

Lakeland Industry & Community Association

Cold Lake Monitoring Site

Ambient Air Monitoring

Data Report

For

August 2011

Prepared By:



September 23, 2011

Lakeland Industry & Community Association

Cold Lake Monitoring Site

Ambient Air Monitoring

Table of Contents	Page	Table of Contents	Page
Introduction	3	Calibration Reports	108
Calibration Procedure	4	• Sulphur Dioxide	109
Monthly Continuous Summary	5	• Total Reduced Sulphur	112
Monthly Non-Continuous Summary	6	• Total Hydrocarbons	115
Volatile Organics Data Summary	7	• Particulate Matter 2.5	118
Polycyclic Aromatic Hydrocarbons Data Summary	8	• Nitrogen Dioxide	120
General Monthly Summary	9	• Ozone	124
Continuous Monitoring	13	Passive Bubble Maps	127
• Monthly Summaries, Graphs & Wind Roses	14	Passive Field Data	132
○ Air Quality Index	15	• Field Notes	133
○ Sulphur Dioxide	17	Passive Monitoring Laboratory Analysis	135
○ Total Reduced Sulphur	25	Volatile Organics Laboratory Analysis	144
○ Total Hydrocarbons	33	Polycyclic Aromatic Hydrocarbons Laboratory Analysis	221
○ Particulate Matter 2.5	41		
○ Nitrogen Dioxide	46		
○ Nitric Oxide	54		
○ Oxides of Nitrogen	61		
○ Ozone	69		
○ Ambient Temperature	77		
○ Relative Humidity	80		
○ Vector Wind Speed	83		
○ Vector Wind Direction	90		
○ Standard Deviation Wind Direction	93		
Non-Continuous Monitoring	96		
Volatile Organics	101		
Polycyclic Aromatic Hydrocarbons	104		

Introduction

The following Ambient Air Monitoring report was prepared for:

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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION COLD LAKE SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)
						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO ₂ (PPB)	172	48	0	0	0.01	1	8, 9	VAR	VAR	VAR	0.1	8	100.0
TRS (PPB)	-	-	-	-	0.02	2	9, 11	5, 6	0.3, 0.2	305(WNW), 88(E)	0.2	9, 11	99.9
NO ₂ (PPB)	159	-	0	-	1.77	6	VAR	VAR	VAR	VAR	2.7	26	99.7
NO (PPB)	-	-	-	-	0.38	17	11	6	0.2	88(E)	1.3	11	99.7
NO _x (PPB)	-	-	-	-	2.22	23	11	6	0.2	88(E)	3.6	26	99.7
O ₃ (PPB)	82	-	0	-	17.81	47	10	12	2.8	235(SW)	25.7	5	100.0
THC (PPM)	-	-	-	-	2.33	4.0	9	5	0.3	305(WNW)	2.7	12	99.9
PM 2.5 (UG/M ³)	-	30	-	0	4.64	16.5	14, 29	19, 17	2.4, 4.8	337(NNW), 122(ESE)	7.9	9	97.4
TEMPERATURE (DEG C)	-	-	-	-	16.25	28.3	22	14	6.6	286(WNW)	20.3	14	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	72.28	98	1, 8	VAR	VAR	VAR	94.1	7	100.0
VECTOR WS (KPH)	-	-	-	-	5.24	19.9	23	12	-	273(W)	10.0	23	100.0
VECTOR WD (DEGREES)	-	-	-	-	250(WSW)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS NA: NOT AVAILABLE

Monthly Non-Continuous Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

Passive Ambient Monitoring Network – August 2011

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO ₂	#27	0.9	0.22
H ₂ S	#27	0.72	0.24
NO ₂	#28	1.9	0.8
O ₃	#32	25.5	18.0

Volatile Organics Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

Xontech Model 910A – August 1, 2011

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

Xontech Model 910A – August 7, 2011

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

Xontech Model 910A – August 13, 2011

Maximum reading (ug/m3)	Volatile Organic
NA	NA

Note: Sample result was not available when the monthly report is prepared. The result will be included in the following monthly report.

Xontech Model 910A – August 19, 2011

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

Xontech Model 910A – August 25, 2011

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

Xontech Model 910A – August 31, 2011

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

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

PUF cartridge – August 1, 2011

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

Note: No sample results for August 1st and August 7th is provided as the PAH sample was only collected less than 7 minutes.

PUF cartridge – August 7, 2011

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

Note: No sample results for August 1st and August 7th is provided as the PAH sample was only collected less than 7 minutes.

PUF cartridge – August 13, 2011

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

PUF cartridge – August 19, 2011

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

PUF cartridge – August 25, 2011

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.060	3-Methylcholanthrene

PUF cartridge – August 31, 2011

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

General Monthly Summary - Cold Lake

Equipment Operation

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

AQM STATION – LICA – COLD LAKE

Sulphur Dioxide (PPB)

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

No operational issues observed during the month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration was invalidated due to a power failure on August 1st. Data was corrected using daily zero information.

Total Reduced Sulphur (PPB)

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

No operational issues observed during the month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration was invalidated due to a power failure on August 1st. Data was corrected using daily zero information.

Ozone (PPB)

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

No operational issue observed during the month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration was invalidated due to a power failure on August 1st. Data was corrected using daily zero information.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

Total Hydrocarbon (PPM)

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

No operational issue observed during the month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration was invalidated due to a power failure on August 1st. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

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

No operational issue observed during the month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration was invalidated due to a power failure on August 1st. The daily span result went outside of –10% of limited range on August 7th because the permeation tube was depleting. The permeation tube was replaced following the as found points check. Time was allowed for the perm tube to stabilize. The expected span value was changed on August 15th. Data was corrected using daily zero information.

Particulate Matter 2.5 (ug/m³)

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

No operational issue was observed this month. A routine Teom audit was performed on August 11th. Both the Teom filter and the FDMS filter were changed on August 26th. Data was corrected using Alberta air quality guideline. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. Nineteen hours of data were invalidated as the data were below –3 ug/m³.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

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

- System make / model –RM Young, S/N: 46553

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

No operational issue was observed during the month. One hour of the maximum wind speed was invalidated due to a power failure on August 1st.

Relative Humidity (PERCENT)

- System make / model - Rotronic Hygroclip-S3

No operational issue was observed during the month.

Ambient Temperature (DEGC)

- System make / model - Rotronic Hygroclip-S3

No operational issues observed during the month.

Trailer Temperature (DEGC)

- System make / model - R&R 61

No operational issues observed during the month.

Datalogger

- System make / model - ESC 8832, S/N: 263
- Software make / version - ESC v 5.51a

The ESC 8832 is connected to a modem with DSL for continuous connection with the base computer.

Trailer

No issue was observed during this month. The manifold was cleaned on August 3rd. The Bard filter for the air conditioner was replaced on August 11th.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. All AQI values were within the Good range this month. The highest hourly concentration of ozone was 47 ppb and an AQI value of 24 on August 10th, hour of 12. The highest hourly concentration of PM2.5 was 16.5 ug/m3 and an AQI value of 14 on August 14th, hour of 19.

Passive Network

No issue was observed during this month.

Volatile Organics (VOCs)

The volatile organics were sampled from August 1st to August 31st. 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. Sample results for August 13th is not included in this monthly report because it is not available when the monthly report is preparing. The result for August 13th will be included in the following monthly report.

Polycyclic Aromatic Hydrocarbons (PAHs)

The PAHs scheduled to be sampled from August 1st to August 31st. 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 results for August 1st and August 7th is provided as the PAH samples were only collected less than 7 minutes. Performed troubleshooting on August 9th by clearing sampler saved data. Waiting for the manufacturer for further troubleshooting.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

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

STATUS FLAG CODES NA - NOT APPLICABLE

V - VARIOUS

AQI CLASS	OZONE (O ₃)					PARTICULATE MATTER 2.5 (PM _{2.5})					NITROGEN DIOXIDE (NO ₂)					SULPHUR DIOXIDE (SO ₂)					FREQUENCY	
	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
GOOD (1-25)	529	71.1%	24	12	10	151	20.3%	14	19	14	0	0.0%	-	-	-	0	0.0%	-	-	-	680	91.4%
OVERALL	529	71.1%	-	-	-	151	20.3%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	680	91.4%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64	8.6%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2011

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

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

STATUS FLAG CODES

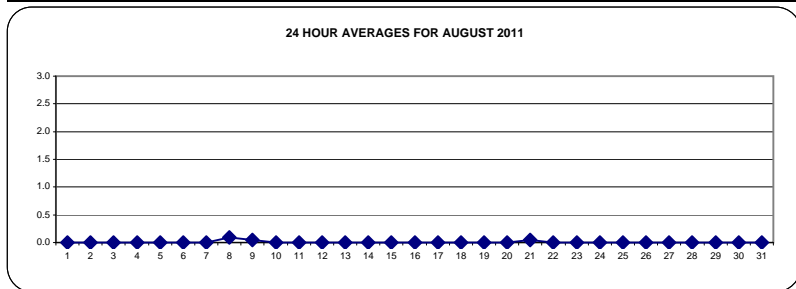
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

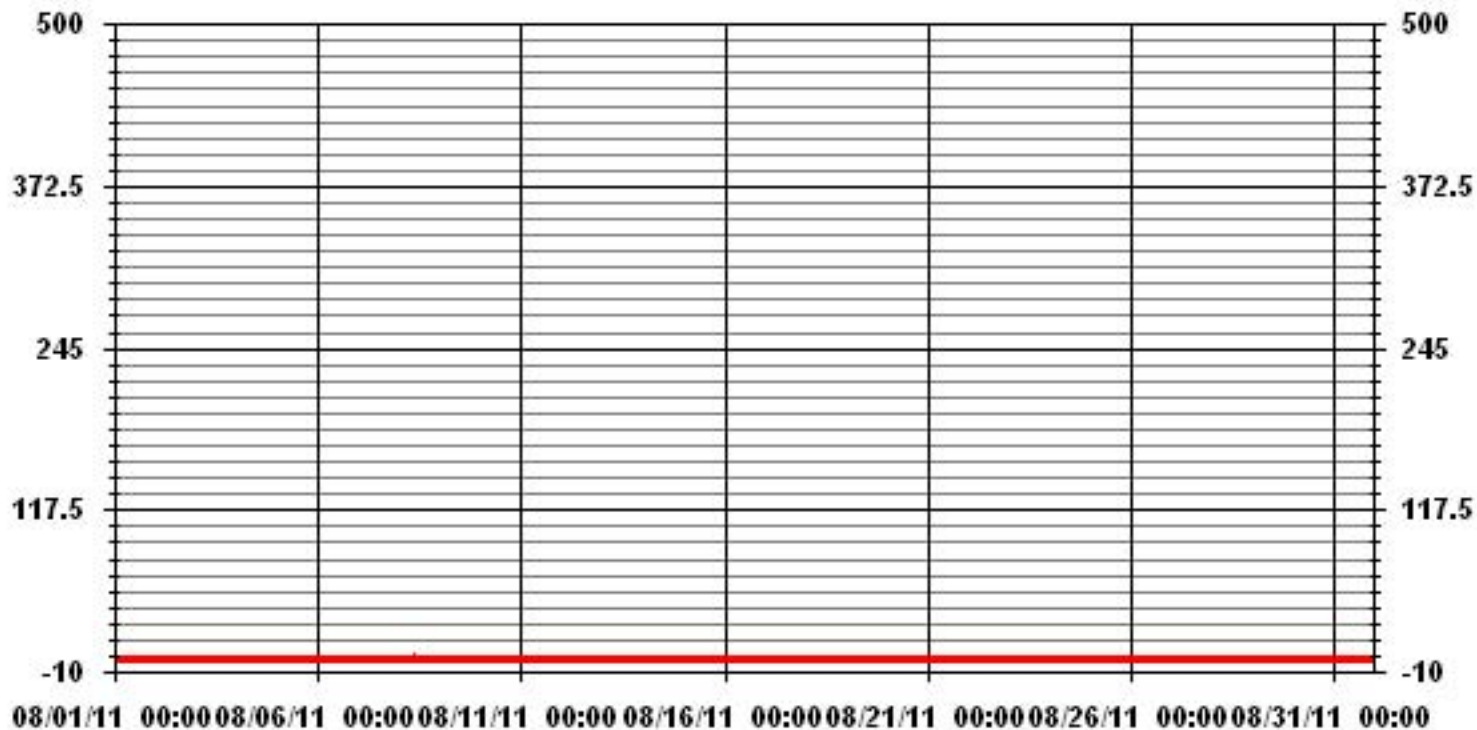
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	4					
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	8, 9
MAXIMUM 24-HR AVERAGE:	0.1	PPB			ON DAY(S)	8
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	3	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.07		MONTHLY AVERAGE:	0.01	PPB	



01 Hour Averages



— LICA SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2011

SULPHUR DIOXIDE MAX instantaneous maximum in ppt

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

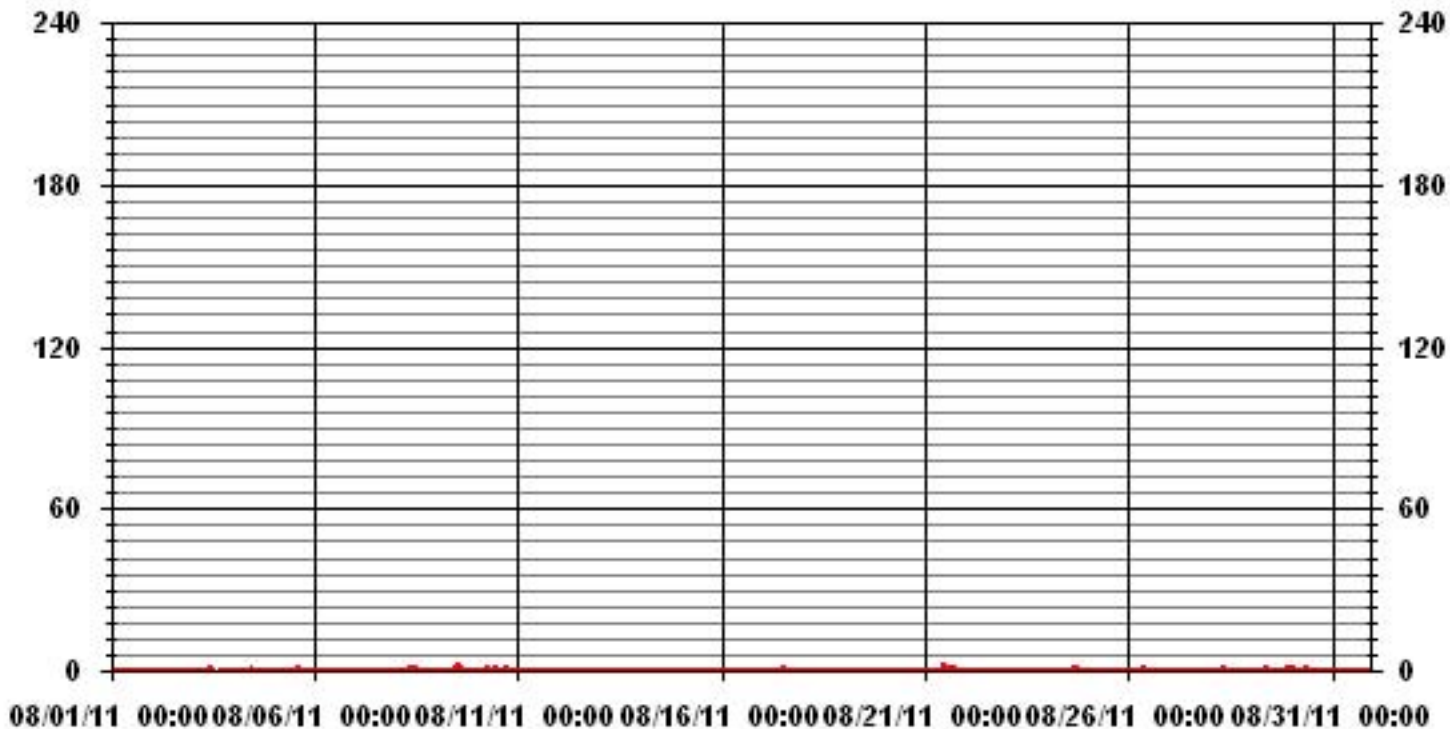
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	36					
MAXIMUM INSTANTANEOUS VALUE:	3	PPB	@ HOUR(S)	11	ON DAY(S)	21
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.27					

01 Hour Averages



— LICA SO2MAX PPB

LICA
 SO2_ / WDR Joint Frequency Distribution (Percent)

August 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	.98	.84	1.55	2.67	2.53	4.65	13.11	4.65	3.52	5.50	10.01	19.46	17.20	8.88	3.24	1.12	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	.98	.84	1.55	2.67	2.53	4.65	13.11	4.65	3.52	5.50	10.01	19.46	17.20	8.88	3.24	1.12	

Calm : .00 %

Total # Operational Hours : 709

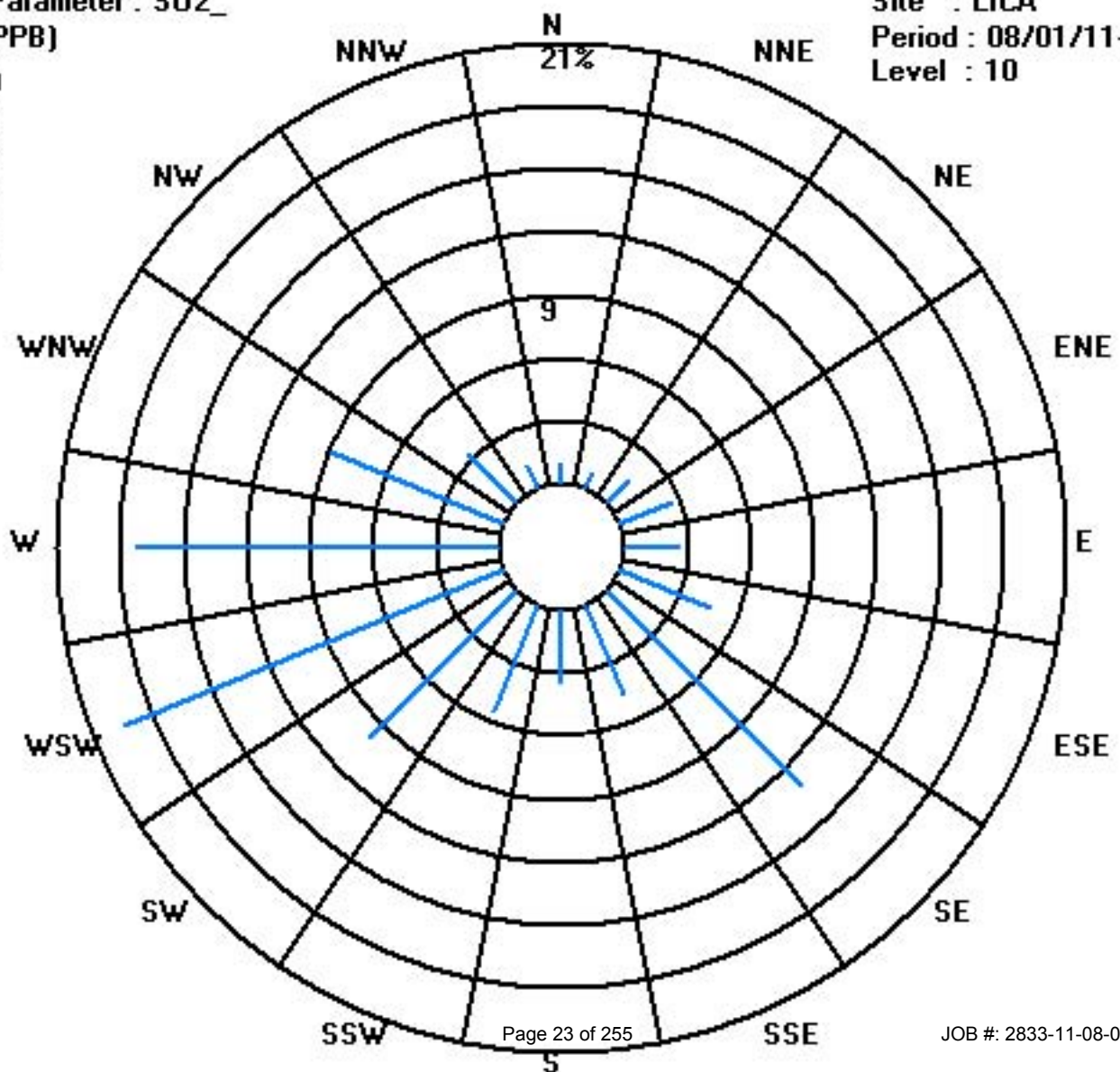
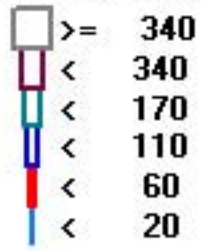
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	7	6	11	19	18	33	93	33	25	39	71	138	122	63	23	8	709
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	7	6	11	19	18	33	93	33	25	39	71	138	122	63	23	8	

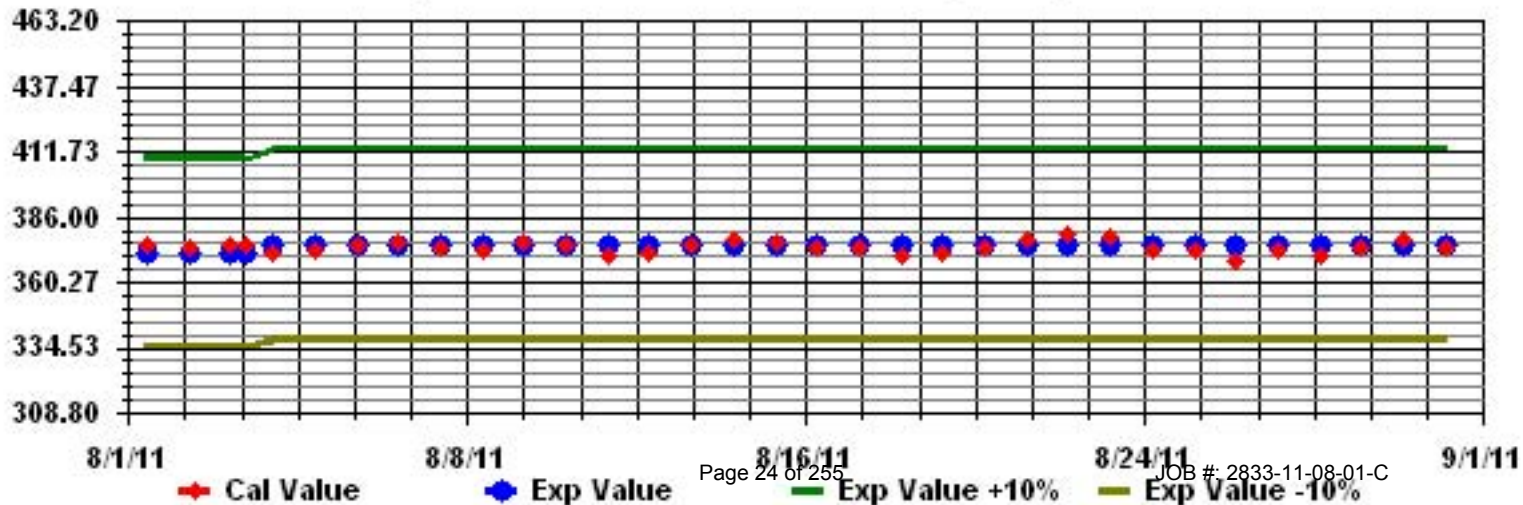
Calm : .00 %

Total # Operational Hours : 709

Class Limits (PPB)



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



Total Reduced Sulphur

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

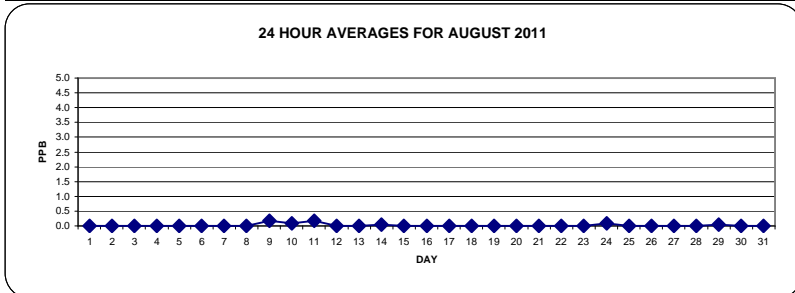
AUGUST 2011

TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

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

STATUS FLAG CODES

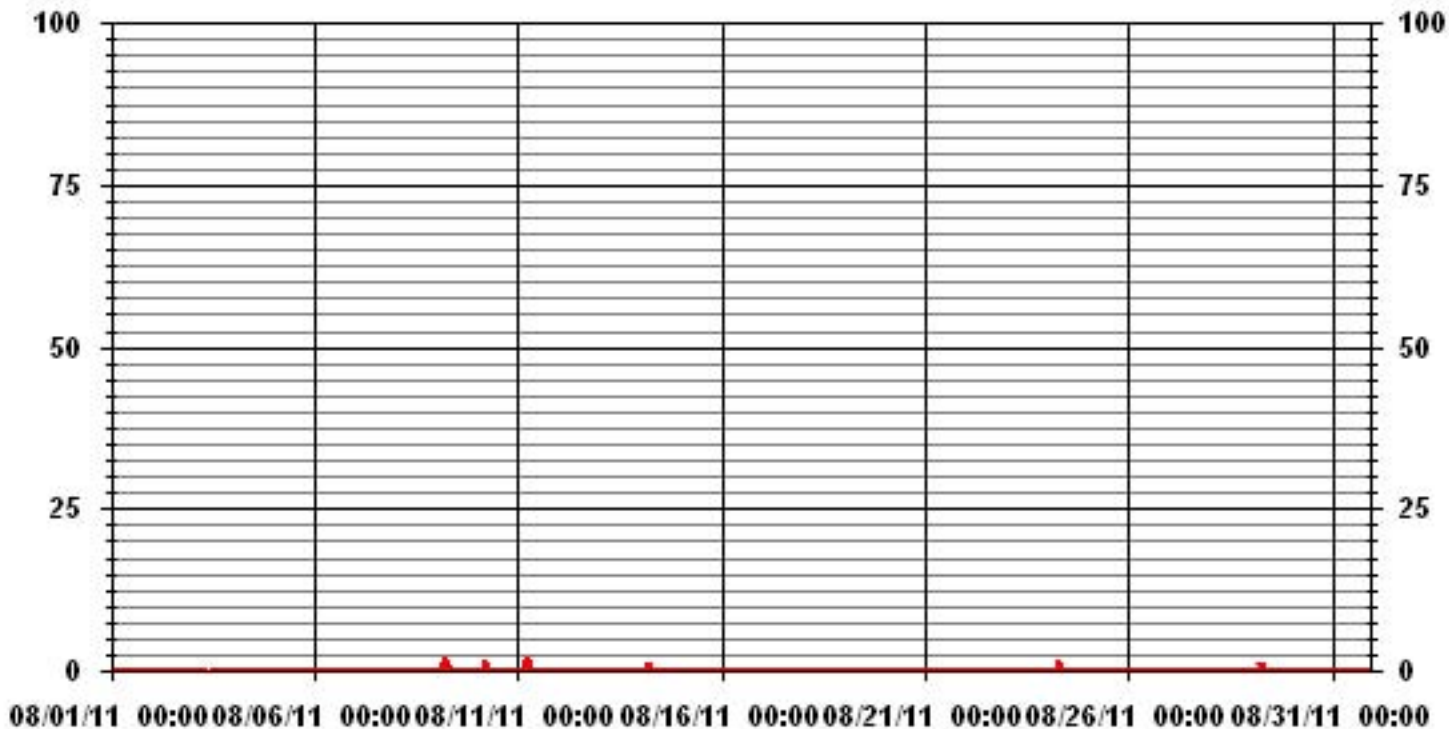
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	12
MAXIMUM 1-HR AVERAGE:	2 PPB @ HOUR(S) 5, 6 ON DAY(S) 9, 11
MAXIMUM 24-HR AVERAGE:	0.2 PPB ON DAY(S) 9, 11
	VAR-VARIOUS
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION:	0.16
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
MONTHLY AVERAGE:	0.02 PPB

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2011

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

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

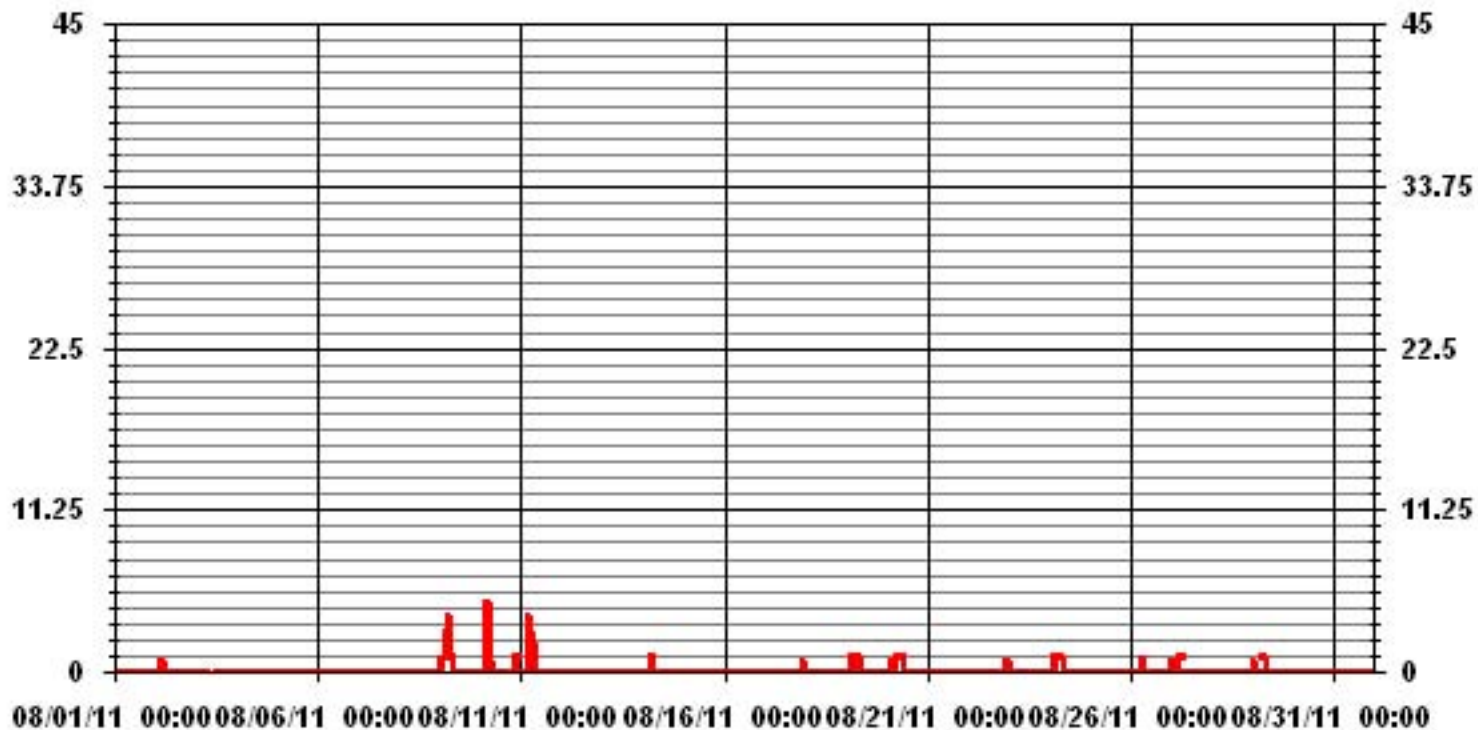
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	46				
MAXIMUM INSTANTANEOUS VALUE:	5	PPB	@ HOUR(S)	4	ON DAY(S) 10
	VAR - VARIOUS				
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	741	HRS
MONTHLY CALIBRATION TIME:	5	HRS			
STANDARD DEVIATION:	0.42				

01 Hour Averages



LICA
 TRS_ / WD Joint Frequency Distribution (Percent)

August 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	.98	.84	1.55	2.68	2.54	4.66	13.13	4.66	3.53	5.50	10.02	19.35	17.09	9.03	3.24	1.12	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	.98	.84	1.55	2.68	2.54	4.66	13.13	4.66	3.53	5.50	10.02	19.35	17.09	9.03	3.24	1.12	

Calm : .00 %

Total # Operational Hours : 708

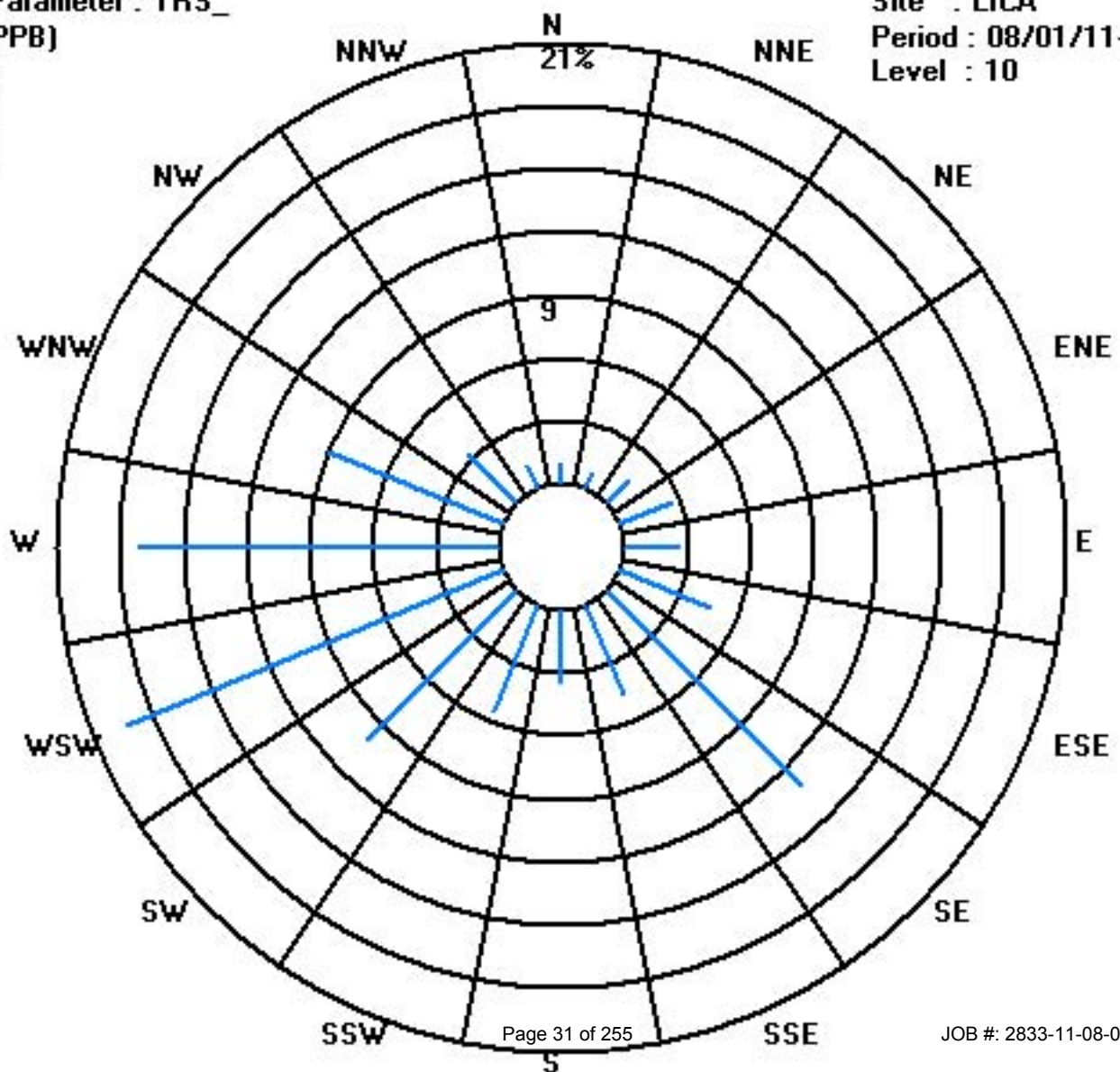
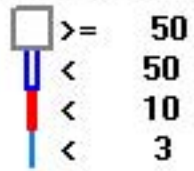
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	7	6	11	19	18	33	93	33	25	39	71	137	121	64	23	8	708
< 10																	
< 50																	
>= 50																	
Totals	7	6	11	19	18	33	93	33	25	39	71	137	121	64	23	8	

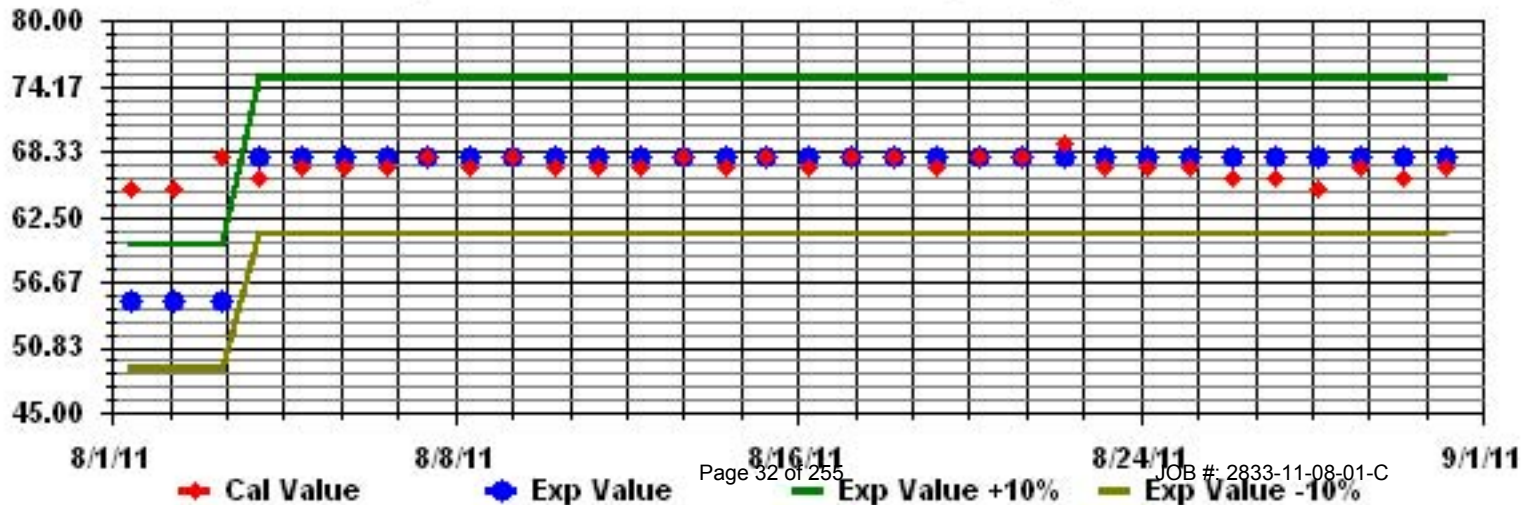
Calm : .00 %

Total # Operational Hours : 708

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

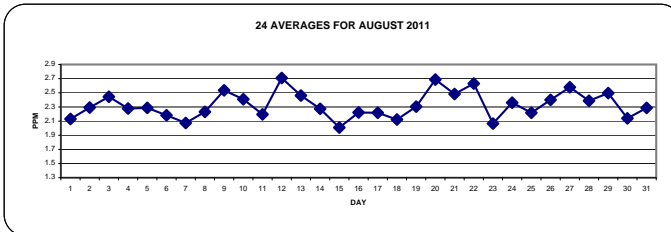
AUGUST 2011

TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1		2	2	2	2	2.1	2.3	2.4	2.4	2.2	2	IZS	2	2	2	2	2	2	2	2	2	2.1	2.3	2.6	2.6	2.6	2.1	24	
2		2.6	2.6	2.4	2.5	2.6	2.6	2.4	2.3	2.1	IZS	2.1	2	2	2	2	2	2	2	2	2.2	2.3	2.5	2.8	2.7	2.8	2.3	24	
3		2.9	3	2.8	2.7	2.6	2.7	2.8	2.8	IZS	2.5	2.3	C	C	C	C	2	M	2	2	2.1	2.1	2.1	2.2	2.4	3.0	2.4	23	
4		2.6	2.6	2.5	2.6	2.8	2.8	2.7	IZS	2.2	2.1	2.1	2	2	2	2	2	2	2	2	2.1	2.2	2.2	2.4	2.5	2.8	2.3	24	
5		2.6	2.8	3.2	2.7	2	2.1	IZS	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.4	3.2	2.3	24		
6		2.3	2.4	2.3	2.2	2.2	IZS	2.3	2.2	2.2	2.2	2.2	2.1	2	2	2.1	2.2	2.3	2.3	2.2	2.2	2	2	2.1	2.4	2.2	24		
7		2.1	2.1	2.3	2.4	IZS	2.2	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2.1	2	2.1	2.1	2.1	2.4	2.1	24	
8		2.1	2.2	2.3	IZS	2.4	2.6	2.6	2.4	2.2	2.1	2	2	2	2	2	2	2	2	2	2.1	2.4	2.6	2.6	2.7	2.2	24		
9		2.8	3.2	IZS	3.7	3.7	4	3.9	3.1	2.5	2.2	2.2	2.1	2	2	2	2	2	2	2	2.1	2.1	2.1	2.2	2.3	4.0	2.5	24	
10		2.4	IZS	2.6	2.8	3.1	3.3	3.3	2.8	2.3	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2.1	2.2	2.3	2.5	2.8	2.5	3.3	24	
11		IZS	2.3	2.3	2.3	2.6	2.7	2.7	2.2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.2	2.4	2.5	IZS	2.7	2.2	24	
12		3	3.3	3.5	3.6	3.6	3.8	3.5	3	2.6	2.5	2.3	2.2	2.2	2.2	2.3	2.2	2.1	2.2	2.2	2.3	2.4	2.7	IZS	2.6	3.8	2.7	24	
13		2.6	2.9	3	3.3	3.1	3	2.8	2.8	2.5	2.3	2.3	2.3	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	IZS	2.1	2.1	3.3	2.5	24
14		2.2	2.4	2.9	2.6	2.8	2.7	2.3	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	IZS	2.2	2.1	2	2.9	2.3	24
15		2	2	1.9	2	2.2	2.1	2.1	2	1.9	1.9	2	2	1.9	1.9	1.9	1.9	2	1.9	2	IZS	1.9	2	2.2	2.5	2.5	2.0	24	
16		2.5	2.5	2.4	2.4	2.5	2.4	2.4	2.2	2.1	2.1	2.1	2	2	2	2	2	2	2	2	IZS	2.1	2.1	2.3	2.5	2.5	2.2	24	
17		2.5	2.6	2.8	2.8	2.6	2.7	2.5	2.2	2	2	2	2	2	2	2	2	2	IZS	2	2	2	2.1	2.1	2.1	2.8	2.2	24	
18		2.1	2	2.1	2.2	2.3	2.4	2.4	2.2	2	2	2	2	2	2	2	2	2	IZS	2	2	2	2	2.2	2.3	2.6	2.6	2.1	24
19		2.7	2.7	2.7	2.7	2.8	2.8	2.5	2.3	2.1	2.1	2.1	2	2	2	2	IZS	2	2	2	2	2.2	2.3	2.4	2.5	2.8	2.3	24	
20		2.7	3	3.2	3.4	3.5	3.8	3.6	3.1	2.7	2.5	2.3	2.2	2.1	2.2	IZS	2.2	2.3	2.3	2.4	2.5	2.6	2.5	2.3	2.4	3.8	2.7	24	
21		2.5	2.6	2.7	3	2.8	2.6	2.7	2.8	2.8	2.6	2.5	2.3	2.4	IZS	2	2	2.1	2.1	2.1	2.2	2.3	2.5	2.6	2.9	3.0	2.5	24	
22		3	2.9	3.4	3.2	3.3	3.2	3.4	3.3	3.2	2.5	2.6	2.2	IZS	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.2	2.2	2.2	2.8	3.2	3.4	2.6	24
23		2.8	2.3	2.1	2.1	2.1	2.2	1.9	2	2	2	1.9	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2.1	2.3	2.4	2.8	2.1	24	
24		2.3	2.4	2.6	2.9	2.8	2.9	2.9	2.7	2.3	2.3	IZS	2.3	2.1	2	2	2	2	2	2	2.2	2.2	2.4	2.5	2.5	2.9	2.4	24	
25		2.6	2.4	2.5	2.8	3	3	2.2	2	2	IZS	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.4	3.0	2.2	24	
26		2.6	2.7	2.7	2.9	3	3	2.9	2.8	IZS	2.3	2.1	2	2	2	2	2	2	2	2	2.1	2.2	2.3	2.5	2.5	2.6	3.0	2.4	24
27		2.8	2.9	2.8	3	3.2	3.4	3.1	IZS	2.6	2.5	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.5	2.7	2.9	2.6	2.2	2	2.1	3.4	2.6	24	
28		2.4	2.4	2.5	2.7	3	3.1	IZS	3	2.5	2.2	2.1	2	2	2	2	2	2	2	2	2.1	2.2	2.6	3	3.1	3.1	2.4	24	
29		3.4	3.3	3.3	3.3	3.4	IZS	3.4	2.9	2.7	2.5	2.2	2.1	2.1	2.1	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.4	2.5	24	
30		2.1	2.2	2.2	2.3	IZS	2.8	2.8	2.7	2.2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2.1	2.2	2.3	2.8	2.1	24	
31		2.5	2.7	2.7	IZS	2.6	2.6	2.6	2.4	2.2	2.1	2.1	2	2	2.1	2.1	2.1	2.1	2	2.1	2.1	2.3	2.3	2.3	2.6	2.7	2.3	24	
HOURLY MAX		3.4	3.3	3.5	3.7	3.7	4.0	3.9	3.3	3.2	2.6	2.6	2.3	2.4	2.3	2.3	2.3	2.3	2.5	2.7	2.9	2.6	2.7	3.0	3.2				
HOURLY AVG		2.5	2.6	2.6	2.7	2.8	2.8	2.7	2.5	2.3	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.4	2.5				

STATUS FLAG CODES

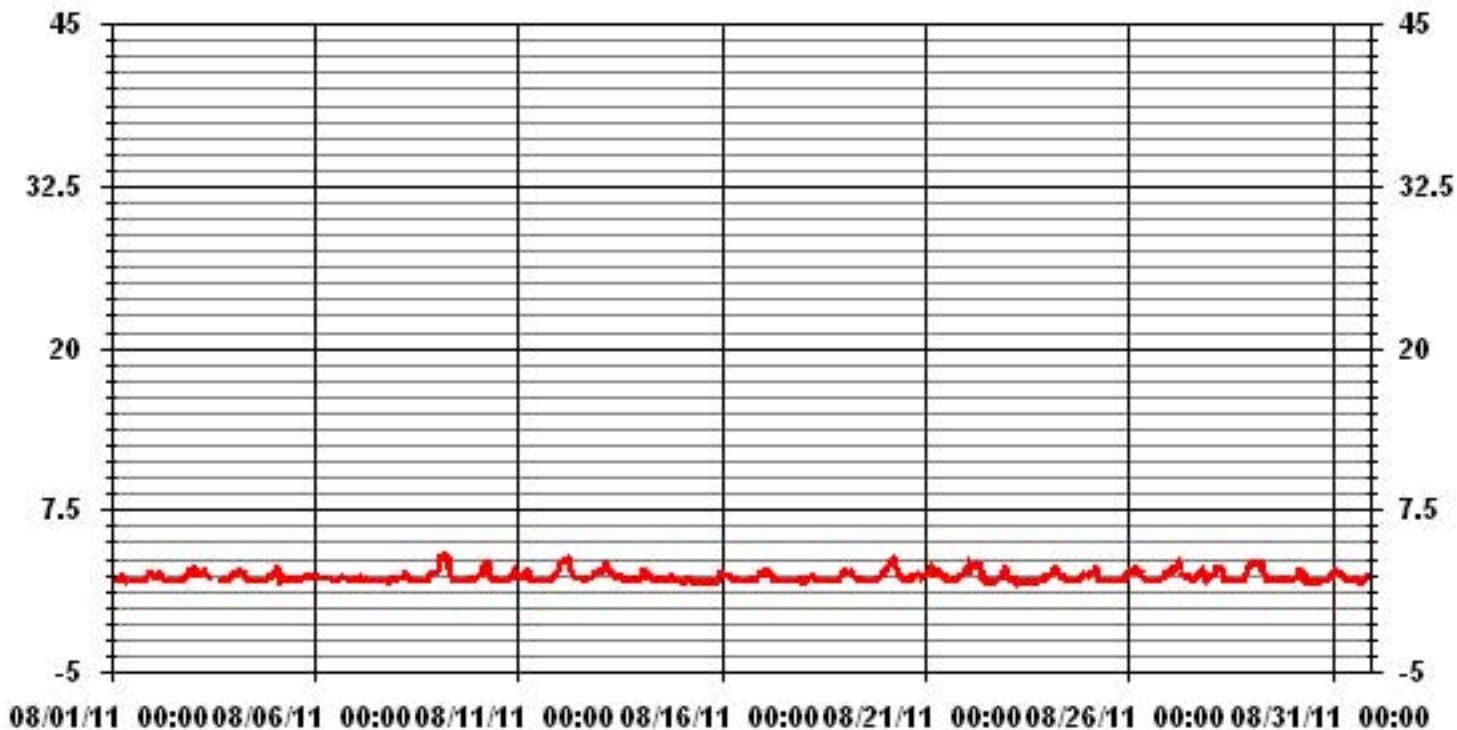
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE
BB	- BELOW BACKGROUND OF 1.5 PPM		



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	707		
MAXIMUM 1-HR AVERAGE:	4.0 PPM	@ HOUR(S)	5 ON DAY(S)
MAXIMUM 24-HR AVERAGE:	2.7 PPM		12 ON DAY(S)
IZS CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	743 HRS
MONTHLY CALIBRATION TIME:	4 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.39	MONTHLY AVERAGE:	2.33 PPM

01 Hour Averages



— LICA THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2011

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1	1	2.1	2.1	2.1	2.1	2.2	2.5	2.6	2.5	2.4	2	IZS	2.1	2	2	2	2.1	2	P	2.1	2.1	2.5	2.6	2.8	2.7	2.8	2.3	23		
2	2	2.7	2.7	2.5	2.7	2.9	2.7	2.5	2.4	2.2	IZS	2.1	2	2.1	2.1	2.1	2	2	2.1	2.1	2.3	2.4	3	3.1	2.9	3.1	2.4	24		
3	3	3.2	3.2	3.2	2.9	2.8	2.9	2.9	2.9	IZS	2.6	C	C	C	C	C	2.1	M	M	2.2	2.2	2.2	2.2	2.3	2.7	3.2	2.7	22		
4	4	2.6	2.7	2.6	2.7	2.9	3	2.9	IZS	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2	2	2	2.1	2.1	2.6	2.4	2.7	2.6	3	2.4	24		
5	5	2.8	3	3.8	3.5	2.1	2.3	IZS	2.4	2.3	2.2	2.1	2.2	2.1	2.1	2.2	2.4	2.3	2.5	2.4	2.4	2.4	2.4	2.5	3.8	2.4	2.4	24		
6	6	2.5	2.5	2.5	2.4	2.3	IZS	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.7	2.2	2.5	2.4	2.4	2.3	2.3	2.3	2.1	2.1	2.2	2.7	2.3	24		
7	7	2.2	2.3	2.4	2.5	IZS	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.5	2.2	24		
8	8	2.2	2.5	2.5	IZS	2.5	3	2.7	2.6	2.4	2.3	2.1	2.1	2	2	2.1	2.1	2	2.1	2.1	2	2.1	2.2	2.6	3.2	2.7	3.1	3.2	2.4	24
9	9	3	4.3	IZS	4	4	4.6	4.5	3.3	2.9	2.3	2.2	2.1	2.1	2.1	2	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.4	4.6	2.8	2.4	24	
10	10	2.5	IZS	2.7	3.4	3.4	3.7	3.5	3.1	2.6	2.2	2.2	2.1	2.1	2.1	2	2	2	2	2.3	2.3	2.4	2.8	3.4	2.8	3.7	2.6	24		
11	11	IZS	2.7	2.7	2.6	2.8	2.9	3.2	2.6	2.1	2	2	2	2.1	2	2	2.2	2	2	2	2.3	2.4	2.5	2.6	IZS	3.2	2.4	24		
12	12	3.2	3.5	3.7	3.8	3.9	4	3.8	3.3	2.7	2.5	2.4	2.3	2.3	2.3	2.4	2.3	2.2	2.2	2.2	2.5	2.5	3.4	IZS	2.8	4	2.9	24		
13	13	2.9	3.1	3.8	3.5	3.6	3.7	3	2.9	2.7	2.4	2.4	2.4	2.5	2.4	2.4	2.1	2.2	2.2	2.2	2.2	2.3	2.3	IZS	2.2	2.2	3.8	2.7	24	
14	14	2.3	2.7	3.4	3.1	3.2	3.1	2.5	2.3	2.4	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.4	2.6	IZS	2.4	2.4	2.2	3.4	2.5	24		
15	15	2.2	2	2	2.1	2.3	2.5	2.1	2	2	2	2.2	2.1	2	2.1	2	2.1	2.1	2	2	IZS	2	2.3	2.3	2.6	2.6	2.1	24		
16	16	2.6	2.6	2.5	2.5	2.6	2.4	2.5	2.4	2.2	2.2	2.1	2	2	2	2.1	2	2	2	IZS	2.1	2.2	2.6	2.9	2.6	2.9	2.3	24		
17	17	2.6	2.7	3.1	2.9	2.8	3	2.8	2.3	2.1	2.1	2.1	2.1	2.2	2.2	2	2	2	IZS	2	2	2.1	2.2	2.2	2.2	3.1	2.3	24		
18	18	2.2	2.1	2.1	2.3	2.4	2.5	2.5	2.4	2.1	2	2	2.2	2.1	2	2.1	2	IZS	2.1	2.1	2.1	2.2	2.5	2.4	2.9	2.9	2.2	24		
19	19	2.9	2.8	2.8	2.8	2.9	2.9	2.6	2.5	2.2	2.2	2.2	2.1	2.1	2.1	2.1	IZS	2	2.1	2.1	2.1	2.3	4.1	3.2	2.7	4.1	2.5	24		
20	20	2.8	3.2	3.4	3.5	3.6	4.2	3.9	3.6	2.8	2.7	2.4	2.5	2.2	2.3	IZS	2.3	2.4	2.5	2.9	3.5	3	2.8	2.6	2.5	4.2	2.9	24		
21	21	2.7	2.7	2.9	3.5	3.3	2.7	2.8	2.9	2.9	2.7	2.6	2.4	2.6	IZS	2.1	2.1	2.2	2.1	2.2	2.3	2.4	2.8	2.7	3.2	3.5	2.6	24		
22	22	3.4	3.1	4.1	3.4	3.5	3.5	3.7	3.4	3.3	2.7	2.7	2.6	IZS	2	1.9	2	2.1	2	2.3	2.4	3.9	3.5	4.1	2.9	2.4	24			
23	23	3.5	2.5	2.3	2.4	2.2	2.4	2	2.2	2.1	2	2	IZS	2	1.9	2	1.9	1.9	1.9	2	2.1	2.1	2.3	2.4	2.5	3.5	2.2	24		
24	24	2.4	2.6	2.6	3.3	2.9	3	3.3	3.3	2.4	2.5	IZS	2.3	2.2	2.1	2	2	2.2	2.2	2.2	2.3	2.4	2.5	2.8	2.9	3.3	2.5	24		
25	25	3.1	2.6	2.8	3.1	3.1	3.2	2.5	2.1	2.1	IZS	2	2.1	2	2	2	2	2	2	2	2.1	2.1	2.1	2.4	2.5	3.2	2.3	24		
26	26	2.7	2.9	2.9	3.1	3.1	3.2	3	2.9	IZS	2.5	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.5	2.6	2.7	3.2	2.5	24		
27	27	3	3.4	3.1	3.3	3.4	3.9	3.3	IZS	2.8	2.6	2.5	2.4	2.3	2.3	2.3	2.4	2.4	2.6	2.9	3	3.1	2.6	2.1	2.3	3.9	2.8	24		
28	28	2.7	2.4	2.6	2.9	3.2	3.4	IZS	3.2	2.8	2.3	2.3	2.1	2.1	2.1	2	2	2	2	2.1	2.3	2.3	3.4	3.4	3.5	3.5	2.6	24		
29	29	3.8	3.6	3.7	3.5	3.8	IZS	3.6	3.5	2.7	2.7	2.4	2.1	2.3	2.1	2	2	2	2.3	2.1	2.3	2.4	2.2	2.2	2.2	3.8	2.7	24		
30	30	2.2	2.3	2.3	2.6	IZS	3	2.9	2.9	2.6	2	2.1	2	2.2	2	2	2	2	2	2	2	2	2	2.3	2.3	2.5	3	2.3	24	
31	31	2.8	2.8	2.8	IZS	2.6	2.7	2.7	2.6	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.4	2.4	2.8	2.8	2.4	24	
HOURLY MAX		4	4	4	4	4	5	5	4	3	3	3	3	3	3	2	3	2	3	3	4	3	4	4	4	4				
HOURLY AVG		2.7	2.8	2.9	3.0	3.0	3.1	2.9	2.7	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.4	2.6	2.6	2.6					

