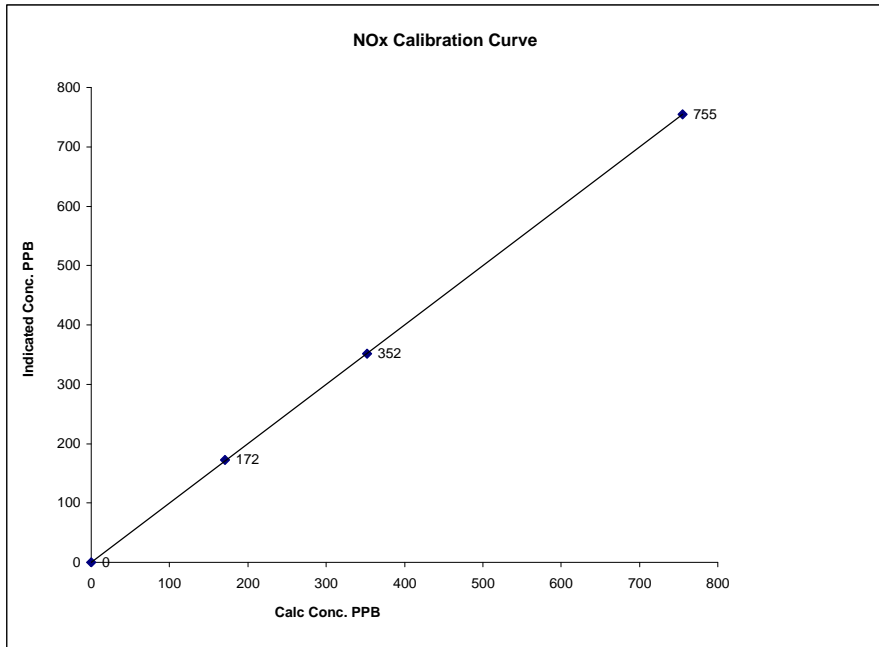


Notes:

### NOx Calibration Curve

Calibration Date February 23, 2011  
 Company LICA  
 Plant / Location St. Lina  
 Start Time (MST) 9:40 End Time (MST) 16:07

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999997
0	0	N/A	Slope (0.85 to 1.15)	0.999621
171	172	0.9934	Intercept (± 3% F.S.)	0.46860
352	352	0.9996		
755	755	0.9999		

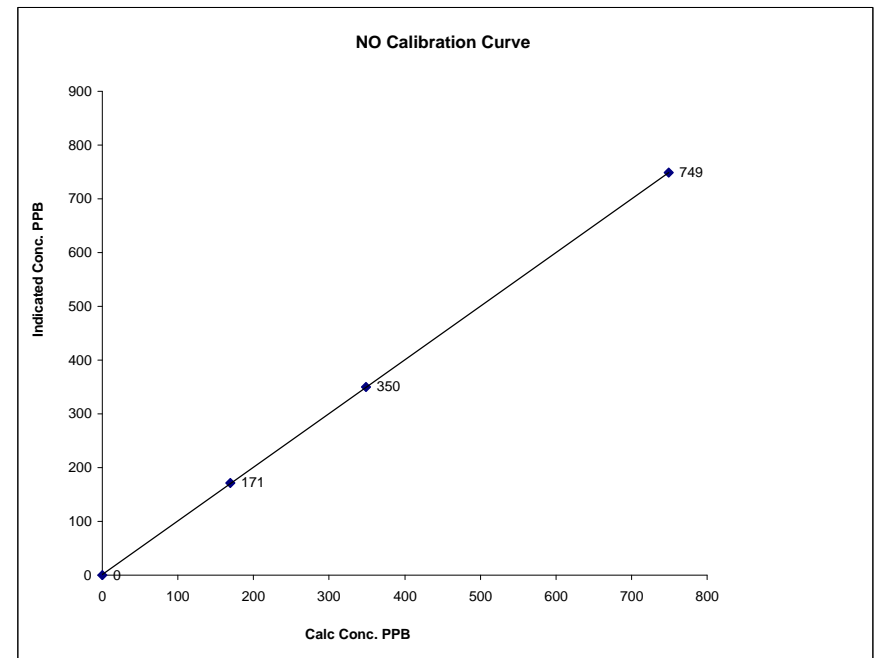


Notes:

### NO Calibration Curve

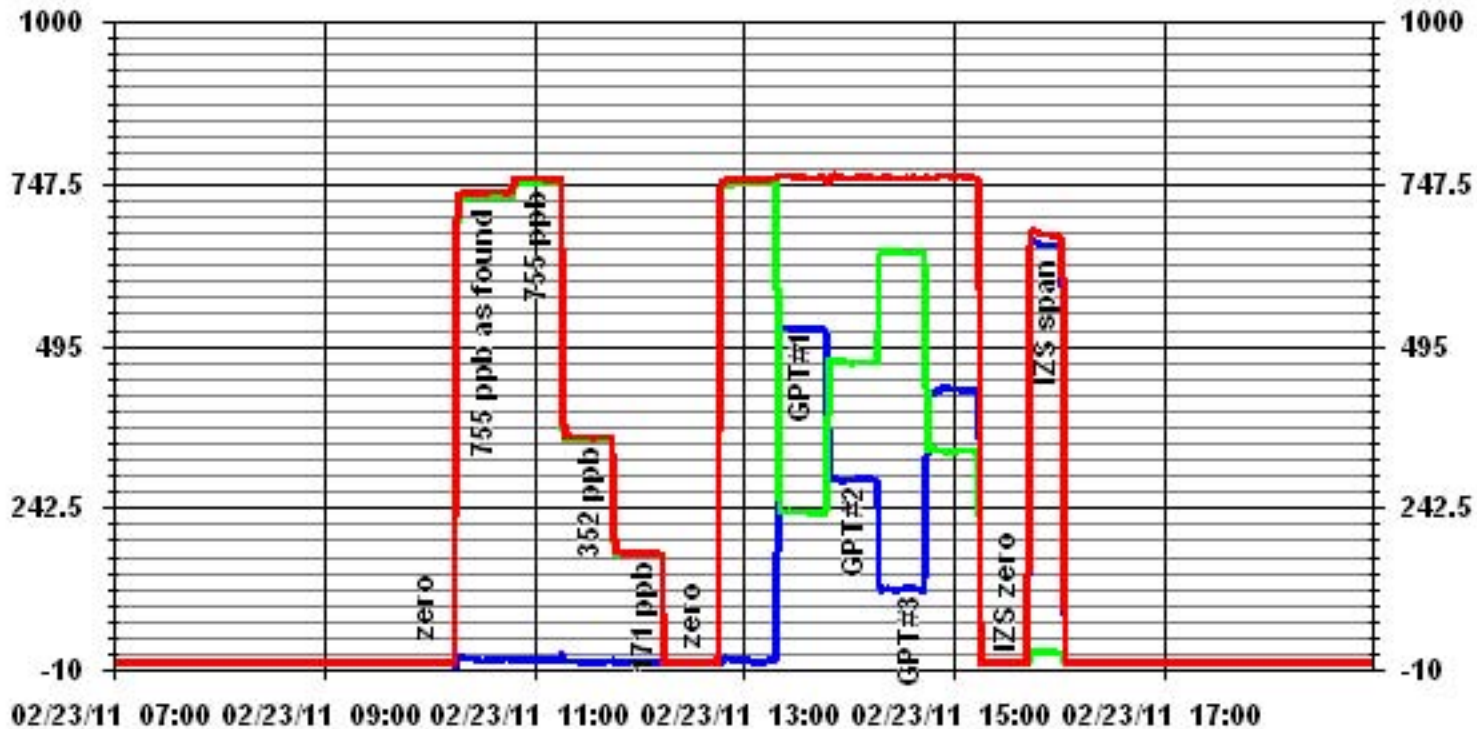
Calibration Date February 23, 2011  
 Company LICA  
 Plant / Location St. Lina  
 Start Time (MST) 9:40 End Time (MST) 16:07

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999995
0	0	N/A	Slope (0.85 to 1.15)	0.997571
170	171	0.9913	Intercept (± 3% F.S.)	1.6925
349	350	0.9974		
749	749	0.9999		



Notes:

### 01 Minute Averages



— LICA31 IIOX\_ PPB    
 — LICA31 IIO\_ PPB    
 — LICA31 IIO2\_ PPB

# Ozone

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

#### Station Information

Calibration Date	February 24, 2011	Previous Calibration	January 20, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	9:12	End Time (MST)	13:18
Reason:	Monthly Calibration		
Barometric Pressure	942 mm Hg	Station Temperature	25 Deg C
DAS Output Voltage	0 - 10 Volts		

#### Equipment Information

Analyzer Make / Model:	Thermo 49C	S/N :	49C-54926-302	Method:	Fluorescent
Calibrator Make / Model:	Enviroics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO 717		