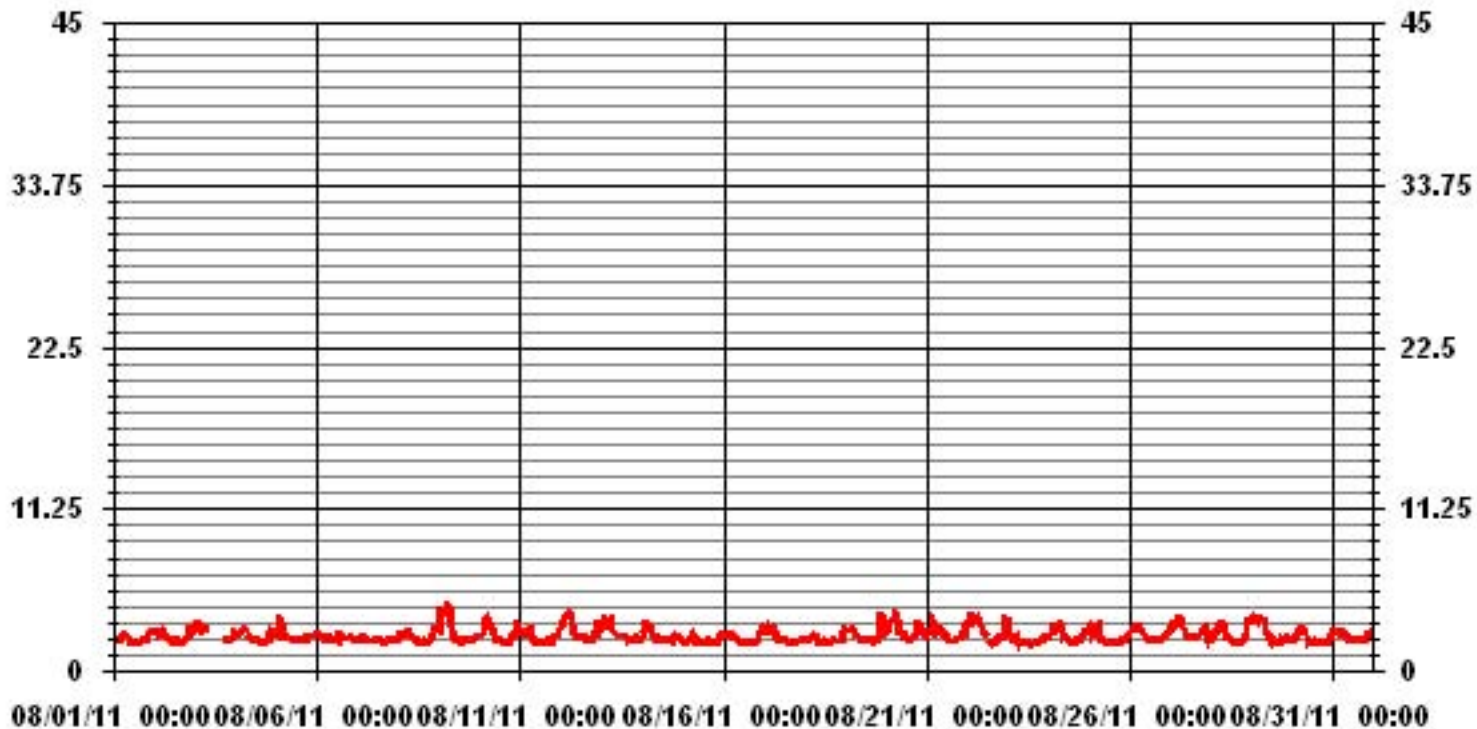
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704					
MAXIMUM INSTANTANEOUS VALUE:	4.6	PPM	@ HOUR(S)	5	ON DAY(S)	9
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.49					

01 Hour Averages



— LICA THCMAX PPM

LICA
 THC / WD Joint Frequency Distribution (Percent)

August 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	.84	.70	1.41	2.26	1.98	4.10	11.45	4.24	2.97	4.38	9.33	18.24	16.83	8.91	2.97	.99	91.65
< 10.0	.14	.14	.14	.42	.56	.56	1.69	.42	.56	1.13	.70	.99	.42	.00	.28	.14	8.34
< 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	.99	.84	1.55	2.68	2.54	4.66	13.15	4.66	3.53	5.51	10.04	19.23	17.25	8.91	3.25	1.13	

Calm : .00 %

Total # Operational Hours : 707

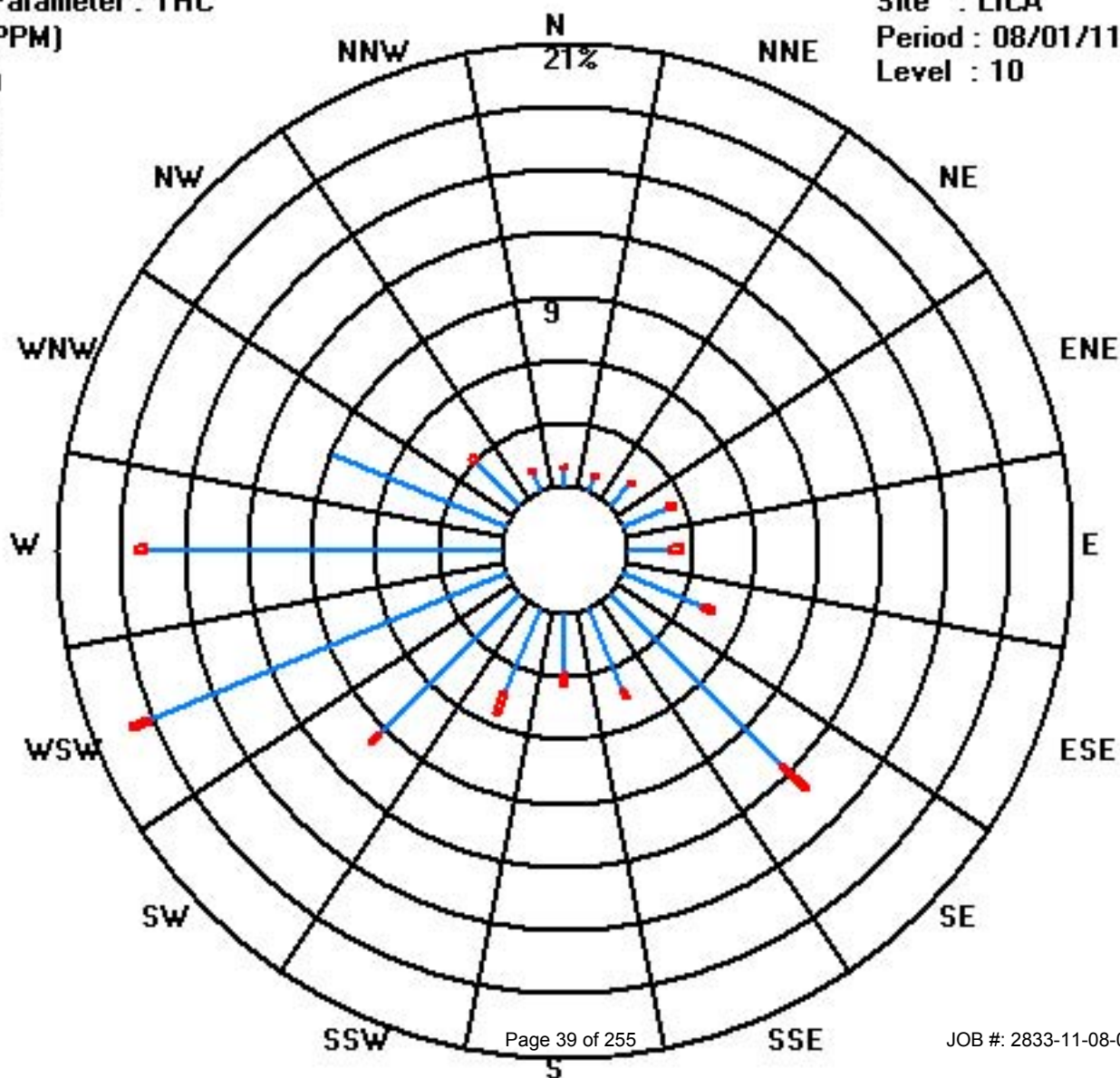
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	6	5	10	16	14	29	81	30	21	31	66	129	119	63	21	7	648
< 10.0	1	1	1	3	4	4	12	3	4	8	5	7	3		2	1	59
< 50.0																	
>= 50.0																	
Totals	7	6	11	19	18	33	93	33	25	39	71	136	122	63	23	8	

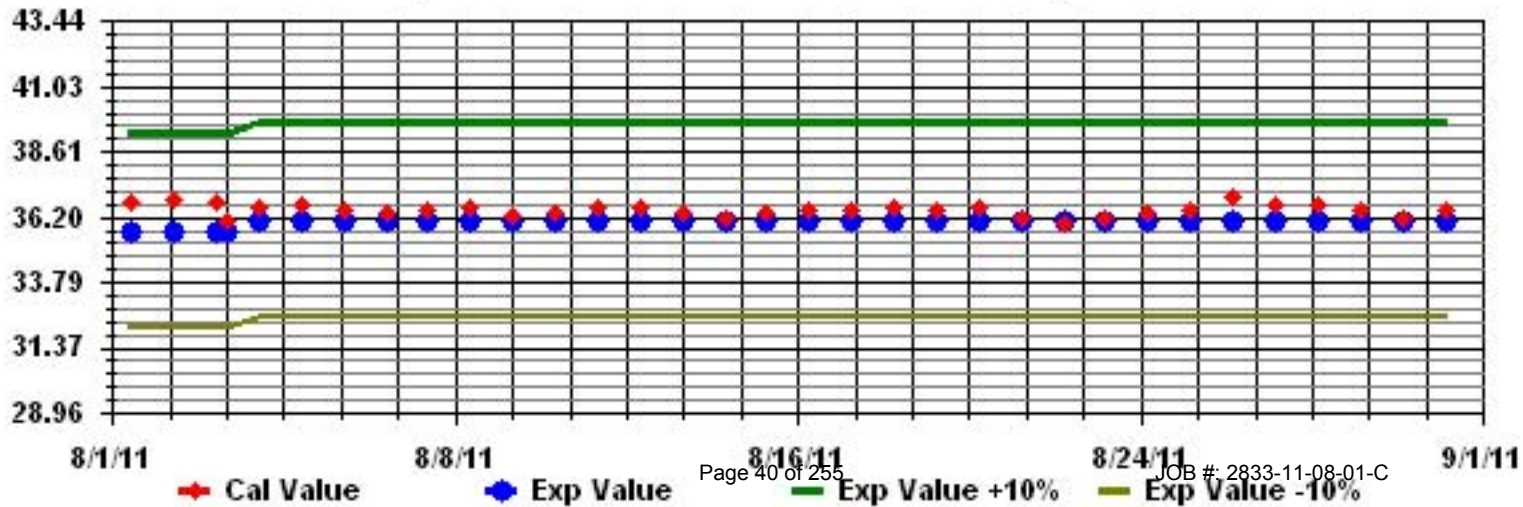
Calm : .00 %

Total # Operational Hours : 707

Class Limits (PPM)



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



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2011

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
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		10.5	11	N	N	0	0	7.5	0.4	5.5	6.9	4.4	0.4	0	6.4	4	2.9	4.4	0	3.4	1.4	2.5	1	3.4	1.9	11.0	3.5	22	
2		2.5	3.4	6	5.5	1.9	1	2.5	1	0	2.9	3.4	5	0	3.4	6	0	1.9	3.4	0	2.5	4.4	5	6	5	6.0	3.0	24	
3		1.9	2	1	5.5	4	3.4	6	6	7.9	13	10.9	6.9	6.5	1.9	4	7.5	0	1	2.9	1	4.4	4	3.4	1	13.0	4.4	24	
4		N	0	4.4	0	0	0.4	1.4	5	4	3.4	3.4	6.5	0.4	2.5	2.5	5	2.5	4.4	5	2.9	8.4	3.4	5.5	2.9	8.4	3.2	23	
5		6	4	5.5	9.9	3.4	2.5	6	N	11.5	8.5	4.4	4.4	3.4	5	6.9	5.5	N	4	5.5	8.5	11.5	8	1.9	3.4	11.5	5.9	22	
6		3.4	4	7.5	6	3.4	10.9	5.5	7.5	5	9	11	10.5	4	9.4	9.4	9	N	0	4.4	12.5	6.4	5.5	N	0	12.5	6.6	22	
7		2.5	0	1.9	5.5	0.4	4	8.4	1	6	6	0	9	1	6.4	9	0	9.9	5.5	N	10.5	5	4.4	7.5	0	10.5	4.5	23	
8		7.5	2	4.4	9.9	1.9	1.9	4.4	8.4	7.9	8	10.5	7.9	6.4	7.5	2	6	6.4	5.5	5	2.9	5.5	10.5	6	1.4	10.5	5.8	24	
9		6.4	6.4	5.5	5.5	2.9	4	2.5	5	7.9	10.5	13.9	13.5	6.9	4.5	8.4	13.5	9.4	9	5	14.5	9.5	10.9	5.5	9	14.5	7.9	24	
10		2.5	10.5	3.4	5.5	5.5	5	4.4	4.4	8.5	6.5	6.5	6	11	9.5	4	6.4	5.5	6.4	7.5	9	12.5	12.9	9.4	11	12.9	7.2	24	
11		10.5	8.5	5	9.5	7.5	8.4	11	5.5	4	3.4	2.9	4.4	3.4	1.4	2.9	6.4	1.5	2.9	4.4	5	7.5	6	6.4	5.5	11.0	5.6	24	
12		4.4	4	5	1.9	3.4	5	5.5	2.9	2.5	8	10.5	2.5	10.5	8.5	13	11.5	9.5	2.5	9	7.5	9.5	6.4	11.5	6.9	13.0	6.7	24	
13		5	6.9	4.4	6	6.9	6.9	3.4	2	6.4	1.9	4	6	1.4	N	0	2	7.5	0.4	12	5	5.5	3.4	4	6	12.0	4.7	23	
14		15.5	4	2.5	4	0	4	11.5	1.4	5.5	8.5	8.4	4.4	5.5	6.4	11	9.9	7.9	0	7.9	16.5	12.5	9	1.9	3.4	16.5	6.7	24	
15		9.5	N	13.5	5	0.4	2.9	5.5	9.9	1.4	5.5	7.5	6.9	6.4	0.4	0	6.4	0	3.4	2.5	5.5	1	1.4	2.5	0	13.5	4.2	23	
16		3.4	1.4	2.9	3.4	3.4	2.5	0	1.4	1.4	0	2.5	0	4.4	5.5	6	6.4	1.4	4.4	6	4	1	1	2.5	2.9	6.4	2.8	24	
17		1	5	5	4	1.4	3.4	1	2.9	4	2.9	1.4	1.9	2.5	1	3.4	1.4	0	9	2.9	7.9	2.5	0	0	1	9.0	2.7	24	
18		5.9	1.9	0	0	4.4	3.4	5.5	1.4	4	1.9	0.4	4	N	1.4	1.4	N	3.4	3.4	2.5	0	1	0	1.4	0	5.9	2.2	22	
19		0	4	6.4	4.4	0	1.9	2.9	4.4	4.4	2.5	0	4.4	5.5	2.9	1.4	5.5	1.9	7.5	1.4	2.5	1.9	2.9	2.5	2.5	7.5	3.1	24	
20		4.4	0	2	0	2.5	3.4	1.9	1.4	0	1	5.5	0	5	4.4	4.4	2.9	4	16	8.5	1	9	11	0.4	1.4	16.0	3.8	24	
21		0.4	3.4	5.5	3.4	2.9	0	9.9	5.5	9.5	9	5.5	0.4	4.4	4	4.4	5	6.4	7.5	6	3.4	10.9	4	2.9	8.4	10.9	5.1	24	
22		2.5	9.9	N	2.9	12	6.4	N	5	5.5	3.4	0	2.5	6.9	2.5	5	2.5	3.4	6	5.5	10.5	2.5	5.5	0	4.4	12.0	4.8	22	
23		5	9	1.9	N	5.5	6.4	N	N	8.4	2.9	5	2	2.9	0	1	1.9	0	6.4	3.4	0	1.9	0	4.4	0	9.0	3.2	21	
24		3.4	1	2.9	2.5	2.5	1.9	2.9	1.9	1.4	4.4	7.5	2.5	0.4	4.4	7.9	10.9	9.4	2.9	1.9	9	4.4	6	4	10.9	10.9	4.5	24	
25		5	2.5	8.4	7.9	4.4	0	0.4	2.9	5	0	0.4	0.4	6.4	6	1.9	1.4	2.5	0	4	2.5	2.5	2.9	2.9	1.9	8.4	3.0	24	
26		1.4	3.4	5.5	0	1	4.4	2.9	0	5.5	4.4	C	C	C	1.4	11.5	4.4	5	7.5	3.4	6.9	6.4	2.9	5.5	7.5	11.5	4.3	24	
27		5	5	4.4	6	5	3.4	2.9	9	5	9.4	2.9	2.5	6	12.5	12	13.5	13.5	16.5	4.4	8.4	2.9	5.5	2.5	0	16.5	6.6	24	
28		6.9	4	6	9.9	8	6	2.9	1.9	15.5	6.5	N	10.5	0	5.5	4.5	4	1.4	5	4	6.9	6	6	5.5	2.5	15.5	5.6	23	
29		4.4	2.5	5.5	6.4	3.4	3.4	7.9	0	4.4	0.4	12	7.5	9	9	0	12	9.9	6.9	9.4	4	9.4	3.4	8	3.4	12.0	5.9	24	
30		0	15.5	4.4	6	0	5.5	8.4	10.5	9.9	0	1	0.4	2.9	4	8.4	6	N	0	0	2.9	4	1	2.5	4.4	15.5	4.2	23	
31		2.9	2.9	0	0	0	2	2.5	0	0	0	0.4	0	0	1.9	0	2.9	0	0	0	7.5	0	4.4	6.9	2.9	7.5	1.6	24	
HOURLY MAX		16	16	14	10	12	11	12	11	16	13	14	14	11	13	13	14	14	17	12	17	13	13	12	11				
HOURLY AVG		4.7	4.6	4.5	4.7	3.2	3.7	4.7	3.7	5.4	4.9	5.0	4.4	4.2	4.7	5.0	5.8	4.6	4.8	4.6	5.9	5.6	4.8	4.2	3.6				

STATUS FLAG CODES

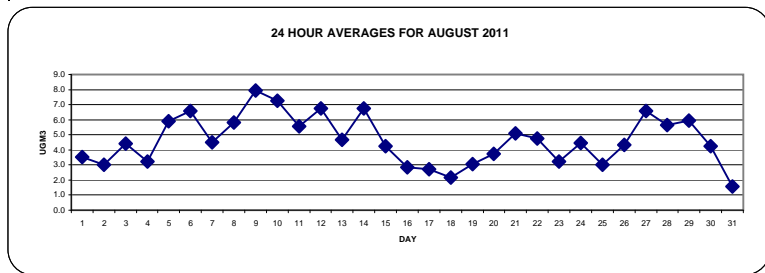
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

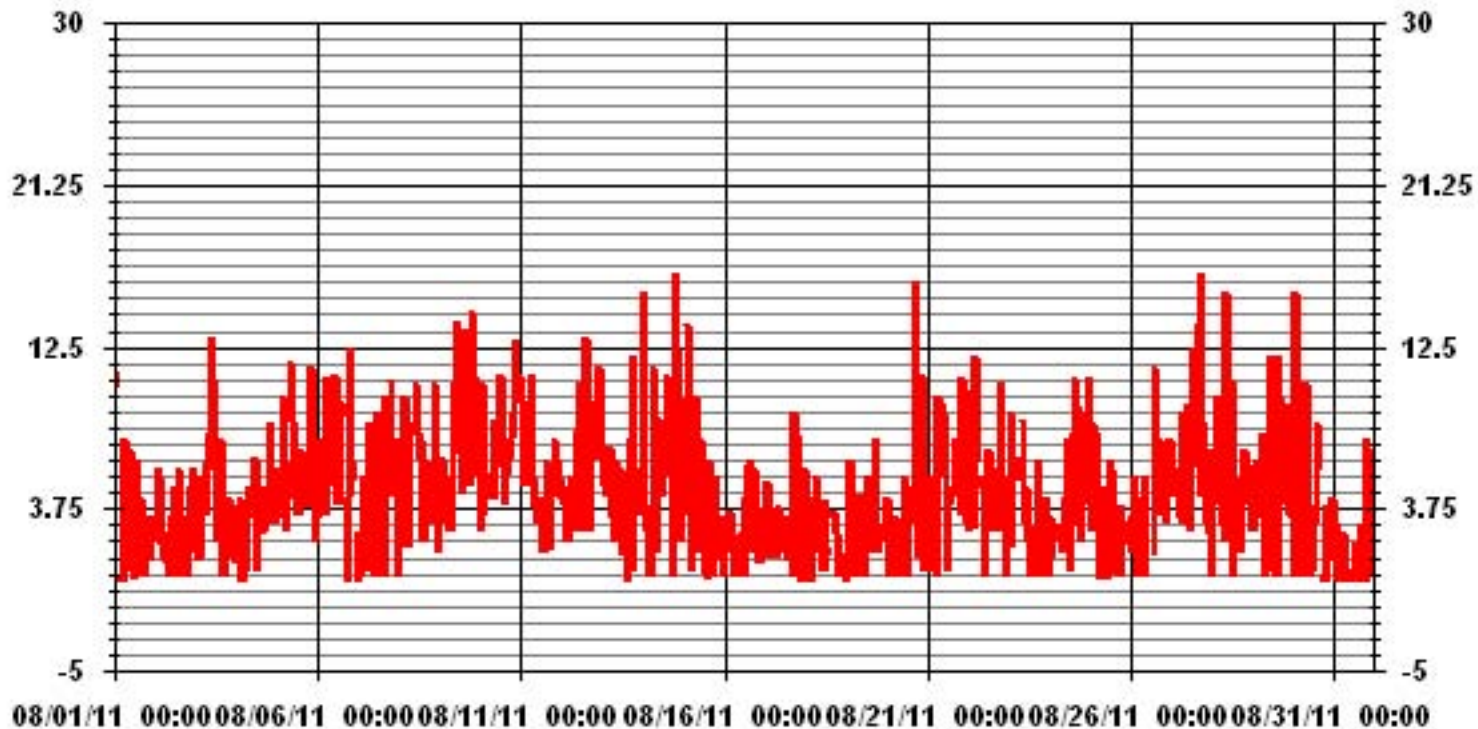
ALBERTA ENVIRONMENT: 1-HR - ug/m³ 24-HR 30 ug/m³

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-					
NUMBER OF 24-HR EXCEEDENCES:	0 PROPOSED CANADA WIDE GUIDELINE					
NUMBER OF NON-ZERO READINGS:	645					
MAXIMUM 1-HR AVERAGE:	16.5	UG/M ³	@ HOUR(S)	19, 17	ON DAY(S)	14, 29
MAXIMUM 24-HR AVERAGE:	7.9	UG/M ³			ON DAY(S)	9
IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	725	HRS	
MONTHLY CALIBRATION TIME:	3	HRS	AMD OPERATION UPTIME:	97.4	%	
STANDARD DEVIATION:	3.42		MONTHLY AVERAGE:	4.64	UG/M ³	



01 Hour Averages



— LICA PM2 UG/M3

LICA
PM2 / WD Joint Frequency Distribution (Percent)

August 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	.96	.83	1.80	2.63	2.49	5.12	12.74	4.84	3.60	5.26	9.83	20.08	16.89	8.44	2.90	1.52	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	.96	.83	1.80	2.63	2.49	5.12	12.74	4.84	3.60	5.26	9.83	20.08	16.89	8.44	2.90	1.52	

Calm : .00 %

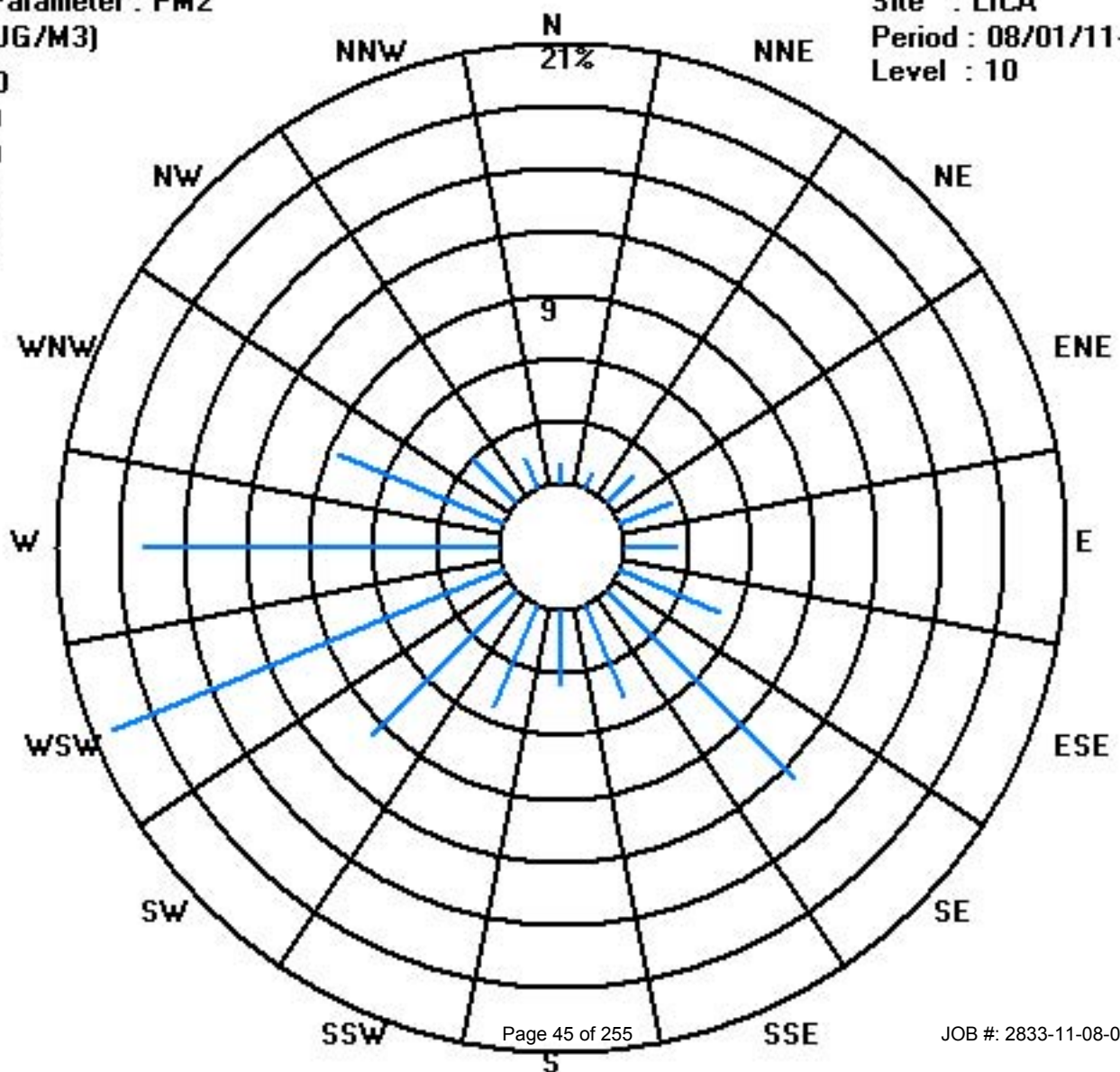
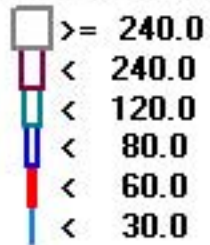
Total # Operational Hours : 722

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	7	6	13	19	18	37	92	35	26	38	71	145	122	61	21	11	722
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	7	6	13	19	18	37	92	35	26	38	71	145	122	61	21	11	

Calm : .00 %

Total # Operational Hours : 722



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2011

NITROGEN DIOXIDE hourly averages in ppb

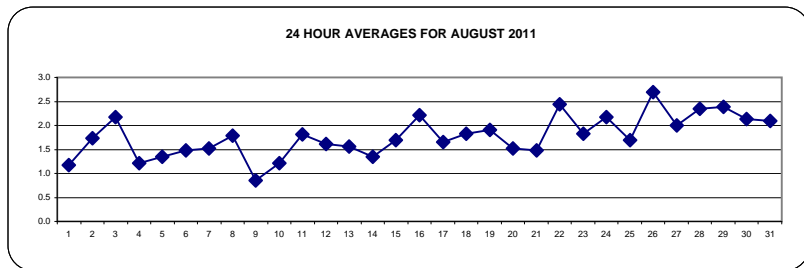
MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY																											
1	2	1	1	2	2	3	3	2	1	0	IZS	1	0	0	0	0	1	1	1	1	2	1	1	1	3	1.2	24
2	2	3	2	2	2	2	2	2	2	IZS	1	1	1	1	1	1	1	1	1	3	3	2	2	2	3	1.7	24
3	1	1	2	3	4	3	5	5	C	C	C	C	C	C	1	1	M	1	1	2	2	2	1	2	5	2.2	23
4	3	3	4	3	4	3	3	IZS	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	4	1.2	24
5	0	0	0	1	1	3	IZS	3	2	2	1	1	1	1	1	1	1	1	1	2	3	2	2	1	3	1.3	24
6	1	1	1	1	1	IZS	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1	2	2	2	1.5	24
7	3	2	3	3	IZS	1	1	1	1	0	0	0	0	0	0	0	0	2	2	3	1	4	3	5	5	1.5	24
8	3	2	1	IZS	2	2	3	3	2	3	2	2	1	1	1	1	1	1	1	2	2	2	2	1	3	1.8	24
9	1	1	IZS	0	1	1	1	2	2	2	1	0	0	0	1	C	M	0	0	1	1	1	1	1	2	0.9	23
10	0	IZS	1	1	1	1	2	3	1	1	0	1	1	0	0	0	1	0	1	1	4	3	3	2	4	1.2	24
11	IZS	1	1	1	2	3	6	4	1	1	1	1	1	1	1	1	1	1	1	3	4	2	2	IZS	6	1.8	24
12	1	1	1	1	1	1	2	3	2	1	1	1	1	1	1	1	1	1	1	3	4	5	IZS	2	5	1.6	24
13	2	2	2	2	2	2	1	1	1	1	1	1	1	2	1	1	1	1	1	2	4	2	IZS	2	1	1.6	24
14	1	1	1	2	1	4	1	1	1	1	1	1	1	1	1	1	2	1	1	2	IZS	2	2	1	4	1.3	24
15	1	3	1	1	3	4	3	2	1	1	1	1	1	1	1	1	1	1	1	IZS	1	2	4	3	4	1.7	24
16	3	4	4	5	4	3	2	2	1	1	1	1	1	1	1	1	1	1	IZS	3	2	3	3	3	5	2.2	24
17	3	2	2	3	3	2	3	2	1	1	1	1	1	1	1	1	1	IZS	1	1	1	2	2	2	3	1.7	24
18	1	2	2	3	3	3	4	3	1	1	1	1	1	1	1	0	IZS	1	2	2	2	3	2	2	4	1.8	24
19	3	3	4	3	2	2	2	2	2	2	2	1	1	1	1	1	IZS	2	1	1	2	2	2	1	4	1.9	24
20	1	1	1	1	1	1	3	3	3	2	1	1	1	1	IZS	1	1	2	2	2	2	2	1	1	3	1.5	24
21	1	2	1	2	2	2	2	2	1	1	1	1	1	IZS	1	1	1	1	1	2	2	2	2	2	2	1.5	24
22	2	2	2	2	2	3	3	3	4	3	3	3	IZS	1	1	3	1	2	3	2	4	3	2	2	4	2.4	24
23	3	3	2	3	3	4	2	2	2	1	1	IZS	1	1	1	0	0	0	1	1	2	2	3	4	4	1.8	24
24	4	4	3	2	2	2	3	2	1	1	IZS	1	1	1	1	1	1	1	2	5	3	3	3	3	5	2.2	24
25	2	1	1	3	4	4	3	2	1	IZS	1	1	1	1	1	1	1	1	1	1	2	1	2	3	4	1.7	24
26	5	5	4	4	4	3	3	5	IZS	4	2	1	1	1	1	1	1	1	3	5	3	2	2	5	2.7	24	
27	2	1	2	2	2	2	3	IZS	3	2	1	1	1	1	1	1	1	3	4	4	3	2	2	2	4	2.0	24
28	2	2	4	3	6	5	IZS	4	3	1	1	1	1	1	1	1	1	1	2	3	2	3	5	6	2.3	24	
29	5	3	3	2	2	IZS	4	6	2	2	1	1	1	1	1	1	1	2	2	2	4	2	4	3	6	2.4	24
30	4	4	2	2	IZS	5	5	5	3	2	1	0	1	1	1	1	1	1	1	1	2	2	2	2	5	2.1	24
31	3	5	4	IZS	4	4	4	3	1	1	1	1	1	1	0	0	0	0	1	2	4	2	2	4	5	2.1	24
HOURLY MAX	5	5	4	5	6	5	6	6	4	4	3	3	2	2	2	3	2	3	4	5	5	5	4	5			
HOURLY AVG	2.2	2.2	2.1	2.2	2.4	2.7	2.8	2.7	1.7	1.4	1.1	1.0	0.9	0.9	0.9	0.9	1.0	1.1	1.3	2.2	2.5	2.2	2.1	2.2			

STATUS FLAG CODES

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

OBJECTIVE LIMIT:

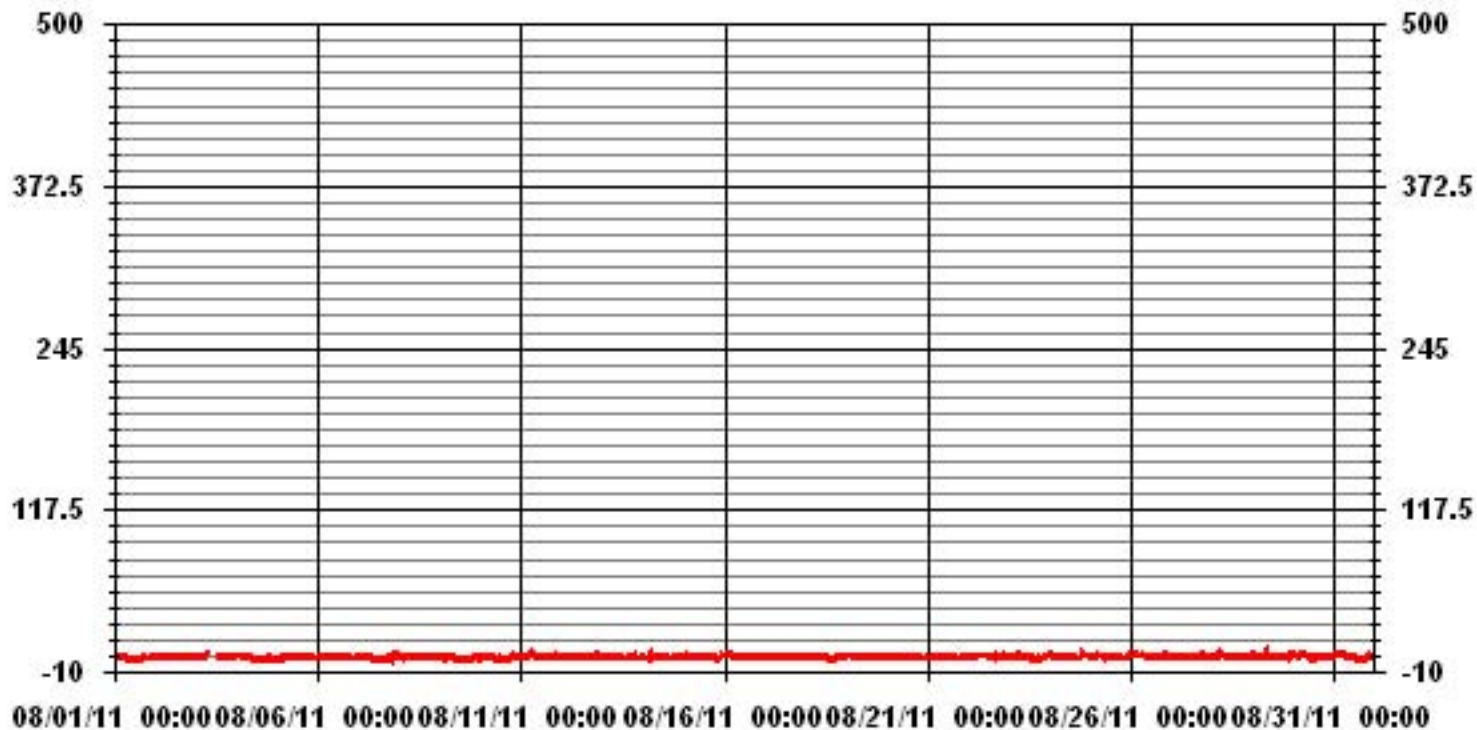
ALBERTA ENVIRONMENT: 1-HR 159 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	656				
MAXIMUM 1-HR AVERAGE:	6	PPB	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	2.7	PPB			26
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.7	%
STANDARD DEVIATION:	1.16		MONTHLY AVERAGE:	1.77	PPB

01 Hour Averages



— LICA NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	3	2	2	7	3	4	4	3	3	1	IZS	1	1	1	1	1	1	P	1	1	10	2	2	1	10	2.5	23	
2	2	5	3	3	3	3	2	3	2	IZS	2	1	1	4	1	1	1	1	1	5	7	3	3	3	7	2.6	24	
3	2	2	3	4	4	5	6	C	C	C	C	C	C	1	2	M	M	2	3	2	4	2	3	6	3.0	22		
4	4	4	4	4	5	5	4	IZS	3	1	1	0	2	0	0	0	0	3	3	3	2	1	1	5	2.2	24		
5	1	0	1	3	4	14	IZS	6	4	10	2	2	5	5	4	6	3	3	3	5	4	8	6	3	14	4.4	24	
6	2	3	2	2	3	IZS	2	3	2	1	7	2	3	3	3	3	2	2	2	2	3	2	5	3	7	2.7	24	
7	3	2	3	5	IZS	3	2	1	1	1	1	0	1	2	0	1	1	2	3	5	3	5	6	7	7	2.5	24	
8	4	2	2	IZS	3	4	3	3	3	4	3	2	4	1	2	4	3	3	7	2	5	2	3	2	7	3.1	24	
9	2	2	IZS	1	2	2	3	2	2	3	3	1	1	1	2	C	M	0	1	2	2	1	2	2	3	1.8	23	
10	1	IZS	2	2	5	2	14	5	2	2	3	2	3	1	2	3	1	1	9	5	10	5	5	5	14	3.9	24	
11	IZS	2	1	2	3	9	11	11	2	2	5	3	2	6	1	18	4	2	2	18	6	4	2	IZS	18	5.3	24	
12	2	2	2	2	2	2	3	10	2	2	1	2	1	2	2	2	3	1	2	16	5	10	IZS	3	16	3.4	24	
13	3	2	3	3	2	3	2	4	2	2	2	2	5	8	3	1	3	2	3	6	3	IZS	4	1	8	3.0	24	
14	2	2	2	9	3	7	2	1	1	2	5	1	4	1	4	10	6	2	3	4	IZS	4	4	2	10	3.5	24	
15	2	4	2	2	5	5	5	6	2	1	2	1	1	1	1	2	1	1	1	IZS	2	3	6	5	6	2.7	24	
16	4	6	5	6	5	5	3	2	2	2	2	1	1	1	1	1	2	1	IZS	4	3	4	4	5	6	3.0	24	
17	3	3	3	4	4	3	4	4	2	2	2	1	1	1	1	2	1	IZS	2	2	2	2	3	3	4	2.4	24	
18	2	2	2	3	5	5	4	4	3	4	4	5	2	2	1	1	IZS	2	3	3	5	4	3	3	5	3.1	24	
19	4	3	5	4	3	3	3	8	3	2	3	2	4	3	1	IZS	6	4	2	3	4	4	7	2	8	3.6	24	
20	2	2	2	2	2	2	4	7	5	4	2	4	1	1	IZS	2	5	4	3	6	6	9	2	2	9	3.4	24	
21	2	4	2	2	3	4	3	3	2	2	2	4	3	IZS	4	2	4	2	2	4	3	3	12	3	12	3.3	24	
22	3	3	3	3	4	5	3	8	5	3	4	9	IZS	2	3	17	4	3	6	4	7	5	3	4	17	4.8	24	
23	5	4	4	4	4	6	3	3	2	2	2	IZS	2	1	1	1	1	1	1	3	3	2	4	4	6	2.7	24	
24	4	4	4	3	4	5	5	4	2	2	IZS	3	5	3	2	3	3	2	5	14	4	5	3	3	14	4.0	24	
25	3	2	2	7	5	6	6	4	2	IZS	2	1	2	2	2	1	1	1	1	2	2	2	3	5	7	2.8	24	
26	6	7	6	6	6	5	4	50	IZS	7	4	2	1	4	1	2	1	5	3	8	11	5	3	4	50	6.6	24	
27	3	2	2	2	3	2	4	IZS	34	2	2	3	3	4	2	3	4	12	22	7	7	6	7	4	34	6.1	24	
28	3	3	5	4	7	6	IZS	5	4	2	2	1	1	2	1	1	1	1	2	5	5	3	5	8	8	3.3	24	
29	7	4	4	3	4	IZS	10	11	3	3	6	2	2	1	5	3	5	6	6	20	25	3	4	5	25	6.2	24	
30	5	5	3	4	IZS	7	7	8	4	3	3	1	2	1	2	1	2	1	2	2	4	3	4	3	8	3.3	24	
31	5	6	5	IZS	5	5	5	4	2	1	2	2	7	2	1	1	1	1	1	2	7	3	4	6	7	3.4	24	
HOURLY MAX	7	7	6	9	7	14	14	50	34	10	7	9	7	8	5	18	6	12	22	20	25	10	12	8				
HOURLY AVG	3.1	3.1	3.0	3.7	3.8	4.7	4.5	6.5	3.7	2.6	2.8	2.1	2.4	2.3	1.8	3.3	2.5	2.4	3.5	5.5	5.4	3.9	4.1	3.5				

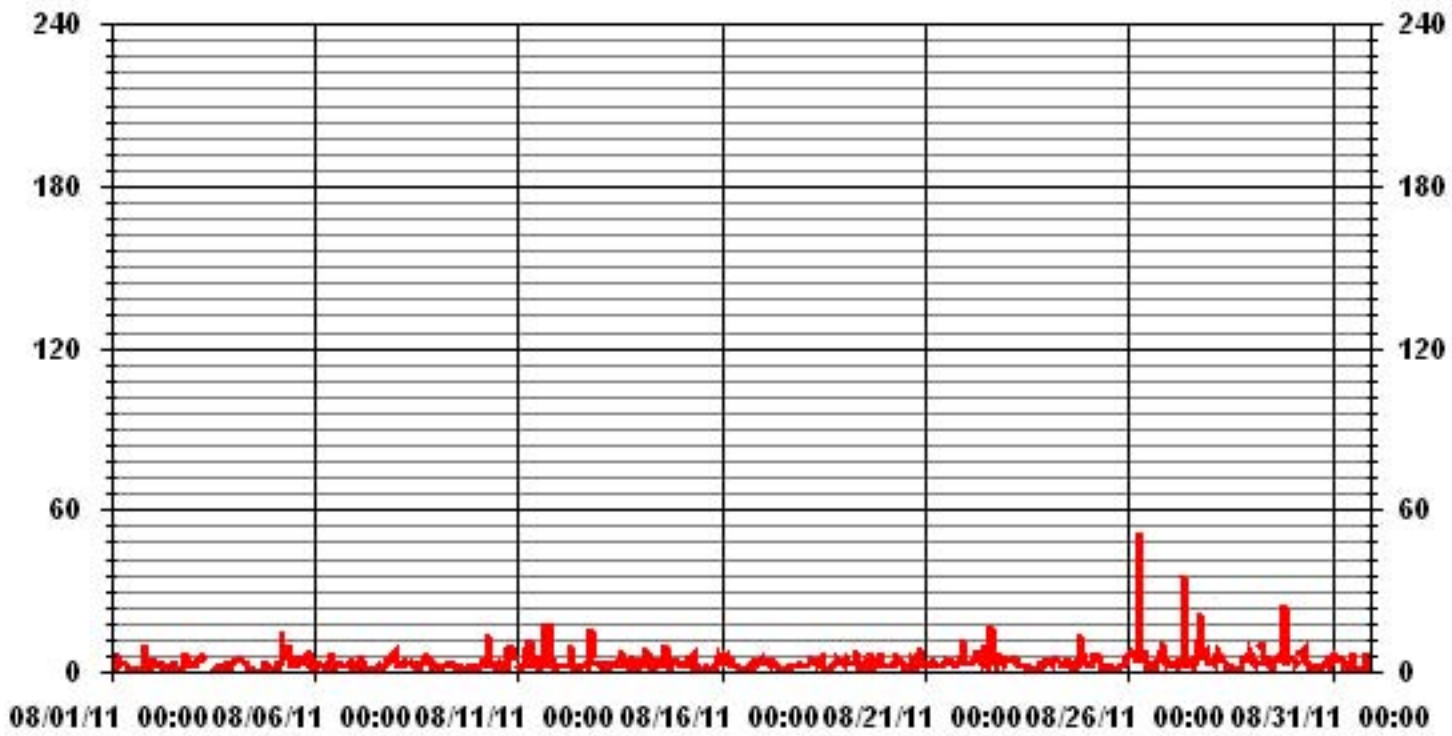
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	691					
MAXIMUM INSTANTANEOUS VALUE:	50	PPB	@ HOUR(S)	7	ON DAY(S)	26
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	740	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	3.40					

01 Hour Averages



— LICA NO2MAX PPB

LICA
 NO2_ / WD Joint Frequency Distribution (Percent)

August 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	.99	.85	1.56	2.69	2.55	4.68	13.21	4.68	3.55	5.53	9.94	19.17	17.18	8.94	3.26	1.13	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	.99	.85	1.56	2.69	2.55	4.68	13.21	4.68	3.55	5.53	9.94	19.17	17.18	8.94	3.26	1.13	

Calm : .00 %

Total # Operational Hours : 704

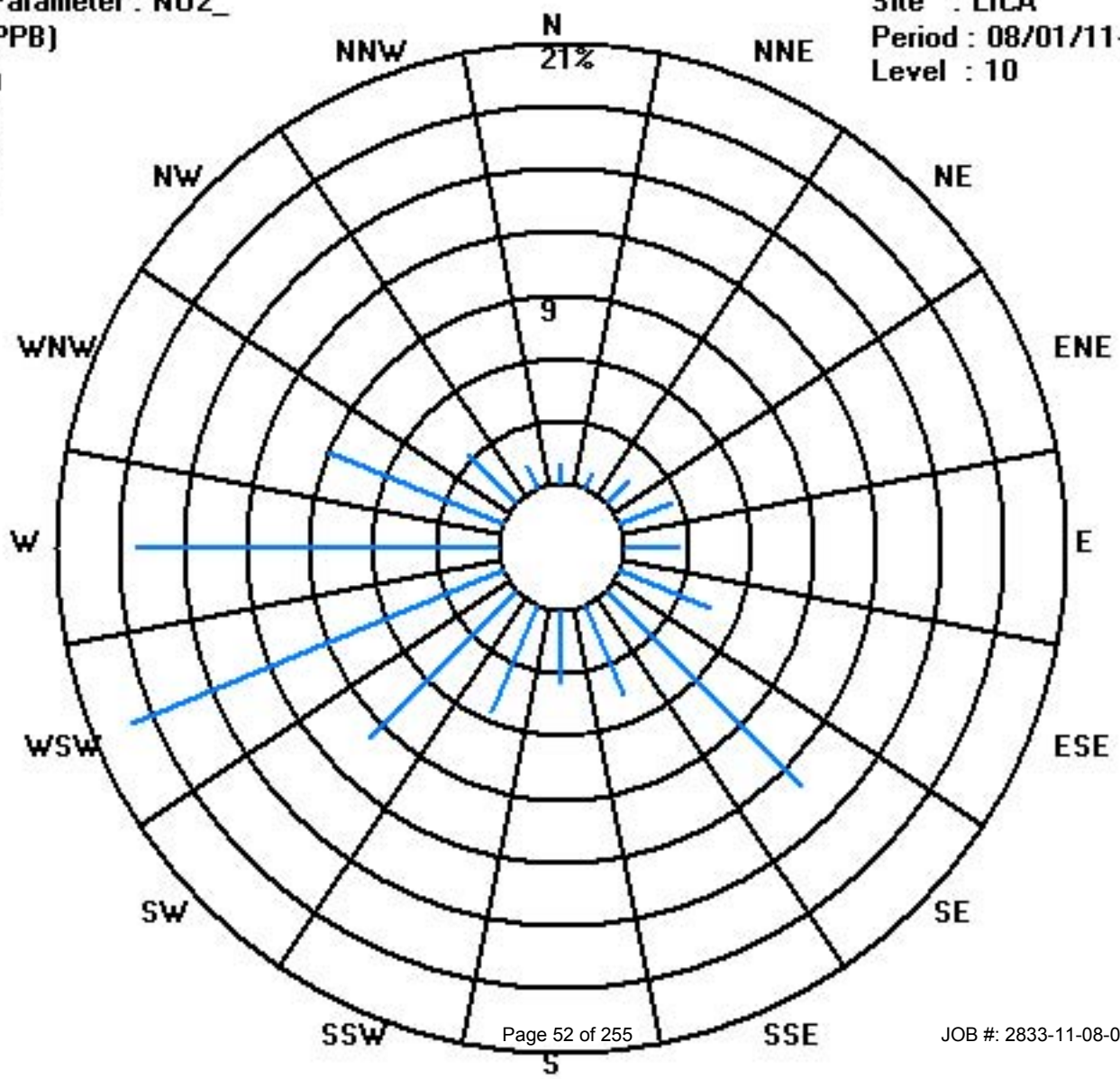
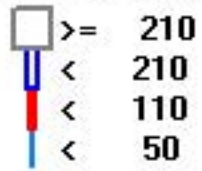
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	7	6	11	19	18	33	93	33	25	39	70	135	121	63	23	8	704
< 110																	
< 210																	
>= 210																	
Totals	7	6	11	19	18	33	93	33	25	39	70	135	121	63	23	8	

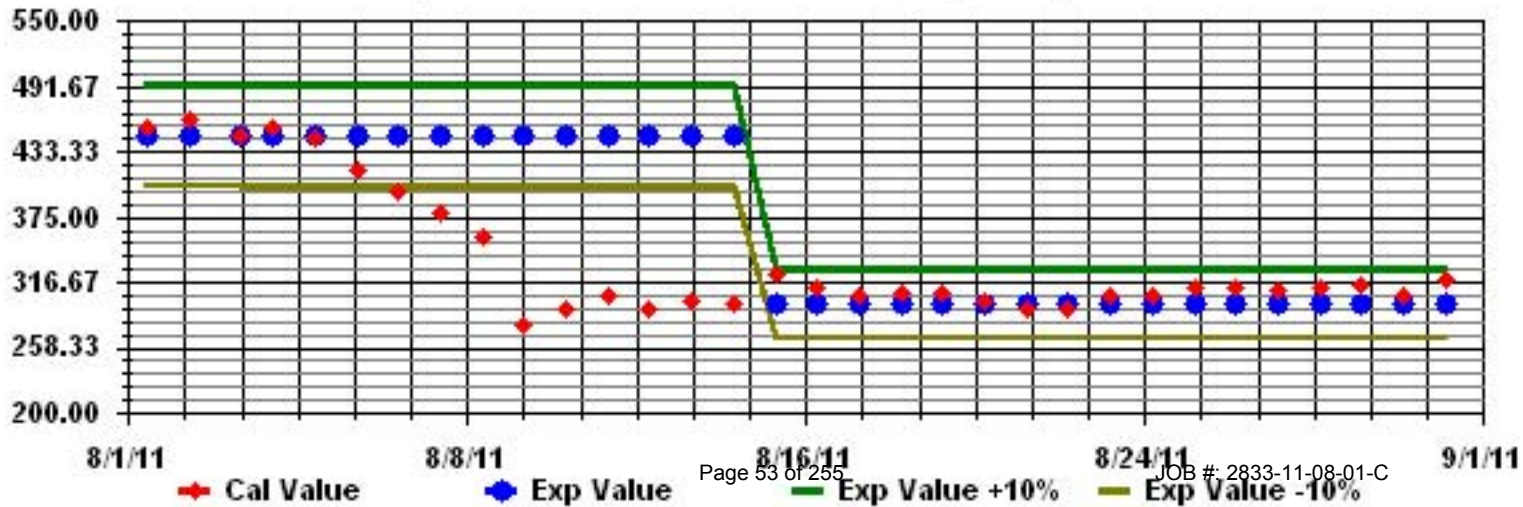
Calm : .00 %

Total # Operational Hours : 704

Class Limits (PPB)