#### Analyzer Settings

	Before Calibration		After Calibration	
	0 - 500		ppb	
Concentration Range	730 ccm	746 ccm	730 ccm	747 ccm
Cell A Flow / Cell B Flow	710.1 mmHg		713.2 mmHg	
Pressure	55.5 Deg C		55.6 Deg C	
Bench Temp	80 Deg C	31.3 Deg C	80 Deg C	33.5 Deg C
O3 Lamp / Box Temp	-0.8	0.996	-0.8	0.996
Offset / Slope				

#### Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	N/A
4995	450	419	421	0.9952
4995	300	281	281	1.0000
4995	120	110	113	0.9735
4995	0	0	1	N/A
Sum of Least Squares				N/A
New Correction Factor				0.9952

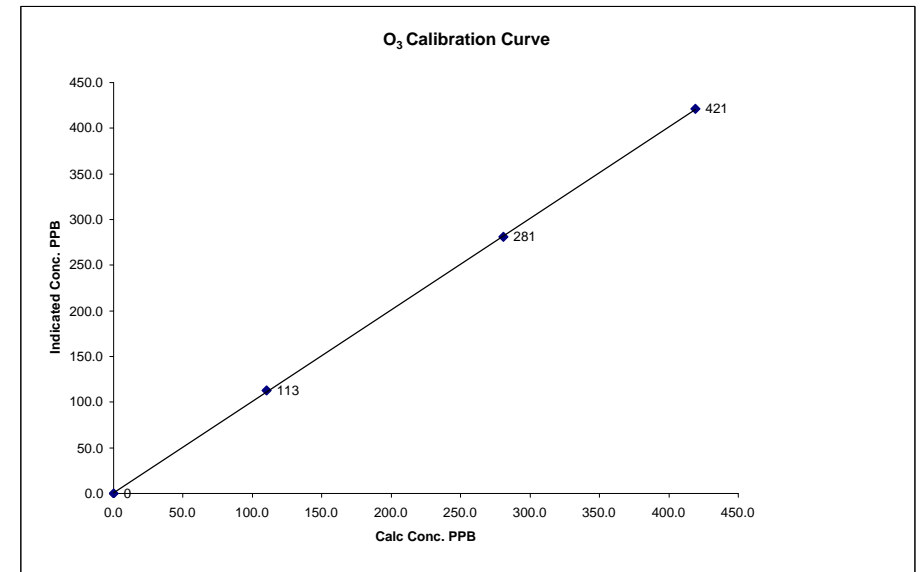
	Before Calibration	After Calibration
Auto Zero	1.6	1.6
Auto Span	358	358
Sample Lines Connected		YES
Percent Change from Previous Calibration		1.0%