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	1	1	1	0	IZS	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.2	24	
2	0	0	0	0	0	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
3	0	0	0	0	0	1	2	3	C	C	C	C	C	C	0	0	M	0	0	0	0	0	0	0	3	0.4	23	
4	0	0	0	0	0	2	2	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24	
5	0	0	0	0	0	0	IZS	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
6	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.0	24	
7	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
8	0	0	0	IZS	1	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0.5	24	
9	1	1	IZS	1	3	4	3	2	1	1	0	0	0	0	0	C	M	0	0	0	0	0	0	0	4	0.8	23	
10	0	IZS	0	0	1	1	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0.6	24	
11	IZS	0	0	0	1	5	17	3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	IZS	17	1.3	24	
12	0	0	0	1	1	2	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	IZS	0	3	0.5	24
13	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	IZS	0	1	0.1	24	
14	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	2	0.1	24	
15	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	
16	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	0.2	24	
17	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	1	0.1	24	
18	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	0.2	24	
19	0	0	0	0	0	1	1	3	1	1	1	1	1	0	0	IZS	0	0	0	0	0	1	1	4	1	4	0.7	24
20	1	1	1	1	3	3	2	3	4	2	1	1	0	0	IZS	0	0	0	0	0	0	0	0	0	4	1.0	24	
21	0	0	0	1	0	0	0	1	1	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
22	0	0	0	0	0	2	3	2	2	1	1	0	IZS	0	0	1	0	0	0	0	0	1	0	1	3	0.6	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	24	
24	0	0	0	0	0	3	5	2	1	0	IZS	0	0	0	0	0	0	0	0	1	0	0	0	0	5	0.5	24	
25	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	
26	0	0	0	0	0	3	5	6	IZS	3	1	0	0	0	0	0	0	0	0	0	1	1	0	0	6	0.9	24	
27	0	0	0	1	1	1	5	IZS	2	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	5	0.6	24	
28	0	0	0	0	0	0	IZS	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1	24	
29	1	0	0	1	2	IZS	8	9	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	9	1.0	24	
30	0	0	0	0	IZS	1	2	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.4	24	
31	0	0	0	IZS	0	0	1	2	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
HOURLY MAX	1	1	1	1	3	5	17	9	4	3	1	1	1	1	0	1	0	0	2	1	1	1	4	1				
HOURLY AVG	0.1	0.1	0.0	0.2	0.4	1.2	2.6	1.9	0.9	0.4	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.1				

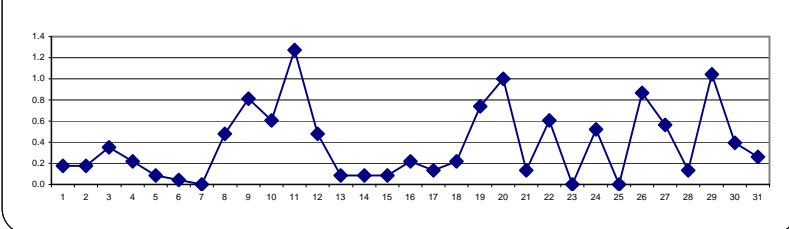
STATUS FLAG CODES

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

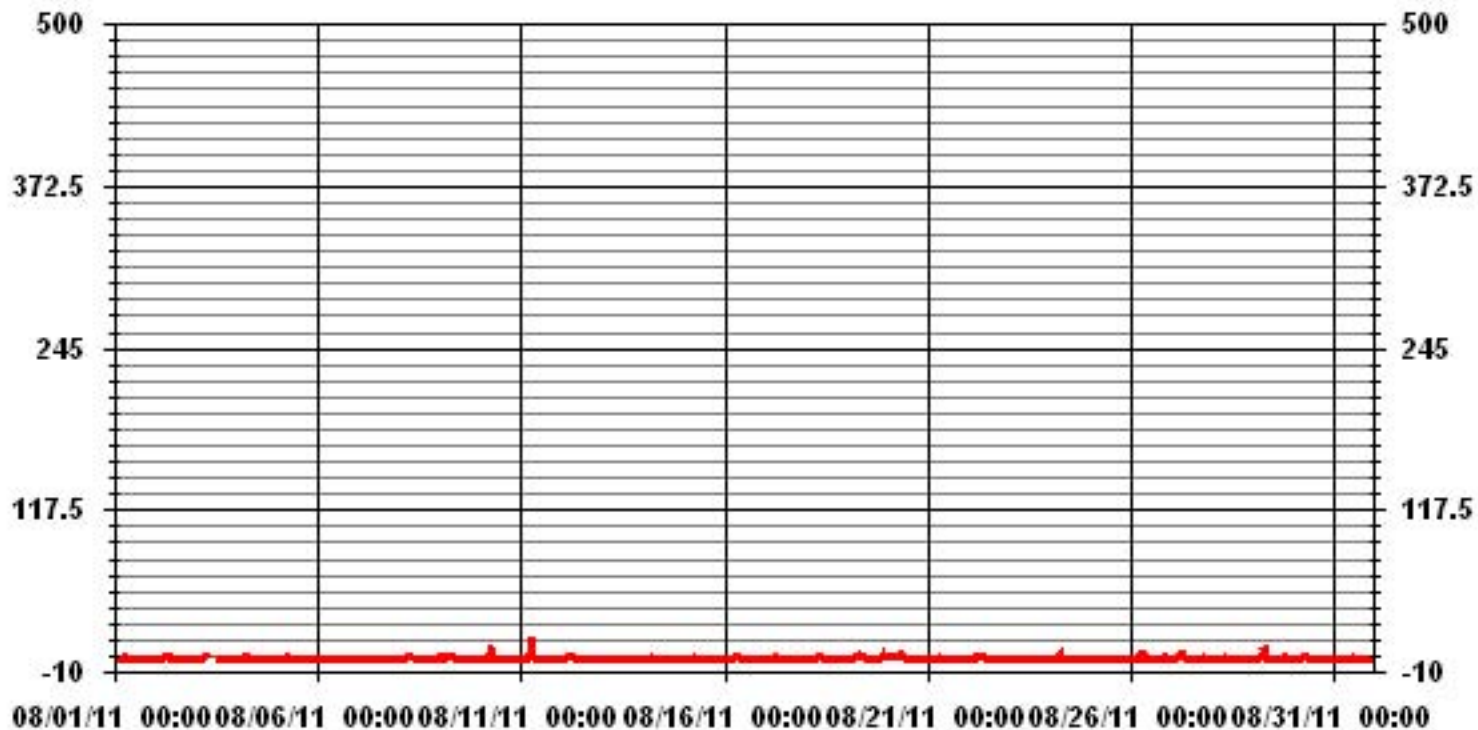
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	143					
MAXIMUM 1-HR AVERAGE:	17	PPB	@ HOUR(S)	6	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	1.3	PPB			ON DAY(S)	11
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	1.15		MONTHLY AVERAGE:	0.38	PPB	

24 HOUR AVERAGES FOR AUGUST 2011



01 Hour Averages



— LICA NO₂ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	1	1	0	5	0	1	2	2	1	0	IZS	0	0	0	0	0	0	P	0	0	21	0	0	0	21	1.5	23	
2	1	0	0	0	1	1	2	2	1	IZS	0	0	0	3	0	0	0	0	0	1	6	1	1	1	6	0.9	24	
3	1	1	0	1	1	3	3	C	C	C	C	C	C	0	2	M	M	1	0	0	0	0	0	0	3	0.9	22	
4	0	0	0	0	0	3	3	IZS	3	0	1	0	1	1	1	0	1	0	1	6	0	1	0	0	6	1.0	24	
5	1	0	0	1	1	3	IZS	6	3	8	1	3	1	3	1	3	1	0	1	3	1	5	3	1	8	2.2	24	
6	1	0	0	0	9	IZS	3	3	0	1	7	3	1	1	8	1	1	1	1	0	0	0	13	0	13	2.3	24	
7	0	0	0	0	IZS	0	0	0	0	1	1	1	1	1	0	0	1	1	1	1	0	0	0	0	1	0.4	24	
8	0	1	1	IZS	2	7	3	3	2	2	1	0	5	1	0	1	4	1	0	0	4	1	1	1	7	1.8	24	
9	1	2	IZS	1	6	9	4	3	2	2	1	1	0	0	0	C	M	0	0	0	0	0	0	0	9	1.5	23	
10	0	IZS	0	1	7	2	212	3	1	1	1	0	0	0	0	3	1	1	5	2	5	1	6	1	212	11.0	24	
11	IZS	1	1	1	17	15	36	16	0	1	3	3	5	4	1	37	1	1	1	29	1	1	1	1	IZS	37	8.0	24
12	1	1	1	2	1	5	4	29	1	0	0	1	0	0	0	0	1	0	0	12	0	5	IZS	0	29	2.8	24	
13	0	0	0	1	0	1	1	5	1	1	1	1	5	7	5	0	1	3	1	4	1	IZS	7	0	7	2.0	24	
14	1	0	0	12	1	11	1	0	0	3	6	1	3	1	1	7	6	1	0	1	IZS	1	1	0	12	2.5	24	
15	0	0	0	0	0	1	1	4	1	1	1	1	1	1	1	1	0	0	IZS	0	0	1	0	4	0.7	24		
16	0	0	0	1	1	1	2	2	2	1	1	0	0	0	1	1	0	0	IZS	1	1	1	0	1	2	0.7	24	
17	0	1	0	0	1	1	2	7	1	1	1	1	7	1	1	1	1	IZS	0	0	0	0	0	0	7	1.2	24	
18	0	0	0	0	0	1	2	2	2	5	5	3	1	1	2	1	IZS	1	1	1	5	1	1	1	5	1.6	24	
19	1	0	1	1	1	2	2	25	3	1	6	1	4	8	1	IZS	4	3	1	2	2	9	41	3	41	5.3	24	
20	4	2	2	1	13	10	4	6	13	6	1	4	1	1	IZS	1	1	2	1	7	3	7	19	1	19	4.8	24	
21	1	4	1	2	2	3	1	3	1	1	1	1	2	IZS	1	1	4	1	1	4	1	1	9	1	9	2.0	24	
22	0	2	0	0	1	11	9	10	3	1	1	4	IZS	0	1	11	1	1	1	1	3	1	1	4	11	2.9	24	
23	1	0	0	0	0	0	1	1	1	1	2	IZS	2	1	0	0	1	0	0	0	0	0	0	0	2	0.5	24	
24	0	0	0	1	10	20	11	5	1	1	IZS	2	1	2	0	0	1	0	0	5	0	1	1	1	20	2.7	24	
25	0	1	0	1	0	0	1	1	1	IZS	1	1	0	1	1	0	0	1	0	0	0	0	0	0	1	0.4	24	
26	0	1	1	1	3	10	10	47	IZS	4	2	1	4	1	1	1	1	3	0	8	9	9	1	2	47	5.2	24	
27	1	1	1	1	2	2	8	IZS	34	1	1	1	1	2	1	2	1	4	34	1	16	3	1	0	34	5.2	24	
28	0	0	1	1	1	1	IZS	3	2	1	1	0	1	1	0	0	0	0	0	1	0	1	5	2	5	1.0	24	
29	2	1	1	3	25	IZS	30	30	3	1	1	3	1	2	4	1	1	2	1	10	8	0	0	1	30	5.7	24	
30	0	0	1	1	IZS	5	5	5	3	1	3	0	1	1	1	1	0	0	0	0	0	0	5	1	5	1.5	24	
31	1	0	0	IZS	0	1	2	3	1	1	2	5	3	1	0	0	1	0	0	0	0	0	0	1	5	1.0	24	
HOURLY MAX	4	4	2	12	25	20	212	47	34	8	7	5	7	8	8	37	6	4	34	29	21	9	41	4				
HOURLY AVG	0.6	0.7	0.4	1.3	3.7	4.5	12.6	8.1	3.0	1.7	1.9	1.4	1.8	1.6	1.1	2.6	1.3	1.0	1.7	3.3	2.9	1.7	3.9	0.8				

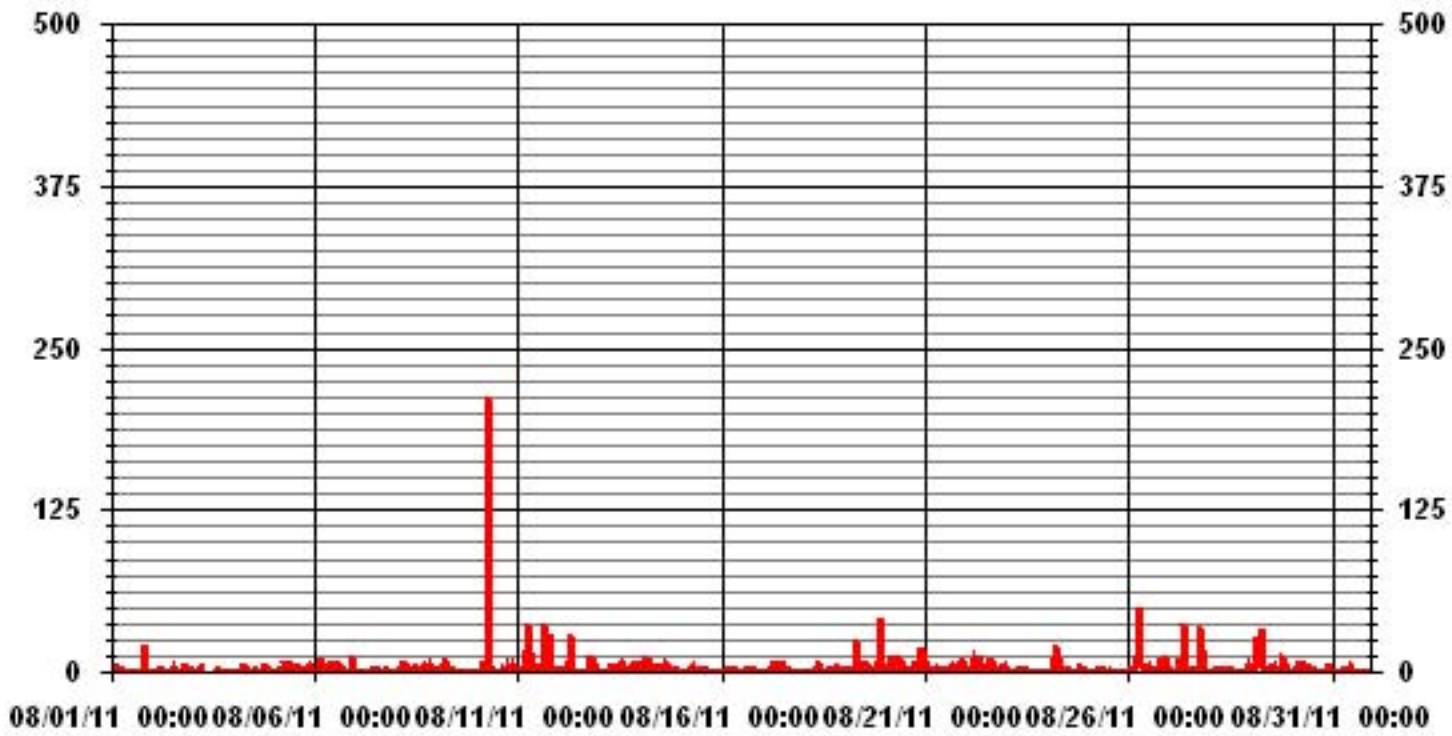
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	481					
MAXIMUM INSTANTANEOUS VALUE:	212	PPB	@ HOUR(S)	6	ON DAY(S)	10
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	740	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	9.36					

01 Hour Averages



LICA
 NO_ / WD Joint Frequency Distribution (Percent)

August 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	.99	.85	1.56	2.69	2.55	4.68	13.21	4.68	3.55	5.53	9.94	19.17	17.18	8.94	3.26	1.13	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	.99	.85	1.56	2.69	2.55	4.68	13.21	4.68	3.55	5.53	9.94	19.17	17.18	8.94	3.26	1.13		

Calm : .00 %

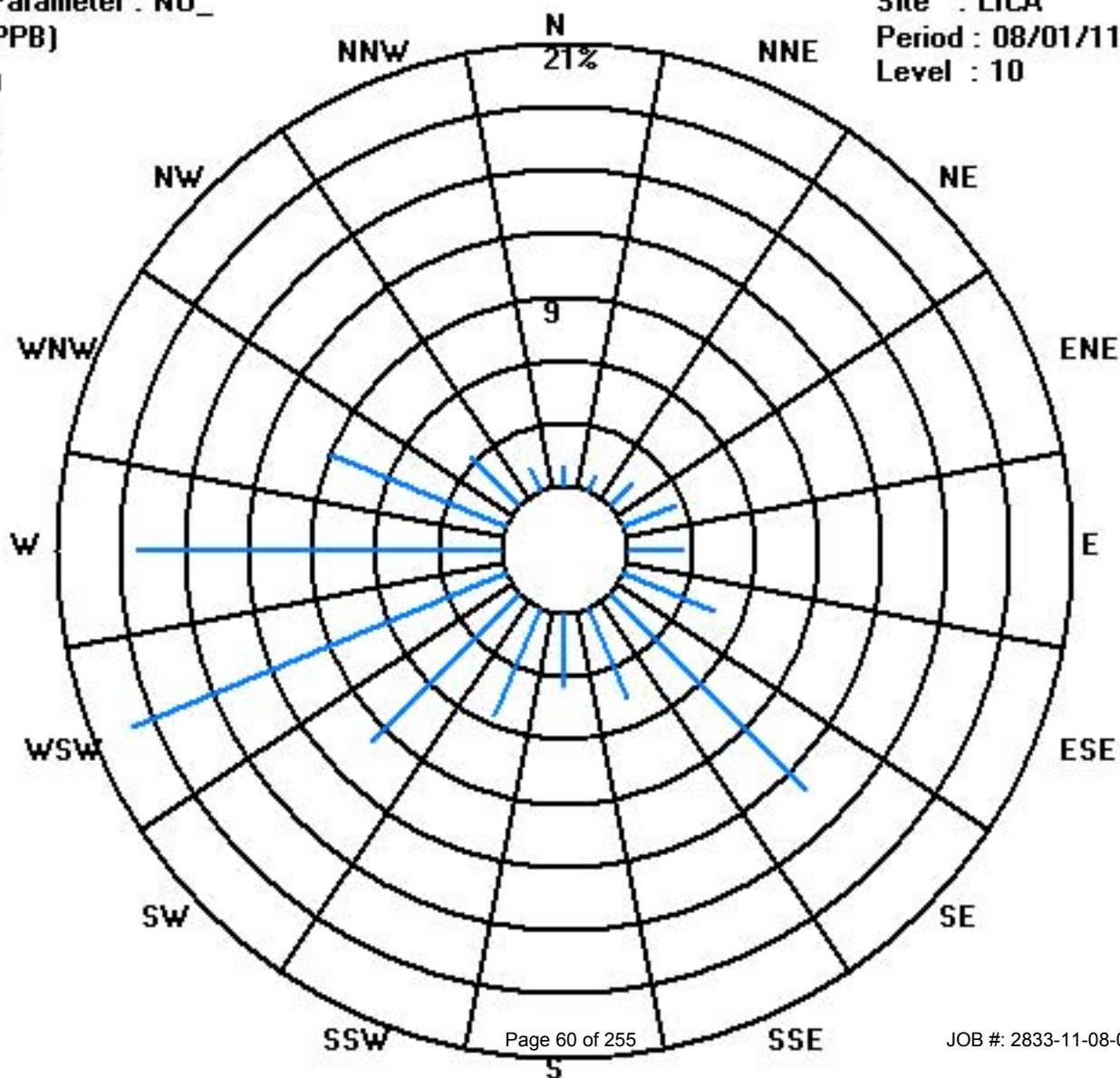
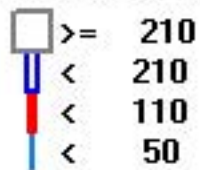
Total # Operational Hours : 704

Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50	7	6	11	19	18	33	93	33	25	39	70	135	121	63	23	8	704	
< 110																		
< 210																		
>= 210																		
Totals	7	6	11	19	18	33	93	33	25	39	70	135	121	63	23	8		

Calm : .00 %

Total # Operational Hours : 704



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2011

OXIDES OF NITROGEN hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	2	1	1	2	2	3	4	3	2	0	IZS	1	0	0	0	0	1	1	1	1	3	1	1	1	4	1.3	24	
2	2	3	2	2	2	3	3	3	2	IZS	1	1	1	1	1	1	1	1	1	3	4	2	2	2	4	1.9	24	
3	1	1	2	3	4	4	7	7	C	C	C	C	C	C	1	1	M	1	1	2	2	2	1	2	7	2.5	23	
4	3	3	4	3	4	5	5	IZS	3	2	2	1	1	1	1	1	1	1	1	2	2	2	1	1	5	2.2	24	
5	1	1	1	2	2	4	IZS	4	3	2	1	1	1	1	1	1	1	1	1	2	3	2	2	1	4	1.7	24	
6	1	1	1	1	2	IZS	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	1	3	2	3	1.6	24	
7	2	2	3	3	IZS	1	1	1	1	1	0	0	0	0	0	0	0	2	2	4	1	4	3	5	5	1.6	24	
8	3	2	1	IZS	3	4	5	5	4	4	2	2	2	1	1	1	1	1	1	2	2	2	2	2	5	2.3	24	
9	2	1	IZS	1	3	5	4	4	3	2	1	0	0	0	1	C	M	0	0	1	1	0	1	1	5	1.5	23	
10	0	IZS	2	2	3	3	13	6	2	2	1	2	2	1	1	2	2	1	3	2	5	4	4	4	13	2.9	24	
11	IZS	1	1	1	3	8	23	7	1	1	1	1	1	1	1	2	1	1	1	5	4	2	2	IZS	23	3.1	24	
12	2	2	2	2	2	3	4	5	3	2	1	1	1	1	1	1	1	1	1	3	4	6	IZS	2	6	2.2	24	
13	2	2	2	2	2	2	2	2	2	1	1	1	2	2	1	1	1	1	2	4	2	IZS	2	1	4	1.7	24	
14	1	1	1	2	1	5	1	1	1	1	1	1	1	1	1	2	2	1	1	2	IZS	2	2	1	5	1.4	24	
15	1	2	1	1	3	4	4	3	2	1	1	1	1	1	1	1	1	1	1	IZS	1	1	4	3	4	1.7	24	
16	3	3	4	5	4	3	3	3	2	2	2	1	1	1	1	1	1	1	IZS	3	2	3	3	3	5	2.4	24	
17	3	2	2	3	3	3	4	3	2	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	2	4	1.7	24	
18	1	1	2	2	3	4	5	4	2	2	1	1	1	1	1	1	1	IZS	1	3	2	2	3	2	3	5	2.1	24
19	3	3	4	3	2	3	3	5	3	3	3	2	2	1	1	IZS	2	1	1	2	3	3	6	2	6	2.7	24	
20	3	2	2	2	4	5	5	6	7	4	2	2	1	1	IZS	1	1	2	2	2	3	2	1	1	7	2.7	24	
21	1	2	1	2	2	2	2	2	2	2	2	2	1	IZS	1	1	1	1	1	2	2	2	2	2	2	1.7	24	
22	2	2	2	2	2	5	6	5	5	3	4	3	IZS	1	1	4	1	2	3	2	5	3	2	3	6	3.0	24	
23	3	3	2	3	3	4	2	2	2	2	1	IZS	1	1	1	0	0	0	1	1	2	1	3	3	4	1.8	24	
24	4	3	3	2	2	5	8	3	2	2	IZS	1	1	1	1	1	1	1	2	6	3	3	3	3	8	2.7	24	
25	2	1	1	3	4	4	3	3	2	IZS	1	1	1	1	1	1	1	0	0	1	1	1	2	3	4	1.7	24	
26	5	5	4	4	4	6	9	11	IZS	7	2	1	1	1	1	1	1	1	1	4	6	4	2	2	11	3.6	24	
27	2	1	2	2	2	3	7	IZS	4	2	1	1	1	1	1	1	1	3	6	4	3	2	2	2	7	2.3	24	
28	2	2	4	3	6	5	IZS	6	4	2	1	1	1	1	1	1	1	1	2	3	2	4	5	6	2.6	24		
29	6	4	3	3	4	IZS	11	15	2	2	1	1	1	1	1	2	3	2	3	5	2	4	3	15	3.5	24		
30	4	4	2	2	IZS	6	7	9	4	2	1	0	1	1	1	1	1	1	1	2	2	2	2	2	9	2.5	24	
31	3	5	4	IZS	4	5	5	4	2	1	2	1	2	1	0	0	0	0	1	1	4	2	2	4	5	2.3	24	
HOURLY MAX	6	5	4	5	6	8	23	15	7	7	4	3	2	2	2	4	2	3	6	6	6	6	6	5				
HOURLY AVG	2.3	2.2	2.2	2.3	2.9	4.0	5.4	4.6	2.6	2.0	1.4	1.1	1.1	1.0	0.9	1.1	1.1	1.1	1.5	2.4	2.8	2.2	2.4	2.4				

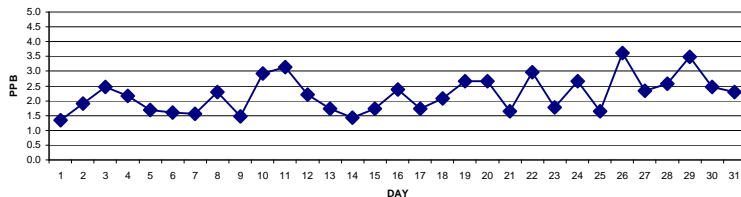
STATUS FLAG CODES

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

OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	57	PPB
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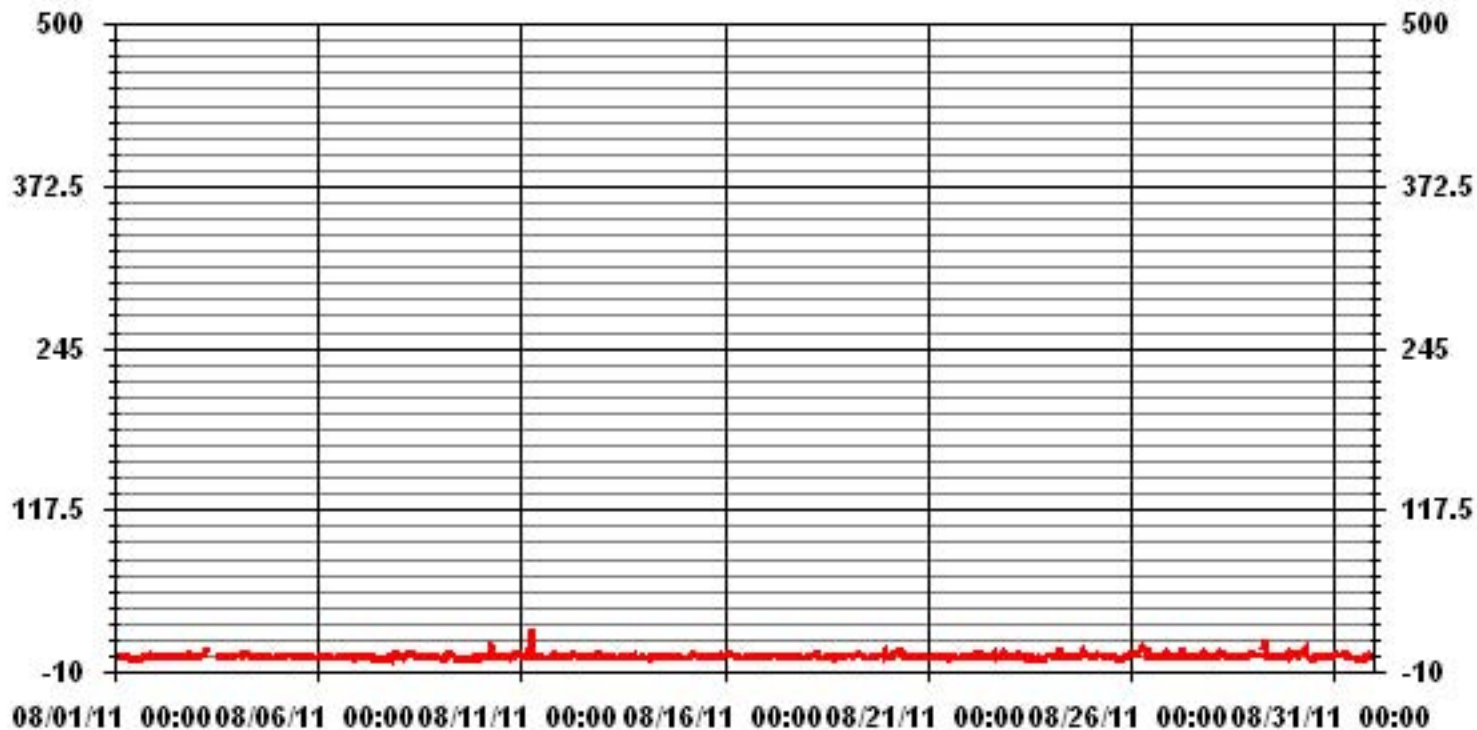
24 HOUR AVERAGES FOR AUGUST 2011



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	675		
MAXIMUM 1-HR AVERAGE:	23 PPB @ HOUR(S) 6 ON DAY(S) 11		
MAXIMUM 24-HR AVERAGE:	3.6 PPB ON DAY(S) 26		
	VAR-VARIOUS		
IZS CALIBRATION TIME:	31 HRS	OPERATIONAL TIME:	742 HRS
MONTHLY CALIBRATION TIME:	7 HRS	AMD OPERATION UPTIME:	99.7 %
STANDARD DEVIATION:	1.84	MONTHLY AVERAGE:	2.22 PPB

01 Hour Averages



— LICA NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2011

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	3	2	2	10	3	4	6	5	4	1	IZS	1	1	1	1	1	1	P	1	1	23	2	2	2	23	3.5	23	
2	2	5	3	3	3	4	3	5	4	IZS	2	1	2	7	2	1	1	1	1	6	13	3	3	3	13	3.4	24	
3	2	2	3	4	4	7	8	C	C	C	C	C	C	2	3	2	3	M	M	3	3	2	4	2	3	8	3.5	22
4	4	4	4	4	5	7	6	IZS	6	3	3	2	3	2	1	1	1	1	5	9	4	4	2	3	9	3.7	24	
5	2	2	2	4	6	17	IZS	9	6	16	3	5	6	6	6	8	3	4	5	7	4	14	9	3	17	6.4	24	
6	3	3	2	2	5	IZS	4	4	2	1	14	4	4	3	3	4	3	3	3	2	3	2	11	3	14	3.8	24	
7	3	2	3	5	IZS	3	2	2	1	1	2	1	1	2	1	1	1	3	3	5	3	5	6	7	7	2.7	24	
8	4	2	3	IZS	4	10	6	6	5	6	4	3	9	2	2	5	4	4	7	3	9	3	3	2	10	4.6	24	
9	3	3	IZS	2	7	8	6	5	4	4	4	1	1	1	2	C	M	0	2	2	2	1	2	2	8	3.0	23	
10	1	IZS	3	3	13	5	176	9	4	4	5	3	4	3	3	5	3	2	14	8	16	6	9	6	176	13.3	24	
11	IZS	2	1	2	19	23	42	27	2	3	8	4	6	10	2	22	5	2	3	44	7	4	3	IZS	44	11.0	24	
12	3	3	3	3	3	7	6	39	3	2	1	2	1	2	2	2	4	1	2	27	5	15	IZS	3	39	6.0	24	
13	3	2	3	3	2	4	2	8	2	3	2	3	8	14	6	2	4	3	3	8	3	IZS	9	2	14	4.3	24	
14	2	2	2	20	3	17	3	1	1	4	9	1	6	1	4	18	11	3	3	5	IZS	5	4	2	20	5.5	24	
15	2	4	2	2	5	5	6	9	2	2	3	1	2	1	2	2	1	1	1	IZS	1	3	6	5	9	3.0	24	
16	4	6	5	7	6	5	4	4	3	3	4	1	1	1	1	2	2	1	IZS	4	3	4	4	5	7	3.5	24	
17	3	3	3	4	4	4	5	8	3	2	2	2	6	1	2	3	2	IZS	2	2	2	2	3	3	8	3.1	24	
18	2	2	2	3	5	5	6	6	4	8	7	8	2	3	2	1	IZS	2	4	3	9	5	3	4	9	4.2	24	
19	4	3	5	4	4	5	4	31	6	4	7	3	7	11	1	IZS	8	6	3	5	5	10	44	4	44	8.0	24	
20	5	4	4	3	14	9	6	12	12	10	3	7	2	2	IZS	3	6	5	5	11	9	11	10	2	14	6.7	24	
21	2	8	3	4	5	6	3	6	3	3	3	5	6	IZS	5	2	5	3	2	7	4	3	20	3	20	4.8	24	
22	3	5	3	3	4	13	12	15	7	4	5	13	IZS	3	3	25	6	4	7	4	9	5	3	6	25	7.0	24	
23	5	4	4	4	4	6	3	4	3	3	3	IZS	2	2	1	1	1	1	1	3	3	2	4	4	6	3.0	24	
24	4	4	4	4	13	20	15	8	3	2	IZS	3	6	4	2	3	4	2	5	18	4	5	3	3	20	6.0	24	
25	3	2	2	7	5	6	7	5	3	IZS	2	2	2	2	2	1	1	1	1	2	2	2	3	5	7	3.0	24	
26	6	7	6	6	7	12	13	91	IZS	10	5	3	3	5	2	2	2	8	3	15	19	10	3	6	91	10.6	24	
27	3	3	3	3	4	5	10	IZS	58	3	2	4	4	6	2	5	4	15	49	8	12	9	7	4	58	9.7	24	
28	3	3	6	4	7	7	IZS	7	6	3	2	1	1	2	1	1	1	1	2	5	5	3	8	9	9	3.8	24	
29	9	5	4	5	18	IZS	39	40	4	4	6	5	3	2	8	3	5	7	6	29	29	3	4	5	40	10.6	24	
30	5	5	3	4	IZS	11	9	11	7	4	6	1	2	2	3	1	2	1	2	2	4	3	9	4	11	4.4	24	
31	5	6	5	IZS	5	6	7	6	3	2	4	6	10	3	1	1	1	1	1	2	7	3	4	6	10	4.1	24	
HOURLY MAX	9	8	6	20	19	23	176	91	58	16	14	13	10	14	8	25	11	15	49	44	29	15	44	9				
HOURLY AVG	3.4	3.6	3.3	4.5	6.4	8.3	14.4	13.7	5.9	4.1	4.3	3.3	3.8	3.6	2.5	4.4	3.3	3.1	5.0	8.3	7.4	5.0	6.8	4.0				

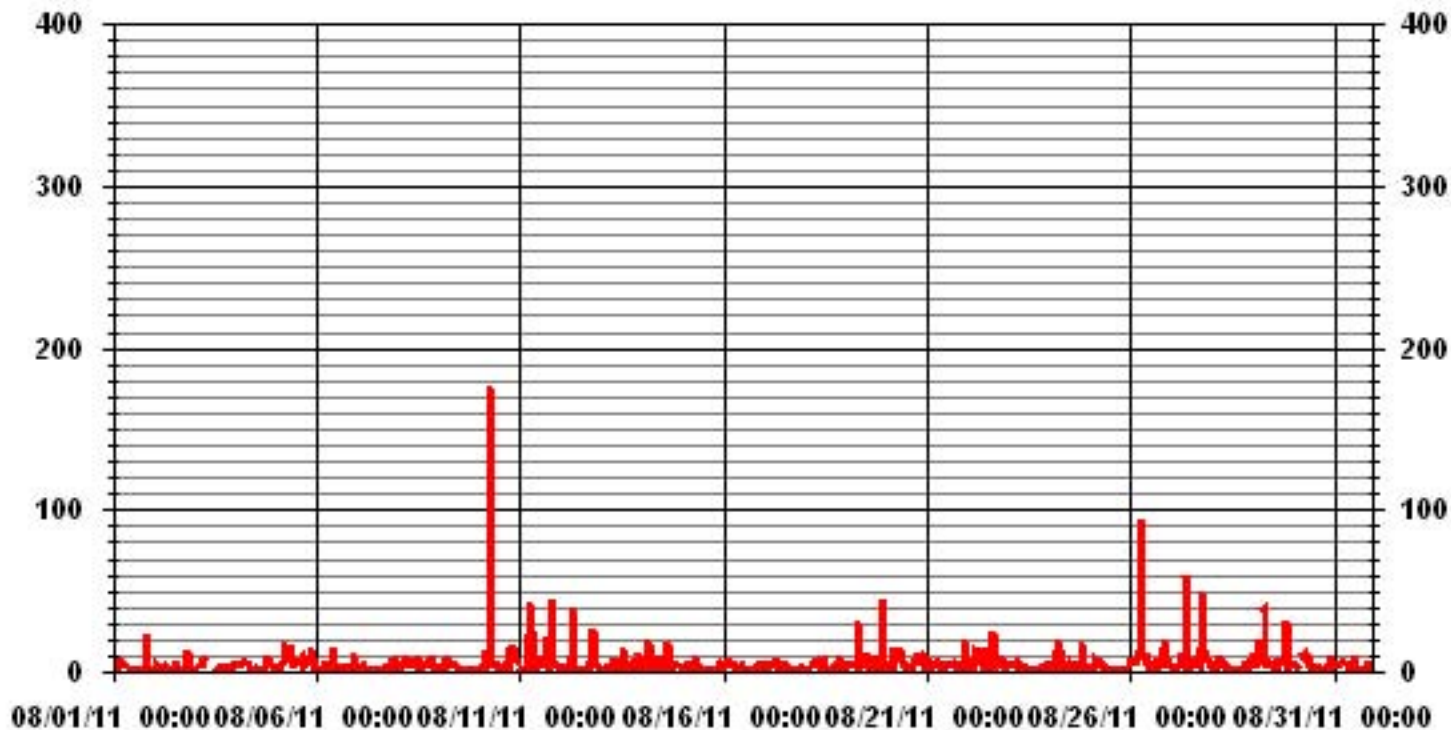
STATUS FLAG CODES

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:	700
MAXIMUM INSTANTANEOUS VALUE:	176 PPB @ HOUR(S) 6 ON DAY(S) 10
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION	9.34
OPERATIONAL TIME:	740 HRS

01 Hour Averages



LICA
 NOX_ / WD Joint Frequency Distribution (Percent)

August 2011

Distribution By % Of Samples

Logger Id : 01
 Site Name : LICA
 Parameter : NOX_
 Units : PPB

Wind Parameter : WD
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	.99	.85	1.56	2.69	2.55	4.68	13.21	4.68	3.55	5.53	9.94	19.17	17.18	8.94	3.26	1.13	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	.99	.85	1.56	2.69	2.55	4.68	13.21	4.68	3.55	5.53	9.94	19.17	17.18	8.94	3.26	1.13	

Calm : .00 %

Total # Operational Hours : 704

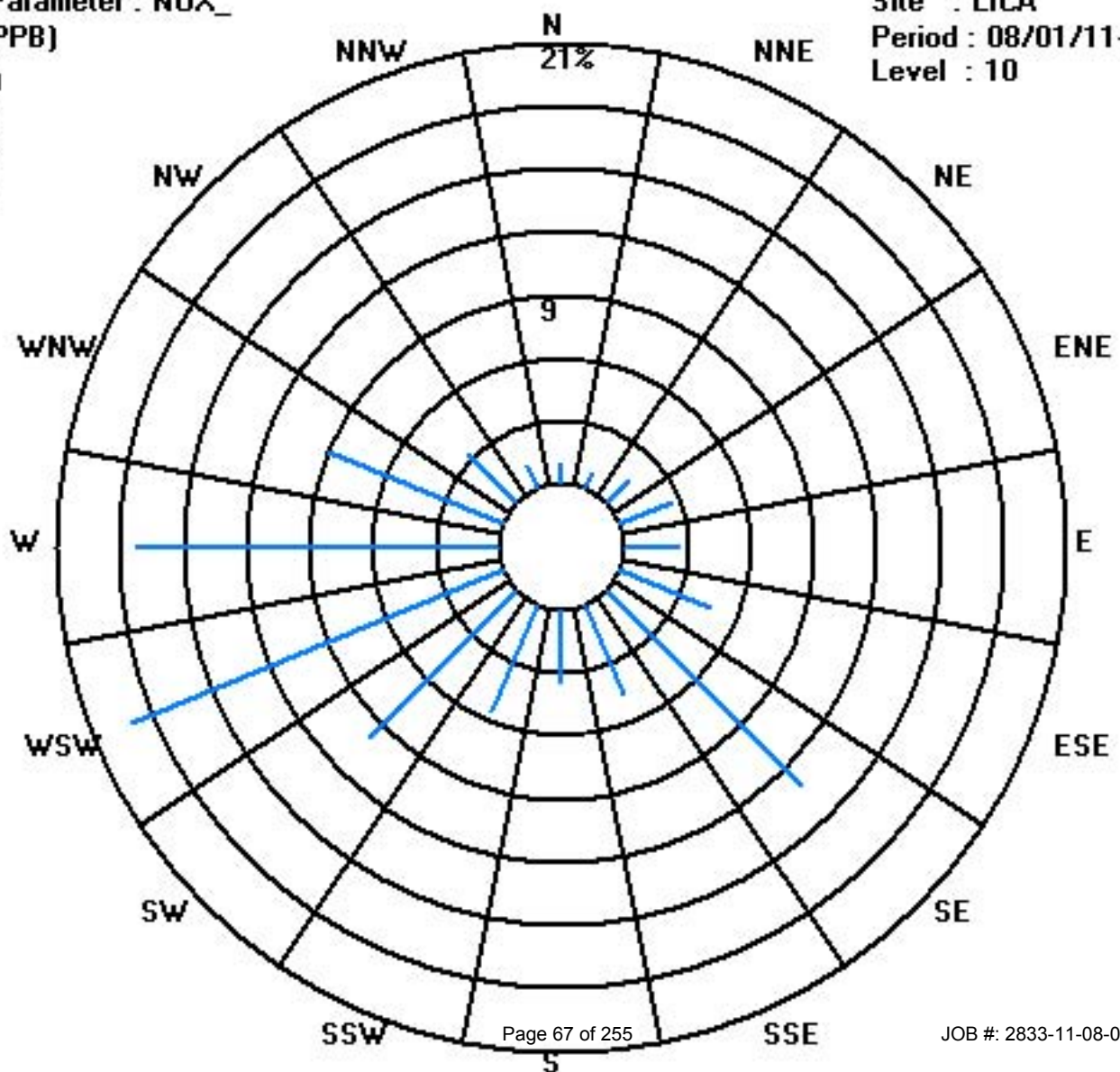
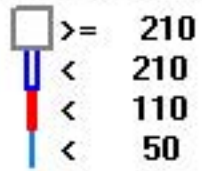
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	7	6	11	19	18	33	93	33	25	39	70	135	121	63	23	8	704
< 110																	
< 210																	
>= 210																	
Totals	7	6	11	19	18	33	93	33	25	39	70	135	121	63	23	8	

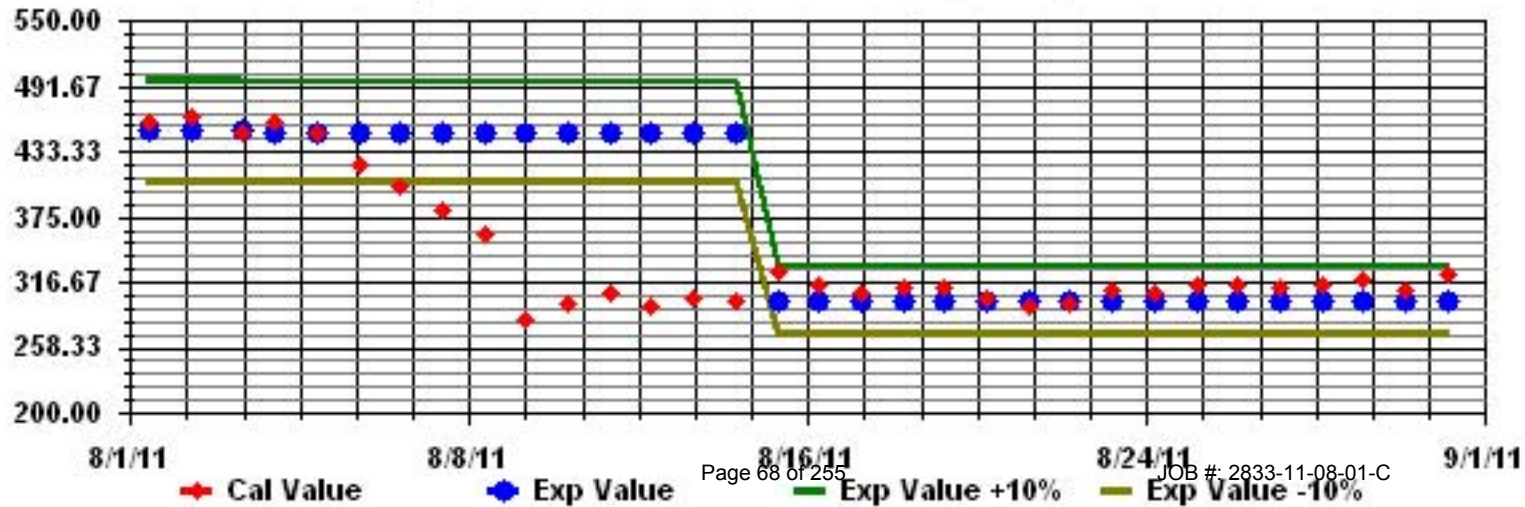
Calm : .00 %

Total # Operational Hours : 704

Class Limits (PPB)



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2011

OZONE (O₃) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	
DAY																											
1	21	21	16	15	11	9	10	13	16	20	IZS	24	23	22	23	23	23	22	21	19	12	8	6	5	24	16.7	24
2	6	9	8	7	5	8	11	13	16	IZS	20	22	22	23	24	24	25	25	24	16	7	5	4	3	25	14.2	24
3	3	3	11	11	8	7	7	7	IZS	14	23	28	32	C	C	C	C	19	21	19	20	22	18	11	32	14.9	24
4	10	8	7	5	4	3	6	IZS	20	28	30	30	29	28	30	29	29	28	26	19	9	9	10	6	30	17.5	24
5	3	3	2	13	34	26	IZS	26	28	34	38	39	38	37	36	34	34	34	33	25	20	21	20	14	39	25.7	24
6	16	17	18	20	19	IZS	17	18	21	24	24	30	36	29	26	30	22	26	27	22	17	20	12	13	36	21.9	24
7	9	15	13	13	IZS	10	11	11	13	14	14	15	15	15	16	17	19	15	14	11	18	17	18	13	19	14.2	24
8	11	7	3	IZS	3	3	7	10	13	19	25	29	29	28	26	26	27	28	24	13	5	4	2	2	29	15.0	24
9	1	1	IZS	1	1	1	4	9	16	24	29	31	34	35	43	45	44	39	33	37	37	39	31	15	45	23.9	24
10	10	IZS	8	4	2	2	5	19	32	37	40	44	47	39	38	34	31	30	19	11	8	4	3	5	47	20.5	24
11	IZS	10	5	4	2	2	2	17	23	24	24	24	26	28	29	29	27	27	25	12	5	5	3	IZS	29	16.0	24
12	2	1	1	1	1	1	5	10	16	23	28	32	32	32	35	35	34	33	30	20	10	8	IZS	8	35	17.3	24
13	17	12	11	5	8	9	15	16	21	28	32	35	33	34	38	37	36	33	30	23	23	IZS	22	19	38	23.3	24
14	14	10	8	10	6	4	13	19	22	25	29	33	34	31	31	29	28	27	18	14	IZS	14	28	28	34	20.7	24
15	29	27	31	27	20	16	18	25	29	27	22	21	23	22	22	20	19	20	19	IZS	19	17	12	10	31	21.5	24
16	9	8	7	7	6	7	8	10	13	16	20	21	22	22	22	22	22	22	IZS	17	14	10	9	7	22	14.0	24
17	10	8	7	8	8	6	10	14	19	21	22	22	23	23	23	21	22	IZS	19	18	17	17	22	19	23	16.5	24
18	21	19	18	14	11	9	8	10	17	19	19	19	20	19	18	18	IZS	16	12	13	9	5	3	4	21	14.0	24
19	4	5	4	4	4	4	6	7	10	13	14	18	20	21	21	IZS	22	17	12	6	3	4	2	1	22	9.7	24
20	1	1	1	1	1	1	3	3	4	8	15	19	24	23	IZS	28	30	27	25	22	16	19	17	14	30	13.2	24
21	10	4	2	2	7	11	12	12	14	21	29	34	37	IZS	39	38	36	35	30	23	21	17	19	15	39	20.3	24
22	12	8	8	10	4	2	3	11	18	26	32	34	IZS	29	28	26	25	20	9	6	3	4	3	1	34	14.0	24
23	6	10	15	20	13	12	18	18	19	21	IZS	26	26	26	26	26	26	26	26	24	21	19	14	12	26	19.3	24
24	9	9	8	4	2	2	3	10	15	23	IZS	30	32	34	36	38	36	35	29	13	13	7	6	6	38	17.4	24
25	9	9	7	6	10	9	19	22	26	IZS	35	37	36	33	33	32	31	27	24	21	19	19	14	12	37	21.3	24
26	8	6	4	4	3	2	3	7	IZS	17	21	24	26	27	28	25	25	25	17	10	8	8	8	6	28	13.6	24
27	4	3	2	1	1	1	2	IZS	17	20	25	27	28	32	34	35	34	29	17	8	21	32	34	24	35	18.7	24
28	19	17	15	7	9	8	IZS	11	17	25	30	33	35	36	37	38	39	37	27	14	12	7	4	2	39	20.8	24
29	1	2	3	2	1	IZS	2	12	21	27	30	33	36	36	36	38	38	33	31	29	25	22	21	17	38	21.6	24
30	16	12	6	7	IZS	4	6	8	16	24	25	24	26	28	31	32	31	30	27	26	19	14	12	10	32	18.9	24
31	6	9	8	IZS	9	7	8	10	16	18	19	21	21	23	23	23	23	23	21	18	13	14	10	6	23	15.2	24
HOURLY MAX	29	27	31	27	34	26	19	26	32	37	40	44	47	39	43	45	44	39	33	37	37	39	34	28			
HOURLY AVG	9.9	9.1	8.6	8.0	7.3	6.4	8.3	13.0	18.2	22.0	25.3	27.8	28.8	28.1	29.4	29.4	28.9	26.9	23.0	17.6	14.8	13.7	12.9	10.3			

STATUS FLAG CODES

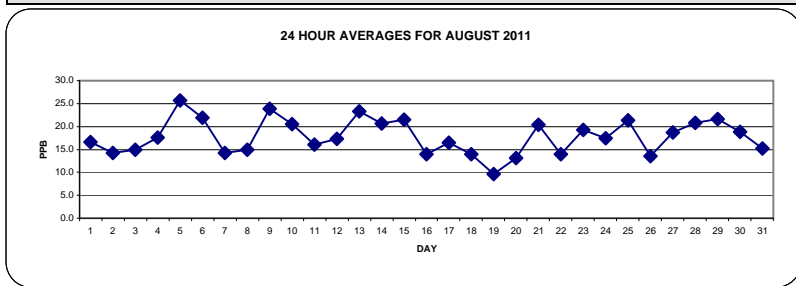
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

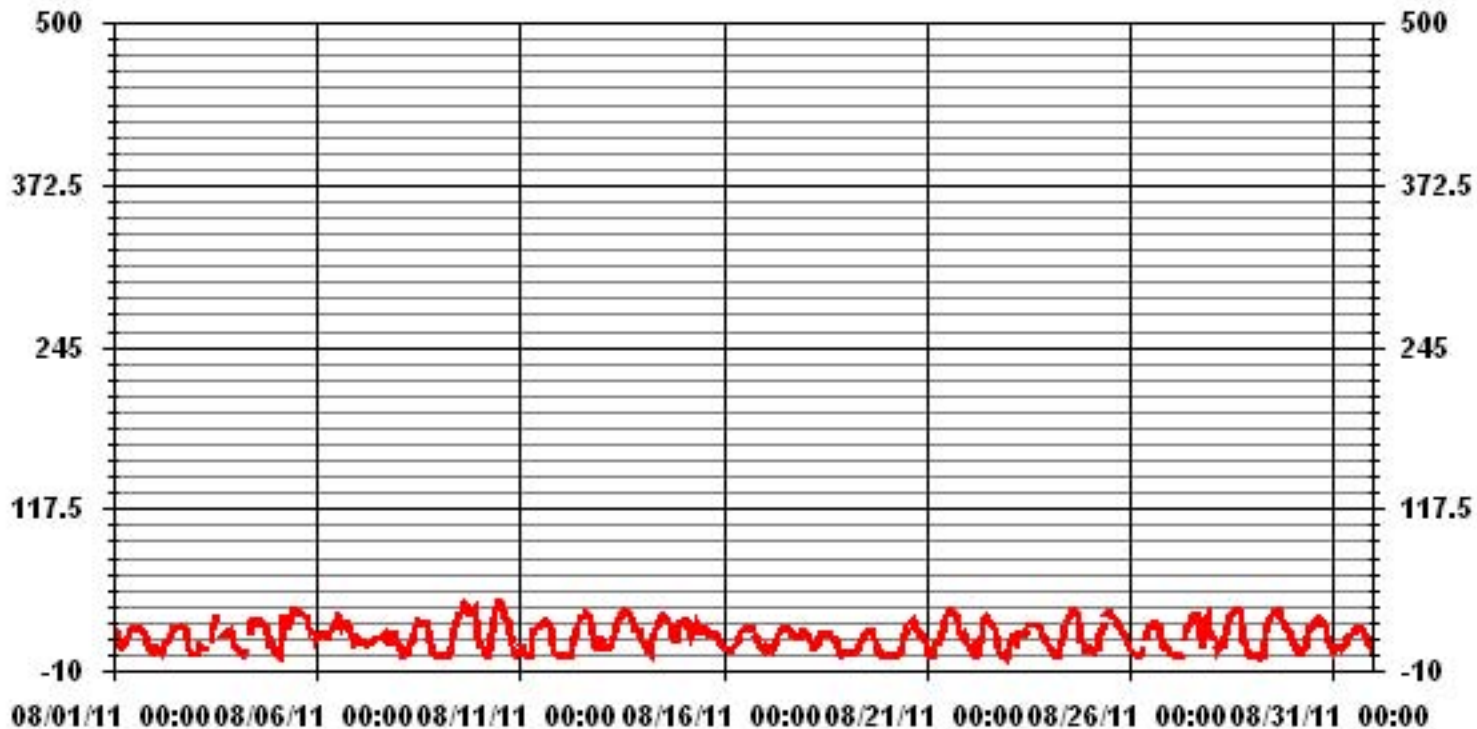
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	708
MAXIMUM 1-HR AVERAGE:	47 PPB @ HOUR(S) 12 ON DAY(S) 10
MAXIMUM 24-HR AVERAGE:	25.7 PPB ON DAY(S) 5
	VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	4 HRS
STANDARD DEVIATION	10.66
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME	100.0 %
MONTHLY AVERAGE	17.81 PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	23	23	20	17	13	10	12	15	20	22	IZS	27	24	23	24	24	23	P	21	20	18	11	9	8	27	18.5	23	
2	9	10	10	9	7	10	12	16	18	IZS	22	22	23	25	25	25	26	26	26	22	9	7	8	4	26	16.1	24	
3	4	6	14	13	11	10	9	8	IZS	20	27	33	C	C	C	C	C	C	25	21	24	25	22	14	33	16.8	24	
4	12	10	8	6	5	6	8	IZS	27	31	32	32	32	31	31	30	30	29	28	23	15	14	15	10	32	20.2	24	
5	6	6	5	32	39	35	IZS	30	31	37	40	41	40	39	38	37	36	36	34	30	23	22	21	17	41	29.3	24	
6	20	20	21	21	20	IZS	18	20	25	26	26	43	40	37	32	36	26	29	28	25	20	22	19	15	43	25.6	24	
7	11	18	15	15	IZS	10	11	13	14	14	15	15	16	16	20	21	17	15	13	21	18	19	15	21	15.6	24		
8	13	12	5	IZS	7	7	8	11	17	25	28	33	32	29	29	28	30	31	28	20	7	9	4	3	33	18.1	24	
9	3	3	IZS	3	2	3	8	12	21	27	32	35	37	42	46	47	47	41	37	44	44	47	38	20	47	27.8	24	
10	14	IZS	11	8	4	3	14	26	38	40	43	49	51	43	44	35	34	32	29	15	14	7	6	11	51	24.8	24	
11	IZS	15	8	6	4	4	5	23	25	25	26	26	28	30	31	31	28	28	27	21	8	8	5	IZS	31	18.7	24	
12	3	3	2	2	3	3	8	14	21	27	31	34	33	34	37	37	36	35	33	28	14	17	IZS	13	37	20.3	24	
13	19	15	15	11	11	13	17	18	26	31	35	36	36	37	40	40	40	35	33	28	24	IZS	24	20	40	26.3	24	
14	18	15	13	14	9	11	18	20	25	30	32	35	36	34	33	32	30	30	23	18	IZS	20	35	31	36	24.4	24	
15	35	30	32	31	26	19	21	30	31	30	24	22	25	23	25	22	20	20	19	IZS	20	19	14	13	35	24.0	24	
16	10	10	9	8	7	8	8	12	15	19	21	22	23	23	23	23	23	23	23	IZS	19	17	12	11	10	23	15.5	24
17	11	10	9	9	11	9	13	18	21	23	23	23	23	24	24	23	23	IZS	20	19	19	21	25	22	25	18.4	24	
18	22	20	19	17	12	10	10	13	19	20	20	20	21	21	19	19	IZS	17	15	14	12	7	5	6	22	15.6	24	
19	6	6	5	5	5	5	6	9	11	14	16	20	21	22	23	IZS	23	21	16	11	5	7	4	3	23	11.5	24	
20	3	3	3	3	3	3	4	5	5	13	17	25	27	25	IZS	30	33	32	27	25	19	20	19	16	33	15.7	24	
21	13	8	4	4	10	13	14	13	18	24	32	36	40	IZS	40	40	39	37	34	27	24	21	21	19	40	23.1	24	
22	15	11	14	15	8	3	8	16	23	30	36	37	IZS	31	30	30	27	25	15	12	6	7	6	4	37	17.8	24	
23	12	15	20	25	16	15	19	19	20	20	23	IZS	27	27	27	27	27	27	27	26	22	21	17	14	27	21.4	24	
24	12	11	10	8	4	4	8	13	19	27	IZS	32	33	36	38	39	39	39	38	20	18	12	10	9	39	20.8	24	
25	16	13	10	10	11	15	20	27	28	IZS	38	38	38	36	34	32	32	29	25	23	20	20	18	13	38	23.7	24	
26	11	9	7	7	5	3	7	10	IZS	19	23	26	27	29	29	27	27	27	25	14	12	10	11	9	29	16.3	24	
27	6	6	4	3	3	3	9	IZS	20	22	27	30	31	34	37	37	38	33	25	16	38	39	30	39	39	23.0	24	
28	26	21	21	12	11	9	IZS	14	22	29	33	35	36	37	38	40	40	38	36	21	15	12	6	4	40	24.2	24	
29	3	4	5	5	3	IZS	3	21	24	30	32	35	37	37	38	40	40	38	33	31	30	30	22	19	40	24.3	24	
30	19	15	11	11	IZS	6	9	11	22	26	27	25	28	30	33	33	32	31	30	27	25	19	17	13	33	21.7	24	
31	9	10	10	IZS	10	8	9	13	21	21	20	22	23	26	25	25	24	25	23	20	17	15	13	8	26	17.3	24	
HOURLY MAX	35	30	32	32	39	35	21	30	38	40	43	49	51	43	46	47	47	41	38	44	44	47	39	31				
HOURLY AVG	12.8	11.9	11.3	11.4	9.7	8.9	10.9	16.2	21.6	24.9	27.6	30.3	30.6	30.4	31.3	31.3	30.8	29.7	26.5	21.8	18.7	17.3	16.1	13.1				

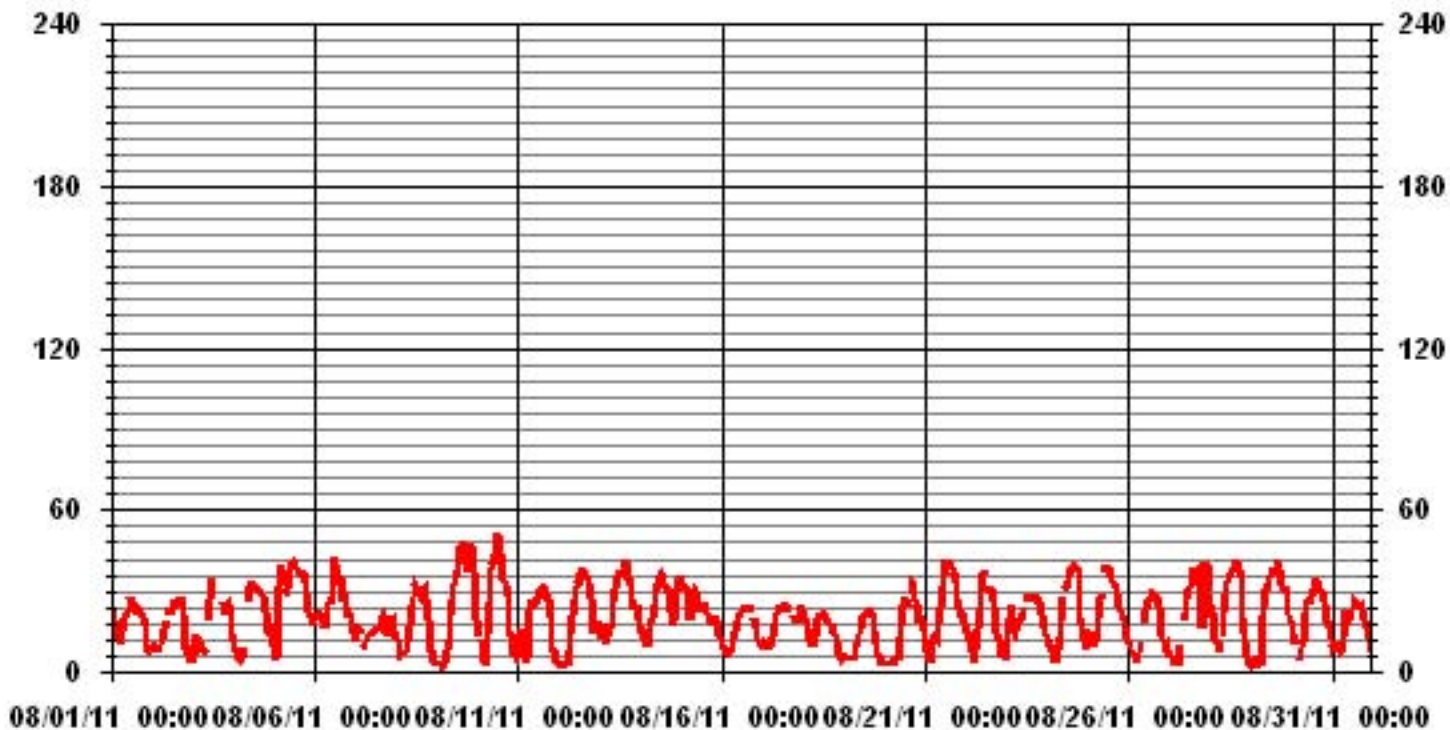
STATUS FLAG CODES

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:	705					
MAXIMUM INSTANTANEOUS VALUE:	51	PPB	@ HOUR(S)	12	ON DAY(S)	10
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION	10.82					

01 Hour Averages



— LICA O3MAX PPB

LICA
 O3_ / WD Joint Frequency Distribution (Percent)

August 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	.98	.84	1.55	2.68	2.54	4.66	13.13	4.66	3.53	5.50	10.02	19.49	17.23	8.75	3.24	1.12	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	.98	.84	1.55	2.68	2.54	4.66	13.13	4.66	3.53	5.50	10.02	19.49	17.23	8.75	3.24	1.12	

Calm : .00 %

Total # Operational Hours : 708

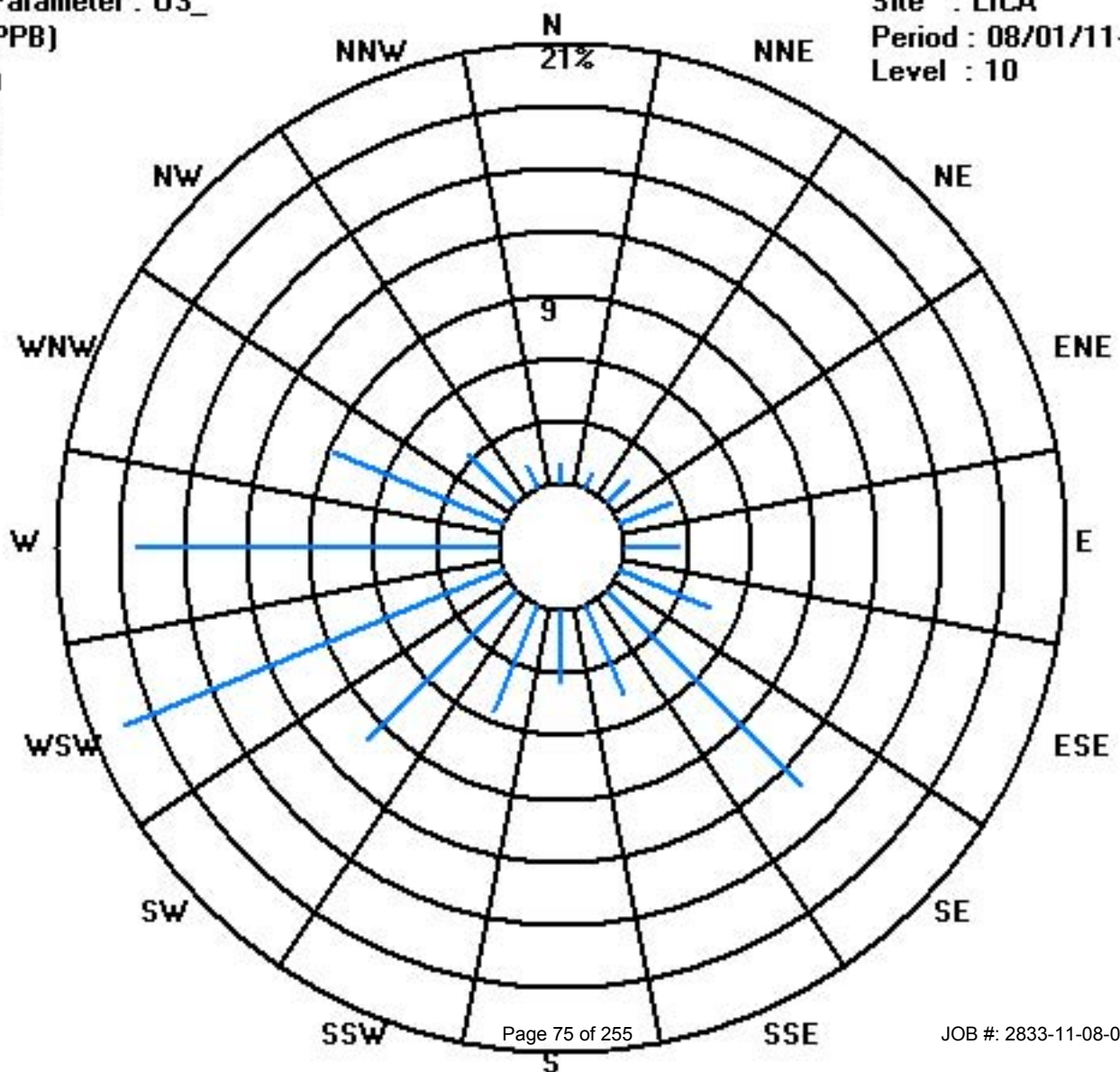
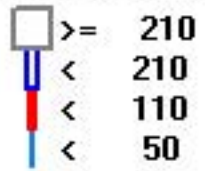
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	7	6	11	19	18	33	93	33	25	39	71	138	122	62	23	8	708
< 110																	
< 210																	
>= 210																	
Totals	7	6	11	19	18	33	93	33	25	39	71	138	122	62	23	8	

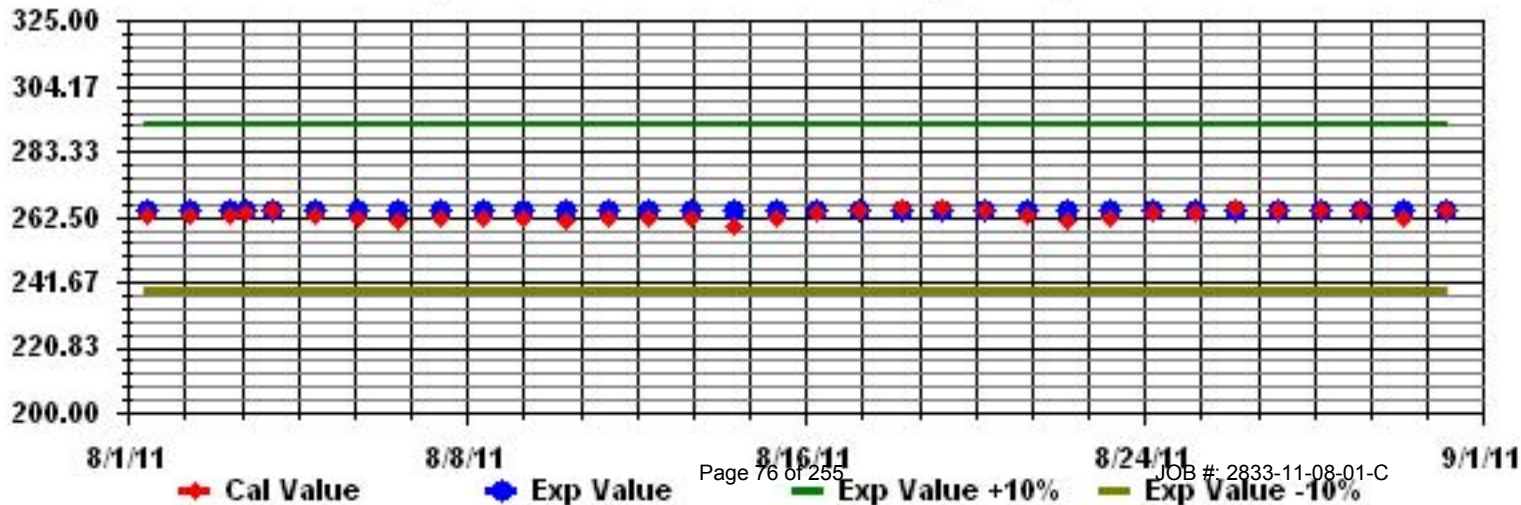
Calm : .00 %

Total # Operational Hours : 708

Class Limits (PPB)



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



Ambient Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

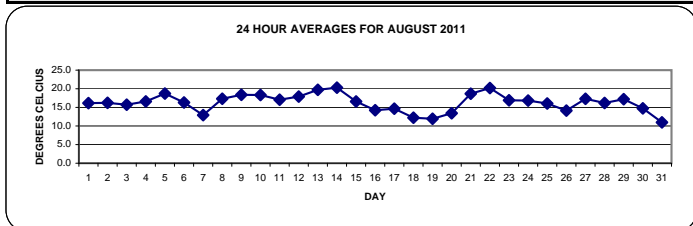
AUGUST 2011

AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY																													
1	14	14.3	13.8	13.7	12.9	12.6	13.7	15.2	16.6	17.3	18.2	18.6	19.4	20	19.9	19.8	19.9	19.8	19.5	18.4	15.1	12.6	11.6	10.6	20.0	16.1	24		
2	10.4	11.2	10.5	9.9	9.2	10.7	12.6	14.8	16.8	18.3	19.5	20.5	21.1	21.8	22.1	22.3	22.2	22.4	21	19	15.1	13.4	12.6	11.8	22.4	16.2	24		
3	11.7	11.3	12.1	11.9	10.9	11.7	13.7	14.6	15.7	17.5	18.9	20.3	22.2	21.2	22.3	21.4	17.3	17.5	17.2	15.9	14.9	13.4	12.4	11.2	22.3	15.7	24		
4	11.1	11.1	10.8	10.1	9.6	9.8	11.7	14	16.6	18.6	19.9	20.8	21.5	21.6	22.5	22.7	22.7	22.5	21.5	19.1	16.1	14.9	15	14.2	22.7	16.6	24		
5	13	12.7	12.3	13.6	14.7	13.7	13.9	15.8	17.7	19.7	21.3	22.6	23.2	23.9	24.1	24.4	23.9	23.9	23.3	21.4	19.3	18	17.2	15.5	24.4	18.7	24		
6	15.1	15.1	15	15	14.9	15.1	15.5	16.6	18.2	19.9	20.2	18.5	17.1	16.4	15.9	15.7	16	18.1	18.9	17.8	15.9	14.9	13.2	12.3	20.2	16.3	24		
7	11.3	11.4	11.5	11.8	12.1	12.1	12.2	12.2	12.2	12.2	12.5	12.6	12.5	12.7	13.4	13.8	13.9	14.1	14.5	14.8	14.8	14.3	14	13.3	14.8	12.9	24		
8	12.9	12	10.6	9.9	9.3	9.9	13	15.2	17.5	19.5	20.8	21.8	22.7	23.2	23.1	23.7	23.6	23.8	23.1	20.4	16.8	15.4	14.2	13.1	23.8	17.3	24		
9	12.3	11.7	11.1	10.3	10.1	10.4	14	16.3	19.1	21.4	23	24	24.4	24.7	25	25	24.7	24.5	23.7	20.6	18.3	16.8	15.7	14	25.0	18.4	24		
10	13.5	13	12.4	11.2	10.7	10.8	14.4	17.5	20.3	21.8	23.1	24.4	25.2	24.5	23.7	22.6	22.8	23.4	21.4	19.3	17.6	16.2	15.1	14.8	25.2	18.3	24		
11	15	13.2	11.6	10.9	10.4	10.4	13.9	17.4	18.3	19.3	20.2	20.6	21.8	22.5	22.8	22.9	22.5	22.4	21.8	18.6	14.9	13.5	12.7	11.9	22.9	17.1	24		
12	11.1	10.7	10.7	10	9.4	9.7	13.9	16.4	19.1	20.6	22.3	23.4	23.9	24.2	24.6	24.5	24.2	24.2	23.4	20.6	17.5	16.2	14.7	14.1	24.6	17.9	24		
13	15.1	13.7	12.9	11.9	11.5	11.8	15	17.4	19.8	21.9	23	23.4	23	24.9	26	25.2	25.6	25.4	24.6	22.5	20.7	20.1	19.4	18.3	26.0	19.7	24		
14	16.7	15.7	14.3	14.5	13.1	13.5	17	18.3	20	21.7	22.8	24.1	25.2	26.1	25.9	25.8	25.5	25.1	22.6	21.1	21.1	20.6	18.8	17.6	26.1	20.3	24		
15	17.9	17.1	16.6	15.1	13.5	13.3	14.5	16.4	17.6	19	18.8	20	20.3	21.2	20.2	19	18.1	17.3	15.7	14.8	14.3	13.6	12.5	11	21.2	16.6	24		
16	10.1	9.4	8.9	8.4	7.8	7.9	9.4	11.8	13.7	15.6	17	18.2	18.9	19.3	19.7	19.7	19.8	19.3	18.9	16.6	15.3	12.8	12.1	11	19.8	14.2	24		
17	11.1	9.9	9.1	9.3	8.5	7.6	10.7	13.2	15.3	16.5	17.4	18.4	19.4	20.1	19.5	18.6	19.6	18.2	17	15.7	14.8	14.3	14.2	13.1	20.1	14.6	24		
18	12.2	11.3	10.4	9.3	8.4	8	9.3	11	13	15.3	16.4	16.4	16.1	14.1	16	15.6	15.7	15.2	13.5	12.4	10.2	8.7	7.6	7.3	16.4	12.2	24		
19	7.7	7.8	7.5	7.2	6.8	7	7.8	9.9	12.4	13.7	15	17.3	18.8	19.3	19.6	18	16	13.3	14.3	11.6	9.6	9.1	8.7	8.1	19.6	11.9	24		
20	7.7	7.5	7.1	6.3	5.9	7.4	10.4	11.2	11.6	13.4	14.9	16.2	17.3	17.8	18.6	19.5	19.4	19	18.4	16.7	14.6	14.4	13.9	13	19.5	13.4	24		
21	12	10.4	9.6	9.2	10.1	11.8	12.9	13.6	16.2	20.2	22.9	24.1	25	25.7	26.5	26.8	26.4	26.1	23.8	21.3	19.9	18.5	18.2	17	26.8	18.7	24		
22	15.6	14.8	14.3	14.5	12.7	12.2	14.6	18.1	20.5	23.5	24.9	26.1	26.9	27.8	28.3	26.8	26.6	25.5	22.4	19.9	18.3	17.4	16.5	16.5	28.3	20.2	24		
23	17	16.9	16.4	16.1	15.2	14.8	14.9	15.2	15.7	16.4	17.5	19.3	19.7	20.1	20.6	20.7	20.6	20.2	19.2	17.1	15.2	13.8	12	11.1	20.7	16.9	24		
24	9.8	9.5	9	7.4	6.4	6.1	9.8	13.6	17	19.4	20.9	22	23	23.9	25.1	25.8	25.2	25.6	24	19.4	16.8	15.4	14.1	14.7	25.8	16.8	24		
25	15.2	15	14.3	14.5	14.8	14.6	14.9	15.9	16.2	17.7	18.4	18.6	18.9	18.8	19.2	19.5	19.3	18.9	17.5	15.5	14	12.7	10.7	9.7	19.5	16.0	24		
26	8.7	7.9	6.8	6.4	5.8	4.9	7.7	11.3	14.2	16.9	18.2	19.3	20.1	20.7	20.8	20	20.2	20.8	18.8	16.8	14.9	13.6	12.6	11.6	20.8	14.1	24		
27	10.9	10.1	10.1	10.2	10	9.3	10.1	14.5	17.1	19.2	21.3	22	22.7	24.3	25	25.1	24.2	23.1	21.4	18.9	18.6	17.5	16.4	13.2	25.1	17.3	24		
28	12	11.2	10.5	8.9	8.9	8.5	10.5	13.6	16.7	19.3	20.8	22	22.6	23	23.7	23.8	23.7	23.4	21.7	16.2	13.6	12	11.1	10.5	23.8	16.2	24		
29	9.9	9.3	9.2	8.7	7.9	7.7	10.8	14.5	16.7	19.2	21.5	22.8	23.4	23.8	24.5	24.9	24.6	23.7	22.5	20.1	19.3	16.8	15.7	15.2	24.9	17.2	24		
30	14.4	13.5	12.1	11.6	12.1	11.3	11.8	13.1	16.1	17.7	18.4	18.5	18.2	18.6	19	19.6	18.9	19	17.6	14.5	11.8	9.5	8.4	8	19.6	14.7	24		
31	6.8	7.4	6.7	6.5	6.2	5.5	6.7	9.2	11.2	11.7	12.8	14.5	15	15.5	15.6	16.2	16.2	16.5	15.5	12.7	11.1	9.6	7.8	6.4	16.5	11.0	24		
HOURLY MAX	17.9	17.1	16.6	16.1	15.2	15.1	17.0	18.3	20.5	23.5	24.9	26.1	26.9	27.8	28.3	26.8	26.6	26.1	24.6	22.5	21.1	20.6	19.4	18.3					
HOURLY AVG	12.3	11.8	11.2	10.8	10.3	10.3	12.3	14.4	16.4	18.2	19.4	20.4	21.0	21.3	21.7	21.6	21.3	21.0	20.0	17.7	15.8	14.5	13.5	12.6					

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

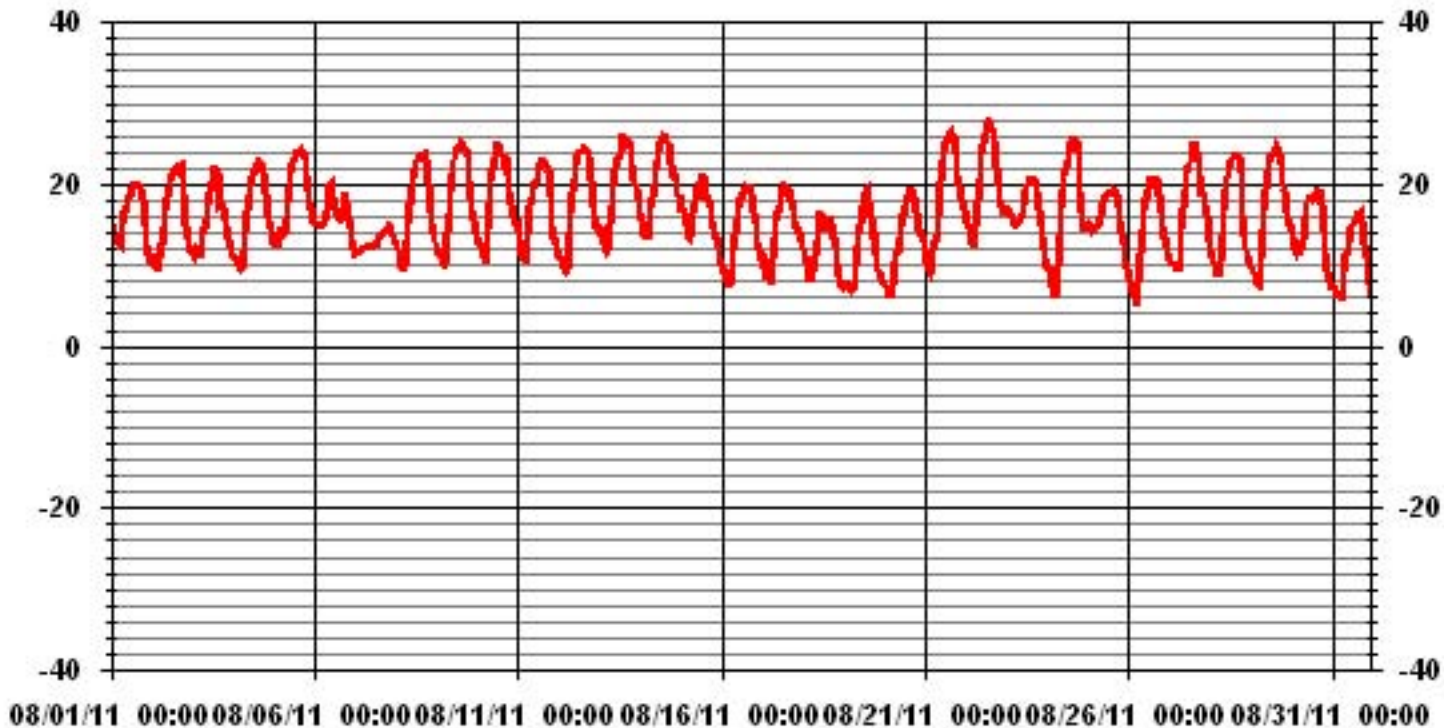


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	4.9 °C	@ HOUR(S)	5	ON DAY(S)	26
MAXIMUM 1-HR AVERAGE:	28.3 °C	@ HOUR(S)	14	ON DAY(S)	22
MAXIMUM 24-HR AVERAGE:	20.3 °C			ON DAY(S)	14
VAR-VARIOUS					
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	5.07		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	16.25	°C

* Outside detection limits of sensor.

01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2011

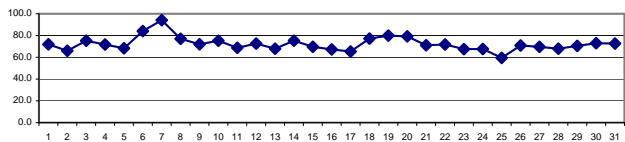
RELATIVE HUMIDITY hourly averages (%)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		98	98	98	98	98	97	91	86	78	61	56	50	46	44	42	44	46	46	49	56	73	87	91	93	98	71.9	24	
2		92	89	90	92	93	84	76	67	59	54	50	43	41	38	38	39	39	39	46	62	82	88	91	92	93	66.0	24	
3		92	93	89	90	92	90	85	84	80	71	63	59	53	52	44	47	66	69	70	77	80	81	86	92	93	75.2	24	
4		93	94	95	96	97	94	89	79	68	57	54	52	50	48	46	45	44	46	53	69	86	88	88	91	97	71.8	24	
5		93	94	94	84	75	82	82	74	69	60	52	49	49	48	47	45	47	50	55	67	75	78	82	88	94	68.3	24	
6		85	83	83	82	80	80	80	76	73	70	71	80	87	94	96	94	94	82	79	84	92	86	93	94	96	84.1	24	
7		96	93	93	92	93	94	94	96	96	95	94	94	94	93	93	95	94	95	95	96	93	93	93	95	96	94.1	24	
8		96	97	97	98	98	98	94	88	79	70	63	61	58	50	50	49	47	48	56	76	92	93	95	96	98	77.0	24	
9		96	95	95	96	95	94	88	85	75	66	59	53	49	49	46	46	48	50	57	63	71	77	82	92	96	72.0	24	
10		93	95	94	95	96	95	86	76	67	62	58	54	52	51	52	54	53	54	69	83	87	91	94	94	96	75.2	24	
11		83	90	94	95	94	93	83	69	64	61	57	56	46	38	35	35	40	41	45	70	86	90	92	93	95	68.8	24	
12		94	94	94	95	95	94	85	78	69	64	58	52	49	48	47	47	48	52	57	72	84	86	90	91	95	72.6	24	
13		81	86	88	90	91	89	77	71	63	55	51	49	54	51	46	50	52	55	59	69	73	73	76	81	91	67.9	24	
14		87	88	93	91	95	94	84	78	70	65	62	57	55	55	57	59	63	63	77	83	82	85	81	82	95	75.3	24	
15		76	78	74	82	88	91	88	79	75	69	69	64	53	50	53	56	58	57	61	64	64	67	74	82	91	69.7	24	
16		86	89	90	91	93	92	86	76	67	59	53	47	45	42	42	41	43	44	47	60	69	81	84	87	93	67.3	24	
17		86	89	91	88	88	90	78	69	58	54	50	47	45	43	45	49	47	53	59	63	67	69	64	76	91	65.3	24	
18		78	82	85	90	93	93	91	85	71	61	56	55	JULY	66	61	60	59	63	79	81	88	92	93	94	94	77.2	24	
19		94	95	95	95	95	95	92	88	78	73	69	61	50	43	44	51	58	84	83	93	95	96	95	96	96	79.9	24	
20		96	96	96	96	96	97	94	94	91	84	73	65	57	58	54	55	58	63	68	75	83	81	84	88	97	79.3	24	
21		92	95	95	94	94	90	86	83	76	66	56	49	46	45	41	42	47	50	61	73	77	83	80	85	95	71.1	24	
22		89	91	93	91	95	95	86	78	70	54	50	47	41	40	38	40	44	55	77	86	89	89	92	93	95	71.8	24	
23		90	90	90	88	96	94	91	90	82	75	63	48	45	42	40	40	39	41	45	53	60	66	75	78	96	67.5	24	
24		84	86	88	92	93	93	81	72	63	51	46	42	39	39	38	38	44	45	54	81	86	88	91	89	93	67.6	24	
25		85	87	93	92	88	87	70	59	55	45	35	33	33	35	34	34	36	40	46	56	63	66	75	80	93	59.5	24	
26		84	88	91	92	93	93	86	78	71	61	54	50	45	44	44	49	47	46	64	76	82	85	88	90	93	70.9	24	
27		92	94	92	92	92	94	90	75	64	58	51	49	49	44	41	42	49	59	73	86	72	61	67	85	94	69.6	24	
28		89	90	90	92	94	94	90	80	68	58	50	42	38	37	34	34	35	36	50	77	83	89	90	90	94	67.9	24	
29		92	93	94	92	93	93	82	75	68	61	53	48	46	47	45	45	46	54	59	67	72	90	89	88	94	70.5	24	
30		88	92	95	97	96	96	96	93	79	62	58	59	55	51	49	44	44	45	51	62	76	85	88	90	97	73.0	24	
31		92	92	92	93	94	95	93	84	75	70	64	56	54	51	51	49	49	47	53	64	72	78	85	90	95	72.6	24	
HOURLY MAX		98	98	98	98	98	98	96	96	96	95	94	94	94	94	96	95	94	95	95	96	95	96	95	96				
HOURLY AVG		89.4	90.8	91.6	92.0	92.7	92.3	86.3	79.5	71.6	63.6	58.0	53.9	50.8	49.5	48.2	49.0	51.1	53.9	61.2	72.4	79.2	82.6	85.4	88.9				

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

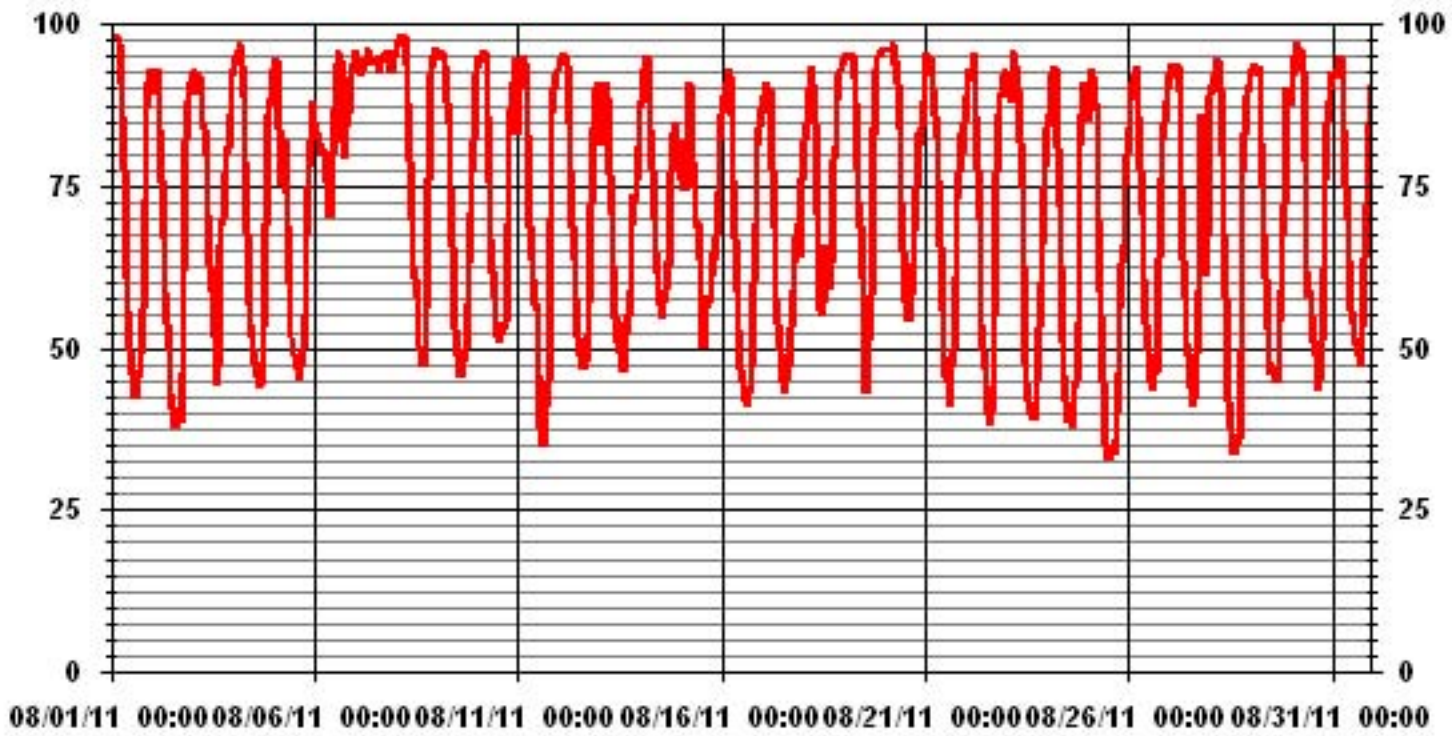
24 HOUR AVERAGES FOR AUGUST 2011



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	98	%	@ HOUR(S)	VAR	ON DAY(S)	1, 8
MAXIMUM 24-HR AVERAGE:	94.1	%			ON DAY(S)	7
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	19.27		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	72.28	%	

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2011

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																												
1		3.3	2.5	4.6	4.9	5.2	6.8	4.7	8.4	9.3	11.1	11.3	13.8	15.1	15.5	17.7	15.1	13.1	11.6	9.7	5.6	1.7	1.5	1.5	0.5	17.7	7.5	24
2		3.5	4.5	3.4	2.8	2.5	4.9	6	7.3	8	8.5	9.8	13.8	12	11.4	11.1	10.8	9.7	8.8	5.3	3.5	1.4	0.9	0.3	0.9	13.8	6	24
3		0.6	0.9	4.3	4.2	4.4	2.9	3.8	0.9	3.9	4.2	7.6	6.6	6.9	8.5	6.7	10.2	10.9	2.7	5.4	6.3	5.6	5.2	2.7	2.9	10.9	4.4	24
4		2.9	4.3	4.3	4.8	3.7	2.8	3.6	4.5	3.8	3.9	4.8	4.3	4.6	5.2	9.7	8	6.2	8.1	2	2.7	0.5	2.3	0.8	1.5	9.7	3.5	24
5		1	0.9	1.2	7.8	4.1	2.2	0.5	6.3	7.6	7.2	7	5.1	7.4	5.7	6.5	5.6	7.5	6	4.9	4.5	4	6.5	4.5	1.8	7.8	4.8	24
6		3.4	2.6	4.2	4.6	5.9	5.8	6.2	5.7	6.8	6.5	6.3	3.2	5.6	1.8	5.8	3.7	4.9	6.4	7.2	4.5	4.4	5.7	1.9	3.7	7.2	4.9	24
7		3.7	4.6	6.3	6.3	6.7	6.6	6.9	6.2	7.2	8.7	10.9	9.8	11.7	10.7	10.3	7.1	8.8	9.8	7.6	7.6	7.6	5.8	4	3.7	11.7	7.4	24
8		4.4	2.2	1.9	2.8	1.3	2.1	4.8	5.5	4.5	3.4	4.8	2.6	3.1	4.2	4.5	5.7	5.1	3.7	2.6	1.7	1.2	0.3	0.6	0.3	5.7	3.1	24
9		0.5	0.3	0.6	0.5	0.7	0.3	1.7	3.8	4.2	4.9	4.8	5.9	7.7	7.6	8.2	9.4	8.7	7.9	4.8	4.6	4.5	3.5	0.8	1.2	9.4	4.0	24
10		2.2	2.3	0.7	0.6	0.8	0.6	0.4	3.9	6.7	6.8	6.3	1.4	2.8	4.3	8.5	5.9	4.7	3.5	0.7	1.3	0.8	0.3	1.2	1.4	8.5	2.8	24
11		2.2	0.8	0.6	0.3	0.9	0.4	0.2	4.8	5.9	4.4	5	4.7	4	3.4	5	4.6	4.4	3.9	3.6	0.8	1.3	0.5	0.5	0.8	5.9	2.6	24
12		0.8	0.3	0.1	0.4	0.5	1.3	1.7	2.6	2.4	5.4	5.8	5.3	5.8	7	7.4	7.6	6.1	3.8	2.9	2.3	1.2	1.6	1.1	2	7.6	3.1	24
13		2.7	2.3	1.6	0.5	1.8	3.2	2.6	3.1	6.1	6	11.5	10.9	8.8	8.4	6.4	6.3	5.7	6.9	4.8	3.3	3.7	4.5	4.3	3.1	11.5	4.9	24
14		1.5	1.4	1.5	1.1	0.7	2	3.9	5.9	3.6	6.3	7.6	8.2	8.9	6.8	7	4.9	5.9	5.7	1.6	2.4	5.6	1.1	4.2	5	8.9	4.3	24
15		12.1	11.9	7.2	3.9	4	3.2	4.5	7.8	7.2	8.2	8	9.7	11	10.1	11.2	10.4	9.8	10.8	8.4	6.1	6.3	6.4	5.9	4.2	12.1	7.8	24
16		5.5	6.4	5.7	6	4.3	5.2	6.1	9.2	10.9	11.3	13.6	15	15.4	15.5	12.8	13.6	12.3	10	7.4	3.7	2.4	2.4	3.2	3.1	15.5	8.4	24
17		4.1	3.3	3.3	4.2	3.3	2.4	4.3	7.6	9.5	11.6	11.6	12	9.8	11.3	11.8	8.8	9.6	9.7	7.8	7.5	5.4	5.9	7.7	5.8	12.0	7.4	24
18		5.3	6.3	6.1	7.8	5.1	5.5	8.1	7.4	11.1	11	11.9	9.7	11.3	12.6	9.3	9.1	11.3	8.5	4.9	4.4	3	3	1.1	3.2	12.6	7.4	24
19		4.1	4.3	4.4	3.5	3.7	4.4	5.1	5.4	5.2	6.4	6.6	5.8	10	11.5	10.2	5.9	6.5	2.6	1.3	1.5	1.5	1.2	0.4	0.5	11.5	4.7	24
20		0.9	0.7	0.6	0.6	0.6	1.3	1.6	1.8	1.5	3.3	3.5	5.3	8.5	7.2	7.4	5.2	3.7	3.6	4.6	4.4	4.5	8.4	7.9	3.5	8.5	3.8	24
21		1.5	0.3	0.3	0.7	4.6	4.8	5	6.9	7.4	8.9	9.1	9	8.9	8.7	8	7.7	5.1	6.2	6	5.1	5.3	1.7	2.1	0.7	9.1	5.2	24
22		0.8	2.5	1.7	1.1	0.6	1.3	1.3	2.6	4.2	6.3	6.8	8.5	9.2	7.4	6.6	4.8	3.4	2	1.5	1.4	0.8	0.9	0.7	0.1	9.2	3.2	24
23		5.8	3.2	3.3	3	4.1	5	6.5	8.4	10.2	12.9	14.2	17.5	19.9	19.7	17.8	16.3	17.8	13.9	11.4	7.9	6.8	5.4	4	4.8	19.9	10.0	24
24		2.9	4.8	4	1	0.6	0.8	0.7	2.2	4	7.3	5.2	6.4	8.8	8.4	7.1	5.7	4.6	3.8	1.8	1.3	1.3	1.7	0.3	0.3	8.8	3.5	24
25		1.2	0.9	1.6	3.8	4	4.4	6	8.1	7.1	11.2	13.8	15.4	16.1	17.9	15.2	14.8	13.4	12.1	8.1	4.8	4.2	5	4.1	4.9	17.9	8.3	24
26		4.3	3.7	2.4	2.3	0.7	0.8	1.5	1.9	2.8	4.4	5.7	5.1	2.7	4.3	3.9	3.6	2.9	2.6	1.2	1.2	1.8	3.5	1.9	0.7	5.7	2.7	24
27		0.4	0.6	0.3	0.3	0.4	0.3	2.1	3.3	2	3.3	4.5	3.3	2.5	3.4	4.1	4.7	3	2	1.2	0.7	2.8	3.3	1.2	2	4.7	2.2	24
28		2.3	3.4	2.9	1.8	3.5	2.7	3.1	2.6	3.9	5.5	7.9	10.1	11.7	9.4	8.4	7.9	7.8	5.4	2.7	1.3	1.1	0.8	0.5	0.9	11.7	4.5	24
29		0.1	0.6	0.4	0.1	0.5	0.6	0.9	4	5.8	9.4	12.8	14.9	14.8	13.6	13.3	13.1	8.1	4.8	6.1	3	6.8	4	7.3	6.6	14.9	6.3	24
30		4	1.9	1.9	3.2	2.5	2.7	2.1	4.2	4.4	9.3	8.3	8.7	8	9	8.8	9.8	9.3	7.8	5.9	6.9	2.5	2.5	3.2	3.5	9.8	5.4	24
31		2.4	5.5	4.7	4.3	4.9	5.2	4.5	6	10.6	10.3	9.9	9.7	8.3	9.1	7.6	8	6.4	8.2	5.7	4.2	4.5	4.3	3.7	3.6	10.6	6.3	24
HOURLY MAX		12.1	11.9	7.2	7.8	6.7	6.8	8.1	9.2	11.1	12.9	14.2	17.5	19.9	19.7	17.8	16.3	17.8	13.9	11.4	7.9	6.8	5.4	4	4.8	19.9	10.0	24
HOURLY AVG		2.9	2.9	2.8	2.9	2.8	3.0	3.6	5.1	6.1	7.4	8.3	8.4	9.1	9.0	9.0	8.2	7.6	6.5	4.8	3.8	3.4	3.2	2.7	2.5			

STATUS FLAG CODES

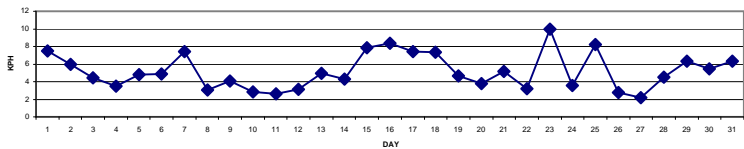
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: November 23, 2010

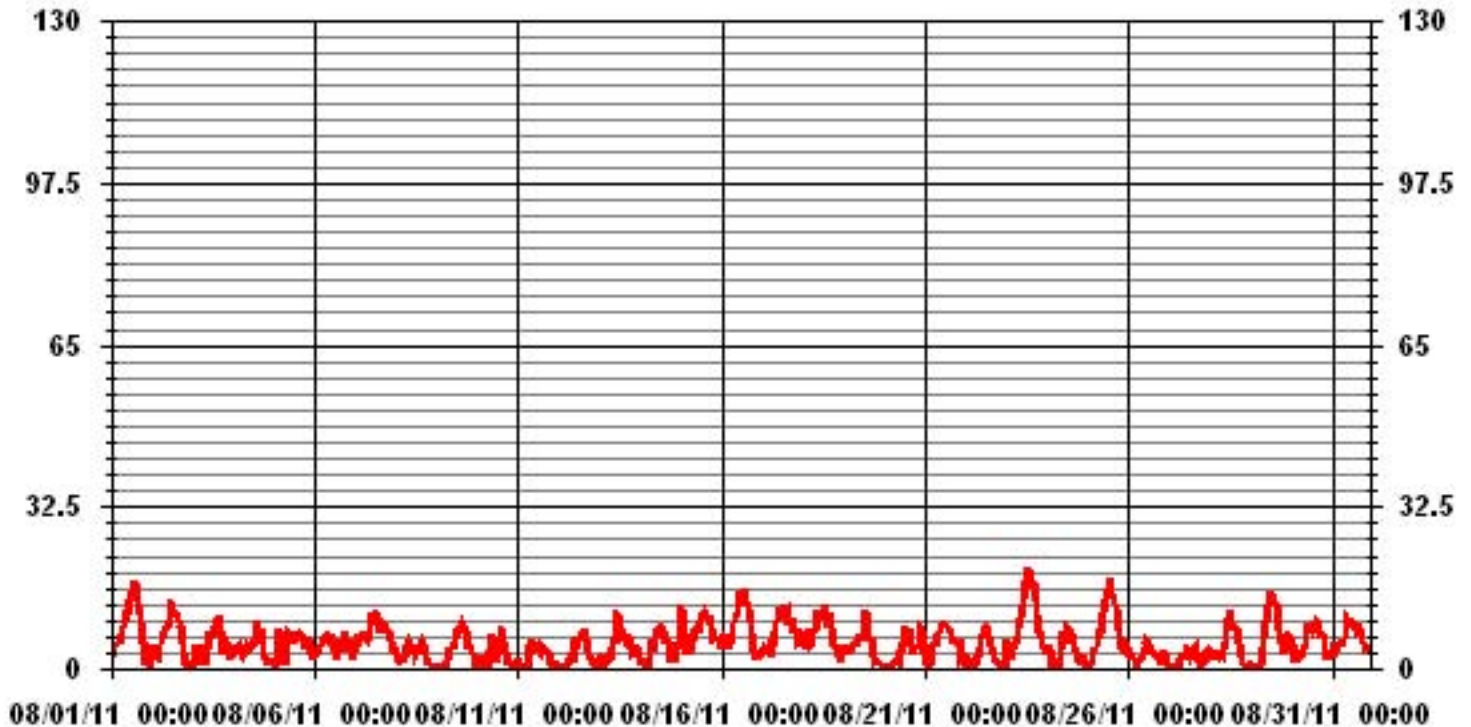
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	19.9	KPH	@ HOUR(S)	12	ON DAY(S)	23
MAXIMUM 24-HR AVERAGE:	10.0	KPH			ON DAY(S)	23
CALMS (≤ 0 KPH)	2.69	%			OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	0	HRS			AMD OPERATION UPTIME	100.0 %
STANDARD DEVIATION:	3.73				MONTHLY AVERAGE	5.24 KPH

24 HOUR AVERAGES FOR AUGUST 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 2011

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	
DAY																											
1		10.3	12.3	10.8	8.5	8.1	10	9.2	13.6	14.9	17.2	19.2	21.3	25.7	26.1	23.6	23.6	22.2	P	15.8	8.8	4.6	4.3	3.6	2.2	26.1	
2		5.3	5.8	6.3	4.5	4.9	7	10.2	12.5	13.4	13.5	23.2	21.8	18.7	17	19.2	19	17.1	14.6	9.8	5.1	2.4	2.2	1.8	1.8	23.2	
3		2.1	3.6	6.1	5.5	6.4	5	6.1	4.4	7.8	8.3	12.5	13.2	13	17.5	11.5	21.8	22.2	7.6	9.8	9.8	9.2	7.9	6.3	4.5	22.2	
4		5.4	8.9	6.3	6.6	8.4	4.5	6.6	8.5	7.1	9.1	11	10.1	12.8	9.7	17.5	14.7	14.1	13.4	9.8	5.3	5	4.5	7.4	3.9	17.5	
5		3	3.1	2.7	21.9	9.8	12.3	5.6	10.1	12.4	12	12.2	11.7	16.2	11.8	13.3	11.2	12.6	10.5	6.3	6.6	5.6	8.9	7.1	2.8	21.9	
6		4.8	5.1	7.4	8.7	8.8	10.3	10.6	9.6	12.6	11.7	11.2	18.4	13.9	8.7	13.9	18.4	10	11.3	11.9	8.8	7.2	9.9	4.9	6.3	18.4	
7		6.9	7.7	9.5	9.8	10	10.7	11.1	10	12.3	15.1	16.3	14.1	17.8	15.9	15.4	13.3	14.7	15.3	12.2	10.8	12.6	10.1	5.8	6.7	17.8	
8		5.8	5.9	5.2	4.7	3.7	6	6.9	9.1	8.5	9.8	9.2	8.5	7.7	9.2	9.6	11.9	11.7	7	4.8	4.3	3.2	2	2.2	4.8	11.9	
9		2	2.6	2.2	1.9	1.9	1.8	5.6	7	7.2	8.4	9.9	15.5	12.7	12.9	14.9	14	13.6	14.4	9.3	15.3	10.6	11.1	6.6	2.9	15.5	
10		3.2	6.9	2.8	3.8	2.9	2.9	2.8	8.6	12.3	11.2	11.2	7.2	9	12.1	28.8	11	10.7	7.6	4.2	2.9	4	3	3.1	3.2	28.8	
11		5.1	3.4	3	1.7	2.6	2.2	2.8	10.9	12.1	10.1	9.1	9.6	10.7	10.2	10.1	10.1	9	8	6.7	3.3	5.6	3.8	2.2	3.3	12.1	
12		3.2	3	2.3	1.9	3.2	3.3	3.5	6.3	7.6	9.5	11.8	10.3	12.4	13.2	14.5	14.9	15.1	8.1	6.2	4.2	3.4	7.3	3.7	4.5	15.1	
13		5.9	5.6	3.7	2.4	4.7	5.6	5.5	6.5	12.5	11.8	18.3	18.2	14.6	17.5	13.5	10.1	11.8	11.5	9.9	4.9	5.7	6.7	6.1	4.6	18.3	
14		4.1	3	3.2	4.7	4.2	4.4	6.5	11.4	7.3	11.8	12.8	14.4	14.8	13.2	12.7	10.3	9.6	12.2	6	8.8	11	8.8	16.2	13.1	16.2	
15		20.3	20.1	12.1	11.2	8.6	6.9	7.8	12.9	13.7	14	14.3	15.5	18.1	15.1	18.1	18.1	15.6	16.9	12.9	11	9.9	11.4	8.4	7.3	20.3	
16		8.3	9.4	7.6	8.4	7.2	8.1	9.6	16.6	16.3	19.9	22.4	22.5	27.2	24.5	19.4	20.4	18.6	16.8	12.9	6.9	4.7	3.7	4.9	6.8	27.2	
17		6.1	5.2	4.9	7.3	5.4	4.9	9.3	11.9	15.7	21.8	17.1	19.5	16.6	17.4	18.8	16.3	15	17.9	11.8	10.7	8.5	11.3	15.7	8.7	21.8	
18		8.3	10	8.9	11.4	7.6	9	11.4	10.7	19	17.9	20.3	15.9	18.2	22.7	16.5	13.4	16.8	15	9.6	7.8	4.3	5.8	3.6	4.7	22.7	
19		5.8	5.9	7.5	6.2	7	6.3	8.3	8.9	9	10.9	11.8	11.9	18.7	18	17.3	14.4	10.6	8.5	4	3.9	3.9	3.8	2.8	2.6	18.7	
20		2.9	2.1	2	1.5	3	3.1	3.5	7.2	5	6.2	6.6	9.8	12.9	14.2	14.4	10.5	9.2	6	8.6	8	7.7	10.7	10.3	6.6	14.4	
21		4	3.7	2.1	2.6	7.3	7.9	9.4	11.2	12.8	15.1	15	14.4	16.7	14.9	13.2	14.4	9.2	9.2	8.1	6.4	8.2	5.1	3.7	2.7	16.7	
22		9.8	5.7	4.1	3.8	4.1	3.6	4	6.4	8.2	10.8	11.7	14.9	15.5	12.9	10.5	8.3	6.6	3.3	3.1	3.6	1.8	3	3.3	3.1	15.5	
23		15.2	7.5	9.6	10.6	6.7	9.3	11	13.4	16.5	23.5	22.2	27.4	27.1	28.1	26.4	27.7	26.9	24.2	20.9	11.4	8.7	8.7	6.4	7.3	28.1	
24		5.8	6.7	6.4	2.6	2.1	2.1	4.2	5.1	8.2	13	11.1	11.8	17.9	16.9	13.8	11.2	11.2	7.9	7.1	2.9	2.8	3.3	2.8	3.7	17.9	
25		6.4	3.5	5.2	7.8	6.8	7.6	9.6	14.4	12	19.1	22.7	23.5	24.5	25.7	20.3	24.3	19.1	22.8	13.9	9.2	6.8	7.5	5.7	6	25.7	
26		6.6	6.1	4.4	4.8	3.3	2.4	5.3	4.1	6.3	9.6	10.6	12.7	9.3	11.5	12.2	7.7	5.9	6.3	2.7	2.3	4.3	4.5	3.7	1.9	12.7	
27		2.3	2.5	2	1.7	3.3	3.1	5	6.1	7.6	7.5	10.7	7.4	6	8	10.6	9.6	6.8	4.2	2.8	3.5	17.4	9.7	6.1	4.8	17.4	
28		3.8	4.5	5	4.2	5.9	5.6	5.9	6.2	8.2	9.7	14.9	17.5	16.6	17.3	14.8	15.3	11.8	9.2	5.3	2.4	1.9	3.3	1.9	1.9	17.5	
29		4.1	3	2.7	2.4	3.3	1.7	2.3	10.5	10.7	15.6	18.7	21.3	22.6	19.8	20	17.7	13.8	8.9	9.7	11.1	12.2	10.2	12.8	9.5	22.6	
30		8.8	4.8	4.8	5.9	4.3	5.2	5	8.9	9.4	16	13	14.7	13.5	17.6	14.7	15.2	16.7	12.3	11.3	16.8	4.4	4.3	4.7	5.3	17.6	
31		4.1	8.2	5.9	6.1	7	7	8	12.9	19.9	17.4	16.6	15.7	16	16.1	14.1	16	11.2	14.4	12.4	5.5	6.5	5.9	5.5	5.2	19.9	
PEAK		20.3	20.1	12.1	21.9	10.0	12.3	11.4	16.6	19.9	23.5	23.2	27.4	27.2	28.1	28.8	27.7	26.9	24.2	20.9	16.8	17.4	11.4	16.2	13.1		