Calibration Performed by: Ting Xu

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

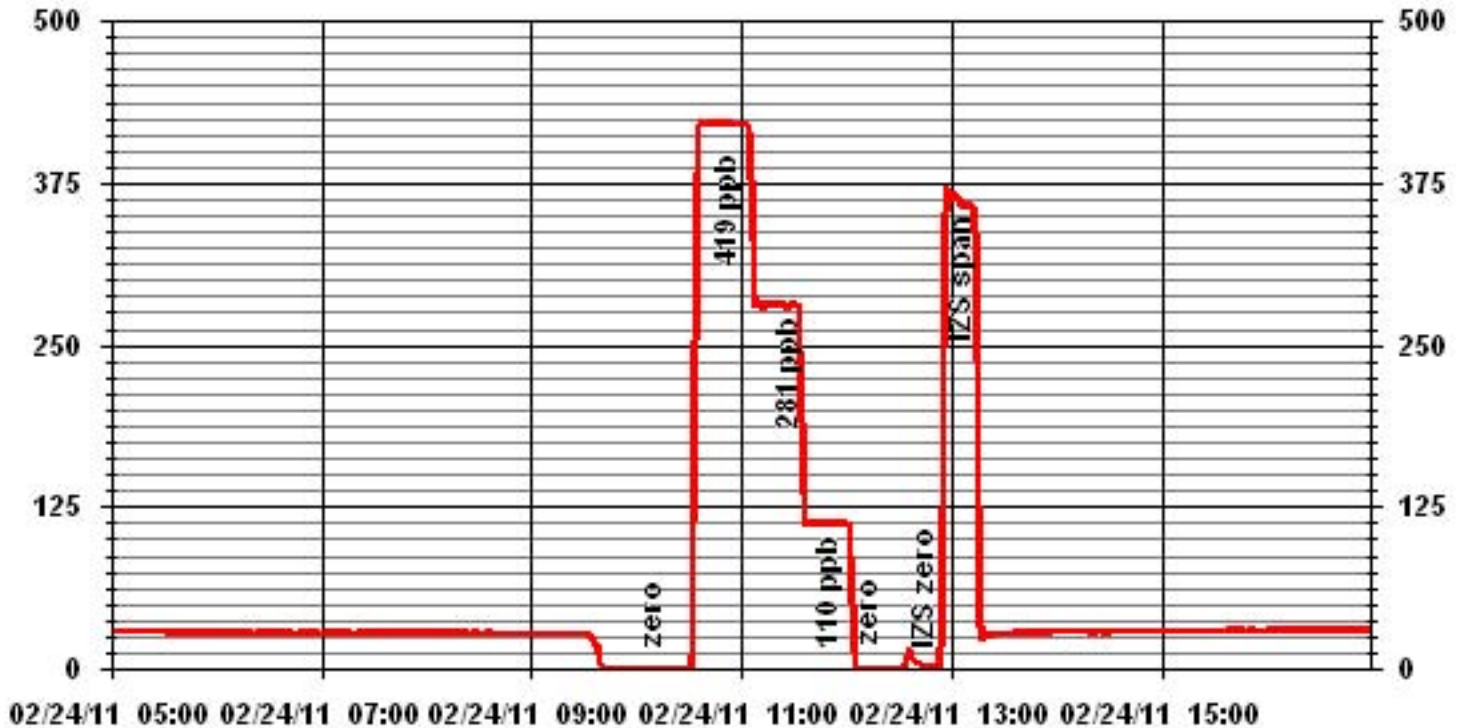
Calibration Date	February 24, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	9:12	End Time (MST)	13:18

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999937
0	0	n/a	Intercept	(± 3% F.S.)	0.943083
110	113	0.9735			
281	281	1.0000			
419	421	0.9952			



Notes:

### 01 Minute Averages



— LICA31\_03\_PPb



# Particulate Matter 2.5

**TEOM® 1405F Audit**

	<b><u>Station</u></b>		<b><u>Audit Transfer Standard</u></b>
Date:	February 24, 2011	Make/Model:	Streamline FTS
Station Name:	Lica St. Lina (CASA # 31)	Serial Number:	LO 091099, Hi 091001
Location:	St. Lina Station	Cell s/n:	NA
Operator:	LICA	Thermometer s:	Station Temp. Sensor

	<b><u>Sampler</u></b>		<b><u>Set-up and current Sampler readings</u></b>
Make/Model	Thermo Scientific Series 1405F	F-Main Set Pt (l/min)	3.00
Unit #	NA	F-Aux Set Pt (l/min)	13.67
Unit s/n	1405A208301003	Filter Load (%)	35.5%
Firmware Ver.	1.52	K <sub>o</sub> Factor	13125.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	-22.4
		Press (ATM)	0.939

**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>	0.003	Warnings	None
Pump Vacuum <b>&lt;0.4atm</b>	0.32	Pump Gauge (inHg)	-20
<b>Temperature/Pressure</b>			
Measured Temp ( <b>± 2 °C</b> )	-21.2	Δ °C	-1.2
Measured Press ( <b>± 0.01atm</b> )	0.934	ΔATM	0.005
<b>Flow Audit</b>			
Indicated Main Flow (l/min)	3.00	Main Flow Drift ( <b>±10.0%</b> )	1.82%
Measured Main Flow (l/min)	2.93	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift ( <b>±10.0%</b> )	2.08%
Measured Bypass Flow (l/min)	13.81	Flow Adjusted to Measured?	Yes
<b>Leak Check</b>		<b>Instrument Setup</b>	
Main ( <b>&lt; 0.15 l/min</b> )	NA	Flow Control = Active	
Aux ( <b>&lt; 0.6 l/min</b> )	NA	Report Conditions = Standard (25.0 C and 1atm)	
<b>K<sub>o</sub> Factor</b>			
Measured	NA		
K <sub>o</sub> Difference ( <b>± 2.5%</b> )	NA		

**Start Time:** 12:02      **Finish Time:** 13:50

**Sample Inlet Cleaned:** Yes      **New Filters Installed:** Yes  
**New Filter Loading %:** 22.1%

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Auditor/s:** Ting Xu