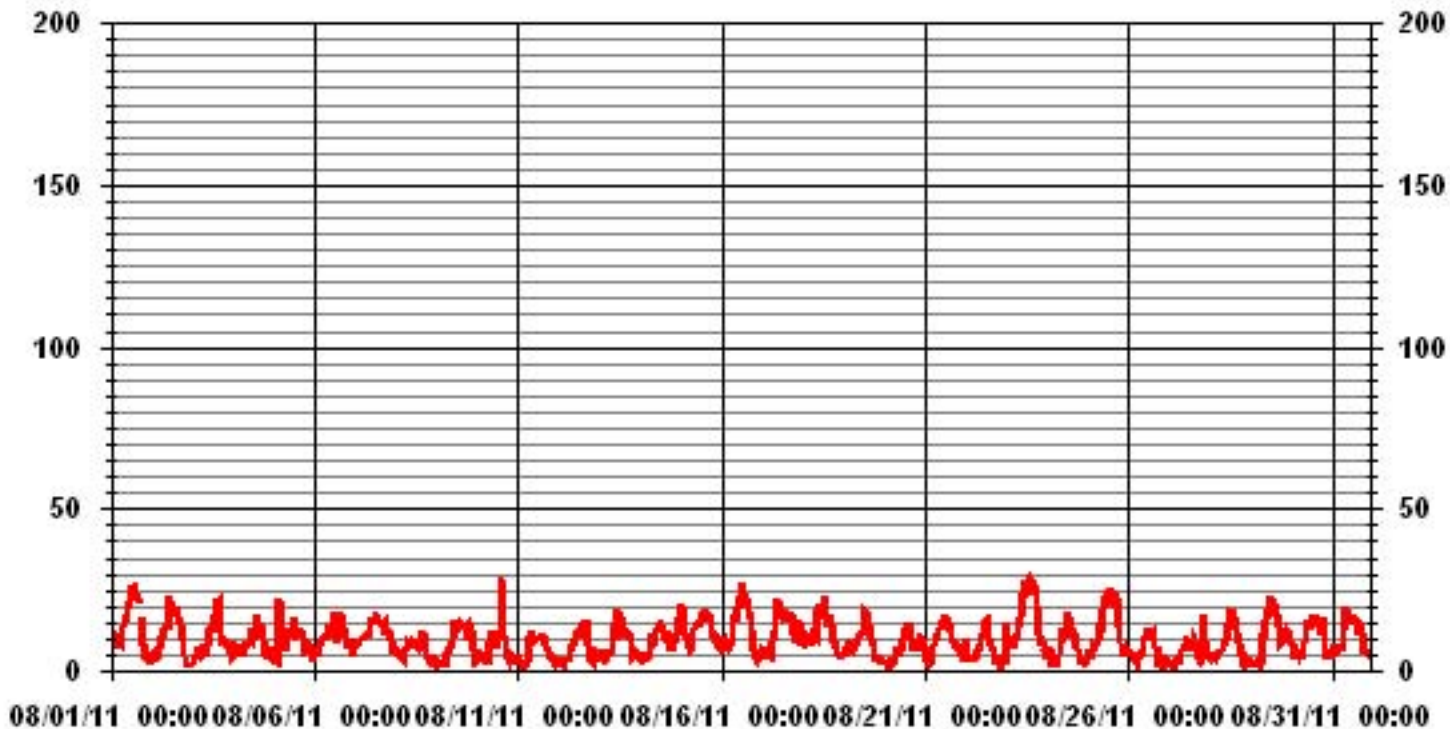
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	28.8	KPH	@ HOUR(S)	14
			ON DAY(S)	10

01 Hour Averages



LICA
WSP / WD Joint Frequency Distribution (Percent)

August 2011

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	.80	.67	1.61	2.41	1.74	3.89	7.52	3.36	2.55	4.43	8.33	13.57	4.03	4.56	1.20	1.07	61.82
< 12.0	.13	.13	.13	.00	.26	.67	4.43	.80	.40	.40	1.61	5.37	9.81	3.76	1.61	.40	29.97
< 20.0	.00	.00	.00	.00	.00	.00	.80	.00	.00	.00	.00	.53	3.76	.40	.00	.00	5.51
< 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	.94	.80	1.74	2.41	2.01	4.56	12.76	4.16	2.95	4.83	9.94	19.48	17.60	8.73	2.82	1.47	

Calm : 2.68 %

Total # Operational Hours : 744

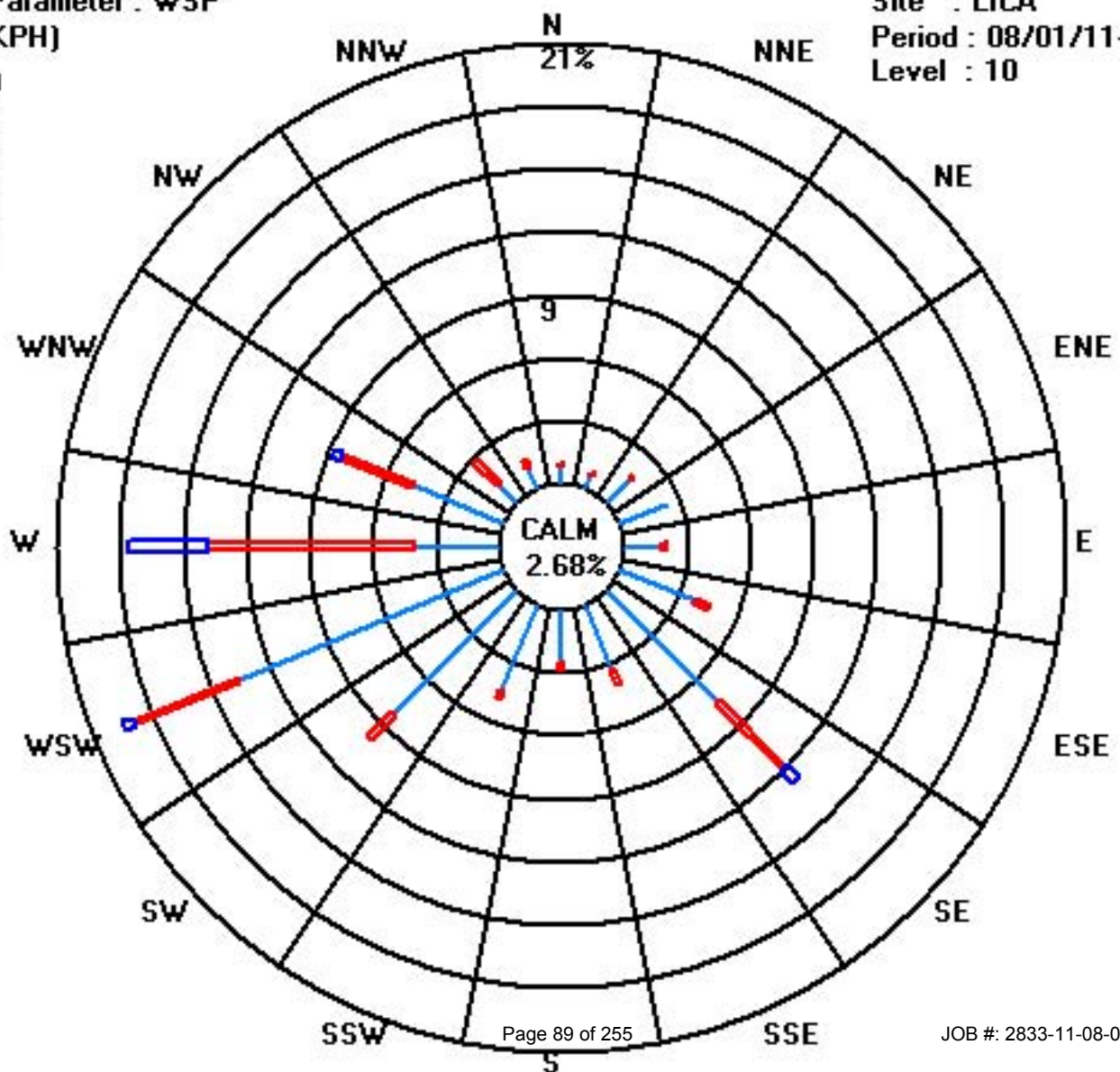
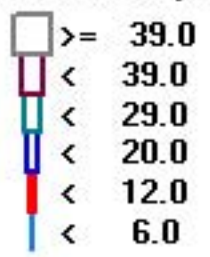
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	6	5	12	18	13	29	56	25	19	33	62	101	30	34	9	8	460
< 12.0	1	1	1		2	5	33	6	3	3	12	40	73	28	12	3	223
< 20.0							6					4	28	3			41
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	7	6	13	18	15	34	95	31	22	36	74	145	131	65	21	11	

Calm : 2.68 %

Total # Operational Hours : 744

Class Limits (KPH)



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	QUADRANT	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.	
DAY																												
1	111	116	296	274	252	255	258	256	276	276	260	257	244	250	260	265	267	261	252	242	185	225	275	216	258	WSW	24	
2	224	225	230	232	225	232	231	234	248	250	250	266	264	263	260	263	258	264	266	246	169	165	192	142	251	WSW	24	
3	220	211	243	234	242	247	252	288	239	265	268	245	249	285	270	283	332	283	228	252	257	242	243	239	262	W	24	
4	227	246	244	250	249	247	236	265	268	284	272	260	257	256	243	242	254	236	341	124	192	129	237	113	249	WSW	24	
5	132	144	118	332	44	218	54	131	131	127	129	144	139	154	139	158	142	141	141	125	116	132	126	120	133	SE	24	
6	126	75	95	100	95	102	97	110	123	133	127	211	70	302	128	226	264	285	306	284	260	288	302	291	124	ESE	24	
7	242	251	250	254	258	262	248	239	250	258	259	260	253	252	264	279	297	301	303	309	312	294	285	271	269	W	24	
8	248	218	221	240	207	208	243	262	289	323	324	4	38	57	69	78	68	152	152	149	223	155	205	172	258	WSW	24	
9	119	183	115	207	85	305	247	241	259	259	257	250	236	232	238	242	236	235	237	300	248	243	299	222	244	WSW	24	
10	234	241	101	233	79	231	268	303	298	285	290	311	235	303	18	5	344	315	312	209	125	194	33	92	312	NW	24	
11	50	67	227	105	100	95	88	74	107	68	49	42	98	32	353	32	45	45	46	179	172	179	124	227	59	ENE	24	
12	213	166	311	145	165	135	144	196	202	217	209	217	212	217	221	215	215	200	187	139	127	42	152	115	204	SSW	24	
13	149	131	125	69	138	130	143	146	134	151	134	142	135	140	160	138	135	134	122	113	113	108	109	106	134	SE	24	
14	87	68	22	76	106	73	75	104	119	99	102	110	125	102	119	77	41	112	347	337	343	355	269	128	94	E	24	
15	289	324	359	303	259	260	283	293	286	280	265	277	278	272	276	272	271	277	278	270	274	261	251	239	280	W	24	
16	249	249	247	246	239	238	230	250	261	263	259	264	274	267	278	273	278	280	265	250	221	216	237	223	261	W	24	
17	231	235	237	245	246	240	240	259	266	258	260	256	266	265	261	247	268	263	256	255	250	247	248	228	255	WSW	24	
18	238	242	248	253	251	245	257	271	298	302	291	279	263	275	279	293	300	313	297	272	252	240	195	235	275	W	24	
19	236	239	238	232	240	237	237	238	242	239	242	289	275	254	271	334	40	342	190	228	207	212	155	159	257	WSW	24	
20	197	132	119	119	163	229	138	203	100	173	166	139	136	140	143	147	132	131	128	126	131	135	134	128	140	SE	24	
21	124	191	58	64	125	128	135	134	133	138	139	147	155	161	182	164	158	142	136	136	133	148	126	89	144	SE	24	
22	346	125	199	197	252	139	261	233	255	271	280	269	272	281	286	292	301	269	188	233	141	153	212	211	266	W	24	
23	306	292	305	307	302	282	277	263	270	265	271	268	273	276	281	285	276	283	274	262	252	250	241	239	274	W	24	
24	223	231	235	269	127	129	157	201	218	212	185	176	200	199	189	204	149	246	256	221	301	142	167	155	202	SSW	24	
25	279	189	193	250	232	271	297	299	268	266	270	275	266	271	270	273	270	279	276	286	281	292	247	249	271	W	24	
26	243	245	236	241	216	137	163	210	235	235	232	236	261	226	217	205	212	193	198	152	127	132	139	123	216	SW	24	
27	291	283	106	92	14	112	124	128	186	202	215	186	182	196	183	185	162	141	157	229	326	350	68	296	188	S	24	
28	242	237	243	241	245	258	248	254	236	255	262	267	278	271	271	279	302	270	244	158	149	195	144	78	264	W	24	
29	181	171	176	100	2	108	42	121	123	135	133	133	134	132	136	133	137	122	128	191	340	275	311	314	133	SE	24	
30	303	255	251	240	244	237	234	253	287	306	291	299	281	270	276	270	275	262	264	301	255	215	238	248	274	W	24	
31	225	246	247	235	247	255	230	276	303	306	318	314	307	295	296	282	280	287	285	264	254	255	240	249	281	W	24	
HOURLY AVG	346	324	359	332	302	305	297	303	303	323	324	314	307	303	353	334	344	342	347	337	343	355	311	314				

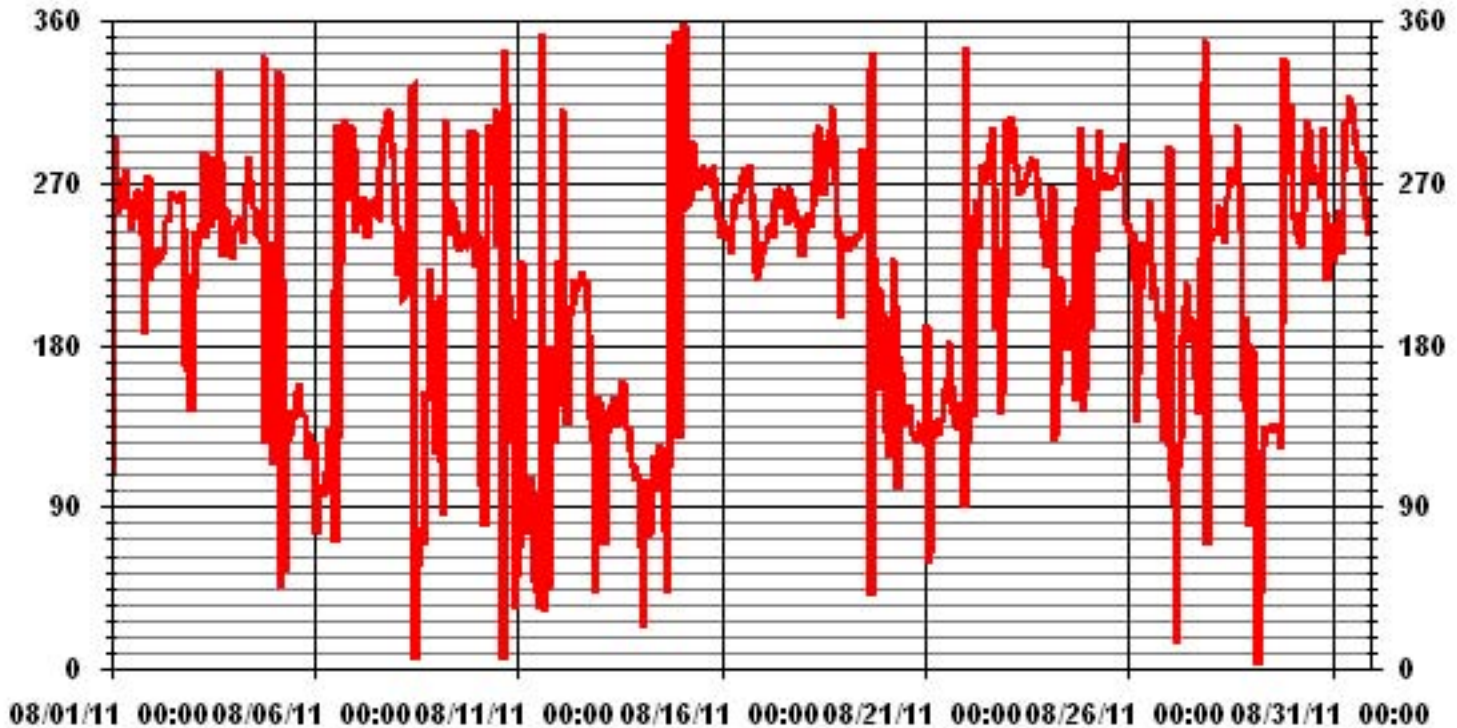
STATUS FLAG CODES

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

LAST CALIBRATION:	November 23, 2010
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION	73.24		AMD OPERATION UPTIME	100.0	%
			MONTHLY AVERAGE	250	DEG

01 Hour Averages



— LICA WDR DEG

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

AUGUST 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	59	56	42	20	15	14	20	20	24	23	23	24	25	23	21	21	22	20	18	20	24	35	24	67
2	16	18	21	31	36	21	21	25	25	24	25	22	25	26	25	26	25	23	19	13	20	43	65	35
3	54	62	17	14	12	23	25	69	25	25	21	28	31	22	31	25	18	30	23	21	18	17	49	18
4	26	17	17	15	23	18	25	25	36	40	43	52	46	35	28	29	28	25	31	35	52	35	52	31
5	41	62	26	37	26	35	55	14	20	21	34	40	33	37	33	38	22	20	14	14	18	11	15	18
6	12	17	18	20	19	23	22	25	23	31	24	27	34	54	30	47	22	22	21	18	18	20	39	20
7	22	21	15	17	18	20	20	23	21	19	18	19	19	21	21	21	17	17	16	14	15	19	21	32
8	13	31	35	16	32	30	20	24	29	45	39	60	55	46	36	33	44	33	20	25	37	49	35	49
9	65	41	41	50	61	61	43	28	34	35	42	36	28	31	26	25	26	23	20	56	26	37	36	41
10	19	45	45	43	53	51	66	27	22	24	28	65	69	29	28	24	35	25	29	38	44	64	48	34
11	24	55	33	42	32	53	41	26	32	41	36	37	50	52	36	37	33	34	27	36	28	50	43	46
12	65	69	62	61	47	33	26	38	44	31	34	39	38	34	34	33	34	36	27	19	24	43	37	27
13	41	36	49	56	30	19	39	34	24	34	17	24	16	28	39	20	21	13	21	18	18	21	21	22
14	39	33	23	54	52	39	25	23	38	31	26	27	26	33	25	28	23	27	31	41	25	49	57	41
15	20	18	21	21	18	38	22	22	26	27	25	24	23	25	22	21	22	22	21	24	23	18	16	18
16	17	16	15	15	18	19	21	20	22	22	21	22	24	23	23	22	23	22	19	18	27	21	17	17
17	18	15	14	17	16	23	19	20	23	22	24	23	26	24	21	25	25	19	18	17	17	22	21	25
18	23	23	17	15	16	16	18	23	20	22	25	26	24	23	26	24	17	16	20	16	11	23	30	15
19	15	14	16	17	15	19	21	21	27	24	28	38	26	23	24	27	27	43	54	31	29	29	58	47
20	41	49	45	39	43	49	39	43	58	33	31	29	21	28	31	34	27	17	16	12	11	11	11	22
21	48	51	53	49	18	17	27	16	18	20	25	32	36	36	40	36	33	21	11	9	11	46	30	46
22	55	38	32	48	43	28	47	23	25	25	24	24	23	26	29	20	19	21	33	30	39	45	50	51
23	35	36	42	33	27	19	19	20	22	21	21	23	21	22	22	22	22	21	21	18	16	16	15	16
24	25	15	16	44	35	32	62	38	33	27	41	40	38	37	37	35	30	27	51	40	27	29	62	74
25	42	57	42	30	22	18	16	16	22	21	24	23	23	22	23	23	23	21	21	18	18	15	11	10
26	11	15	24	26	49	41	44	39	43	33	35	44	71	49	49	31	36	42	28	29	21	9	30	40
27	46	58	61	56	50	42	27	20	45	45	38	40	39	48	45	37	31	26	37	35	73	33	33	44
28	24	13	23	30	17	21	21	34	30	30	30	27	24	28	25	25	23	20	13	17	11	54	65	31
29	58	55	49	57	36	50	39	23	21	18	17	16	17	15	16	15	16	18	17	29	46	31	15	17
30	21	19	23	18	22	21	37	23	30	23	27	26	27	23	27	23	23	23	20	14	17	16	14	13
31	32	14	12	16	17	15	26	20	20	22	21	26	28	28	22	25	25	22	19	14	12	12	9	9

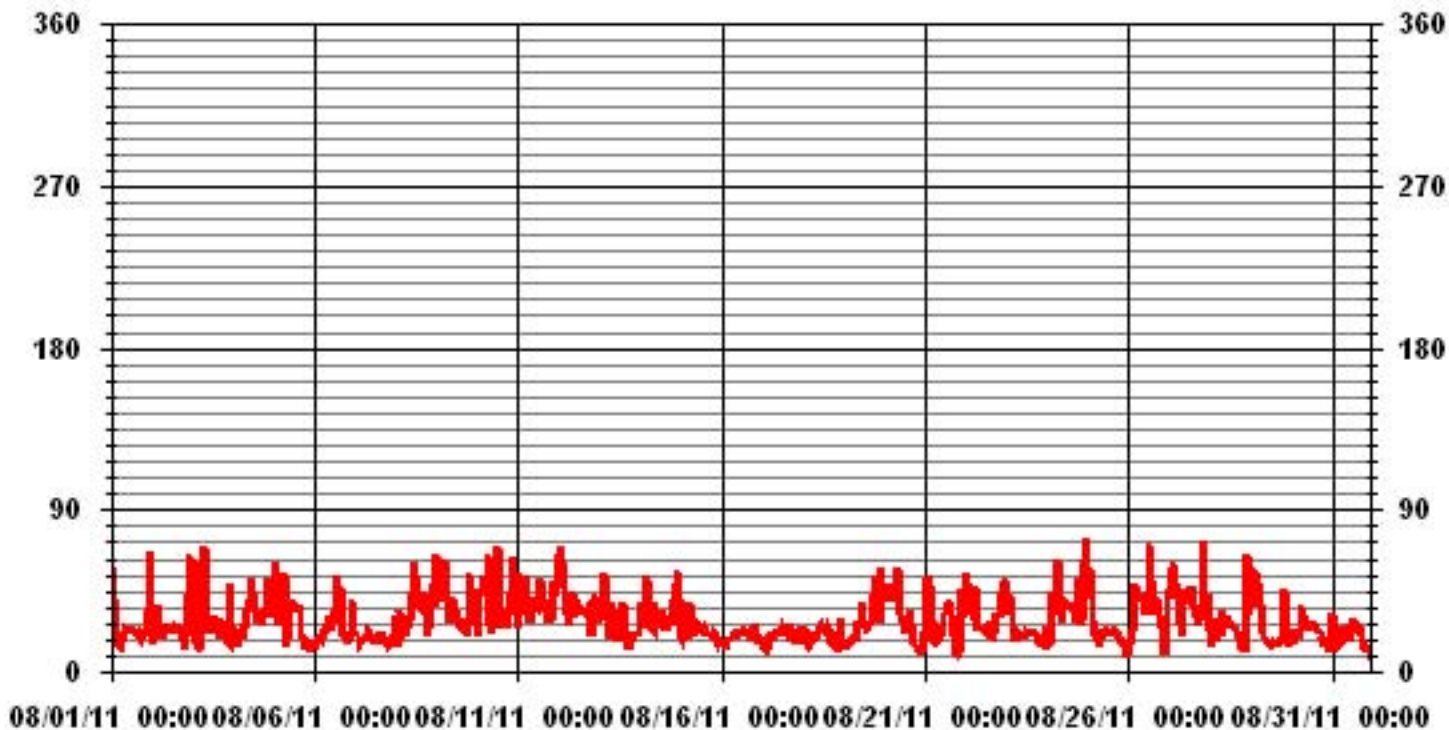
STATUS FLAG CODES

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 8, 2010

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages

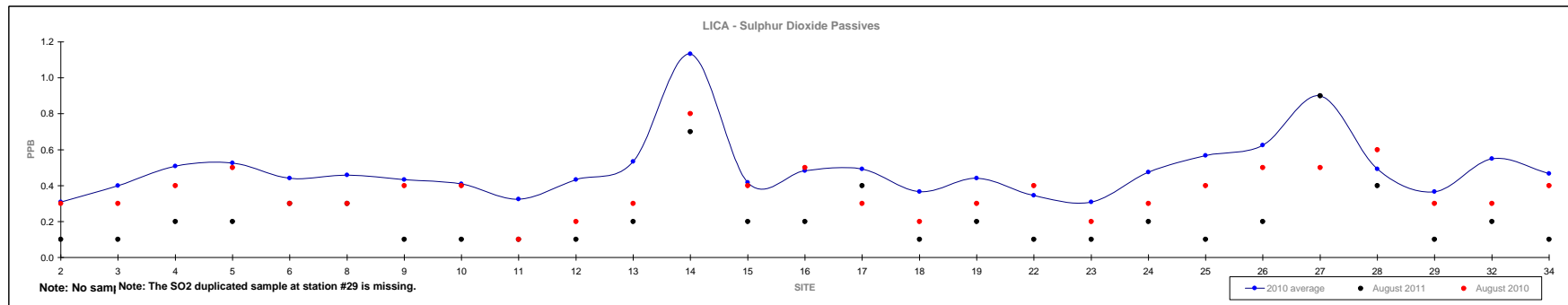


Non-Continuous Monitoring

Passive Summary Results for August 2011

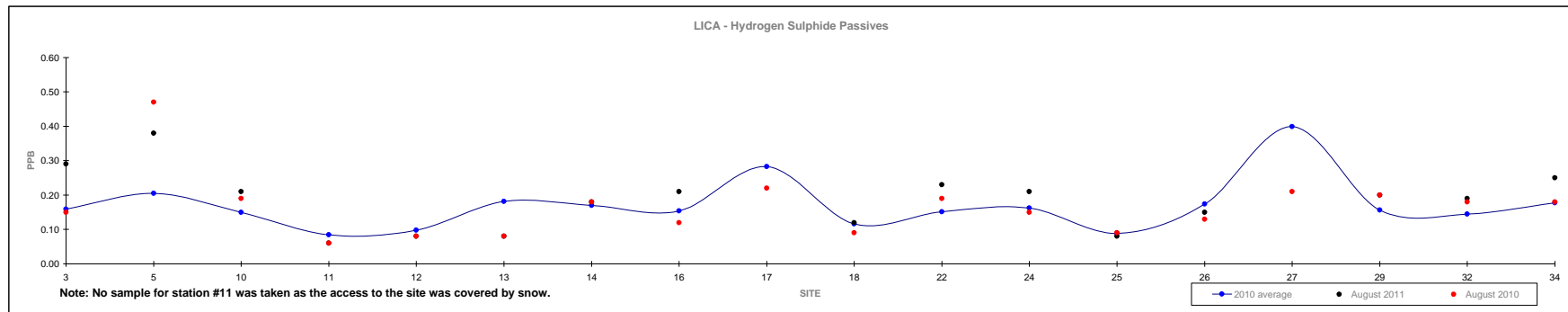
Lakeland Industry & Community Association

	Sulphur Dioxide ppb																												August 2011	
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	25	26	27	28	29	32	34	Reading	Site	
Mean	0.3	0.4	0.5	0.5	0.4	0.5	0.4	0.4	0.3	0.4	0.5	1.1	0.4	0.5	0.5	0.4	0.4	0.3	0.3	0.5	0.6	0.6	0.9	0.5	0.4	0.6	0.5	0.2	-	
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	0.2	0.4	0.2	0.2	0.1	0.1	<0.1	VAR	
Maximum	0.7	0.8	1.2	1.1	1.1	0.9	0.8	0.8	0.8	1.0	1.0	2.3	0.9	1.0	1.3	0.9	1.0	0.7	0.7	1.1	1.1	1.3	1.5	0.8	0.7	1.2	1.0	0.9	#27	



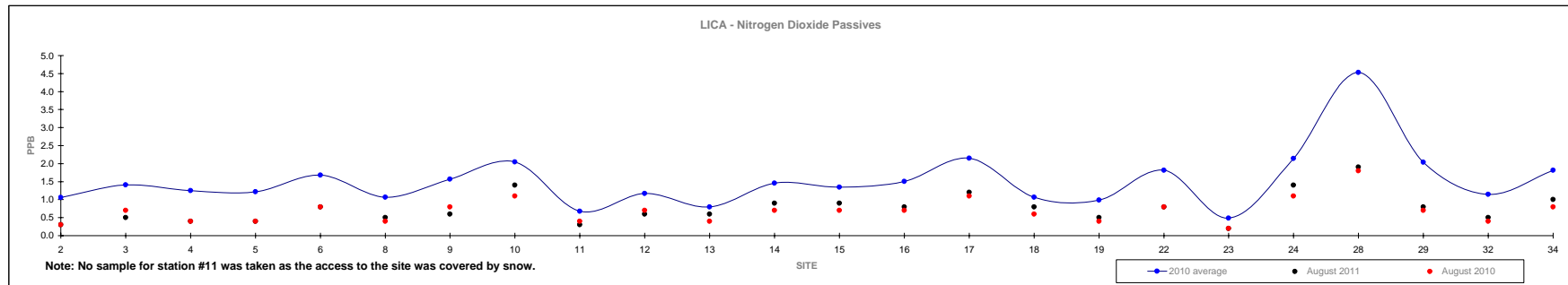
Passive Summary Results for August 2011 Lakeland Industry & Community Association

	2010															August 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	0.24	-
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	0.06	#11
Maximum	0.21	0.47	0.22	0.18	0.24	0.16	0.20	0.24	0.27	0.20	0.19	0.23	0.16	0.20	0.55	0.20	0.19	0.21	0.72	#27



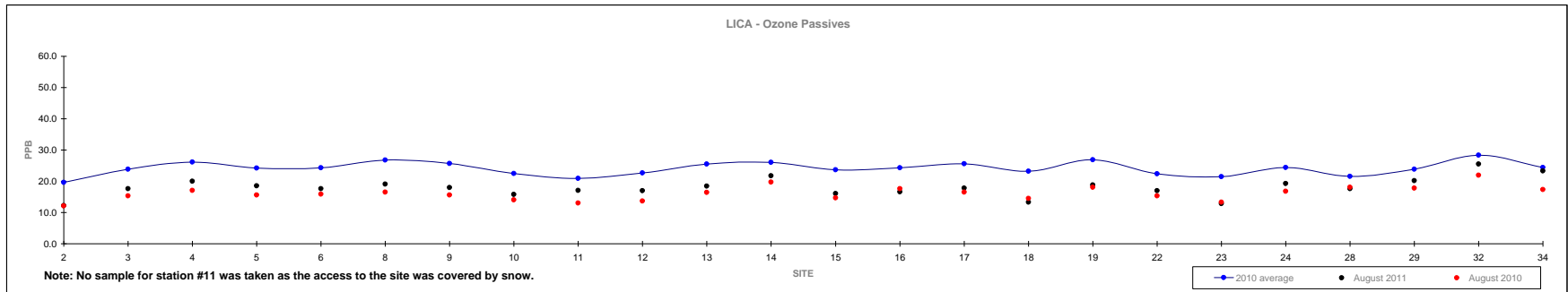
Passive Summary Results for August 2011 Lakeland Industry & Community Association

	Nitrogen Dioxide ppb																								August 2011	
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	28	29	32	34	Reading	Site
Mean	1.1	1.4	1.3	1.2	1.7	1.1	1.6	2.1	0.7	1.2	0.8	1.5	1.3	1.5	2.2	1.1	1.0	1.8	0.5	2.1	4.5	2.0	1.2	1.8	0.8	-
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	0.2	#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	1.9	#28



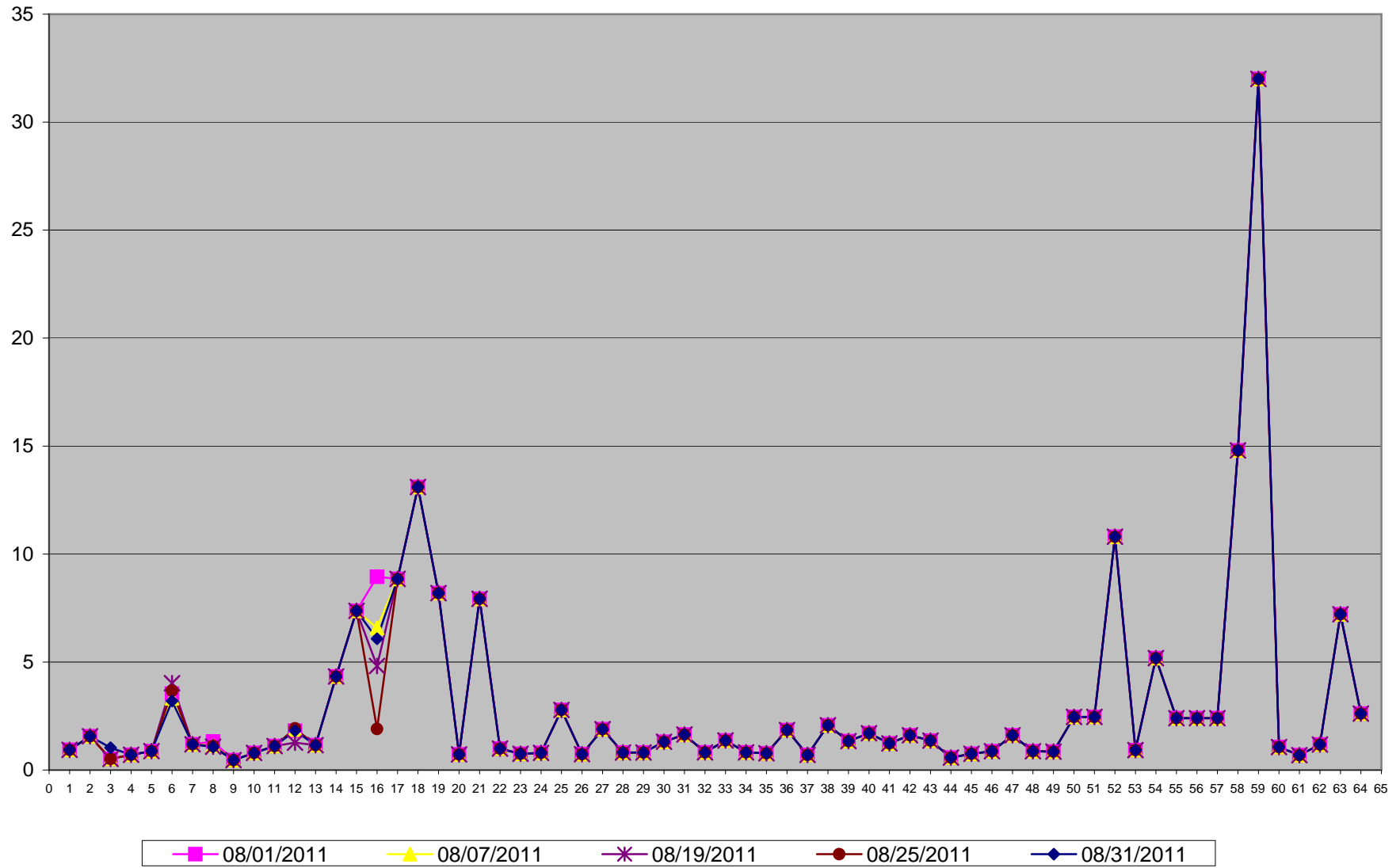
Passive Summary Results for August 2011 Lakeland Industry & Community Association

	Ozone ppb																												August 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	18.0	-				
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	12.2	#2				
Maximum	31.3	35.5	41.0	36.8	38.2	40.4	39.3	34.7	33.3	34.6	39.4	35.6	35.2	37.3	39.7	34.8	37.5	33.7	35.1	39.3	31.1	36.6	39.2	34.7	25.5	#32				



Volatile Organics

Volatile Organics in ug/m3 Site: LICA - Cold Lake South



1	2,2,4-Trimethylpentane	33	1,1,2,2-Tetrachloroethane
2	Carbon Disulfide	34	cis-1,3-Dichloropropene
3	Propene	35	trans-1,3-Dichloropropene
4	Vinyl Acetate	36	1,2-Dichloropropane
5	Vinyl Bromide	37	Bromomethane
6	Dichlorodifluoromethane (FREON 12)	38	Bromoform
7	1,2-Dichlorotetrafluoroethane	39	Bromodichloromethane
8	Chloromethane	40	Dibromochloromethane
9	Vinyl Chloride	41	Heptane
10	Chloroethane	42	Trichloroethylene
11	1,3-Butadiene	43	Tetrachloroethylene
12	Trichlorofluoromethane (FREON 11)	44	Benzene
13	Trichlorotrifluoroethane	45	Toluene
14	Ethanol	46	Ethylbenzene
15	2-Propanol	47	p+m-Xylene
16	2-Propanone	48	o-Xylene
17	Methyl Ethyl Ketone (2-Butanone)	49	Styrene
18	Methyl Isobutyl Ketone	50	1,3,5-Trimethylbenzene
19	Methyl Butyl Ketone (2-Hexanone)	51	1,2,4-Trimethylbenzene
20	Methyl t-butyl ether (MTBE)	52	4-ethyltoluene
21	Ethyl Acetate	53	Chlorobenzene
22	1,1-Dichloroethylene	54	Benzyl chloride
23	cis-1,2-Dichloroethylene	55	1,3-Dichlorobenzene
24	trans-1,2-Dichloroethylene	56	1,4-Dichlorobenzene
25	Methylene Chloride (Dichloromethane)	57	1,2-Dichlorobenzene
26	Chloroform	58	1,2,4-Trichlorobenzene
27	Carbon Tetrachloride	59	Hexachlorobutadiene
28	1,1-Dichloroethane	60	Hexane
29	1,2-Dichloroethane	61	Cyclohexane
30	Ethylene Dibromide	62	Tetrahydrofuran
31	1,1,1-Trichloroethane	63	1,4-Dioxane
32	1,1,2-Trichloroethane	64	Xylene (Total)

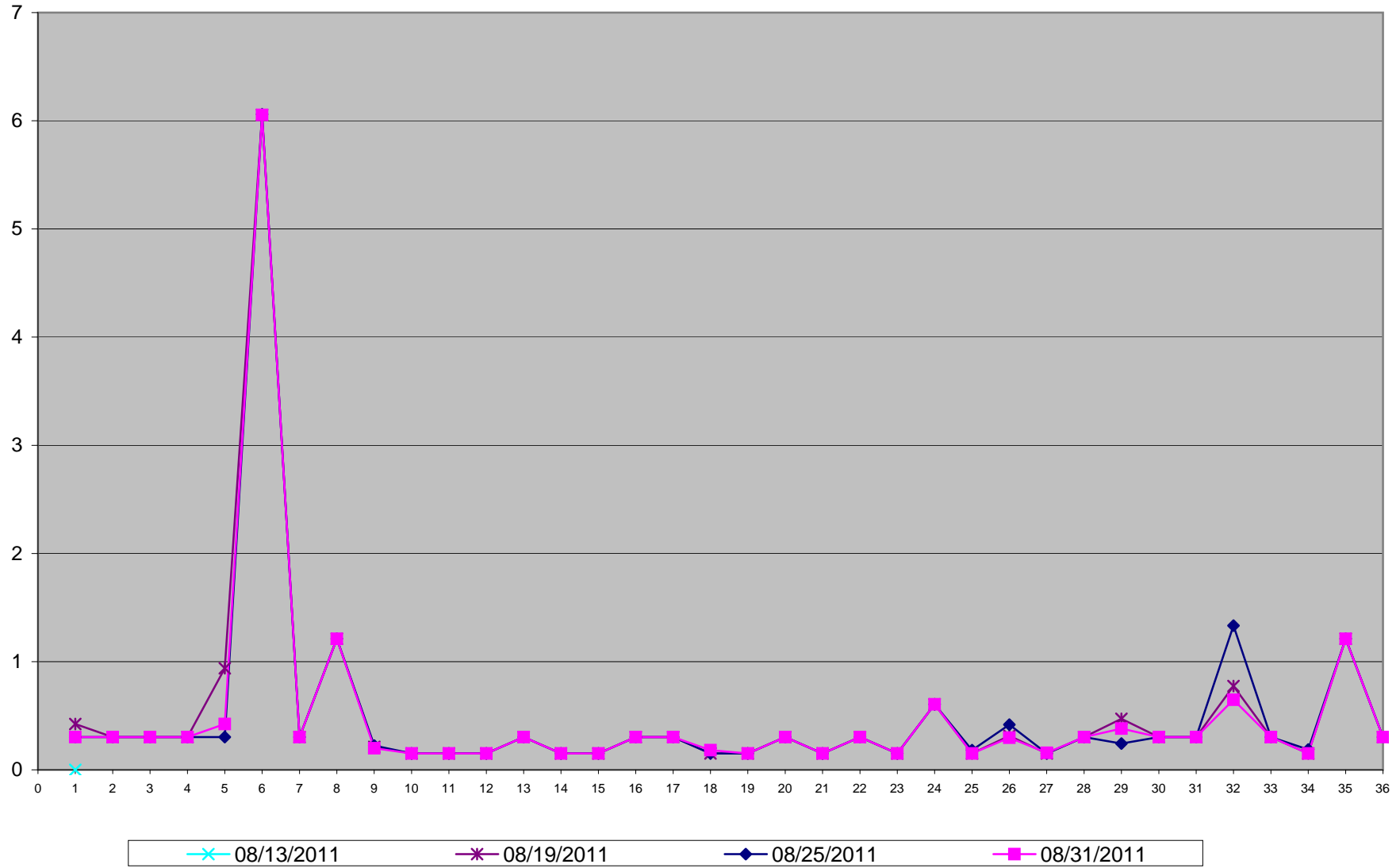
Polycyclic Aromatic Hydrocarbons

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

PAHs	08/01/2011	08/07/2011	08/13/2011	08/19/2011	08/25/2011	08/31/2011
Sample Volume (unit: m3)	NA	NA	330.32	330.34	330.04	330.36
1 1-Methylnaphthalene	NA	NA	0.303	0.424	0.303	0.303
2 1-Methylphenanthrene	NA	NA	0.303	0.303	0.303	0.303
3 2-Chloronaphthalene	NA	NA	0.303	0.303	0.303	0.303
4 2-Methylantracene	NA	NA	0.303	0.303	0.303	0.303
5 2-Methylnaphthalene	NA	NA	0.303	0.938	0.303	0.424
6 3-Methylcholanthrene	NA	NA	6.055	6.054	6.060	6.054
7 7,12-Dimethylbenzo(a)anthracene	NA	NA	0.303	0.303	0.303	0.303
8 9,10-Dimethylanthracene	NA	NA	1.211	1.211	1.212	1.211
9 Acenaphthene	NA	NA	0.151	0.212	0.224	0.200
10 Acenaphthylene	NA	NA	0.151	0.151	0.151	0.151
11 Anthracene	NA	NA	0.151	0.151	0.151	0.151
12 Benzo(a)anthracene	NA	NA	0.151	0.151	0.151	0.151
13 Benzo(a)fluorene	NA	NA	0.303	0.303	0.303	0.303
14 Benzo(a)pyrene	NA	NA	0.151	0.151	0.151	0.151
15 Benzo(b)fluoranthene	NA	NA	0.151	0.151	0.151	0.151
16 Benzo(b)fluorene	NA	NA	0.303	0.303	0.303	0.303
17 Benzo(e)pyrene	NA	NA	0.303	0.303	0.303	0.303
18 Benzo(g,h,i)perylene	NA	NA	0.151	0.151	0.151	0.182
19 Benzo(k)fluoranthene	NA	NA	0.151	0.151	0.151	0.151
20 Biphenyl	NA	NA	0.303	0.303	0.303	0.303
21 Chrysene	NA	NA	0.151	0.151	0.151	0.151
22 Coronene	NA	NA	0.303	0.303	0.303	0.303
23 Dibenz(a,h)anthracene	NA	NA	0.151	0.151	0.151	0.151
24 Dibenzo(a,e)pyrene	NA	NA	0.605	0.605	0.606	0.605
25 Fluoranthene	NA	NA	0.151	0.151	0.182	0.151
26 Fluorene	NA	NA	0.163	0.315	0.418	0.297
27 Indeno(1,2,3-cd)pyrene	NA	NA	0.151	0.151	0.151	0.157
28 m-Terphenyl	NA	NA	0.303	0.303	0.303	0.303
29 Naphthalene	NA	NA	0.218	0.472	0.242	0.381
30 o-Terphenyl	NA	NA	0.303	0.303	0.303	0.303
31 Perylene	NA	NA	0.303	0.303	0.303	0.303
32 Phenanthrene	NA	NA	0.932	0.775	1.333	0.648
33 p-Terphenyl	NA	NA	0.303	0.303	0.303	0.303
34 Pyrene	NA	NA	0.151	0.151	0.188	0.151
35 Quinoline	NA	NA	1.211	1.211	1.212	1.211
36 Tetralin	NA	NA	0.303	0.303	0.303	0.303

Note: - values were calculated by the formula of [reading (ug) x 1000 / sample volume (m3)].
- Where the analytical results are less than the minimum detection limit (MDL), the MDL has been used in calculations.
- No sample was collected on July 2nd as the PAH samplers was not recived on time.
- No sample results for August 1st and August 7th is provided as the PAH sample was onlu collected less than 7 minutes.

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



1	1-Methylnaphthalene
2	1-Methylphenanthrene
3	2-Chloronaphthalene
4	2-Methlyanthracene
5	2-Methylnaphthalene
6	3-Methylcholanthrene
7	7,12-Dimethylbenzo(a)anthracene
8	9,10-Dimethylanthracene
9	Acenaphthene
10	Acenaphthylene
11	Anthracene
12	Benzo(a)anthracene
13	Benzo(a)fluorene
14	Benzo(a)pyrene
15	Benzo(b)fluoranthene
16	Benzo(b)fluorene
17	Benzo(e)pyrene
18	Benzo(g,h,l)perylene
19	Benzo(k)fluoranthene
20	Biphenyl
21	Chrysene
22	Coronene
23	Dibenz(a,h)anthracene
24	Dibenzo(a,e)pyrene
25	Fluoranthene
26	Fluorene
27	Indeno(1,2,3-cd)pyrene
28	m-Terphenyl
29	Naphthalene
30	o-Terphenyl
31	Perylene
32	Phenanthrene
33	p-Terphenyl
34	Pyrene
35	Quinoline
36	Tetralin

Calibration Reports

Sulphur Dioxide

SO2 Calibration Report
Station Information

Calibration Date	August 3, 2011	Previous Calibration	July 11, 2011
Company	Lakeland Community and Industry Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	13:58	End Time (MST)	17:06
Reason:	Monthly Calibration		
Barometric Pressure	0.935 atm	Station Temperature	22 Deg C
Cal Gas	49 ppm	Gas Cyl. #	LL103822
DAS Output Voltage	0 - 10 Volts	Cal Gas Expiry date	February 4, 2013
		Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	Thermo 43i	S/N :	806528242	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	3485		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 1000			ppb			
Sample Flow / Box Temp	448 ccm	29 Deg C		447 ccm	30.4 Deg C		
HVPS / Lamp Setting	-632	741		-632	740		
PMT / RxCell Temp	OK Deg C	45.2 Deg C		OK Deg C	45.2 Deg C		
Converter / IZS Temp	NA Deg C	45 Deg C		NA Deg C	45.0 Deg C		
Offset / Slope	6	1.015		5.9	1.015		

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	N/A
	No Zero Adj			
4959	40.8	400	399	1.0021
	No Span Adj			
4979	20.4	200	201	0.9947
4981	15.3	150	152	0.9872
4995	0	0	0	N/A
Sum of Least Squares				0.9993
New Correction Factor				1.0021

	Before Calibration	After Calibration
Auto Zero	-0.2	-0.1
Auto Span	375.0	375.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0021
Percent Change:	-0.2%

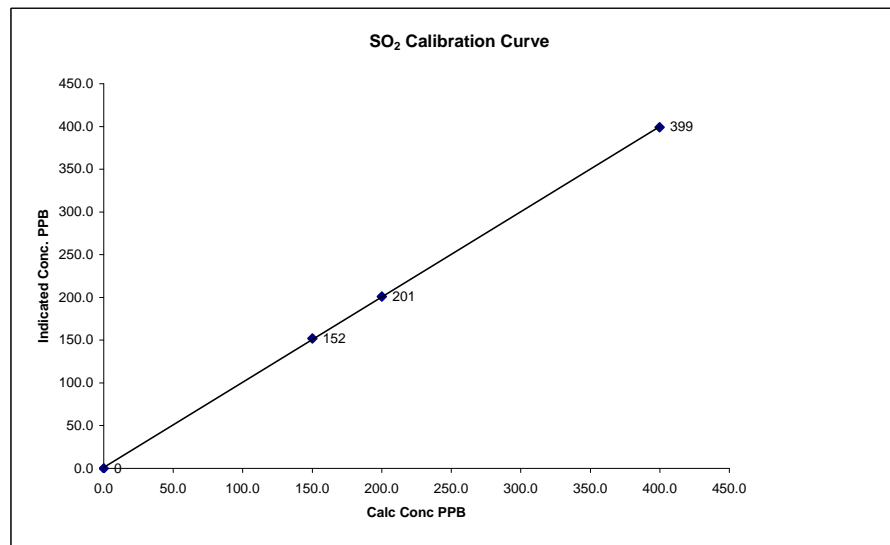
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

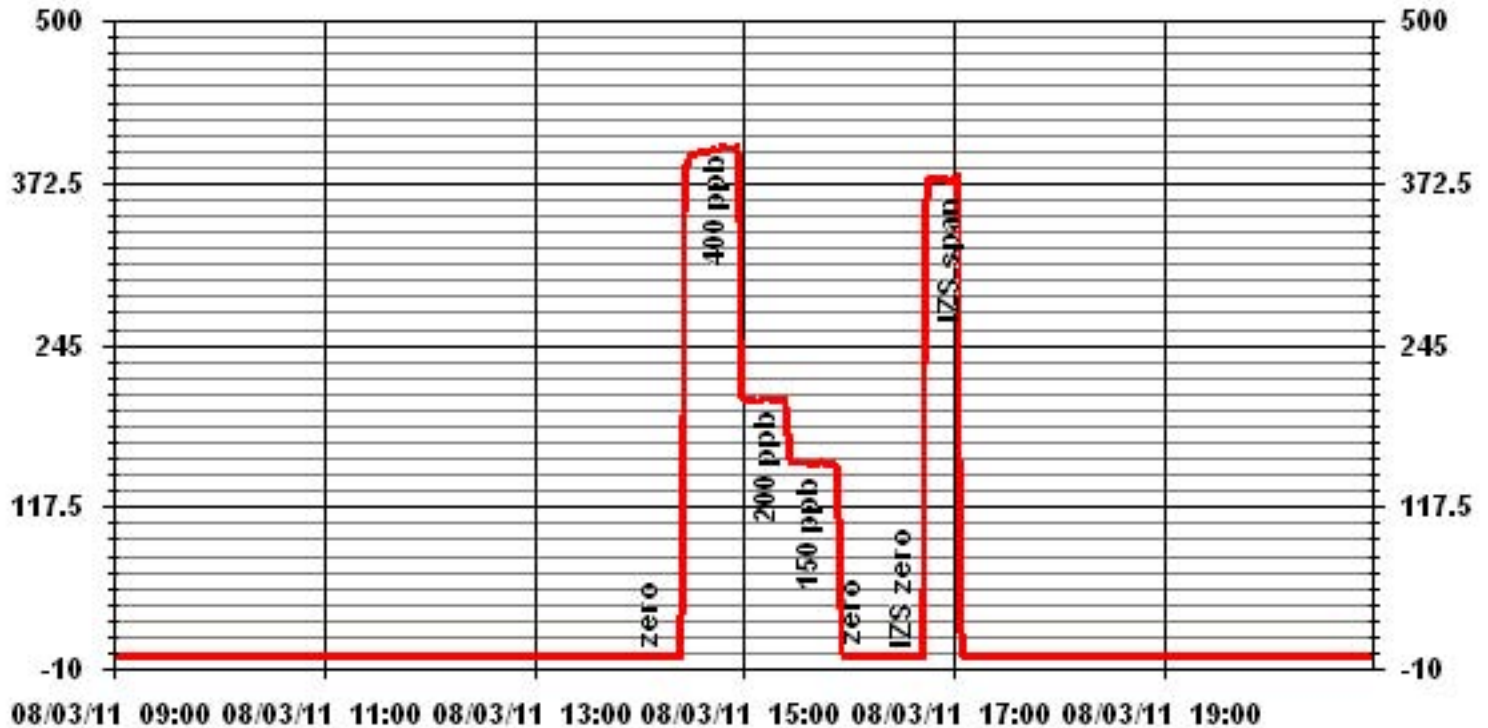
Calibration Date	August 3, 2011
Company	Lakeland Community and Industry Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	13:58
End Time (MST)	17:06

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept (± 3% F.S.)	(≥ 0.995)
0	0	n/a	0.999954	0.999954
150	152	0.9872	0.997047	0.997047
200	201	0.9947	1.090730	1.090730
400	399	1.0021		



Notes:

01 Minute Averages



Total Reduced Sulphur

TRS Calibration Report
Station Information

Calibration Date	August 3, 2011	Previous Calibration	July 26, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	7:47	End Time (MST)	11:30
Reason:	As Found		
Barometric Pressure	0.935 atm	Station Temperature	23 Deg C
Cal Gas	10.2 ppm	Gas Cyl. #	BLM000804
DAS Output Voltage	0 - 10 Volts	Cal Gas Expiry date	February 2, 2012
		Chart Rec. Output	0 - 10 Volts

Equipment Information

Analyzer Make / Model:	Thermo 450i	S/N :	812728560	Method:	Fluorescent
Converter Make / Model:	CDN 101	S/N :	250		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	3485		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 100		
Sample Flow / Box Temp	352 ccm, 31.4 Deg C	352 ccm, 31.4 Deg C	
HVPS / Lamp Setting	-623.8, 749	-623.1, 749	
PMT / RxCell Temp	OK Deg C, 45.1 Deg C	OK Deg C, 45.2 Deg C	
Converter / IZS Temp	810 Deg C, 45 Deg C	810 Deg C, 45.0 Deg C	
Offset / Slope	12.7, 1.232	12.9, 1.244	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
	No Zero Adj			
4959	39.2	80	79	1.0126
4959	39.2	80	81	0.9876
4980	19.6	40	41	0.9753
4986	11.2	23	23	1.0000
4996	0.0	0	0	N/A
Sum of Least Squares				0.9857
New Correction Factor				0.9876

Before Calibration

Auto Zero	-0.3	After Calibration	-0.2
Auto Span	65.4		67.8
Sample Lines Connected			YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0126
Percent Change:	-1.2%

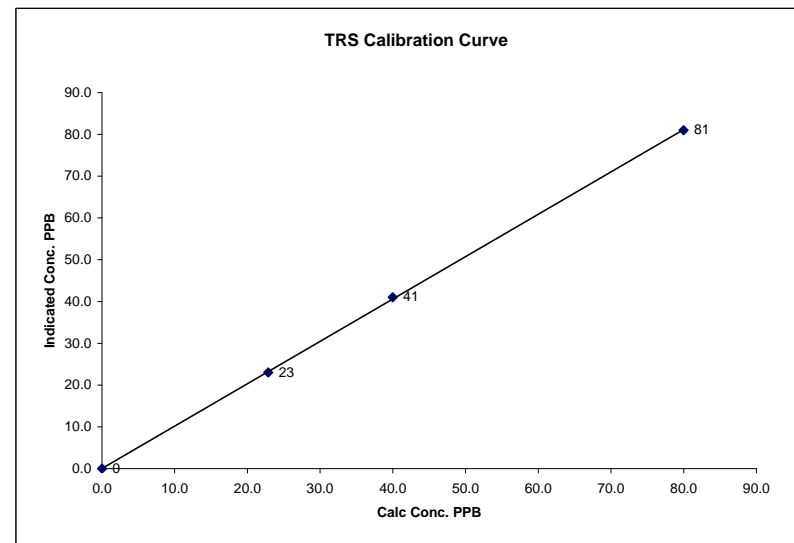
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

TRS Calibration Curve

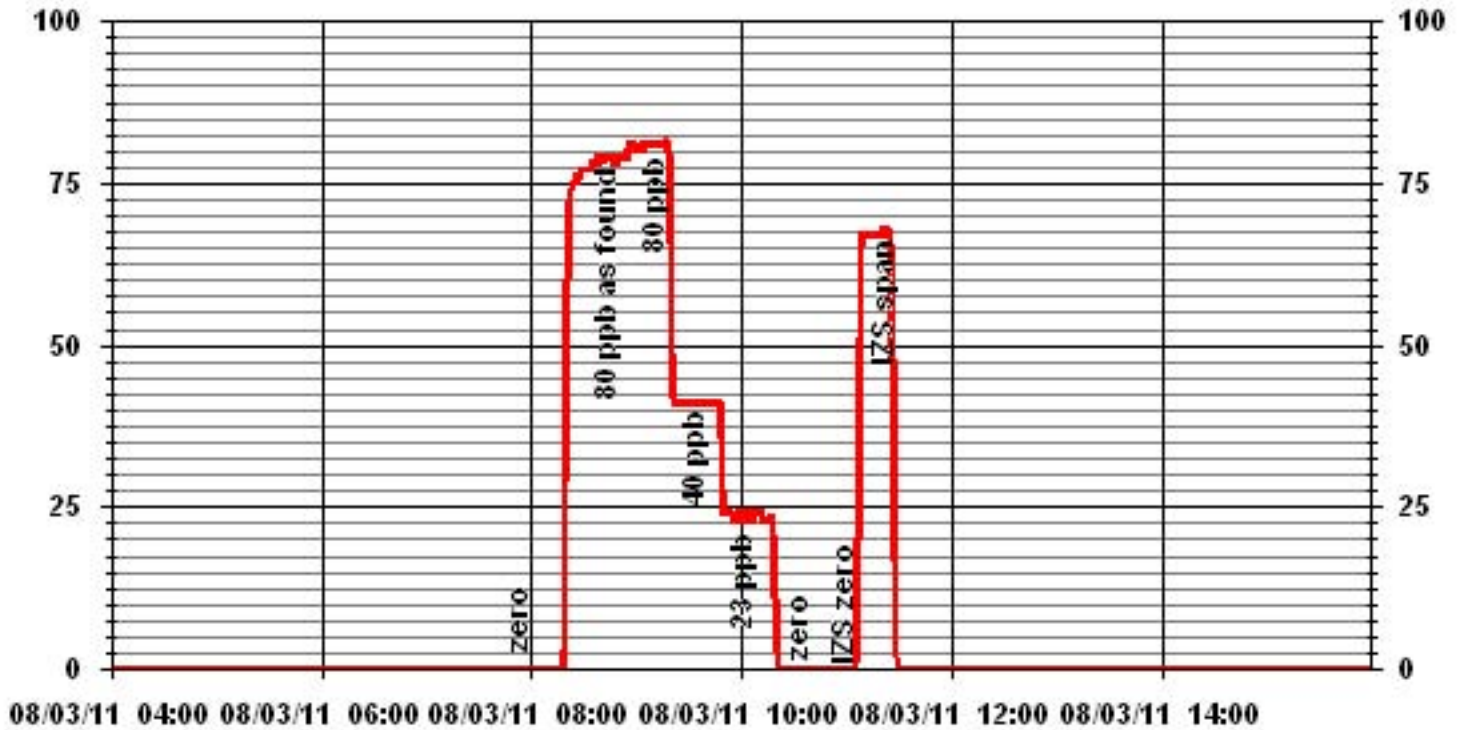
Calibration Date	August 3, 2011
Company	Lakeland Industry & Community Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	7:47
End Time (MST)	11:30

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	n/a		0.999930
23	23	0.0000		1.013734
40	41	0.5576		0.048341
80	81	0.4937		



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	August 3, 2011	Previous Calibration	July 8, 2011
Company:	Lakeland Industry and Community Association		
Plant / Location:	LICA1/Cold Lake		
Start Time (MST)	10:50	End Time (MST)	14:36
Reason:	Monthly Calibration		
Barometric Pressure:	0.936 atm	Station Temperature:	22 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	CH4 593 PPM	C3H8 205 PPM	
	TOTAL CH4 1156.8 PPM	Gas Cyl. # LL84567	Cal Gas Expiry Date: June 7, 2014
DAS make & Model:	ESC 8832	S/N :	3485
Chart Recorder:	NA	S/N:	NA
Output Voltage Range:	0 - 10 VDC	Chart Speed:	NA mm/hr

Analyzer Information			
Make / Model	TEI 51C-LT	S/N :	427408718
Method	Flame Ionization		

Analyzer Settings				
	Before Calibration		After Calibration	
Concentration Range	0 - 50	ppm	0 - 50	ppm
Sample Pressure	6.5	psi	6.5	psi
Hydrogen Pressure	8	psi	8	psi
Air Pressure	20	psi	20	psi

Calibration Data				
Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
1998	0.0	0.0	0.5	NA
1998	0.0	0.0	0.0	NA
1999	70.0	39.1	39.9	0.9809
1999	70.0	39.1	39.3	0.9958
1999	34.9	19.8	19.5	1.0179
1998	20.0	11.5	11.2	1.0236
1998	0.0	0.0	0.0	NA
New Correction Factor:				0.9958

Percent Change	
Previous Calibration Correction Factor:	0.9931
Current Correction Factor Before Span Adjust:	0.9809
Percent Change:	1.3%

IZS Calibration Data		
	Before Calibration	After Calibration
Auto Zero	0.5	0.0
Auto Span	36.8	36.1
Sample Lines Connected	YES	

Cylinder Pressures			
Span	900 psi	Hydrogen	700 psi
		Zero Air	32 psi

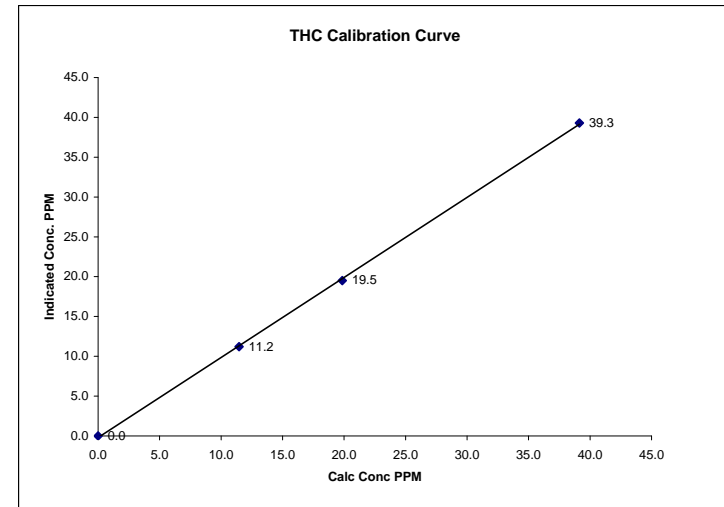
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

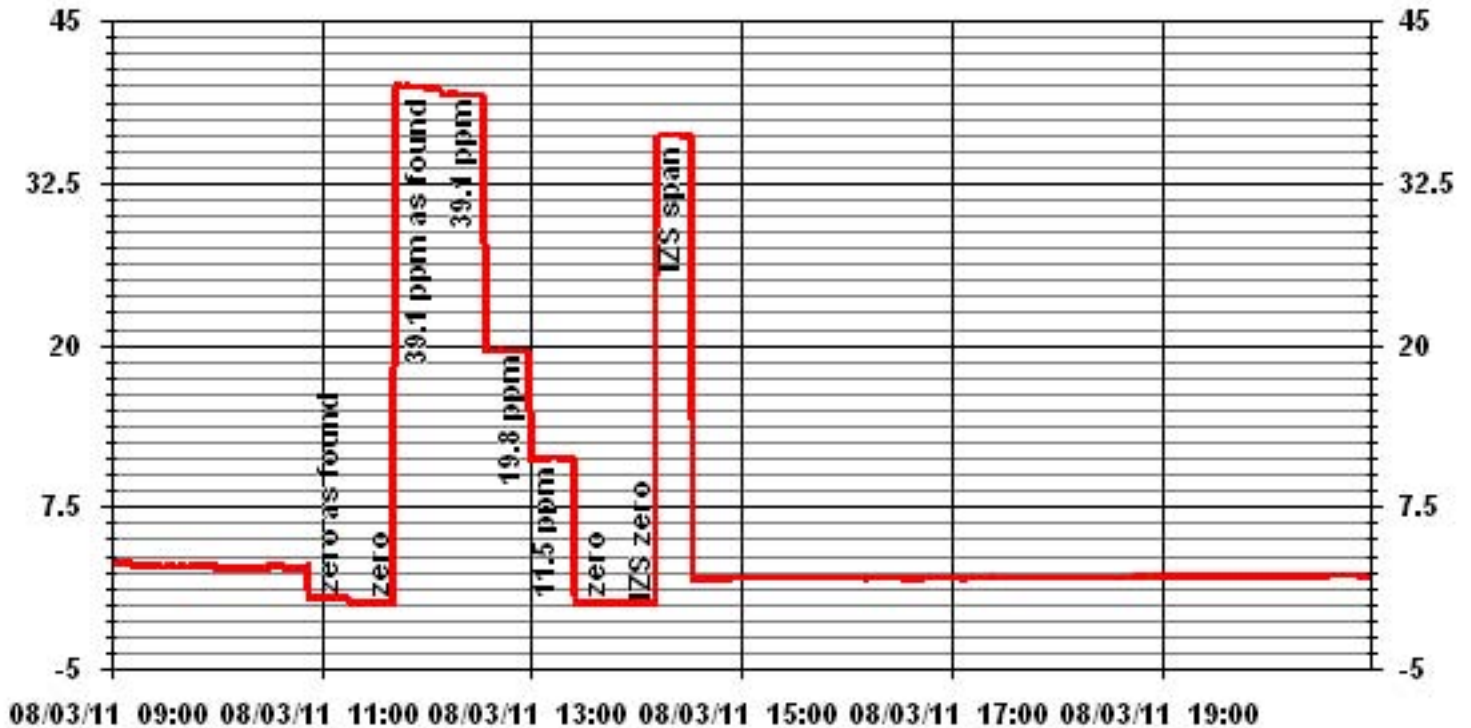
Calibration Date	August 3, 2011		
Company	Lakeland Industry and Community Association		
Plant / Location	LICA1/Cold Lake		
Start Time (MST)	10:50	End Time (MST)	14:36

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope (0.85 to 1.15)	(≥ 0.995)	1.005358
0.0	0.0	NA	Intercept	(±3% F.S.)	-0.20667
11.5	11.2	1.0236			
19.8	19.5	1.0179			
39.1	39.3	0.9958			



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOM 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	August 26, 2011	Make/Model:	Streamline FTS
Station Name:	LICA 1	Serial Number:	Hi 091001
Location:	Cold Lake South	Cell s/n:	Lo 091099
Operator:	LICA	Thermometer s/n:	VWR90758398

	<u>Sampler</u>		<u>Set-up and current Sampler readings</u>
Make/Model	Thermo Scientific Series 1405F	F-Main Set Pt (l/min)	3.00
Unit #	AMU 1775	F-Aux Set Pt (l/min)	13.67
Unit s/n	1405A201620804	Filter Load (%)	25.1%
Firmware Ver.	1.52	K _o Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	18.8
		Press (ATM)	0.943

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Audit

Status			
Noise <0.10ug	0.006	Warnings	None
0.36	0.39		
Temperature/Pressure			
Measured Temp (± 2 °C)	18.2	Δ °C	0.6
Measured Press (± 0.01atm)	0.938	DATM	0.005
Flow Audit			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	0.08%
Measured Main Flow (l/min)	3.01	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	0.97%
Measured Bypass Flow (l/min)	13.76	Flow Adjusted to Measured?	Yes
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	NA	Flow Control = Active	
Aux (< 0.6 l/min)	NA	Report Conditions = Actual	
K_o Factor			
Measured	NA		
K _o Difference (± 2.5%)	NA		

Start Time: 10:24 **Finish Time:** 13:00

Sample Inlet Cleaned: Yes **New Filters Installed:** YES
New Filter Loading %: 22.5%

Comments:

Auditor/s: Ting Xu

Nitrogen Dioxide

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	August 3, 2011	Previous Calibration	July 27, 2011
Company	LICA	Plant/Location	Cold Lake South
Start Time (MST)	7:47	End Time (MST)	13:26
Reason:	Monthly Calibration		
Barometric Pressure	0.935 atm	Station Temperature	23 Deg C
Cal Gas Concentration	NOx 51.7 ppm	NO 50.4 ppm	Cal Gas Expiry date February 4, 2013
Cal Gas Cylinder #	LL103822	MFCF	0
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	NA Volts

Equipment Information

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

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 500			ppb			
Sample Flow/Conv. Temp	753 ccm	317 Deg C		752 ccm	317 Deg C		
Ozone Flow / Vacuum	OK ccm	168.1 Hg-A		OK ccm	168.3 Hg-A		
HVPS / A ZERO	-821 Volts	NA MV		-821 Volts	NA MV		
Rx/ Temp / PMT Temp	49.5 Deg C	-2.5 Deg C		49.7 Deg C	-2.5 Deg C		
Box Temp / IZS Temp	27.5 Deg C	OK Deg C		26.7 Deg C	OK Deg C		
Offset	3.5 NOx	3.2 NO		3.5 NOx	3.1 NO		
Slope	1.028 NOx	0.820 NO		1.025 NOx	0.810 NO		
NO2 COEF / Conv Efficiency	0.998 NO2	NA		0.998 NO2	NA		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4995	0.0	NA	0	0	NA	0	0	0	NA	NA
No Zero Adj Requ										
4954	39.6	NA	410	400	NA	416	405	11	0.9855	0.9869
4954	39.6	NA	410	400	NA	409	400	10	1.0024	1.0000
4973	19.8	NA	205	200	NA	206	201	5	0.9953	0.9944
4984	9.9	NA	102	100	NA	104	102	2	0.9855	0.9795
4996	0.0	NA	0	0	NA	0	0	0	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4954	39.6	NA	410	400	NA	408	399	10	NA	NA
No Adj Required										
4954	39.6	350	410	NA	332	408	77	331	1.0030	99.69%
4954	39.6	150	410	NA	150	409	259	149	1.0067	99.29%
5954	39.6	75	342	NA	80	408	329	80	1.0000	100.00%

Linearity	Sum of Least Squares	NOx= 1.000	NO= 0.997	NO2= 1.003
OK?	Yes	NOx= 1.0024	NO= 1.0000	NO2= 1.0030
Average Converter Efficiency= 99.66%				

Before Calibration				After Calibration			
Auto Zero	0.1 NOx	0.4 NO2		0.2 NOx	0.3 NO2		
Auto Span	466 NOx	463 NO2		451 NOx	447 NO2		
Sample Lines Connected YES							
Percent Change from Previous Calibration				NOx 1.2%	NO 1.3%	NO2 -0.3%	

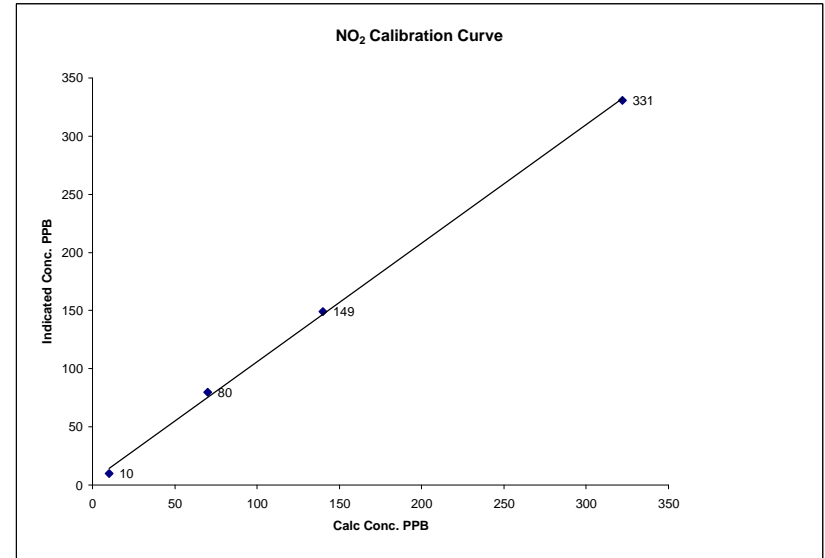
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

NO2 Calibration Curve

Calibration Date	August 3, 2011
Company	LICA
Plant / Location	Cold Lake South
Start Time (MST)	7:47
End Time (MST)	13:26

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999205
10	10	N/A	Intercept	(± 3% F.S.)	4.37119
70	80	0.8750			
140	149	0.9396			
322	331	0.9728			

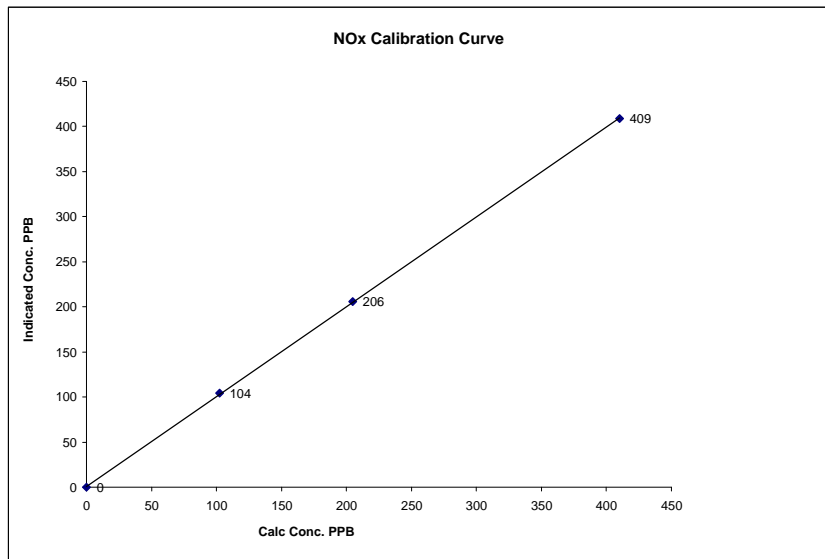


Notes:

NOx Calibration Curve

Calibration Date	August 3, 2011		
Company	LICA		
Plant / Location	Cold Lake South		
Start Time (MST)	7:47	End Time (MST)	13:26

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999972
0	0	N/A	Intercept	(0.85 to 1.15)	0.996529
102	104	0.9855		($\pm 3\%$ F.S.)	0.99587
205	206	0.9953			
410	409	1.0024			

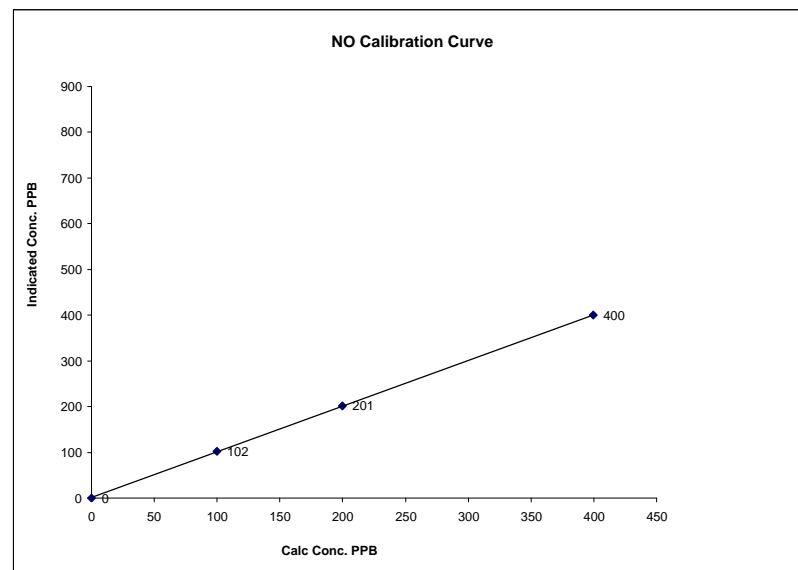


Notes:

NO Calibration Curve

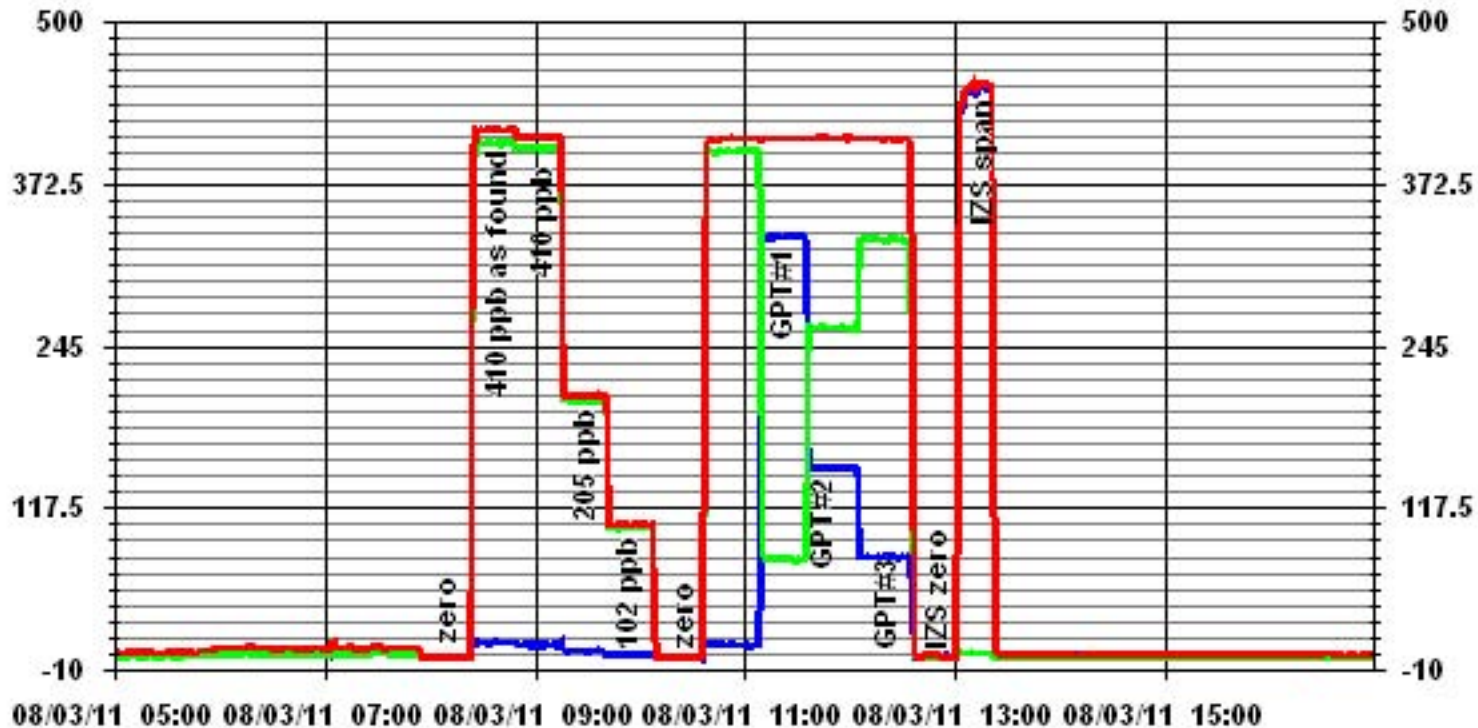
Calibration Date	August 3, 2011		
Company	LICA		
Plant / Location	Cold Lake South		
Start Time (MST)	7:47	End Time (MST)	13:26

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999971
0	0	N/A	Intercept	(0.85 to 1.15)	0.994373
100	102	0.9795		($\pm 3\%$ F.S.)	1.9362
200	201	0.9944			
400	400	0.9992			



Notes:

01 Minute Averages



Ozone

O₃ Calibration Report

Station Information

Calibration Date	August 8, 2011	Previous Calibration	July 11, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	12:48	End Time (MST)	16:19
Reason:	Monthly Calibration		
Barometric Pressure	0.935 atm	Station Temperature	22 Deg C
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	700419951	Method:	Photometric
Calibrator Make / Model:	EnviroNics 6100		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	709 ccm / 752 ccm	708 ccm / 750 ccm	
Pressure	703 mmHg	710 mmHg	
Bench Lamp	53.5 Deg C	53.5 Deg C	
O3 Lamp / Box Temp	67.6 Deg C / 27.6 Deg C	67.6 Deg C / 28.1 Deg C	
Offset / Slope	0.1 / 0.993	0.1 / 0.993	

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	NA
	No Zero Adj Required			
4996	350	322	323	0.9969
	No Span Adj Required			
4996	150	140	140	1.0000
4996	75	70	70	1.0000
4996	0	0	0	NA
Sum of Least Squares				0.9975
New Correction Factor				0.9969

Before Calibration		After Calibration	
Auto Zero	-0.2		-0.4
Auto Span	264.0		264.0
Sample Lines Connected			YES
Previous Calibration Correction Factor:			99.4%
Current Correctio Factor Before Span Adjust:			99.7%
Percent Change:			-0.3%

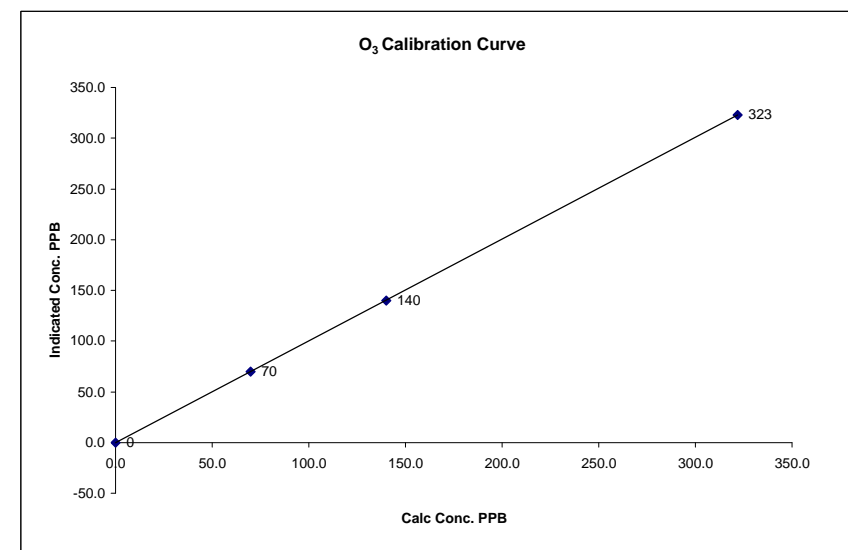
Note: NA : Not Applicable

Calibration Performed by: Ting Xu

O₃ Calibration Curve

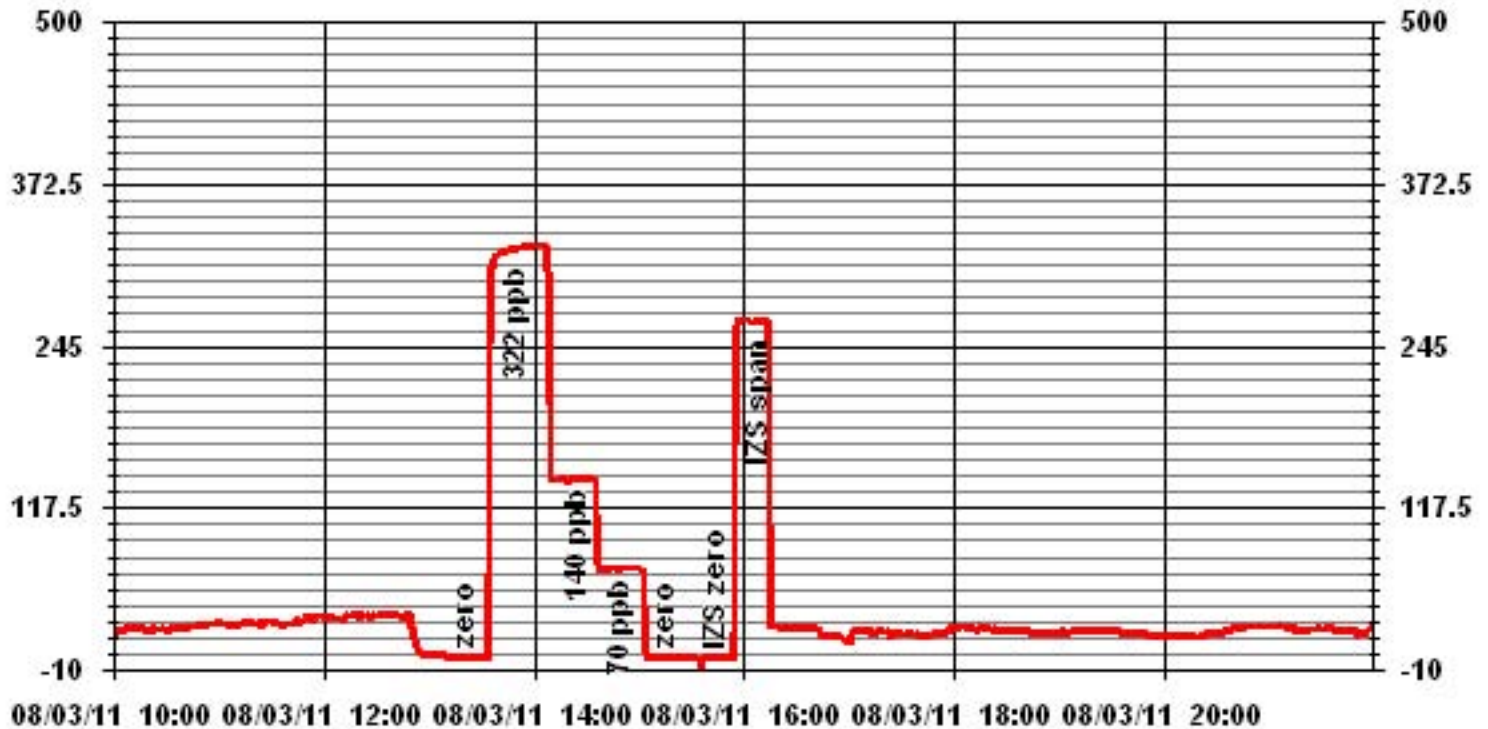
Calibration Date	August 8, 2011
Company	Lakeland Industry & Community Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	12:48
End Time (MST)	16:19

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	n/a		0.999998
70	70	1.0000		1.003291
140	140	1.0000		-0.187713
322	323	0.9969		



Notes:

01 Minute Averages



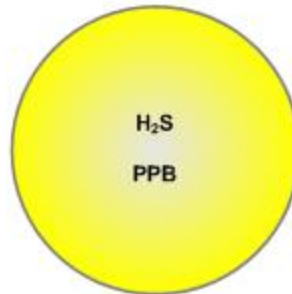
Passive Bubble Maps

Lakeland Industry & Community Association H₂S Passive Bubble Map

AUGUST 2011

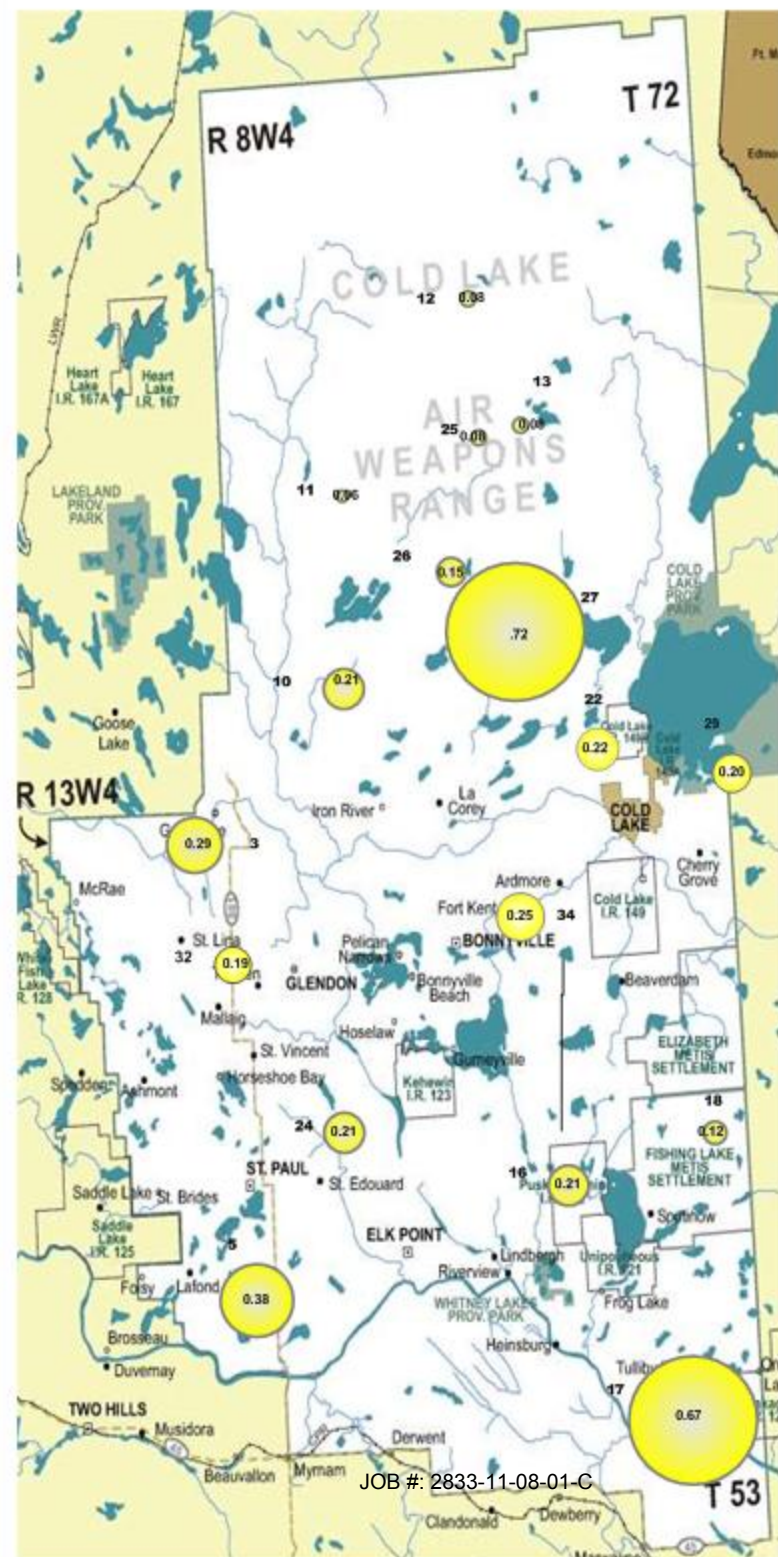
PASSIVE STATIONS

		DUPLICATE
3 – Therien	0.29 PPB	0.32 PPB
5 – Lake Eliza	0.38 PPB	NA
10 – La Corey	0.21 PPB	NA
11 – Wolf Lake	0.08 PPB	0.04 PPB
12 – Foster Creek	0.08 PPB	NA
13 – Primrose	0.07 PPB	0.09 PPB
14 – Maskwa	0.18 PPB	NA
16 – Frog Lake	0.19 PPB	0.23 PPB
17 – Clear Range	0.67 PPB	NA
18 – Fishing Lake	0.11 PPB	0.12 PPB
22 – Cold Lake South	0.23 PPB	NA
24 – Fort George	0.21 PPB	NA
25 – Burnt Lake	0.08 PPB	0.08 PPB
26 – Mahihkan	0.15 PPB	NA
27 – Mahkeses	0.71 PPB	0.73 PPB
29 – Cold Lake South 2	0.20 PPB	NA
32 – St. Lina	0.19 PPB	NA
34 – Portable	0.25 PPB	NA



Summary

Minimum : 0.06 PPB – Wolf Lake
 Maximum: 0.72 PPB – Mahkeses
 Average: 0.24 PPB *Includes Duplicates

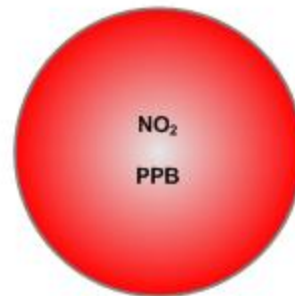


Lakeland Industry & Community Association NO₂ Passive Bubble Map

AUGUST 2011

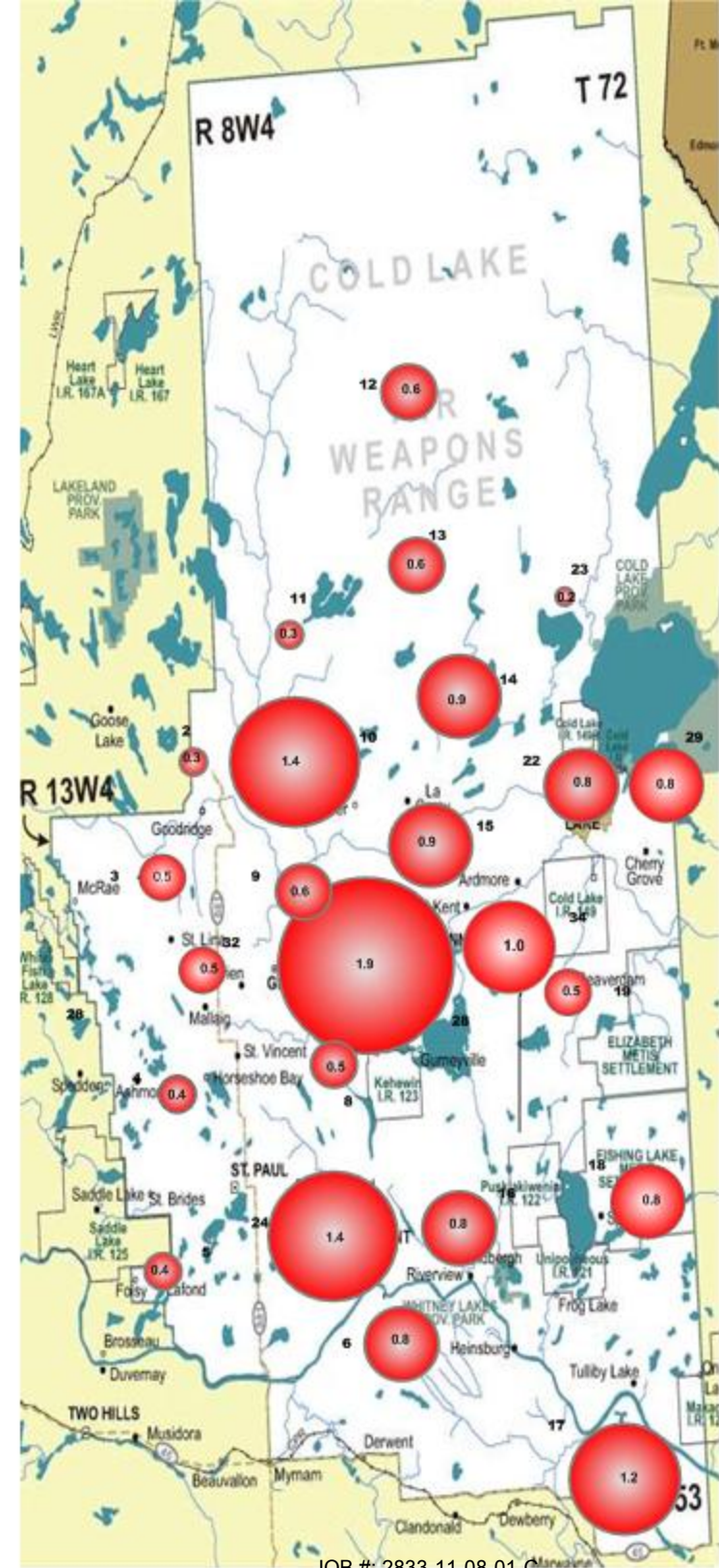
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	0.3 PPB	0.3 PPB
3 – Therien	0.5 PPB	NA
4 – Flat Lake	0.4 PPB	0.4 PPB
5 – Lake Eliza	0.4 PPB	NA
6 – Telegraph Creek	0.8 PPB	0.8 PPB
8 – Muriel-Kehewin	0.5 PPB	NA
9 – Dupre	0.6 PPB	0.6 PPB
10 – La Corey	1.4 PPB	NA
11 – Wolf Lake	0.2 PPB	0.3 PPB
12 – Foster Creek	0.6 PPB	NA
13 – Primrose	0.5 PPB	0.6 PPB
14 – Maskwa	0.9 PPB	NA
15 – Ardmore	0.9 PPB	0.9 PPB
16 – Frog Lake	0.8 PPB	NA
17 – Clear Range	1.1 PPB	1.2 PPB
18 – Fishing Lake	0.8 PPB	NA
19 – Beaverdam	0.5 PPB	0.5 PPB
22 – Cold Lake South	0.8 PPB	NA
23 – Medley-Martineau	0.2 PPB	NA
24 – Fort George	1.3 PPB	1.5 PPB
28 – Town of Bonnyville	1.9 PPB	NA
29 – Cold Lake South 2	0.8 PPB	0.8 PPB
32 – St. Lina	0.5 PPB	NA
34 – Portable	1.0 PPB	NA



Summary

Minimum : 0.2 PPB – Medley-Martineau
Maximum: 1.9 PPB – Town of Bonnyville
Average: 0.8 PPB *Includes Duplicates

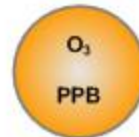


Lakeland Industry & Community Association O₃ Passive Bubble Map

AUGUST 2011

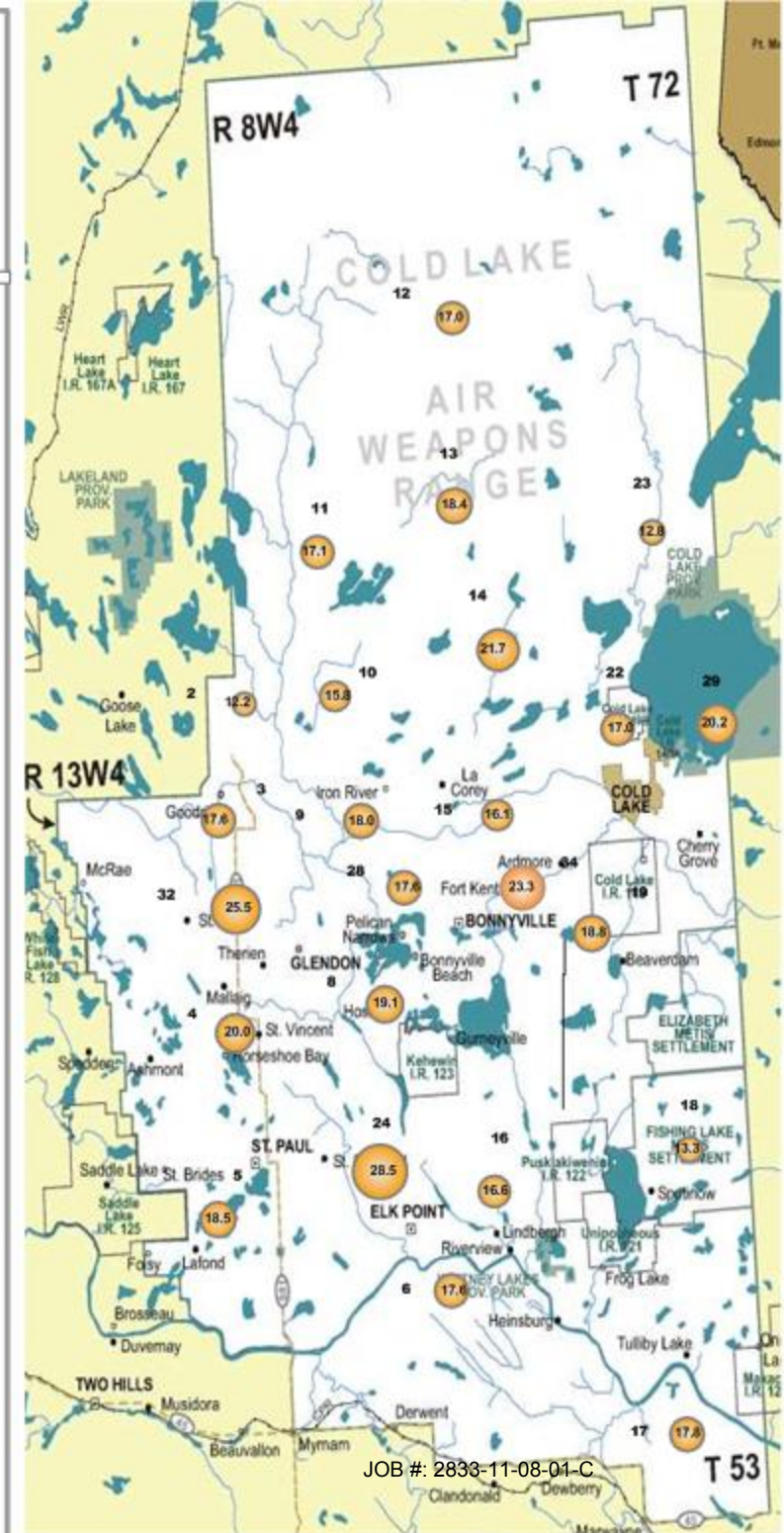
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	11.9 PPB	12.4 PPB
3 – Therien	17.6 PPB	NA
4 – Flat Lake	20.0 PPB	19.9 PPB
5 – Lake Eliza	18.5 PPB	NA
6 – Telegraph Creek	16.8 PPB	18.3 PPB
8 – Muriel-Kehewin	19.1 PPB	NA
9 – Dupre	17.9 PPB	18.1 PPB
10 – La Corey	15.8 PPB	NA
11 – Wolf Lake	17.7 PPB	16.5 PPB
12 – Foster Creek	17.0 PPB	NA
13 – Primrose	17.6 PPB	19.1 PPB
14 – Maskwa	21.7 PPB	NA
15 – Ardmore	15.2 PPB	17.0 PPB
16 – Frog Lake	16.6 PPB	NA
17 – Clear Range	17.2 PPB	18.4 PPB
18 – Fishing Lake	13.3 PPB	NA
19 – Beaverdam	18.6 PPB	18.9 PPB
22 – Cold Lake South	17.0 PPB	NA
23 – Medley-Martineau	12.8 PPB	NA
24 – Fort George	18.4 PPB	20.2 PPB
28 – Town of Bonnyville	17.6 PPB	NA
29 – Cold Lake South 2	19.5 PPB	20.9 PPB
32 – St. Lina	25.5 PPB	NA
34 – Portable	23.3 PPB	NA



Summary

Minimum : 12.2 PPB – Sand River
 Maximum: 25.5 PPB – St. Lina
 Average: 18.0 PPB *Includes Duplicates



Lakeland Industry & Community Association SO₂ Passive Bubble Map

AUGUST 2011

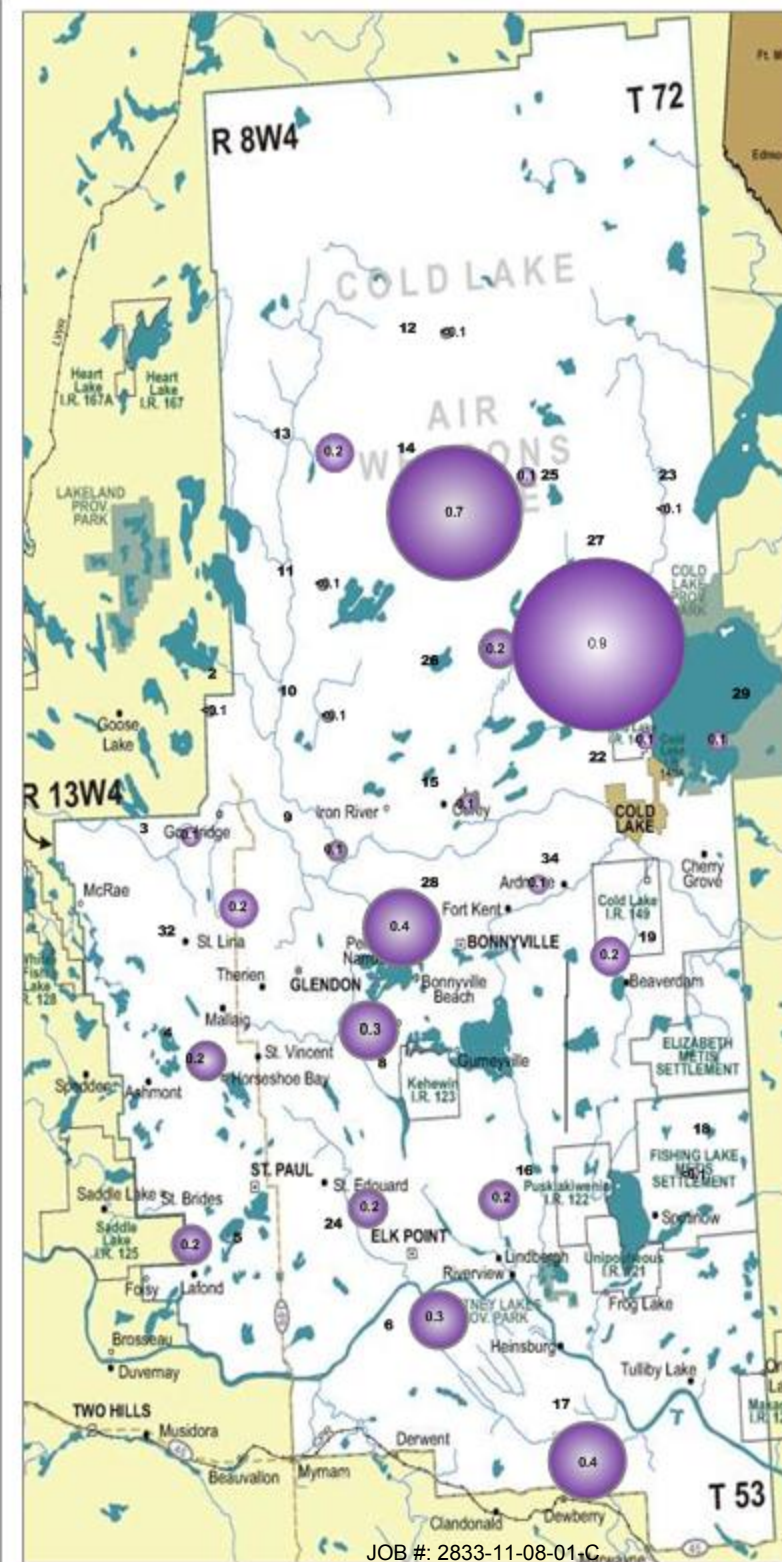
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	<0.1 PPB	<0.1 PPB
3 – Therien	0.1 PPB	NA
4 – Flat Lake	0.2 PPB	0.2 PPB
5 – Lake Eliza	0.2 PPB	NA
6 – Telegraph Creek	0.3 PPB	0.3 PPB
8 – Muriel-Kehewin	0.3 PPB	NA
9 – Dupre	0.1 PPB	<0.1 PPB
10 – La Corey	<0.1 PPB	NA
11 – Wolf Lake	<0.1 PPB	<0.1 PPB
12 – Foster Creek	<0.1 PPB	NA
13 – Primrose	0.2 PPB	0.2 PPB
14 – Maskwa	0.7 PPB	NA
15 – Ardmore	0.1 PPB	0.2 PPB
16 – Frog Lake	0.2 PPB	NA
17 – Clear Range	0.3 PPB	0.5 PPB
18 – Fishing Lake	<0.1 PPB	NA
19 – Beaverdam	0.2 PPB	0.1 PPB
22 – Cold Lake South	0.1 PPB	NA
23 – Medley-Martineau	<0.1 PPB	NA
24 – Fort George	0.2 PPB	0.2 PPB
25 – Burnt Lake	0.1 PPB	NA
26 – Mahikan	0.2 PPB	0.2 PPB
27 – Mahkeses	0.9 PPB	NA
28 – Town of Bonnyville	0.4 PPB	0.4 PPB
29 – Cold Lake South 2	0.1 PPB	NA
32 – St. Lina	0.2 PPB	NA
34 – Portable	0.1 PPB	NA



Summary

Minimum : <0.1 PPB – Various Stations
Maximum: 0.9 PPB –Mahkeses
Average: 0.22 PPB *Includes Duplicates



Passive Field Data

Field Notes

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
2	SO ₂ /NO ₂ /O ₃	07/28/2011	15:18	08/31/11	17:05	
2A (Dup)	SO ₂ /NO ₂ /O ₃	07/28/2011	15:18	08/31/11	17:05	
3	H ₂ S/SO ₂ /NO ₂ /O ₃	07/28/2011	16:04	08/31/11	14:27	
3A (Dup)	H ₂ S	07/28/2011	16:04	08/31/11	14:27	
4	SO ₂ /NO ₂ /O ₃	07/29/2011	14:20	08/31/11	13:42	
4A (Dup)	SO ₂ /NO ₂ /O ₃	07/29/2011	14:20	08/31/11	13:42	
5	H ₂ S/SO ₂ /NO ₂ /O ₃	07/29/2011	13:33	08/31/11	13:00	
5A (Dup)	NA	NA	NA	NA	NA	
6	SO ₂ /NO ₂ /O ₃	07/29/2011	12:18	08/31/11	11:40	
6A (Dup)	SO ₂ /NO ₂ /O ₃	07/29/2011	12:18	08/31/11	11:40	
8	SO ₂ /NO ₂ /O ₃	07/29/2011	15:19	08/31/11	15:20	
8A (Dup)	NA	NA	NA	NA	NA	
9	SO ₂ /NO ₂ /O ₃	07/28/2011	17:45	08/31/11	16:19	
9A (Dup)	SO ₂ /NO ₂ /O ₃	07/28/2011	17:45	08/31/11	16:19	
10	H ₂ S/SO ₂ /NO ₂ /O ₃	07/28/2011	10:14	08/30/11	15:18	
10A (Dup)	NA	NA	NA	NA	NA	
11	H ₂ S/SO ₂ /NO ₂ /O ₃	07/28/2011	10:52	08/30/11	15:57	
11A (Dup)	H ₂ S/SO ₂ /NO ₂ /O ₃	07/28/2011	10:52	08/30/11	15:57	
12	H ₂ S/SO ₂ /NO ₂ /O ₃	07/28/2011	13:12	08/31/11	18:00	
12A (Dup)	NA	NA	NA	NA	NA	
13	H ₂ S/SO ₂ /NO ₂ /O ₃	07/28/2011	08:51	09/01/11	13:26	
13A (Dup)	H ₂ S/SO ₂ /NO ₂ /O ₃	07/28/2011	08:51	09/01/11	13:26	
14	H ₂ S/SO ₂ /NO ₂ /O ₃	07/28/2011	07:31	09/01/11	14:32	
14A (Dup)	NA	NA	NA	NA	NA	
15	SO ₂ /NO ₂ /O ₃	07/28/2011	18:24	08/29/11	14:48	
15A (Dup)	SO ₂ /NO ₂ /O ₃	07/28/2011	18:24	08/29/11	14:48	
16	H ₂ S/SO ₂ /NO ₂ /O ₃	07/29/2011	10:20	08/31/11	10:00	
16A (Dup)	H ₂ S	07/29/2011	10:20	08/31/11	10:00	

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
17	H ₂ S/SO ₂ /NO ₂ /O ₃	07/29/2011	11:29	08/31/11	10:47	
17A (Dup)	SO ₂ /NO ₂ /O ₃	07/29/2011	11:29	08/31/11	10:47	
18	H ₂ S/SO ₂ /NO ₂ /O ₃	07/29/2011	09:34	08/31/11	09:15	
18A (Dup)	H ₂ S	07/29/2011	09:34	08/31/11	09:15	
19	SO ₂ /NO ₂ /O ₃	07/29/2011	08:26	08/31/11	08:08	
19A (Dup)	SO ₂ /NO ₂ /O ₃	07/29/2011	08:26	08/31/11	08:08	
22	H ₂ S/SO ₂ /NO ₂ /O ₃	07/29/2011	07:36	08/29/11	16:35	
22A (Dup)	NA	NA	NA	NA	NA	
23	SO ₂ /NO ₂ /O ₃	07/29/2011	17:41	08/29/11	14:00	
23A (Dup)	NA	NA	NA	NA	NA	
24	H ₂ S/SO ₂ /NO ₂ /O ₃	07/29/2011	12:52	08/31/11	12:15	
24A (Dup)	SO ₂ /NO ₂ /O ₃	07/29/2011	12:52	08/31/11	12:15	
25	H ₂ S/SO ₂	07/28/2011	11:54	08/30/11	16:50	
25A (Dup)	H ₂ S	07/28/2011	11:54	08/30/11	16:50	
26	H ₂ S/SO ₂	07/28/2011	08:15	09/01/11	14:00	
26A (Dup)	SO ₂	07/28/2011	08:15	09/01/11	14:00	
27	H ₂ S/SO ₂	07/28/2011	07:10	09/01/11	14:54	
27A (Dup)	H ₂ S	07/28/2011	07:10	09/01/11	14:54	
28	SO ₂ /NO ₂ /O ₃	07/29/2011	15:50	08/31/11	15:54	
28A (Dup)	SO ₂	07/29/2011	15:50	08/31/11	15:54	
29	H ₂ S/SO ₂ /NO ₂ /O ₃	07/29/2011	07:24	08/29/11	16:46	
29A (Dup)	NO ₂ /O ₃	07/29/2011	07:24	08/29/11	16:46	
32	H ₂ S/SO ₂ /NO ₂ /O ₃	07/28/2011	16:40	08/30/11	08:39	
32A (Dup)	NA	NA	NA	NA	NA	
34	H ₂ S/SO ₂ /NO ₂ /O ₃	07/29/2011	16:29	08/29/11	15:40	
34A (Dup)	NA	NA	NA	NA	NA	

Passive Network Laboratory Analysis



Your Project #: 2011/07/29 - 2011/08/31
Site Location: LICA

Attention: MICHAEL BISAGA

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

Report Date: 2011/09/19

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B184149

Received: 2011/09/08, 10:24

Sample Matrix: Air
Samples Received: 45

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis (l)	25	2011/09/19	2011/09/19	EINDSOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (l)	35	2011/09/14	2011/09/19	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (l)	35	2011/09/13	2011/09/19	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (l)	39	2011/09/14	2011/09/19	EINDSOP-00149	Tang Passive SO2 in

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

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

Encryption Key

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

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

=====

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

Total cover pages: 1



Maxxam Job #: B184149
 Report Date: 2011/09/19

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2011/07/29 - 2011/08/31
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		BL8046	BL8047	BL8048	BL8049	BL8050		
Sampling Date		2011/07/28 15:18	2011/07/28 15:18	2011/07/28 16:04	2011/07/28 16:04	2011/07/29 14:20		
	Units	2	2A (DUP)	3	3A (DUP)	4	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb			0.26	0.32		0.02	5188280
Calculated NO2	ppb	0.3	0.3	0.5		0.4	0.1	5173224
Calculated O3	ppb	11.9	12.4	17.6		20.0	0.1	5168946
Calculated SO2	ppb	<0.1	<0.1	0.1		0.2	0.1	5173239
RDL = Reportable Detection Limit								

Maxxam ID		BL8051	BL8052	BL8053	BL8054	BL8055		
Sampling Date		2011/07/29 14:20	2011/07/29 13:33	2011/07/29 12:18	2011/07/29 12:18	2011/07/29 15:19		
	Units	4A (DUP)	5	6	6A (DUP)	8	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb		0.38				0.02	5188280
Calculated NO2	ppb	0.4	0.4	0.8	0.8	0.5	0.1	5173224
Calculated O3	ppb	19.9	18.5	16.8	18.3	19.1	0.1	5168946
Calculated SO2	ppb	0.2	0.2	0.3	0.3	0.3	0.1	5173239
RDL = Reportable Detection Limit								

Maxxam ID		BL8056	BL8057	BL8058	BL8059	BL8060		
Sampling Date		2011/07/28 17:45	2011/07/28 17:45	2011/07/28 10:14	2011/07/28 10:52	2011/07/28 10:52		
	Units	9	9A(DUP)	10	11	11A (DUP)	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb			0.21	0.08	0.04	0.02	5188280
Calculated NO2	ppb	0.6	0.6	1.4	0.2	0.3	0.1	5173224
Calculated O3	ppb	17.9	18.1	15.8	17.7	16.5	0.1	5168946
Calculated SO2	ppb	0.1	<0.1	<0.1	<0.1	<0.1	0.1	5173239
RDL = Reportable Detection Limit								



Maxxam Job #: B184149
 Report Date: 2011/09/19

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2011/07/29 - 2011/08/31
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		BL8061		BL8062	BL8063		BL8064		
Sampling Date		2011/07/28		2011/07/28	2011/07/28		2011/07/28		
		13:12		08:51	08:51		07:31		
	Units	12	QC Batch	13	13A (DUP)	QC Batch	14	RDL	QC Batch

Passive Monitoring									
Calculated H2S	ppb	0.08	5188280	0.07	0.09	5188280	0.18	0.02	5188280
Calculated NO2	ppb	0.6	5173224	0.5	0.6	5173229	0.9	0.1	5173229
Calculated O3	ppb	17.0	5168946	17.6	19.1	5168946	21.7	0.1	5168950
Calculated SO2	ppb	<0.1	5173239	0.2	0.2	5173239	0.7	0.1	5173239

RDL = Reportable Detection Limit

Maxxam ID		BL8065	BL8066	BL8067	BL8068	BL8069		
Sampling Date		2011/07/28	2011/07/28	2011/07/29	2011/07/29	2011/07/29		
		18:24	18:24	10:20	10:20	11:29		
	Units	15	15A (DUP)	16	16A (DUP)	17	RDL	QC Batch

Passive Monitoring									
Calculated H2S	ppb			0.19	0.23	0.67	0.02	5188280	
Calculated NO2	ppb	0.9	0.9	0.8		1.1	0.1	5173229	
Calculated O3	ppb	15.2	17.0	16.6		17.2	0.1	5168950	
Calculated SO2	ppb	0.1	0.2	0.2		0.3	0.1	5173261	

RDL = Reportable Detection Limit

Maxxam ID		BL8070	BL8071	BL8072	BL8073	BL8074		
Sampling Date		2011/07/29	2011/07/29	2011/07/29	2011/07/29	2011/07/29		
		11:29	09:34	09:34	08:26	08:26		
	Units	17A (DUP)	18	18A (DUP)	19	19A (DUP)	RDL	QC Batch

Passive Monitoring									
Calculated H2S	ppb		0.11	0.12			0.02	5188280	
Calculated NO2	ppb	1.2	0.8		0.5	0.5	0.1	5173229	
Calculated O3	ppb	18.4	13.3		18.6	18.9	0.1	5168950	
Calculated SO2	ppb	0.5	<0.1		0.2	0.1	0.1	5173261	

RDL = Reportable Detection Limit



Maxxam Job #: B184149
 Report Date: 2011/09/19

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2011/07/29 - 2011/08/31
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		BL8078	BL8079	BL8080	BL8081	BL8082		
Sampling Date		2011/07/29 07:36	2011/07/29 17:41	2011/07/29 12:52	2011/07/29 12:52	2011/07/28 11:54		
	Units	22	23	24	24A (DUP)	25	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.23		0.21		0.08	0.02	5188280
Calculated NO2	ppb	0.8	0.2	1.3	1.5		0.1	5173229
Calculated O3	ppb	17.0	12.8	18.4	20.2		0.1	5168950
Calculated SO2	ppb	0.1	<0.1	0.2	0.2	0.1	0.1	5173261
RDL = Reportable Detection Limit								

Maxxam ID		BL8083	BL8084	BL8085	BL8086	BL8089		
Sampling Date		2011/07/28 11:54	2011/07/28 08:15	2011/07/28 08:15	2011/07/28 07:10	2011/07/28 07:10		
	Units	25A (DUP)	26	26A (DUP)	27	27A (DUP)	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.08	0.15		0.71	0.73	0.02	5188280
Calculated SO2	ppb		0.2	0.2	0.9		0.1	5173261
RDL = Reportable Detection Limit								

Maxxam ID		BL8092	BL8093	BL8198	BL8199	BL8200		
Sampling Date		2011/07/29 15:50	2011/07/29 15:50	2011/07/29 07:24	2011/07/29 07:24	2011/07/28 16:40		
	Units	28	28A (DUP)	29	29A (DUP)	32	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb			0.20		0.19	0.02	5188280
Calculated NO2	ppb	1.9		0.8	0.8	0.5	0.1	5173229
Calculated O3	ppb	17.6		19.5	20.9	25.5	0.1	5168950
Calculated SO2	ppb	0.4	0.4	0.1		0.2	0.1	5173261
RDL = Reportable Detection Limit								



Maxxam Job #: B184149
Report Date: 2011/09/19

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2011/07/29 - 2011/08/31
Site Location: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		BL8201		
Sampling Date		2011/07/29 16:29		
	Units	34	RDL	QC Batch

Passive Monitoring				
Calculated H2S	ppb	0.25	0.02	5188280
Calculated NO2	ppb	1.0	0.1	5173229
Calculated O3	ppb	23.3	0.1	5168950
Calculated SO2	ppb	0.1	0.1	5173261
RDL = Reportable Detection Limit				



Maxxam Job #: B184149
Report Date: 2011/09/19

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2011/07/29 - 2011/08/31
Site Location: LICA
Sampler Initials: SB

General Comments

Results relate only to the items tested.



LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Attention: MICHAEL BISAGA
 Client Project #: 2011/07/29 - 2011/08/31
 P.O. #:
 Site Location: LICA

Quality Assurance Report
 Maxxam Job Number: PB184149

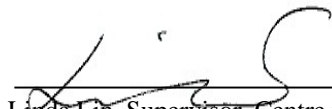
QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
5168946 OZ	Calibration Check	Calculated O3	2011/09/13		99	%	91 - 107
	Spiked Blank	Calculated O3	2011/09/13		100	%	N/A
	Method Blank	Calculated O3	2011/09/13	<0.1		ppb	
5168950 OZ	Calibration Check	Calculated O3	2011/09/13		100	%	91 - 107
	Spiked Blank	Calculated O3	2011/09/13		100	%	N/A
	Method Blank	Calculated O3	2011/09/13	<0.1		ppb	
5173224 DF4	Calibration Check	Calculated NO2	2011/09/14		97	%	76 - 118
	Spiked Blank	Calculated NO2	2011/09/14		102	%	N/A
	Method Blank	Calculated NO2	2011/09/14	<0.1		ppb	
5173229 DF4	Calibration Check	Calculated NO2	2011/09/14		96	%	76 - 118
	Spiked Blank	Calculated NO2	2011/09/14		100	%	N/A
	Method Blank	Calculated NO2	2011/09/14	<0.1		ppb	
5173239 DF4	Calibration Check	Calculated SO2	2011/09/14		98	%	95 - 105
	Spiked Blank	Calculated SO2	2011/09/14		102	%	N/A
	Method Blank	Calculated SO2	2011/09/14	<0.1		ppb	
5173261 DF4	Calibration Check	Calculated SO2	2011/09/14		98	%	95 - 105
	Spiked Blank	Calculated SO2	2011/09/14		100	%	N/A
	Method Blank	Calculated SO2	2011/09/14	<0.1		ppb	
5188280 SS6	Calibration Check	Calculated H2S	2011/09/19		103	%	80 - 120
	Spiked Blank	Calculated H2S	2011/09/19		101	%	N/A

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

Validation Signature Page

Maxxam Job #: B184149

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

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

Linda Lin, Supervisor, Centre for Passive Sampling Technology

=====

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

Volatile Organics Laboratory Analysis

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 7849
Station ID: Lica 1 Canister Installation Date/Time: Jul 29, 2011 @ 5:54 mst
Field Sample ID: LICA VOC/ CLS /Aug 01,11 Canister Removal Date/Time: Aug 02, 2011 @ 6:57 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
01-Aug-11	08/01/2011 0:00	08/02/2011 0:00	23.99

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	620	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 # 05454

Technician Signiture: Ting Xu

Your C.O.C. #: 05454

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

Report Date: 2011/08/17

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1B6624****Received: 2011/08/04, 09:25**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	1	N/A	2011/08/13	BRL SOP-00304	EPA TO-15
Canister Pressure (TO-15)	1	N/A	2011/08/14	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/08/13	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/08/14	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Maxxam Job #: B1B6624
 Report Date: 2011/08/17

RESULTS OF ANALYSES OF AIR

Maxxam ID		KK3198		KK3199	
Sampling Date		2011/08/01		2011/08/01	
COC Number		05454		05454	
	Units	LICA VOC\CLSAUG 01,11 - 7849	QC Batch	LICA VOC\PORTAUG 01,11 - 7812	QC Batch

Volatile Organics					
Pressure on Receipt	psig	21	2583721	21	2582314

QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KK3198				
Sampling Date		2011/08/01				
COC Number		05454				
	Units	LICA VOC\CLSAUG 01,11 - 7849	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2583956
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2583956
Propene	ppbv	<0.30	0.30	<0.516	0.516	2583956
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2583956
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2583956
Dichlorodifluoromethane (FREON 12)	ppbv	0.72	0.20	3.54	0.989	2583956
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2583956
Chloromethane	ppbv	0.64	0.30	1.32	0.620	2583956
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2583956
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2583956
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2583956
Trichlorofluoromethane (FREON 11)	ppbv	0.32	0.20	1.82	1.12	2583956
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2583956
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2583956
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2583956
2-Propanone	ppbv	3.77	0.80	8.95	1.90	2583956
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2583956
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2583956
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2583956
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2583956
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2583956
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2583956
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2583956
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2583956
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2583956
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2583956
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2583956
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2583956
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2583956
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2583956
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2583956

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KK3198				
Sampling Date		2011/08/01				
COC Number		05454				
	Units	LICA VOC\CLSAUG 01,11 - 7849	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2583956
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2583956
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2583956
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2583956
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2583956
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2583956
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2583956
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2583956
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2583956
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2583956
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2583956
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2583956
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2583956
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2583956
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2583956
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2583956
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2583956
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2583956
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2583956
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2583956
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2583956
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2583956
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2583956
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2583956
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2583956
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2583956
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2583956
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2583956
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2583956
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2583956
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2583956
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2583956
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2583956
QC Batch = Quality Control Batch						

Maxxam Job #: B1B6624
 Report Date: 2011/08/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KK3198				
Sampling Date		2011/08/01				
COC Number		05454				
	Units	LICA VOC\CLSIAUG 01,11 - 7849	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	91		N/A	N/A	2583956
D5-Chlorobenzene	%	91		N/A	N/A	2583956
Difluorobenzene	%	92		N/A	N/A	2583956

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

Maxxam Job #: B1B6624
 Report Date: 2011/08/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KK3199				
Sampling Date		2011/08/01				
COC Number		05454				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORTAUG				
		01,11 - 7812				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2582319
Carbon Disulfide	ppbv	1.66	0.50	5.18	1.56	2582319
Propene	ppbv	<0.30	0.30	<0.516	0.516	2582319
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2582319
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2582319
Dichlorodifluoromethane (FREON 12)	ppbv	0.73	0.20	3.59	0.989	2582319
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2582319
Chloromethane	ppbv	0.69	0.30	1.43	0.620	2582319
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2582319
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2582319
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2582319
Trichlorofluoromethane (FREON 11)	ppbv	0.34	0.20	1.88	1.12	2582319
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2582319
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2582319
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2582319
2-Propanone	ppbv	4.38	0.80	10.4	1.90	2582319
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2582319
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2582319
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2582319
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2582319
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2582319
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2582319
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2582319
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2582319
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2582319
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2582319
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2582319
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2582319
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2582319
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2582319
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2582319

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1B6624
 Report Date: 2011/08/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KK3199				
Sampling Date		2011/08/01				
COC Number		05454				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/AUG				
		01,11 - 7812				
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2582319
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2582319
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2582319
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2582319
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2582319
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2582319
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2582319
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2582319
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2582319
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2582319
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2582319
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2582319
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2582319
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2582319
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2582319
p+m-Xylene	ppbv	0.49	0.37	2.14	1.61	2582319
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2582319
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2582319
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2582319
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2582319
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2582319
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2582319
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2582319
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2582319
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2582319
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2582319
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2582319
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2582319
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2582319
Cyclohexane	ppbv	0.38	0.20	1.30	0.688	2582319
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2582319
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2582319
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2582319
QC Batch = Quality Control Batch						

Maxxam Job #: B1B6624
 Report Date: 2011/08/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KK3199				
Sampling Date		2011/08/01				
COC Number		05454				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\PORTAUG				
		01,11 - 7812				

Surrogate Recovery (%)						
Bromochloromethane	%	90		N/A	N/A	2582319
D5-Chlorobenzene	%	94		N/A	N/A	2582319
Difluorobenzene	%	92		N/A	N/A	2582319

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

Maxxam Job #: B1B6624
 Report Date: 2011/08/17

Test Summary

Maxxam ID KK3198 **Collected** 2011/08/01
Sample ID LICA VOC\CLSAUG 01,11 - 7849 **Shipped**
Matrix AIR **Received** 2011/08/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2583721	N/A	2011/08/14	DAVE JOHNSTON
Volatile Organics in Air (TO-15)	GC/MS	2583956	N/A	2011/08/14	DAVE JOHNSTON

Maxxam ID KK3199 **Collected** 2011/08/01
Sample ID LICA VOC\PORT\AUG 01,11 - 7812 **Shipped**
Matrix AIR **Received** 2011/08/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2582314	N/A	2011/08/13	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2582319	N/A	2011/08/13	YAO LIANG SUN

Maxxam Job #: B1B6624
Report Date: 2011/08/17

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1B6624

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2582319 LSY	Spiked Blank	Bromochloromethane	2011/08/13		97	%	60 - 140
		D5-Chlorobenzene	2011/08/13		98	%	60 - 140
		Difluorobenzene	2011/08/13		99	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/13		99	%	70 - 130
		Carbon Disulfide	2011/08/13		93	%	70 - 130
		Propene	2011/08/13		95	%	70 - 130
		Vinyl Acetate	2011/08/13		101	%	70 - 130
		Vinyl Bromide	2011/08/13		101	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/08/13		98	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/08/13		113	%	70 - 130
		Chloromethane	2011/08/13		100	%	70 - 130
		Vinyl Chloride	2011/08/13		100	%	70 - 130
		Chloroethane	2011/08/13		99	%	70 - 130
		1,3-Butadiene	2011/08/13		87	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/08/13		98	%	70 - 130
		Trichlorotrifluoroethane	2011/08/13		99	%	70 - 130
		Ethanol	2011/08/13		99	%	70 - 130
		2-propanol	2011/08/13		102	%	70 - 130
		2-Propanone	2011/08/13		103	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/08/13		94	%	70 - 130
		Methyl Isobutyl Ketone	2011/08/13		93	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/08/13		93	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/08/13		100	%	70 - 130
		Ethyl Acetate	2011/08/13		100	%	70 - 130
		1,1-Dichloroethylene	2011/08/13		100	%	70 - 130
		cis-1,2-Dichloroethylene	2011/08/13		99	%	70 - 130
		trans-1,2-Dichloroethylene	2011/08/13		101	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/08/13		89	%	70 - 130
		Chloroform	2011/08/13		100	%	70 - 130
		Carbon Tetrachloride	2011/08/13		102	%	70 - 130
		1,1-Dichloroethane	2011/08/13		100	%	70 - 130
		1,2-Dichloroethane	2011/08/13		100	%	70 - 130
		Ethylene Dibromide	2011/08/13		95	%	70 - 130
		1,1,1-Trichloroethane	2011/08/13		97	%	70 - 130
		1,1,2-Trichloroethane	2011/08/13		97	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/08/13		82	%	70 - 130
		cis-1,3-Dichloropropene	2011/08/13		100	%	70 - 130
		trans-1,3-Dichloropropene	2011/08/13		98	%	70 - 130
		1,2-Dichloropropane	2011/08/13		98	%	70 - 130
		Bromomethane	2011/08/13		99	%	70 - 130
		Bromoform	2011/08/13		111	%	70 - 130
		Bromodichloromethane	2011/08/13		104	%	70 - 130
		Dibromochloromethane	2011/08/13		110	%	70 - 130
		Heptane	2011/08/13		99	%	70 - 130
		Trichloroethylene	2011/08/13		95	%	70 - 130
		Tetrachloroethylene	2011/08/13		96	%	70 - 130
		Benzene	2011/08/13		97	%	70 - 130
		Toluene	2011/08/13		97	%	70 - 130
		Ethylbenzene	2011/08/13		95	%	70 - 130
		p+m-Xylene	2011/08/13		93	%	70 - 130
		o-Xylene	2011/08/13		92	%	70 - 130
		Styrene	2011/08/13		90	%	70 - 130
		1,3,5-Trimethylbenzene	2011/08/13		80	%	70 - 130
		1,2,4-Trimethylbenzene	2011/08/13		74	%	70 - 130
		4-ethyltoluene	2011/08/13		83	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1B6624

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2582319 LSY	Spiked Blank	Chlorobenzene	2011/08/13		94	%	70 - 130
		Benzyl chloride	2011/08/13		76	%	70 - 130
		1,3-Dichlorobenzene	2011/08/13		75	%	70 - 130
		1,4-Dichlorobenzene	2011/08/13		75	%	70 - 130
		1,2-Dichlorobenzene	2011/08/13		71	%	70 - 130
		1,2,4-Trichlorobenzene	2011/08/13		75	%	70 - 130
		Hexachlorobutadiene	2011/08/13		87	%	70 - 130
		Hexane	2011/08/13		99	%	70 - 130
		Cyclohexane	2011/08/13		98	%	70 - 130
		Tetrahydrofuran	2011/08/13		99	%	70 - 130
		1,4-Dioxane	2011/08/13		87	%	70 - 130
	Method Blank	Bromochloromethane	2011/08/13		91	%	60 - 140
		D5-Chlorobenzene	2011/08/13		92	%	60 - 140
		Difluorobenzene	2011/08/13		92	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/13	<0.20		ppbv	
		Carbon Disulfide	2011/08/13	<0.50		ppbv	
		Propene	2011/08/13	<0.30		ppbv	
		Vinyl Acetate	2011/08/13	<0.20		ppbv	
		Vinyl Bromide	2011/08/13	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/08/13	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/08/13	<0.17		ppbv	
		Chloromethane	2011/08/13	<0.30		ppbv	
		Vinyl Chloride	2011/08/13	<0.18		ppbv	
		Chloroethane	2011/08/13	<0.30		ppbv	
		1,3-Butadiene	2011/08/13	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/08/13	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/08/13	<0.15		ppbv	
		Ethanol	2011/08/13	<2.3		ppbv	
		2-propanol	2011/08/13	<3.0		ppbv	
		2-Propanone	2011/08/13	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/08/13	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/08/13	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/08/13	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/08/13	<0.20		ppbv	
		Ethyl Acetate	2011/08/13	<2.2		ppbv	
		1,1-Dichloroethylene	2011/08/13	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/08/13	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/08/13	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/08/13	<0.80		ppbv	
		Chloroform	2011/08/13	<0.15		ppbv	
		Carbon Tetrachloride	2011/08/13	<0.30		ppbv	
		1,1-Dichloroethane	2011/08/13	<0.20		ppbv	
		1,2-Dichloroethane	2011/08/13	<0.20		ppbv	
		Ethylene Dibromide	2011/08/13	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/08/13	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/08/13	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/08/13	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/08/13	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/08/13	<0.17		ppbv	
		1,2-Dichloropropane	2011/08/13	<0.40		ppbv	
		Bromomethane	2011/08/13	<0.18		ppbv	
		Bromoform	2011/08/13	<0.20		ppbv	
		Bromodichloromethane	2011/08/13	<0.20		ppbv	
		Dibromochloromethane	2011/08/13	<0.20		ppbv	
		Heptane	2011/08/13	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1B6624

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2582319 LSY	Method Blank	Trichloroethylene	2011/08/13	<0.30		ppbv	
		Tetrachloroethylene	2011/08/13	<0.20		ppbv	
		Benzene	2011/08/13	<0.18		ppbv	
		Toluene	2011/08/13	<0.20		ppbv	
		Ethylbenzene	2011/08/13	<0.20		ppbv	
		p+m-Xylene	2011/08/13	<0.37		ppbv	
		o-Xylene	2011/08/13	<0.20		ppbv	
		Styrene	2011/08/13	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/08/13	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/08/13	<0.50		ppbv	
		4-ethyltoluene	2011/08/13	<2.2		ppbv	
		Chlorobenzene	2011/08/13	<0.20		ppbv	
		Benzyl chloride	2011/08/13	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/08/13	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/08/13	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/08/13	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/08/13	<2.0		ppbv	
		Hexachlorobutadiene	2011/08/13	<3.0		ppbv	
		Hexane	2011/08/13	<0.30		ppbv	
		Cyclohexane	2011/08/13	<0.20		ppbv	
Tetrahydrofuran	2011/08/13	<0.40		ppbv			
1,4-Dioxane	2011/08/13	<2.0		ppbv			
Xylene (Total)	2011/08/13	<0.60		ppbv			
2583956 DBJ	Spiked Blank	Bromochloromethane	2011/08/14		99	%	60 - 140
		D5-Chlorobenzene	2011/08/14		98	%	60 - 140
		Difluorobenzene	2011/08/14		100	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/14		101	%	70 - 130
		Carbon Disulfide	2011/08/14		95	%	70 - 130
		Propene	2011/08/14		99	%	70 - 130
		Vinyl Acetate	2011/08/14		103	%	70 - 130
		Vinyl Bromide	2011/08/14		102	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/08/14		98	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/08/14		116	%	70 - 130
		Chloromethane	2011/08/14		103	%	70 - 130
		Vinyl Chloride	2011/08/14		103	%	70 - 130
		Chloroethane	2011/08/14		101	%	70 - 130
		1,3-Butadiene	2011/08/14		89	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/08/14		99	%	70 - 130
		Trichlorotrifluoroethane	2011/08/14		100	%	70 - 130
		Ethanol	2011/08/14		91	%	70 - 130
		2-propanol	2011/08/14		102	%	70 - 130
		2-Propanone	2011/08/14		106	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/08/14		96	%	70 - 130
		Methyl Isobutyl Ketone	2011/08/14		96	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/08/14		96	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/08/14		101	%	70 - 130
		Ethyl Acetate	2011/08/14		103	%	70 - 130
		1,1-Dichloroethylene	2011/08/14		101	%	70 - 130
		cis-1,2-Dichloroethylene	2011/08/14		101	%	70 - 130
		trans-1,2-Dichloroethylene	2011/08/14		103	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/08/14		91	%	70 - 130
		Chloroform	2011/08/14		102	%	70 - 130
		Carbon Tetrachloride	2011/08/14		103	%	70 - 130
1,1-Dichloroethane	2011/08/14		102	%	70 - 130		
1,2-Dichloroethane	2011/08/14		101	%	70 - 130		

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1B6624

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2583956 DBJ	Spiked Blank	Ethylene Dibromide	2011/08/14		98	%	70 - 130
		1,1,1-Trichloroethane	2011/08/14		98	%	70 - 130
		1,1,2-Trichloroethane	2011/08/14		99	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/08/14		85	%	70 - 130
		cis-1,3-Dichloropropene	2011/08/14		102	%	70 - 130
		trans-1,3-Dichloropropene	2011/08/14		100	%	70 - 130
		1,2-Dichloropropane	2011/08/14		100	%	70 - 130
		Bromomethane	2011/08/14		101	%	70 - 130
		Bromoform	2011/08/14		114	%	70 - 130
		Bromodichloromethane	2011/08/14		105	%	70 - 130
		Dibromochloromethane	2011/08/14		114	%	70 - 130
		Heptane	2011/08/14		101	%	70 - 130
		Trichloroethylene	2011/08/14		96	%	70 - 130
		Tetrachloroethylene	2011/08/14		97	%	70 - 130
		Benzene	2011/08/14		99	%	70 - 130
		Toluene	2011/08/14		98	%	70 - 130
		Ethylbenzene	2011/08/14		96	%	70 - 130
		p+m-Xylene	2011/08/14		94	%	70 - 130
		o-Xylene	2011/08/14		94	%	70 - 130
		Styrene	2011/08/14		91	%	70 - 130
		1,3,5-Trimethylbenzene	2011/08/14		81	%	70 - 130
		1,2,4-Trimethylbenzene	2011/08/14		77	%	70 - 130
		4-ethyltoluene	2011/08/14		86	%	70 - 130
		Chlorobenzene	2011/08/14		95	%	70 - 130
		Benzyl chloride	2011/08/14		79	%	70 - 130
		1,3-Dichlorobenzene	2011/08/14		78	%	70 - 130
		1,4-Dichlorobenzene	2011/08/14		77	%	70 - 130
		1,2-Dichlorobenzene	2011/08/14		73	%	70 - 130
		1,2,4-Trichlorobenzene	2011/08/14		75	%	70 - 130
		Hexachlorobutadiene	2011/08/14		86	%	70 - 130
		Hexane	2011/08/14		102	%	70 - 130
		Cyclohexane	2011/08/14		101	%	70 - 130
		Tetrahydrofuran	2011/08/14		102	%	70 - 130
		1,4-Dioxane	2011/08/14		84	%	70 - 130
	Method Blank	Bromochloromethane	2011/08/14		91	%	60 - 140
		D5-Chlorobenzene	2011/08/14		91	%	60 - 140
		Difluorobenzene	2011/08/14		93	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/14	<0.20		ppbv	
		Carbon Disulfide	2011/08/14	<0.50		ppbv	
		Propene	2011/08/14	<0.30		ppbv	
		Vinyl Acetate	2011/08/14	<0.20		ppbv	
		Vinyl Bromide	2011/08/14	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/08/14	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/08/14	<0.17		ppbv	
		Chloromethane	2011/08/14	<0.30		ppbv	
		Vinyl Chloride	2011/08/14	<0.18		ppbv	
		Chloroethane	2011/08/14	<0.30		ppbv	
		1,3-Butadiene	2011/08/14	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/08/14	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/08/14	<0.15		ppbv	
		Ethanol	2011/08/14	<2.3		ppbv	
		2-propanol	2011/08/14	<3.0		ppbv	
		2-Propanone	2011/08/14	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/08/14	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/08/14	<3.2		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1B6624

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2583956 DBJ	Method Blank	Methyl Butyl Ketone (2-Hexanone)	2011/08/14	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/08/14	<0.20		ppbv	
		Ethyl Acetate	2011/08/14	<2.2		ppbv	
		1,1-Dichloroethylene	2011/08/14	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/08/14	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/08/14	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/08/14	<0.80		ppbv	
		Chloroform	2011/08/14	<0.15		ppbv	
		Carbon Tetrachloride	2011/08/14	<0.30		ppbv	
		1,1-Dichloroethane	2011/08/14	<0.20		ppbv	
		1,2-Dichloroethane	2011/08/14	<0.20		ppbv	
		Ethylene Dibromide	2011/08/14	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/08/14	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/08/14	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/08/14	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/08/14	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/08/14	<0.17		ppbv	
		1,2-Dichloropropane	2011/08/14	<0.40		ppbv	
		Bromomethane	2011/08/14	<0.18		ppbv	
		Bromoform	2011/08/14	<0.20		ppbv	
		Bromodichloromethane	2011/08/14	<0.20		ppbv	
		Dibromochloromethane	2011/08/14	<0.20		ppbv	
		Heptane	2011/08/14	<0.30		ppbv	
		Trichloroethylene	2011/08/14	<0.30		ppbv	
		Tetrachloroethylene	2011/08/14	<0.20		ppbv	
		Benzene	2011/08/14	<0.18		ppbv	
		Toluene	2011/08/14	<0.20		ppbv	
		Ethylbenzene	2011/08/14	<0.20		ppbv	
		p+m-Xylene	2011/08/14	<0.37		ppbv	
		o-Xylene	2011/08/14	<0.20		ppbv	
		Styrene	2011/08/14	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/08/14	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/08/14	<0.50		ppbv	
		4-ethyltoluene	2011/08/14	<2.2		ppbv	
		Chlorobenzene	2011/08/14	<0.20		ppbv	
		Benzyl chloride	2011/08/14	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/08/14	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/08/14	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/08/14	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/08/14	<2.0		ppbv	
		Hexachlorobutadiene	2011/08/14	<3.0		ppbv	
		Hexane	2011/08/14	<0.30		ppbv	
		Cyclohexane	2011/08/14	<0.20		ppbv	
		Tetrahydrofuran	2011/08/14	<0.40		ppbv	
		1,4-Dioxane	2011/08/14	<2.0		ppbv	
		Xylene (Total)	2011/08/14	<0.60		ppbv	
	RPD - Sample/Sample Dup	Vinyl Chloride	2011/08/14	NC		%	25
		cis-1,2-Dichloroethylene	2011/08/14	NC		%	25
		trans-1,2-Dichloroethylene	2011/08/14	NC		%	25
		Trichloroethylene	2011/08/14	NC		%	25
		Tetrachloroethylene	2011/08/14	NC		%	25

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

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

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1B6624

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: 7614
Station ID: Lica 1 Canister Installation Date/Time: Aug 05, 2011 @ 6:52 mst
Field Sample ID: LICA VOC/ CLS /Aug 07,11 Canister Removal Date/Time: Aug 09, 11 @ 12:30 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
07-Aug-11	08/07/2011 0:00	08/08/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	620	25

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

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 # 4854

Technician Signiture: Ting Xu



Your C.O.C. #: 4854

Attention: Michael Bisaga

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

Report Date: 2011/08/22

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1C1925

Received: 2011/08/12, 09:45

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	1	N/A	2011/08/17	BRL SOP-00304	EPA TO-15
Canister Pressure (TO-15)	1	N/A	2011/08/18	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/08/17	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/08/18	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 #: B1C1925
 Report Date: 2011/08/22

RESULTS OF ANALYSES OF AIR

Maxxam ID		KN0298		KN0299	
Sampling Date		2011/08/07		2011/08/07	
COC Number		4854		4854	
	Units	LICA VOC/PORT/AUG 7,11 - 7909	QC Batch	LICA VOC/CLS/AUG 7,11/ - 7614	QC Batch

Volatile Organics					
Pressure on Receipt	psig	20	2586297	21	2587740

QC Batch = Quality Control Batch

Maxxam Job #: B1C1925
 Report Date: 2011/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KN0298				
Sampling Date		2011/08/07				
COC Number		4854				
	Units	LICA VOC/PORT/AUG 7,11 - 7909	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2586310
Carbon Disulfide	ppbv	4.10	0.50	12.8	1.56	2586310
Propene	ppbv	<0.30	0.30	<0.516	0.516	2586310
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2586310
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2586310
Dichlorodifluoromethane (FREON 12)	ppbv	0.67	0.20	3.30	0.989	2586310
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2586310
Chloromethane	ppbv	0.64	0.30	1.32	0.620	2586310
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2586310
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2586310
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2586310
Trichlorofluoromethane (FREON 11)	ppbv	0.31	0.20	1.75	1.12	2586310
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2586310
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2586310
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2586310
2-Propanone	ppbv	5.16	0.80	12.2	1.90	2586310
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2586310
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2586310
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2586310
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2586310
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2586310
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2586310
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2586310
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2586310
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2586310
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2586310
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2586310
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2586310
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2586310
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2586310
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2586310

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1C1925
 Report Date: 2011/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KN0298				
Sampling Date		2011/08/07				
COC Number		4854				
	Units	LICA VOC/PORT/AUG 7,11 - 7909	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2586310
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2586310
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2586310
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2586310
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2586310
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2586310
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2586310
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2586310
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2586310
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2586310
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2586310
Tetrachloroethylene	ppbv	0.95	0.20	6.45	1.36	2586310
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2586310
Toluene	ppbv	0.55	0.20	2.07	0.753	2586310
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2586310
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2586310
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2586310
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2586310
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2586310
1,2,4-Trimethylbenzene	ppbv	1.05	0.50	5.15	2.46	2586310
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2586310
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2586310
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2586310
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2586310
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2586310
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2586310
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2586310
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2586310
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2586310
Cyclohexane	ppbv	0.82	0.20	2.82	0.688	2586310
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2586310
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2586310
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2586310
QC Batch = Quality Control Batch						

Maxxam Job #: B1C1925
 Report Date: 2011/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KN0298				
Sampling Date		2011/08/07				
COC Number		4854				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/AUG				
		7,11 - 7909				

Surrogate Recovery (%)						
Bromochloromethane	%	90		N/A	N/A	2586310
D5-Chlorobenzene	%	97		N/A	N/A	2586310
Difluorobenzene	%	93		N/A	N/A	2586310

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

Maxxam Job #: B1C1925
 Report Date: 2011/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KN0299				
Sampling Date		2011/08/07				
COC Number		4854				
	Units	LICA VOC/CLS/AUG 7,11/ - 7614	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2589619
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2589619
Propene	ppbv	<0.30	0.30	<0.516	0.516	2589619
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2589619
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2589619
Dichlorodifluoromethane (FREON 12)	ppbv	0.67	0.20	3.32	0.989	2589619
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2589619
Chloromethane	ppbv	0.55	0.30	1.13	0.620	2589619
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2589619
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2589619
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2589619
Trichlorofluoromethane (FREON 11)	ppbv	0.33	0.20	1.87	1.12	2589619
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2589619
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2589619
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2589619
2-Propanone	ppbv	2.77	0.80	6.58	1.90	2589619
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2589619
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2589619
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2589619
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2589619
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2589619
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2589619
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2589619
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2589619
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2589619
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2589619
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2589619
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2589619
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2589619
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2589619
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2589619

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KN0299				
Sampling Date		2011/08/07				
COC Number		4854				
	Units	LICA VOC/CLS/AUG 7,11/ - 7614	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2589619
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2589619
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2589619
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2589619
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2589619
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2589619
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2589619
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2589619
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2589619
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2589619
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2589619
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2589619
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2589619
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2589619
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2589619
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2589619
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2589619
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2589619
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2589619
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2589619
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2589619
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2589619
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2589619
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2589619
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2589619
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2589619
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2589619
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2589619
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2589619
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2589619
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2589619
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2589619
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2589619
QC Batch = Quality Control Batch						

Maxxam Job #: B1C1925
 Report Date: 2011/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KN0299				
Sampling Date		2011/08/07				
COC Number		4854				
	Units	LICA VOC/CLS/AUG 7,11/ - 7614	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	87		N/A	N/A	2589619
D5-Chlorobenzene	%	90		N/A	N/A	2589619
Difluorobenzene	%	87		N/A	N/A	2589619

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

Maxxam Job #: B1C1925
 Report Date: 2011/08/22

Test Summary

Maxxam ID KN0298 **Collected** 2011/08/07
Sample ID LICA VOC/PORT/AUG 7,11 - 7909 **Shipped**
Matrix AIR **Received** 2011/08/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2586297	N/A	2011/08/17	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2586310	N/A	2011/08/17	YAO LIANG SUN

Maxxam ID KN0299 **Collected** 2011/08/07
Sample ID LICA VOC/CLS/AUG 7,11/ - 7614 **Shipped**
Matrix AIR **Received** 2011/08/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2587740	N/A	2011/08/18	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2589619	N/A	2011/08/18	YAO LIANG SUN

Maxxam Job #: B1C1925
Report Date: 2011/08/22

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB1C1925

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2586310 LSY	Spiked Blank	Bromochloromethane	2011/08/17		98	%	60 - 140
		D5-Chlorobenzene	2011/08/17		105	%	60 - 140
		Difluorobenzene	2011/08/17		101	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/17		93	%	70 - 130
		Carbon Disulfide	2011/08/17		91	%	70 - 130
		Propene	2011/08/17		86	%	70 - 130
		Vinyl Acetate	2011/08/17		88	%	70 - 130
		Vinyl Bromide	2011/08/17		101	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/08/17		93	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/08/17		111	%	70 - 130
		Chloromethane	2011/08/17		93	%	70 - 130
		Vinyl Chloride	2011/08/17		96	%	70 - 130
		Chloroethane	2011/08/17		95	%	70 - 130
		1,3-Butadiene	2011/08/17		76	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/08/17		95	%	70 - 130
		Trichlorotrifluoroethane	2011/08/17		98	%	70 - 130
		Ethanol	2011/08/17		80	%	70 - 130
		2-propanol	2011/08/17		88	%	70 - 130
		2-Propanone	2011/08/17		92	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/08/17		82	%	70 - 130
		Methyl Isobutyl Ketone	2011/08/17		83	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/08/17		82	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/08/17		93	%	70 - 130
		Ethyl Acetate	2011/08/17		88	%	70 - 130
		1,1-Dichloroethylene	2011/08/17		92	%	70 - 130
		cis-1,2-Dichloroethylene	2011/08/17		92	%	70 - 130
		trans-1,2-Dichloroethylene	2011/08/17		93	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/08/17		82	%	70 - 130
		Chloroform	2011/08/17		96	%	70 - 130
		Carbon Tetrachloride	2011/08/17		103	%	70 - 130
		1,1-Dichloroethane	2011/08/17		93	%	70 - 130
		1,2-Dichloroethane	2011/08/17		90	%	70 - 130
		Ethylene Dibromide	2011/08/17		94	%	70 - 130
		1,1,1-Trichloroethane	2011/08/17		94	%	70 - 130
		1,1,2-Trichloroethane	2011/08/17		96	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/08/17		82	%	70 - 130
		cis-1,3-Dichloropropene	2011/08/17		95	%	70 - 130
		trans-1,3-Dichloropropene	2011/08/17		91	%	70 - 130
		1,2-Dichloropropane	2011/08/17		94	%	70 - 130
		Bromomethane	2011/08/17		99	%	70 - 130
		Bromoform	2011/08/17		120	%	70 - 130
		Bromodichloromethane	2011/08/17		100	%	70 - 130
		Dibromochloromethane	2011/08/17		114	%	70 - 130
		Heptane	2011/08/17		87	%	70 - 130
		Trichloroethylene	2011/08/17		97	%	70 - 130
		Tetrachloroethylene	2011/08/17		99	%	70 - 130
		Benzene	2011/08/17		94	%	70 - 130
		Toluene	2011/08/17		94	%	70 - 130
		Ethylbenzene	2011/08/17		92	%	70 - 130
		p+m-Xylene	2011/08/17		90	%	70 - 130
		o-Xylene	2011/08/17		90	%	70 - 130
		Styrene	2011/08/17		89	%	70 - 130
		1,3,5-Trimethylbenzene	2011/08/17		79	%	70 - 130
		1,2,4-Trimethylbenzene	2011/08/17		74	%	70 - 130
		4-ethyltoluene	2011/08/17		83	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C1925

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2586310 LSY	Spiked Blank	Chlorobenzene	2011/08/17		95	%	70 - 130
		Benzyl chloride	2011/08/17		75	%	70 - 130
		1,3-Dichlorobenzene	2011/08/17		77	%	70 - 130
		1,4-Dichlorobenzene	2011/08/17		77	%	70 - 130
		1,2-Dichlorobenzene	2011/08/17		73	%	70 - 130
		1,2,4-Trichlorobenzene	2011/08/17		81	%	70 - 130
		Hexachlorobutadiene	2011/08/17		96	%	70 - 130
		Hexane	2011/08/17		92	%	70 - 130
		Cyclohexane	2011/08/17		93	%	70 - 130
		Tetrahydrofuran	2011/08/17		87	%	70 - 130
		1,4-Dioxane	2011/08/17		87	%	70 - 130
	Method Blank	Bromochloromethane	2011/08/17		93	%	60 - 140
		D5-Chlorobenzene	2011/08/17		99	%	60 - 140
		Difluorobenzene	2011/08/17		95	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/17	<0.20		ppbv	
		Carbon Disulfide	2011/08/17	<0.50		ppbv	
		Propene	2011/08/17	<0.30		ppbv	
		Vinyl Acetate	2011/08/17	<0.20		ppbv	
		Vinyl Bromide	2011/08/17	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/08/17	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/08/17	<0.17		ppbv	
		Chloromethane	2011/08/17	<0.30		ppbv	
		Vinyl Chloride	2011/08/17	<0.18		ppbv	
		Chloroethane	2011/08/17	<0.30		ppbv	
		1,3-Butadiene	2011/08/17	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/08/17	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/08/17	<0.15		ppbv	
		Ethanol	2011/08/17	<2.3		ppbv	
		2-propanol	2011/08/17	<3.0		ppbv	
		2-Propanone	2011/08/17	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/08/17	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/08/17	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/08/17	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/08/17	<0.20		ppbv	
		Ethyl Acetate	2011/08/17	<2.2		ppbv	
		1,1-Dichloroethylene	2011/08/17	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/08/17	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/08/17	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/08/17	<0.80		ppbv	
		Chloroform	2011/08/17	<0.15		ppbv	
		Carbon Tetrachloride	2011/08/17	<0.30		ppbv	
		1,1-Dichloroethane	2011/08/17	<0.20		ppbv	
		1,2-Dichloroethane	2011/08/17	<0.20		ppbv	
		Ethylene Dibromide	2011/08/17	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/08/17	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/08/17	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/08/17	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/08/17	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/08/17	<0.17		ppbv	
		1,2-Dichloropropane	2011/08/17	<0.40		ppbv	
		Bromomethane	2011/08/17	<0.18		ppbv	
		Bromoform	2011/08/17	<0.20		ppbv	
		Bromodichloromethane	2011/08/17	<0.20		ppbv	
		Dibromochloromethane	2011/08/17	<0.20		ppbv	
		Heptane	2011/08/17	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C1925

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2586310 LSY	Method Blank	Trichloroethylene	2011/08/17	<0.30		ppbv	
		Tetrachloroethylene	2011/08/17	<0.20		ppbv	
		Benzene	2011/08/17	<0.18		ppbv	
		Toluene	2011/08/17	<0.20		ppbv	
		Ethylbenzene	2011/08/17	<0.20		ppbv	
		p+m-Xylene	2011/08/17	<0.37		ppbv	
		o-Xylene	2011/08/17	<0.20		ppbv	
		Styrene	2011/08/17	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/08/17	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/08/17	<0.50		ppbv	
		4-ethyltoluene	2011/08/17	<2.2		ppbv	
		Chlorobenzene	2011/08/17	<0.20		ppbv	
		Benzyl chloride	2011/08/17	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/08/17	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/08/17	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/08/17	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/08/17	<2.0		ppbv	
		Hexachlorobutadiene	2011/08/17	<3.0		ppbv	
		Hexane	2011/08/17	<0.30		ppbv	
		Cyclohexane	2011/08/17	<0.20		ppbv	
Tetrahydrofuran	2011/08/17	<0.40		ppbv			
1,4-Dioxane	2011/08/17	<2.0		ppbv			
Xylene (Total)	2011/08/17	<0.60		ppbv			
2589619 LSY	Spiked Blank	Bromochloromethane	2011/08/18		103	%	60 - 140
		D5-Chlorobenzene	2011/08/18		108	%	60 - 140
		Difluorobenzene	2011/08/18		106	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/18		84	%	70 - 130
		Carbon Disulfide	2011/08/18		83	%	70 - 130
		Propene	2011/08/18		74	%	70 - 130
		Vinyl Acetate	2011/08/18		75	%	70 - 130
		Vinyl Bromide	2011/08/18		96	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/08/18		87	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/08/18		103	%	70 - 130
		Chloromethane	2011/08/18		83	%	70 - 130
		Vinyl Chloride	2011/08/18		87	%	70 - 130
		Chloroethane	2011/08/18		86	%	70 - 130
		1,3-Butadiene	2011/08/18		66 (1)	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/08/18		87	%	70 - 130
		Trichlorotrifluoroethane	2011/08/18		91	%	70 - 130
		Ethanol	2011/08/18		66 (1)	%	70 - 130
		2-propanol	2011/08/18		79	%	70 - 130
		2-Propanone	2011/08/18		80	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/08/18		71	%	70 - 130
		Methyl Isobutyl Ketone	2011/08/18		71	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/08/18		71	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/08/18		84	%	70 - 130
		Ethyl Acetate	2011/08/18		76	%	70 - 130
		1,1-Dichloroethylene	2011/08/18		83	%	70 - 130
		cis-1,2-Dichloroethylene	2011/08/18		83	%	70 - 130
		trans-1,2-Dichloroethylene	2011/08/18		83	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/08/18		72	%	70 - 130
		Chloroform	2011/08/18		87	%	70 - 130
		Carbon Tetrachloride	2011/08/18		97	%	70 - 130
1,1-Dichloroethane	2011/08/18		84	%	70 - 130		
1,2-Dichloroethane	2011/08/18		80	%	70 - 130		

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C1925

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2589619 LSY	Spiked Blank	Ethylene Dibromide	2011/08/18		89	%	70 - 130
		1,1,1-Trichloroethane	2011/08/18		87	%	70 - 130
		1,1,2-Trichloroethane	2011/08/18		91	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/08/18		77	%	70 - 130
		cis-1,3-Dichloropropene	2011/08/18		88	%	70 - 130
		trans-1,3-Dichloropropene	2011/08/18		84	%	70 - 130
		1,2-Dichloropropane	2011/08/18		86	%	70 - 130
		Bromomethane	2011/08/18		93	%	70 - 130
		Bromoform	2011/08/18		116	%	70 - 130
		Bromodichloromethane	2011/08/18		93	%	70 - 130
		Dibromochloromethane	2011/08/18		110	%	70 - 130
		Heptane	2011/08/18		76	%	70 - 130
		Trichloroethylene	2011/08/18		94	%	70 - 130
		Tetrachloroethylene	2011/08/18		97	%	70 - 130
		Benzene	2011/08/18		87	%	70 - 130
		Toluene	2011/08/18		89	%	70 - 130
		Ethylbenzene	2011/08/18		86	%	70 - 130
		p+m-Xylene	2011/08/18		84	%	70 - 130
		o-Xylene	2011/08/18		84	%	70 - 130
		Styrene	2011/08/18		83	%	70 - 130
		1,3,5-Trimethylbenzene	2011/08/18		75	%	70 - 130
		1,2,4-Trimethylbenzene	2011/08/18		70	%	70 - 130
		4-ethyltoluene	2011/08/18		78	%	70 - 130
		Chlorobenzene	2011/08/18		90	%	70 - 130
		Benzyl chloride	2011/08/18		70	%	70 - 130
		1,3-Dichlorobenzene	2011/08/18		75	%	70 - 130
		1,4-Dichlorobenzene	2011/08/18		74	%	70 - 130
		1,2-Dichlorobenzene	2011/08/18		71	%	70 - 130
		1,2,4-Trichlorobenzene	2011/08/18		81	%	70 - 130
		Hexachlorobutadiene	2011/08/18		95	%	70 - 130
		Hexane	2011/08/18		81	%	70 - 130
		Cyclohexane	2011/08/18		83	%	70 - 130
		Tetrahydrofuran	2011/08/18		75	%	70 - 130
		1,4-Dioxane	2011/08/18		82	%	70 - 130
	Method Blank	Bromochloromethane	2011/08/18		92	%	60 - 140
		D5-Chlorobenzene	2011/08/18		95	%	60 - 140
		Difluorobenzene	2011/08/18		93	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/18	<0.20		ppbv	
		Carbon Disulfide	2011/08/18	<0.50		ppbv	
		Propene	2011/08/18	<0.30		ppbv	
		Vinyl Acetate	2011/08/18	<0.20		ppbv	
		Vinyl Bromide	2011/08/18	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/08/18	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/08/18	<0.17		ppbv	
		Chloromethane	2011/08/18	<0.30		ppbv	
		Vinyl Chloride	2011/08/18	<0.18		ppbv	
		Chloroethane	2011/08/18	<0.30		ppbv	
		1,3-Butadiene	2011/08/18	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/08/18	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/08/18	<0.15		ppbv	
		Ethanol	2011/08/18	<2.3		ppbv	
		2-propanol	2011/08/18	<3.0		ppbv	
		2-Propanone	2011/08/18	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/08/18	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/08/18	<3.2		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C1925

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2589619 LSY	Method Blank	Methyl Butyl Ketone (2-Hexanone)	2011/08/18	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/08/18	<0.20		ppbv	
		Ethyl Acetate	2011/08/18	<2.2		ppbv	
		1,1-Dichloroethylene	2011/08/18	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/08/18	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/08/18	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/08/18	<0.80		ppbv	
		Chloroform	2011/08/18	<0.15		ppbv	
		Carbon Tetrachloride	2011/08/18	<0.30		ppbv	
		1,1-Dichloroethane	2011/08/18	<0.20		ppbv	
		1,2-Dichloroethane	2011/08/18	<0.20		ppbv	
		Ethylene Dibromide	2011/08/18	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/08/18	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/08/18	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/08/18	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/08/18	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/08/18	<0.17		ppbv	
		1,2-Dichloropropane	2011/08/18	<0.40		ppbv	
		Bromomethane	2011/08/18	<0.18		ppbv	
		Bromoform	2011/08/18	<0.20		ppbv	
		Bromodichloromethane	2011/08/18	<0.20		ppbv	
		Dibromochloromethane	2011/08/18	<0.20		ppbv	
		Heptane	2011/08/18	<0.30		ppbv	
		Trichloroethylene	2011/08/18	<0.30		ppbv	
		Tetrachloroethylene	2011/08/18	<0.20		ppbv	
		Benzene	2011/08/18	<0.18		ppbv	
		Toluene	2011/08/18	<0.20		ppbv	
		Ethylbenzene	2011/08/18	<0.20		ppbv	
		p+m-Xylene	2011/08/18	<0.37		ppbv	
		o-Xylene	2011/08/18	<0.20		ppbv	
		Styrene	2011/08/18	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/08/18	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/08/18	<0.50		ppbv	
		4-ethyltoluene	2011/08/18	<2.2		ppbv	
		Chlorobenzene	2011/08/18	<0.20		ppbv	
		Benzyl chloride	2011/08/18	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/08/18	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/08/18	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/08/18	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/08/18	<2.0		ppbv	
		Hexachlorobutadiene	2011/08/18	<3.0		ppbv	
		Hexane	2011/08/18	<0.30		ppbv	
		Cyclohexane	2011/08/18	<0.20		ppbv	
		Tetrahydrofuran	2011/08/18	<0.40		ppbv	
		1,4-Dioxane	2011/08/18	<2.0		ppbv	
		Xylene (Total)	2011/08/18	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/08/18	NC		%	25
		Carbon Disulfide	2011/08/18	NC		%	25
		Propene	2011/08/18	NC		%	25
		Vinyl Acetate	2011/08/18	NC		%	25
		Vinyl Bromide	2011/08/18	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/08/18	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/08/18	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C1925

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2589619 LSY	RPD - Sample/Sample Dup	Chloromethane	2011/08/18	NC		%	25
		Vinyl Chloride	2011/08/18	NC		%	25
		Chloroethane	2011/08/18	NC		%	25
		1,3-Butadiene	2011/08/18	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/08/18	NC		%	25
		Trichlorotrifluoroethane	2011/08/18	NC		%	25
		Ethanol	2011/08/18	NC		%	25
		2-propanol	2011/08/18	NC		%	25
		2-Propanone	2011/08/18	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/08/18	NC		%	25
		Methyl Isobutyl Ketone	2011/08/18	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/08/18	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/08/18	NC		%	25
		Ethyl Acetate	2011/08/18	NC		%	25
		1,1-Dichloroethylene	2011/08/18	NC		%	25
		cis-1,2-Dichloroethylene	2011/08/18	NC		%	25
		trans-1,2-Dichloroethylene	2011/08/18	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/08/18	NC		%	25
		Chloroform	2011/08/18	NC		%	25
		Carbon Tetrachloride	2011/08/18	NC		%	25
		1,1-Dichloroethane	2011/08/18	NC		%	25
		1,2-Dichloroethane	2011/08/18	NC		%	25
		Ethylene Dibromide	2011/08/18	NC		%	25
		1,1,1-Trichloroethane	2011/08/18	NC		%	25
		1,1,2-Trichloroethane	2011/08/18	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/08/18	NC		%	25
		cis-1,3-Dichloropropene	2011/08/18	NC		%	25
		trans-1,3-Dichloropropene	2011/08/18	NC		%	25
		1,2-Dichloropropane	2011/08/18	NC		%	25
		Bromomethane	2011/08/18	NC		%	25
		Bromoform	2011/08/18	NC		%	25
		Bromodichloromethane	2011/08/18	NC		%	25
		Dibromochloromethane	2011/08/18	NC		%	25
		Heptane	2011/08/18	NC		%	25
		Trichloroethylene	2011/08/18	NC		%	25
		Tetrachloroethylene	2011/08/18	NC		%	25
		Benzene	2011/08/18	NC		%	25
		Toluene	2011/08/18	1		%	25
		Ethylbenzene	2011/08/18	NC		%	25
		p+m-Xylene	2011/08/18	NC		%	25
		o-Xylene	2011/08/18	NC		%	25
		Styrene	2011/08/18	NC		%	25
		1,3,5-Trimethylbenzene	2011/08/18	NC		%	25
		1,2,4-Trimethylbenzene	2011/08/18	NC		%	25
		4-ethyltoluene	2011/08/18	NC		%	25
		Chlorobenzene	2011/08/18	NC		%	25
		Benzyl chloride	2011/08/18	NC		%	25
		1,3-Dichlorobenzene	2011/08/18	NC		%	25
		1,4-Dichlorobenzene	2011/08/18	NC		%	25
		1,2-Dichlorobenzene	2011/08/18	NC		%	25
		1,2,4-Trichlorobenzene	2011/08/18	NC		%	25
		Hexachlorobutadiene	2011/08/18	NC		%	25
		Hexane	2011/08/18	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C1925

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2589619 LSY	RPD - Sample/Sample Dup	Cyclohexane	2011/08/18	NC		%	25
		Tetrahydrofuran	2011/08/18	NC		%	25
		1,4-Dioxane	2011/08/18	NC		%	25
		Xylene (Total)	2011/08/18	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: 7798
Station ID: Lica 1 Canister Installation Date/Time: Aug 18, 2011 @ 10:51 mst
Field Sample ID: LICA VOC/ CLS /Aug 19,11 Canister Removal Date/Time: Aug 22, 2011 @ 8:18 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
19-Aug-11	08/19/2011 0:00	08/20/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	620	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 # 05527

Technician Signiture: Jacob Roch/ Ting Xu



Your C.O.C. #: 05527

Attention: Michael Bisaga

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

Report Date: 2011/09/01

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1C9184

Received: 2011/08/24, 11:30

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/08/30	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/08/30	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 #: B1C9184
 Report Date: 2011/09/01

RESULTS OF ANALYSES OF AIR

Maxxam ID		KQ7850	KQ7851	
Sampling Date		2011/08/19	2011/08/19	
COC Number		05527	05527	
	Units	LICA VOC\CLSIAUG 19,2011 - 7798	LICA VOC\PORTAUG 19,2011 - 7807	QC Batch

Volatile Organics				
Pressure on Receipt	psig	21	20	2601443

QC Batch = Quality Control Batch

Maxxam Job #: B1C9184
 Report Date: 2011/09/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KQ7850			KQ7851				
Sampling Date		2011/08/19			2011/08/19				
COC Number		05527			05527				
	Units	LICA VOC\CLSIAUG 19,2011 - 7798	ug/m3	DL (ug/m3)	LICA VOC\PORTAUG 19,2011 - 7807	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2600328
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2600328
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2600328
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2600328
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2600328
Dichlorodifluoromethane (FREON 12)	ppbv	0.81	4.02	0.989	0.72	0.20	3.55	0.989	2600328
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2600328
Chloromethane	ppbv	0.53	1.08	0.620	0.50	0.30	1.03	0.620	2600328
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2600328
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2600328
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2600328
Trichlorofluoromethane (FREON 11)	ppbv	0.23	1.27	1.12	0.21	0.20	1.17	1.12	2600328
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2600328
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2600328
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2600328
2-Propanone	ppbv	2.03	4.82	1.90	2.31	0.80	5.48	1.90	2600328
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2600328
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2600328
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2600328
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2600328
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2600328
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2600328
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2600328
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2600328
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2600328
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2600328
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2600328
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2600328
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2600328
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2600328
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2600328

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1C9184
 Report Date: 2011/09/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KQ7850			KQ7851					
Sampling Date		2011/08/19			2011/08/19					
COC Number		05527			05527					
	Units	LICA VOC\CLS\AUG 19,2011 - 7798	ug/m3	DL (ug/m3)	LICA VOC\PORT\AUG 19,2011 - 7807	RDL	ug/m3	DL (ug/m3)	QC Batch	
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2600328	
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2600328	
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2600328	
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2600328	
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2600328	
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2600328	
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2600328	
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2600328	
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2600328	
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2600328	
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2600328	
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2600328	
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2600328	
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2600328	
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2600328	
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2600328	
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2600328	
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2600328	
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2600328	
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2600328	
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2600328	
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2600328	
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2600328	
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2600328	
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2600328	
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2600328	
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2600328	
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2600328	
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2600328	
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2600328	
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2600328	
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2600328	
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2600328	
QC Batch = Quality Control Batch										

Maxxam Job #: B1C9184
 Report Date: 2011/09/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KQ7850			KQ7851				
Sampling Date		2011/08/19			2011/08/19				
COC Number		05527			05527				
	Units	LICA	ug/m3	DL (ug/m3)	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\CLSAUG			VOC\PORTAUG				
		19,2011 - 7798			19,2011 - 7807				

Surrogate Recovery (%)									
Bromochloromethane	%	83	N/A	N/A	89		N/A	N/A	2600328
D5-Chlorobenzene	%	77	N/A	N/A	82		N/A	N/A	2600328
Difluorobenzene	%	85	N/A	N/A	92		N/A	N/A	2600328

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

Maxxam Job #: B1C9184
 Report Date: 2011/09/01

Test Summary

Maxxam ID KQ7850 **Collected** 2011/08/19
Sample ID LICA VOC\CLSAUG 19,2011 - 7798 **Shipped**
Matrix AIR **Received** 2011/08/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2601443	N/A	2011/08/30	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2600328	N/A	2011/08/30	VALERIE RANDALL

Maxxam ID KQ7851 **Collected** 2011/08/19
Sample ID LICA VOC\PORT\AUG 19,2011 - 7807 **Shipped**
Matrix AIR **Received** 2011/08/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2601443	N/A	2011/08/30	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2600328	N/A	2011/08/30	VALERIE RANDALL

Maxxam Job #: B1C9184
Report Date: 2011/09/01

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB1C9184

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2600328 VEA	Spiked Blank	Bromochloromethane	2011/08/30		100	%	60 - 140
		D5-Chlorobenzene	2011/08/30		101	%	60 - 140
		Difluorobenzene	2011/08/30		102	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/30		106	%	70 - 130
		Carbon Disulfide	2011/08/30		87	%	70 - 130
		Propene	2011/08/30		119	%	70 - 130
		Vinyl Acetate	2011/08/30		109	%	70 - 130
		Vinyl Bromide	2011/08/30		75	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/08/30		104	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/08/30		105	%	70 - 130
		Chloromethane	2011/08/30		95	%	70 - 130
		Vinyl Chloride	2011/08/30		92	%	70 - 130
		Chloroethane	2011/08/30		81	%	70 - 130
		1,3-Butadiene	2011/08/30		86	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/08/30		75	%	70 - 130
		Trichlorotrifluoroethane	2011/08/30		92	%	70 - 130
		Ethanol	2011/08/30		73	%	70 - 130
		2-propanol	2011/08/30		103	%	70 - 130
		2-Propanone	2011/08/30		93	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/08/30		89	%	70 - 130
		Methyl Isobutyl Ketone	2011/08/30		102	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/08/30		110	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/08/30		97	%	70 - 130
		Ethyl Acetate	2011/08/30		109	%	70 - 130
		1,1-Dichloroethylene	2011/08/30		98	%	70 - 130
		cis-1,2-Dichloroethylene	2011/08/30		107	%	70 - 130
		trans-1,2-Dichloroethylene	2011/08/30		99	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/08/30		90	%	70 - 130
		Chloroform	2011/08/30		99	%	70 - 130
		Carbon Tetrachloride	2011/08/30		92	%	70 - 130
		1,1-Dichloroethane	2011/08/30		101	%	70 - 130
		1,2-Dichloroethane	2011/08/30		103	%	70 - 130
		Ethylene Dibromide	2011/08/30		100	%	70 - 130
		1,1,1-Trichloroethane	2011/08/30		92	%	70 - 130
		1,1,2-Trichloroethane	2011/08/30		98	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/08/30		100	%	70 - 130
		cis-1,3-Dichloropropene	2011/08/30		112	%	70 - 130
		trans-1,3-Dichloropropene	2011/08/30		121	%	70 - 130
		1,2-Dichloropropane	2011/08/30		107	%	70 - 130
		Bromomethane	2011/08/30		79	%	70 - 130
		Bromoform	2011/08/30		101	%	70 - 130
		Bromodichloromethane	2011/08/30		91	%	70 - 130
		Dibromochloromethane	2011/08/30		93	%	70 - 130
		Heptane	2011/08/30		98	%	70 - 130
		Trichloroethylene	2011/08/30		91	%	70 - 130
		Tetrachloroethylene	2011/08/30		91	%	70 - 130
		Benzene	2011/08/30		99	%	70 - 130
		Toluene	2011/08/30		100	%	70 - 130
		Ethylbenzene	2011/08/30		98	%	70 - 130
		p+m-Xylene	2011/08/30		97	%	70 - 130
		o-Xylene	2011/08/30		104	%	70 - 130
		Styrene	2011/08/30		126	%	70 - 130
		1,3,5-Trimethylbenzene	2011/08/30		99	%	70 - 130
		1,2,4-Trimethylbenzene	2011/08/30		104	%	70 - 130
		4-ethyltoluene	2011/08/30		115	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C9184

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2600328 VEA	Spiked Blank	Chlorobenzene	2011/08/30		95	%	70 - 130
		Benzyl chloride	2011/08/30		131 (1)	%	70 - 130
		1,3-Dichlorobenzene	2011/08/30		104	%	70 - 130
		1,4-Dichlorobenzene	2011/08/30		116	%	70 - 130
		1,2-Dichlorobenzene	2011/08/30		105	%	70 - 130
		1,2,4-Trichlorobenzene	2011/08/30		96	%	70 - 130
		Hexachlorobutadiene	2011/08/30		83	%	70 - 130
		Hexane	2011/08/30		101	%	70 - 130
		Cyclohexane	2011/08/30		100	%	70 - 130
		Tetrahydrofuran	2011/08/30		114	%	70 - 130
		1,4-Dioxane	2011/08/30		101	%	70 - 130
		Xylene (Total)	2011/08/30		100	%	N/A
	Method Blank	Bromochloromethane	2011/08/30		87	%	60 - 140
		D5-Chlorobenzene	2011/08/30		79	%	60 - 140
		Difluorobenzene	2011/08/30		88	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/30	<0.20		ppbv	
		Carbon Disulfide	2011/08/30	<0.50		ppbv	
		Propene	2011/08/30	<0.30		ppbv	
		Vinyl Acetate	2011/08/30	<0.20		ppbv	
		Vinyl Bromide	2011/08/30	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/08/30	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/08/30	<0.17		ppbv	
		Chloromethane	2011/08/30	<0.30		ppbv	
		Vinyl Chloride	2011/08/30	<0.18		ppbv	
		Chloroethane	2011/08/30	<0.30		ppbv	
		1,3-Butadiene	2011/08/30	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/08/30	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/08/30	<0.15		ppbv	
		Ethanol	2011/08/30	<2.3		ppbv	
		2-propanol	2011/08/30	<3.0		ppbv	
		2-Propanone	2011/08/30	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/08/30	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/08/30	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/08/30	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/08/30	<0.20		ppbv	
		Ethyl Acetate	2011/08/30	<2.2		ppbv	
		1,1-Dichloroethylene	2011/08/30	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/08/30	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/08/30	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/08/30	<0.80		ppbv	
		Chloroform	2011/08/30	<0.15		ppbv	
		Carbon Tetrachloride	2011/08/30	<0.30		ppbv	
		1,1-Dichloroethane	2011/08/30	<0.20		ppbv	
		1,2-Dichloroethane	2011/08/30	<0.20		ppbv	
		Ethylene Dibromide	2011/08/30	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/08/30	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/08/30	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/08/30	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/08/30	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/08/30	<0.17		ppbv	
		1,2-Dichloropropane	2011/08/30	<0.40		ppbv	
		Bromomethane	2011/08/30	<0.18		ppbv	
		Bromoform	2011/08/30	<0.20		ppbv	
		Bromodichloromethane	2011/08/30	<0.20		ppbv	
		Dibromochloromethane	2011/08/30	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C9184

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2600328 VEA	Method Blank	Heptane	2011/08/30	<0.30		ppbv	
		Trichloroethylene	2011/08/30	<0.30		ppbv	
		Tetrachloroethylene	2011/08/30	<0.20		ppbv	
		Benzene	2011/08/30	<0.18		ppbv	
		Toluene	2011/08/30	<0.20		ppbv	
		Ethylbenzene	2011/08/30	<0.20		ppbv	
		p+m-Xylene	2011/08/30	<0.37		ppbv	
		o-Xylene	2011/08/30	<0.20		ppbv	
		Styrene	2011/08/30	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/08/30	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/08/30	<0.50		ppbv	
		4-ethyltoluene	2011/08/30	<2.2		ppbv	
		Chlorobenzene	2011/08/30	<0.20		ppbv	
		Benzyl chloride	2011/08/30	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/08/30	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/08/30	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/08/30	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/08/30	<2.0		ppbv	
		Hexachlorobutadiene	2011/08/30	<3.0		ppbv	
		Hexane	2011/08/30	<0.30		ppbv	
		Cyclohexane	2011/08/30	<0.20		ppbv	
		Tetrahydrofuran	2011/08/30	<0.40		ppbv	
		1,4-Dioxane	2011/08/30	<2.0		ppbv	
		Xylene (Total)	2011/08/30	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/08/30	NC		%	25
		Carbon Disulfide	2011/08/30	NC		%	25
		Propene	2011/08/30	NC		%	25
		Vinyl Acetate	2011/08/30	NC		%	25
		Vinyl Bromide	2011/08/30	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/08/30	1.2		%	25
		1,2-Dichlorotetrafluoroethane	2011/08/30	NC		%	25
		Chloromethane	2011/08/30	NC		%	25
		Vinyl Chloride	2011/08/30	NC		%	25
		Chloroethane	2011/08/30	NC		%	25
		1,3-Butadiene	2011/08/30	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/08/30	NC		%	25
		Trichlorotrifluoroethane	2011/08/30	NC		%	25
		Ethanol	2011/08/30	NC		%	25
		2-propanol	2011/08/30	NC		%	25
		2-Propanone	2011/08/30	8.8		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/08/30	NC		%	25
		Methyl Isobutyl Ketone	2011/08/30	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/08/30	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/08/30	NC		%	25
		Ethyl Acetate	2011/08/30	NC		%	25
		1,1-Dichloroethylene	2011/08/30	NC		%	25
		cis-1,2-Dichloroethylene	2011/08/30	NC		%	25
		trans-1,2-Dichloroethylene	2011/08/30	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/08/30	NC		%	25
		Chloroform	2011/08/30	NC		%	25
		Carbon Tetrachloride	2011/08/30	NC		%	25
		1,1-Dichloroethane	2011/08/30	NC		%	25
		1,2-Dichloroethane	2011/08/30	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C9184

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2600328 VEA	RPD - Sample/Sample Dup	Ethylene Dibromide	2011/08/30	NC		%	25
		1,1,1-Trichloroethane	2011/08/30	NC		%	25
		1,1,2-Trichloroethane	2011/08/30	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/08/30	NC		%	25
		cis-1,3-Dichloropropene	2011/08/30	NC		%	25
		trans-1,3-Dichloropropene	2011/08/30	NC		%	25
		1,2-Dichloropropane	2011/08/30	NC		%	25
		Bromomethane	2011/08/30	NC		%	25
		Bromoform	2011/08/30	NC		%	25
		Bromodichloromethane	2011/08/30	NC		%	25
		Dibromochloromethane	2011/08/30	NC		%	25
		Heptane	2011/08/30	NC		%	25
		Trichloroethylene	2011/08/30	NC		%	25
		Tetrachloroethylene	2011/08/30	NC		%	25
		Benzene	2011/08/30	4.4		%	25
		Toluene	2011/08/30	4.0		%	25
		Ethylbenzene	2011/08/30	NC		%	25
		p+m-Xylene	2011/08/30	NC		%	25
		o-Xylene	2011/08/30	NC		%	25
		Styrene	2011/08/30	NC		%	25
		1,3,5-Trimethylbenzene	2011/08/30	NC		%	25
		1,2,4-Trimethylbenzene	2011/08/30	NC		%	25
		4-ethyltoluene	2011/08/30	NC		%	25
		Chlorobenzene	2011/08/30	NC		%	25
		Benzyl chloride	2011/08/30	NC		%	25
		1,3-Dichlorobenzene	2011/08/30	NC		%	25
		1,4-Dichlorobenzene	2011/08/30	NC		%	25
		1,2-Dichlorobenzene	2011/08/30	NC		%	25
		1,2,4-Trichlorobenzene	2011/08/30	NC		%	25
		Hexachlorobutadiene	2011/08/30	NC		%	25
		Hexane	2011/08/30	NC		%	25
		Cyclohexane	2011/08/30	NC		%	25
		Tetrahydrofuran	2011/08/30	NC		%	25
		1,4-Dioxane	2011/08/30	NC		%	25
		Xylene (Total)	2011/08/30	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: 7796
Station ID: Lica 1 Canister Installation Date/Time: Aug 24, 2011 @ 7:18 mst
Field Sample ID: LICA VOC/ CLS /Aug 25,11 Canister Removal Date/Time: Aug 26, 2011 @ 7:17 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
25-Aug-11	08/25/2011 0:00	08/26/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	620	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 # 06300

Technician Signiture: Ting Xu

Your C.O.C. #: 06300

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

Report Date: 2011/09/14

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1D4251****Received: 2011/09/01, 10:30**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/09/09	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/09/09	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

=====

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

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Total cover pages: 1

Page 1 of 13

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

RESULTS OF ANALYSES OF AIR

Maxxam ID		KT1187	KT1188	
Sampling Date		2011/08/25	2011/08/25	
COC Number		06300	06300	
	Units	LICAVOC/CLS/AUG	LICAVOC/PORT/AUG	QC Batch
		25,11 - 7796	25,11 - 7867	

Volatile Organics				
Pressure on Receipt	psig	22	20	2610570

QC Batch = Quality Control Batch

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT1187				
Sampling Date		2011/08/25				
COC Number		06300				
	Units	LICAVOC/CLS/AUG	RDL	ug/m3	DL (ug/m3)	QC Batch
		25,11 - 7796				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2610563
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2610563
Propene	ppbv	<0.30	0.30	<0.516	0.516	2610563
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2610563
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2610563
Dichlorodifluoromethane (FREON 12)	ppbv	0.74	0.20	3.67	0.989	2610563
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2610563
Chloromethane	ppbv	0.54	0.30	1.11	0.620	2610563
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2610563
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2610563
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2610563
Trichlorofluoromethane (FREON 11)	ppbv	0.34	0.20	1.93	1.12	2610563
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2610563
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2610563
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2610563
2-Propanone	ppbv	<0.80	0.80	<1.90	1.90	2610563
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2610563
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2610563
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2610563
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2610563
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2610563
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2610563
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2610563
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2610563
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2610563
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2610563
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2610563
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2610563
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2610563
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2610563
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2610563
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2610563

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT1187				
Sampling Date		2011/08/25				
COC Number		06300				
	Units	LICAVOC/CLS/AUG	RDL	ug/m3	DL (ug/m3)	QC Batch
		25,11 - 7796				

1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2610563
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2610563
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2610563
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2610563
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2610563
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2610563
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2610563
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2610563
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2610563
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2610563
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2610563
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2610563
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2610563
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2610563
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2610563
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2610563
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2610563
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2610563
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2610563
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2610563
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2610563
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2610563
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2610563
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2610563
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2610563
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2610563
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2610563
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2610563
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2610563
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2610563
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2610563
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2610563
Surrogate Recovery (%)						
Bromochloromethane	%	75		N/A	N/A	2610563

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

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT1187				
Sampling Date		2011/08/25				
COC Number		06300				
	Units	LICAVOC/CLS/AUG	RDL	ug/m3	DL (ug/m3)	QC Batch
		25,11 - 7796				

D5-Chlorobenzene	%	76		N/A	N/A	2610563
Difluorobenzene	%	78		N/A	N/A	2610563

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

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT1188				
Sampling Date		2011/08/25				
COC Number		06300				
	Units	LICAVOC/PORT/AUG	RDL	ug/m3	DL (ug/m3)	QC Batch
		25,11 - 7867				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2610563
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2610563
Propene	ppbv	<0.30	0.30	<0.516	0.516	2610563
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2610563
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2610563
Dichlorodifluoromethane (FREON 12)	ppbv	0.71	0.20	3.50	0.989	2610563
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2610563
Chloromethane	ppbv	0.43	0.30	0.890	0.620	2610563
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2610563
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2610563
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2610563
Trichlorofluoromethane (FREON 11)	ppbv	0.31	0.20	1.72	1.12	2610563
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2610563
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2610563
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2610563
2-Propanone	ppbv	<0.80	0.80	<1.90	1.90	2610563
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2610563
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2610563
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2610563
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2610563
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2610563
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2610563
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2610563
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2610563
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2610563
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2610563
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2610563
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2610563
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2610563
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2610563
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2610563
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2610563

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT1188				
Sampling Date		2011/08/25				
COC Number		06300				
	Units	LICAVOC/PORT/AUG	RDL	ug/m3	DL (ug/m3)	QC Batch
		25,11 - 7867				

1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2610563
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2610563
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2610563
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2610563
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2610563
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2610563
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2610563
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2610563
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2610563
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2610563
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2610563
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2610563
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2610563
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2610563
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2610563
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2610563
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2610563
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2610563
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2610563
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2610563
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2610563
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2610563
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2610563
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2610563
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2610563
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2610563
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2610563
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2610563
Cyclohexane	ppbv	0.27	0.20	0.945	0.688	2610563
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2610563
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2610563
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2610563
Surrogate Recovery (%)						
Bromochloromethane	%	82		N/A	N/A	2610563

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

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT1188				
Sampling Date		2011/08/25				
COC Number		06300				
	Units	LICAVOC/PORT/AUG	RDL	ug/m3	DL (ug/m3)	QC Batch
		25,11 - 7867				

D5-Chlorobenzene	%	81		N/A	N/A	2610563
Difluorobenzene	%	84		N/A	N/A	2610563

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

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

Test Summary

Maxxam ID KT1187 **Collected** 2011/08/25
Sample ID LICAVOC/CLS/AUG 25,11 - 7796 **Shipped**
Matrix AIR **Received** 2011/09/01

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2610570	N/A	2011/09/09	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2610563	N/A	2011/09/09	VALERIE RANDALL

Maxxam ID KT1188 **Collected** 2011/08/25
Sample ID LICAVOC/PORT/AUG 25,11 - 7867 **Shipped**
Matrix AIR **Received** 2011/09/01

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2610570	N/A	2011/09/09	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2610563	N/A	2011/09/09	VALERIE RANDALL

Maxxam Job #: B1D4251
Report Date: 2011/09/14

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB1D4251

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2610563 VEA	Spiked Blank	Bromochloromethane	2011/09/09		105	%	60 - 140
		D5-Chlorobenzene	2011/09/09		110	%	60 - 140
		Difluorobenzene	2011/09/09		109	%	60 - 140
		2,2,4-Trimethylpentane	2011/09/09		96	%	70 - 130
		Carbon Disulfide	2011/09/09		89	%	70 - 130
		Propene	2011/09/09		89	%	70 - 130
		Vinyl Acetate	2011/09/09		101	%	70 - 130
		Vinyl Bromide	2011/09/09		104	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/09/09		99	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/09/09		120	%	70 - 130
		Chloromethane	2011/09/09		109	%	70 - 130
		Vinyl Chloride	2011/09/09		102	%	70 - 130
		Chloroethane	2011/09/09		100	%	70 - 130
		1,3-Butadiene	2011/09/09		100	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/09/09		105	%	70 - 130
		Trichlorotrifluoroethane	2011/09/09		101	%	70 - 130
		Ethanol	2011/09/09		104	%	70 - 130
		2-propanol	2011/09/09		108	%	70 - 130
		2-Propanone	2011/09/09		122	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/09/09		95	%	70 - 130
		Methyl Isobutyl Ketone	2011/09/09		99	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/09/09		100	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/09/09		102	%	70 - 130
		Ethyl Acetate	2011/09/09		102	%	70 - 130
		1,1-Dichloroethylene	2011/09/09		99	%	70 - 130
		cis-1,2-Dichloroethylene	2011/09/09		98	%	70 - 130
		trans-1,2-Dichloroethylene	2011/09/09		100	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/09/09		92	%	70 - 130
		Chloroform	2011/09/09		102	%	70 - 130
		Carbon Tetrachloride	2011/09/09		102	%	70 - 130
		1,1-Dichloroethane	2011/09/09		101	%	70 - 130
		1,2-Dichloroethane	2011/09/09		99	%	70 - 130
		Ethylene Dibromide	2011/09/09		97	%	70 - 130
		1,1,1-Trichloroethane	2011/09/09		99	%	70 - 130
		1,1,2-Trichloroethane	2011/09/09		99	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/09/09		92	%	70 - 130
		cis-1,3-Dichloropropene	2011/09/09		102	%	70 - 130
		trans-1,3-Dichloropropene	2011/09/09		98	%	70 - 130
		1,2-Dichloropropane	2011/09/09		98	%	70 - 130
		Bromomethane	2011/09/09		106	%	70 - 130
		Bromoform	2011/09/09		115	%	70 - 130
		Bromodichloromethane	2011/09/09		104	%	70 - 130
		Dibromochloromethane	2011/09/09		114	%	70 - 130
		Heptane	2011/09/09		99	%	70 - 130
		Trichloroethylene	2011/09/09		99	%	70 - 130
		Tetrachloroethylene	2011/09/09		100	%	70 - 130
		Benzene	2011/09/09		100	%	70 - 130
		Toluene	2011/09/09		101	%	70 - 130
		Ethylbenzene	2011/09/09		96	%	70 - 130
		p+m-Xylene	2011/09/09		95	%	70 - 130
		o-Xylene	2011/09/09		96	%	70 - 130
		Styrene	2011/09/09		92	%	70 - 130
		1,3,5-Trimethylbenzene	2011/09/09		94	%	70 - 130
		1,2,4-Trimethylbenzene	2011/09/09		90	%	70 - 130
		4-ethyltoluene	2011/09/09		114	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D4251

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2610563 VEA	Spiked Blank	Chlorobenzene	2011/09/09		95	%	70 - 130
		Benzyl chloride	2011/09/09		92	%	70 - 130
		1,3-Dichlorobenzene	2011/09/09		85	%	70 - 130
		1,4-Dichlorobenzene	2011/09/09		84	%	70 - 130
		1,2-Dichlorobenzene	2011/09/09		86	%	70 - 130
		1,2,4-Trichlorobenzene	2011/09/09		61 (1)	%	70 - 130
		Hexachlorobutadiene	2011/09/09		83	%	70 - 130
		Hexane	2011/09/09		106	%	70 - 130
		Cyclohexane	2011/09/09		98	%	70 - 130
		Tetrahydrofuran	2011/09/09		102	%	70 - 130
		1,4-Dioxane	2011/09/09		106	%	70 - 130
		Xylene (Total)	2011/09/09		95	%	70 - 130
	Method Blank	Bromochloromethane	2011/09/09		83	%	60 - 140
		D5-Chlorobenzene	2011/09/09		82	%	60 - 140
		Difluorobenzene	2011/09/09		87	%	60 - 140
		2,2,4-Trimethylpentane	2011/09/09	<0.20		ppbv	
		Carbon Disulfide	2011/09/09	<0.50		ppbv	
		Propene	2011/09/09	<0.30		ppbv	
		Vinyl Acetate	2011/09/09	<0.20		ppbv	
		Vinyl Bromide	2011/09/09	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/09/09	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/09/09	<0.17		ppbv	
		Chloromethane	2011/09/09	<0.30		ppbv	
		Vinyl Chloride	2011/09/09	<0.18		ppbv	
		Chloroethane	2011/09/09	<0.30		ppbv	
		1,3-Butadiene	2011/09/09	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/09/09	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/09/09	<0.15		ppbv	
		Ethanol	2011/09/09	<2.3		ppbv	
		2-propanol	2011/09/09	<3.0		ppbv	
		2-Propanone	2011/09/09	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/09/09	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/09/09	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/09/09	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/09/09	<0.20		ppbv	
		Ethyl Acetate	2011/09/09	<2.2		ppbv	
		1,1-Dichloroethylene	2011/09/09	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/09/09	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/09/09	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/09/09	<0.80		ppbv	
		Chloroform	2011/09/09	<0.15		ppbv	
		Carbon Tetrachloride	2011/09/09	<0.30		ppbv	
		1,1-Dichloroethane	2011/09/09	<0.20		ppbv	
		1,2-Dichloroethane	2011/09/09	<0.20		ppbv	
		Ethylene Dibromide	2011/09/09	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/09/09	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/09/09	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/09/09	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/09/09	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/09/09	<0.17		ppbv	
		1,2-Dichloropropane	2011/09/09	<0.40		ppbv	
		Bromomethane	2011/09/09	<0.18		ppbv	
		Bromoform	2011/09/09	<0.20		ppbv	
		Bromodichloromethane	2011/09/09	<0.20		ppbv	
		Dibromochloromethane	2011/09/09	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D4251

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2610563 VEA	Method Blank	Heptane	2011/09/09	<0.30		ppbv	
		Trichloroethylene	2011/09/09	<0.30		ppbv	
		Tetrachloroethylene	2011/09/09	<0.20		ppbv	
		Benzene	2011/09/09	<0.18		ppbv	
		Toluene	2011/09/09	<0.20		ppbv	
		Ethylbenzene	2011/09/09	<0.20		ppbv	
		p+m-Xylene	2011/09/09	<0.37		ppbv	
		o-Xylene	2011/09/09	<0.20		ppbv	
		Styrene	2011/09/09	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/09/09	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/09/09	<0.50		ppbv	
		4-ethyltoluene	2011/09/09	<2.2		ppbv	
		Chlorobenzene	2011/09/09	<0.20		ppbv	
		Benzyl chloride	2011/09/09	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/09/09	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/09/09	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/09/09	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/09/09	<2.0		ppbv	
		Hexachlorobutadiene	2011/09/09	<3.0		ppbv	
		Hexane	2011/09/09	<0.30		ppbv	
		Cyclohexane	2011/09/09	<0.20		ppbv	
		Tetrahydrofuran	2011/09/09	<0.40		ppbv	
		1,4-Dioxane	2011/09/09	<2.0		ppbv	
		Xylene (Total)	2011/09/09	<0.60		ppbv	

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 7823
Station ID: Lica 1 Canister Installation Date/Time: Aug 29, 2011 @ 11:12 mst
Field Sample ID: LICA VOC/ CLS /Aug 31,11 Canister Removal Date/Time: Sept 01, 2011 @ 8:48 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
31-Aug-11	08/31/2011 0:00	09/01/2011 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	620	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 # 05819

Technician Signiture: Ting Xu

Your C.O.C. #: 05819

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

Report Date: 2011/09/14

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1D5730****Received: 2011/09/03, 11:20**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/09/13	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/09/13	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

=====

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

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Total cover pages: 1

Page 1 of 14

Maxxam Job #: B1D5730
 Report Date: 2011/09/14

RESULTS OF ANALYSES OF AIR

Maxxam ID		KT8149	KT8150	
Sampling Date		2011/08/31	2011/08/31	
COC Number		05819	05819	
	Units	LICA VOC/CLS/AUG 31,2011 - 7823	LICA VOC/PORT/AUG 31,2011 - 7785	QC Batch

Volatile Organics				
Pressure on Receipt	psig	20	20	2613351

QC Batch = Quality Control Batch

Maxxam Job #: B1D5730
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT8149				
Sampling Date		2011/08/31				
COC Number		05819				
	Units	LICA VOC/CLS/AUG 31,2011 - 7823	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2613205
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2613205
Propene	ppbv	<0.60	0.60	<1.03	1.03	2613205
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2613205
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2613205
Dichlorodifluoromethane (FREON 12)	ppbv	0.65	0.20	3.20	0.989	2613205
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2613205
Chloromethane	ppbv	0.52	0.30	1.07	0.620	2613205
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2613205
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2613205
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2613205
Trichlorofluoromethane (FREON 11)	ppbv	0.32	0.20	1.82	1.12	2613205
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2613205
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2613205
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2613205
2-Propanone	ppbv	2.56	0.80	6.08	1.90	2613205
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2613205
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2613205
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2613205
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2613205
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2613205
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2613205
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2613205
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2613205
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2613205
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2613205
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2613205
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2613205
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2613205
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2613205
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2613205

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT8149				
Sampling Date		2011/08/31				
COC Number		05819				
	Units	LICA VOC/CLS/AUG 31,2011 - 7823	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2613205
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2613205
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2613205
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2613205
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2613205
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2613205
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2613205
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2613205
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2613205
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2613205
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2613205
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2613205
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2613205
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2613205
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2613205
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2613205
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2613205
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2613205
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2613205
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2613205
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2613205
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2613205
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2613205
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2613205
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2613205
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2613205
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2613205
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2613205
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2613205
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2613205
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2613205
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2613205
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2613205
QC Batch = Quality Control Batch						

Maxxam Job #: B1D5730
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT8149				
Sampling Date		2011/08/31				
COC Number		05819				
	Units	LICA VOC/CLS/AUG 31,2011 - 7823	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	87		N/A	N/A	2613205
D5-Chlorobenzene	%	83		N/A	N/A	2613205
Difluorobenzene	%	87		N/A	N/A	2613205

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

Maxxam Job #: B1D5730
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT8150				
Sampling Date		2011/08/31				
COC Number		05819				
	Units	LICA VOC/PORT/AUG 31,2011 - 7785	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2613205
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2613205
Propene	ppbv	<0.30	0.30	<0.516	0.516	2613205
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2613205
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2613205
Dichlorodifluoromethane (FREON 12)	ppbv	0.67	0.20	3.29	0.989	2613205
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2613205
Chloromethane	ppbv	0.52	0.30	1.07	0.620	2613205
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2613205
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2613205
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2613205
Trichlorofluoromethane (FREON 11)	ppbv	0.31	0.20	1.75	1.12	2613205
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2613205
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2613205
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2613205
2-Propanone	ppbv	2.24	0.80	5.32	1.90	2613205
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2613205
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2613205
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2613205
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2613205
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2613205
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2613205
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2613205
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2613205
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2613205
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2613205
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2613205
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2613205
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2613205
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2613205
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2613205

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1D5730
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT8150				
Sampling Date		2011/08/31				
COC Number		05819				
	Units	LICA VOC/PORT/AUG 31,2011 - 7785	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2613205
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2613205
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2613205
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2613205
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2613205
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2613205
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2613205
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2613205
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2613205
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2613205
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2613205
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2613205
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2613205
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2613205
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2613205
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2613205
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2613205
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2613205
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2613205
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2613205
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2613205
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2613205
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2613205
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2613205
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2613205
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2613205
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2613205
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2613205
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2613205
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2613205
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2613205
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2613205
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2613205
QC Batch = Quality Control Batch						

Maxxam Job #: B1D5730
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT8150				
Sampling Date		2011/08/31				
COC Number		05819				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/AUG				
		31,2011 - 7785				

Surrogate Recovery (%)						
Bromochloromethane	%	84		N/A	N/A	2613205
D5-Chlorobenzene	%	81		N/A	N/A	2613205
Difluorobenzene	%	86		N/A	N/A	2613205

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

Maxxam Job #: B1D5730
 Report Date: 2011/09/14

Test Summary

Maxxam ID KT8149 **Collected** 2011/08/31
Sample ID LICA VOC/CLS/AUG 31,2011 - 7823 **Shipped**
Matrix AIR **Received** 2011/09/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2613351	N/A	2011/09/13	DIANE TEMNUIK
Volatile Organics in Air (TO-15)	GC/MS	2613205	N/A	2011/09/13	DIANE TEMNUIK

Maxxam ID KT8150 **Collected** 2011/08/31
Sample ID LICA VOC/PORT/AUG 31,2011 - 7785 **Shipped**
Matrix AIR **Received** 2011/09/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2613351	N/A	2011/09/13	DIANE TEMNUIK
Volatile Organics in Air (TO-15)	GC/MS	2613205	N/A	2011/09/13	DIANE TEMNUIK

Maxxam Job #: B1D5730
Report Date: 2011/09/14

GENERAL COMMENTS

Sample KT8149-01: DL was raised for propene due to matrix interference.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1D5730

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2613205 DVO	Spiked Blank	Bromochloromethane	2011/09/13		99	%	60 - 140
		D5-Chlorobenzene	2011/09/13		100	%	60 - 140
		Difluorobenzene	2011/09/13		103	%	60 - 140
		2,2,4-Trimethylpentane	2011/09/13		102	%	70 - 130
		Carbon Disulfide	2011/09/13		99	%	70 - 130
		Propene	2011/09/13		102	%	70 - 130
		Vinyl Acetate	2011/09/13		107	%	70 - 130
		Vinyl Bromide	2011/09/13		106	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/09/13		118	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/09/13		129	%	70 - 130
		Chloromethane	2011/09/13		114	%	70 - 130
		Vinyl Chloride	2011/09/13		111	%	70 - 130
		Chloroethane	2011/09/13		107	%	70 - 130
		1,3-Butadiene	2011/09/13		109	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/09/13		114	%	70 - 130
		Trichlorotrifluoroethane	2011/09/13		110	%	70 - 130
		Ethanol	2011/09/13		93	%	70 - 130
		2-propanol	2011/09/13		101	%	70 - 130
		2-Propanone	2011/09/13		98	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/09/13		107	%	70 - 130
		Methyl Isobutyl Ketone	2011/09/13		105	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/09/13		105	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/09/13		107	%	70 - 130
		Ethyl Acetate	2011/09/13		105	%	70 - 130
		1,1-Dichloroethylene	2011/09/13		108	%	70 - 130
		cis-1,2-Dichloroethylene	2011/09/13		107	%	70 - 130
		trans-1,2-Dichloroethylene	2011/09/13		106	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/09/13		100	%	70 - 130
		Chloroform	2011/09/13		111	%	70 - 130
		Carbon Tetrachloride	2011/09/13		117	%	70 - 130
		1,1-Dichloroethane	2011/09/13		107	%	70 - 130
		1,2-Dichloroethane	2011/09/13		112	%	70 - 130
		Ethylene Dibromide	2011/09/13		110	%	70 - 130
		1,1,1-Trichloroethane	2011/09/13		115	%	70 - 130
		1,1,2-Trichloroethane	2011/09/13		110	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/09/13		107	%	70 - 130
		cis-1,3-Dichloropropene	2011/09/13		110	%	70 - 130
		trans-1,3-Dichloropropene	2011/09/13		109	%	70 - 130
		1,2-Dichloropropane	2011/09/13		106	%	70 - 130
		Bromomethane	2011/09/13		112	%	70 - 130
		Bromoform	2011/09/13		122	%	70 - 130
		Bromodichloromethane	2011/09/13		109	%	70 - 130
		Dibromochloromethane	2011/09/13		119	%	70 - 130
		Heptane	2011/09/13		106	%	70 - 130
		Trichloroethylene	2011/09/13		110	%	70 - 130
		Tetrachloroethylene	2011/09/13		113	%	70 - 130
		Benzene	2011/09/13		104	%	70 - 130
		Toluene	2011/09/13		110	%	70 - 130
		Ethylbenzene	2011/09/13		110	%	70 - 130
		p+m-Xylene	2011/09/13		109	%	70 - 130
		o-Xylene	2011/09/13		110	%	70 - 130
		Styrene	2011/09/13		107	%	70 - 130
		1,3,5-Trimethylbenzene	2011/09/13		110	%	70 - 130
		1,2,4-Trimethylbenzene	2011/09/13		109	%	70 - 130
		4-ethyltoluene	2011/09/13		109	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D5730

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2613205 DVO	Spiked Blank	Chlorobenzene	2011/09/13		108	%	70 - 130	
		Benzyl chloride	2011/09/13		111	%	70 - 130	
1,3-Dichlorobenzene		2011/09/13		106	%	70 - 130		
1,4-Dichlorobenzene		2011/09/13		104	%	70 - 130		
1,2-Dichlorobenzene		2011/09/13		106	%	70 - 130		
1,2,4-Trichlorobenzene		2011/09/13		89	%	70 - 130		
Hexachlorobutadiene		2011/09/13		118	%	70 - 130		
Hexane		2011/09/13		103	%	70 - 130		
Cyclohexane		2011/09/13		105	%	70 - 130		
Tetrahydrofuran		2011/09/13		107	%	70 - 130		
Method Blank		1,4-Dioxane	2011/09/13		103	%	70 - 130	
		Bromochloromethane	2011/09/13		89	%	60 - 140	
		D5-Chlorobenzene	2011/09/13		86	%	60 - 140	
		Difluorobenzene	2011/09/13		91	%	60 - 140	
		2,2,4-Trimethylpentane	2011/09/13	<0.20			ppbv	
		Carbon Disulfide	2011/09/13	<0.50			ppbv	
		Propene	2011/09/13	<0.30			ppbv	
		Vinyl Acetate	2011/09/13	<0.20			ppbv	
		Vinyl Bromide	2011/09/13	<0.20			ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/09/13	<0.20			ppbv	
		1,2-Dichlorotetrafluoroethane	2011/09/13	<0.17			ppbv	
		Chloromethane	2011/09/13	<0.30			ppbv	
		Vinyl Chloride	2011/09/13	<0.18			ppbv	
		Chloroethane	2011/09/13	<0.30			ppbv	
		1,3-Butadiene	2011/09/13	<0.50			ppbv	
		Trichlorofluoromethane (FREON 11)	2011/09/13	<0.20			ppbv	
		Trichlorotrifluoroethane	2011/09/13	<0.15			ppbv	
		Ethanol	2011/09/13	<2.3			ppbv	
		2-propanol	2011/09/13	<3.0			ppbv	
		2-Propanone	2011/09/13	<0.80			ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/09/13	<3.0			ppbv	
		Methyl Isobutyl Ketone	2011/09/13	<3.2			ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/09/13	<2.0			ppbv	
		Methyl t-butyl ether (MTBE)	2011/09/13	<0.20			ppbv	
		Ethyl Acetate	2011/09/13	<2.2			ppbv	
		1,1-Dichloroethylene	2011/09/13	<0.25			ppbv	
		cis-1,2-Dichloroethylene	2011/09/13	<0.19			ppbv	
		trans-1,2-Dichloroethylene	2011/09/13	<0.20			ppbv	
		Methylene Chloride(Dichloromethane)	2011/09/13	<0.80			ppbv	
		Chloroform	2011/09/13	<0.15			ppbv	
		Carbon Tetrachloride	2011/09/13	<0.30			ppbv	
		1,1-Dichloroethane	2011/09/13	<0.20			ppbv	
		1,2-Dichloroethane	2011/09/13	<0.20			ppbv	
		Ethylene Dibromide	2011/09/13	<0.17			ppbv	
		1,1,1-Trichloroethane	2011/09/13	<0.30			ppbv	
		1,1,2-Trichloroethane	2011/09/13	<0.15			ppbv	
		1,1,2,2-Tetrachloroethane	2011/09/13	<0.20			ppbv	
		cis-1,3-Dichloropropene	2011/09/13	<0.18			ppbv	
trans-1,3-Dichloropropene	2011/09/13	<0.17			ppbv			
1,2-Dichloropropane	2011/09/13	<0.40			ppbv			
Bromomethane	2011/09/13	<0.18			ppbv			
Bromoform	2011/09/13	<0.20			ppbv			
Bromodichloromethane	2011/09/13	<0.20			ppbv			
Dibromochloromethane	2011/09/13	<0.20			ppbv			
Heptane	2011/09/13	<0.30			ppbv			

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D5730

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2613205 DVO	Method Blank	Trichloroethylene	2011/09/13	<0.30		ppbv	
		Tetrachloroethylene	2011/09/13	<0.20		ppbv	
		Benzene	2011/09/13	<0.18		ppbv	
		Toluene	2011/09/13	<0.20		ppbv	
		Ethylbenzene	2011/09/13	<0.20		ppbv	
		p+m-Xylene	2011/09/13	<0.37		ppbv	
		o-Xylene	2011/09/13	<0.20		ppbv	
		Styrene	2011/09/13	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/09/13	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/09/13	<0.50		ppbv	
		4-ethyltoluene	2011/09/13	<2.2		ppbv	
		Chlorobenzene	2011/09/13	<0.20		ppbv	
		Benzyl chloride	2011/09/13	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/09/13	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/09/13	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/09/13	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/09/13	<2.0		ppbv	
		Hexachlorobutadiene	2011/09/13	<3.0		ppbv	
		Hexane	2011/09/13	<0.30		ppbv	
		Cyclohexane	2011/09/13	<0.20		ppbv	
		Tetrahydrofuran	2011/09/13	<0.40		ppbv	
		1,4-Dioxane	2011/09/13	<2.0		ppbv	
		Xylene (Total)	2011/09/13	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/09/13	0.9		%	25
		Carbon Disulfide	2011/09/13	NC		%	25
		Propene	2011/09/13	NC		%	25
		Vinyl Acetate	2011/09/13	NC		%	25
		Vinyl Bromide	2011/09/13	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/09/13	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/09/13	NC		%	25
		Chloromethane	2011/09/13	NC		%	25
		Vinyl Chloride	2011/09/13	NC		%	25
		Chloroethane	2011/09/13	NC		%	25
		1,3-Butadiene	2011/09/13	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/09/13	NC		%	25
		Trichlorotrifluoroethane	2011/09/13	NC		%	25
		Ethanol	2011/09/13	NC		%	25
		2-propanol	2011/09/13	NC		%	25
		2-Propanone	2011/09/13	1.8		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/09/13	NC		%	25
		Methyl Isobutyl Ketone	2011/09/13	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/09/13	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/09/13	NC		%	25
		Ethyl Acetate	2011/09/13	NC		%	25
		1,1-Dichloroethylene	2011/09/13	NC		%	25
		cis-1,2-Dichloroethylene	2011/09/13	NC		%	25
		trans-1,2-Dichloroethylene	2011/09/13	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/09/13	NC		%	25
		Chloroform	2011/09/13	NC		%	25
		Carbon Tetrachloride	2011/09/13	NC		%	25
		1,1-Dichloroethane	2011/09/13	NC		%	25
		1,2-Dichloroethane	2011/09/13	NC		%	25
		Ethylene Dibromide	2011/09/13	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D5730

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2613205 DVO	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/09/13	NC		%	25
		1,1,2-Trichloroethane	2011/09/13	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/09/13	NC		%	25
		cis-1,3-Dichloropropene	2011/09/13	NC		%	25
		trans-1,3-Dichloropropene	2011/09/13	NC		%	25
		1,2-Dichloropropane	2011/09/13	NC		%	25
		Bromomethane	2011/09/13	NC		%	25
		Bromoform	2011/09/13	NC		%	25
		Bromodichloromethane	2011/09/13	NC		%	25
		Dibromochloromethane	2011/09/13	NC		%	25
		Heptane	2011/09/13	NC		%	25
		Trichloroethylene	2011/09/13	NC		%	25
		Tetrachloroethylene	2011/09/13	NC		%	25
		Benzene	2011/09/13	1		%	25
		Toluene	2011/09/13	3.6		%	25
		Ethylbenzene	2011/09/13	NC		%	25
		p+m-Xylene	2011/09/13	3.5		%	25
		o-Xylene	2011/09/13	NC		%	25
		Styrene	2011/09/13	NC		%	25
		1,3,5-Trimethylbenzene	2011/09/13	NC		%	25
		1,2,4-Trimethylbenzene	2011/09/13	NC		%	25
		4-ethyltoluene	2011/09/13	NC		%	25
		Chlorobenzene	2011/09/13	NC		%	25
		Benzyl chloride	2011/09/13	NC		%	25
		1,3-Dichlorobenzene	2011/09/13	NC		%	25
		1,4-Dichlorobenzene	2011/09/13	NC		%	25
		1,2-Dichlorobenzene	2011/09/13	NC		%	25
		1,2,4-Trichlorobenzene	2011/09/13	NC		%	25
		Hexachlorobutadiene	2011/09/13	NC		%	25
		Hexane	2011/09/13	NC		%	25
		Cyclohexane	2011/09/13	NC		%	25
		Tetrahydrofuran	2011/09/13	NC		%	25
		1,4-Dioxane	2011/09/13	NC		%	25
		Xylene (Total)	2011/09/13	3.0		%	25

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

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

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

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

Polycyclic Aromatic Hydrocarbons Laboratory Analysis

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/Aug 01,11

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Jul 29, 2011 @ 6:07 mst
Removal Date/Time: Aug 02, 2011 @ 7:05 mst

Date and Time Information			
Sample Date	Start Time (MST)		Elapsed Time (Hours)
01-Aug-11	08/01/2011 0:00	08/02/2010 0:00	0.047

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
27-Jul-11	02-Aug-11	15-Aug-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 ³)
710	198	13.0	0.55

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# 05455

GB1A4642 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Aug 01, 11

Sampling time only less 3 minutes, likely due to a power failure.

Technician Signiture: Ting Xu

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Aug 7,11

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Aug 05, 2011 @ 6:52 mst
 Removal Date/Time: Aug 09, 11 @ 12:30 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
13-Aug-11	08/13/2011 0:00	08/14/2011 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
11-Aug-11	10-Aug-11	01-Sep-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-May-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
710	230	12.8	328.29

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#
GB1B9185 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Aug 7, 11

Technician Signiture: Ting Xu

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/Aug 13,11

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Aug 13, 2011 @ 14:00mst
Removal Date/Time: Aug 16, 2011 @ 11:15 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
13-Aug-11	08/13/2011 0:00	08/14/2011 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
12-Aug-11	16-Aug-11	01-Sep-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-May-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
710	229	20.7	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# 5013

GB1B9185 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Aug 13, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 5013

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

Report Date: 2011/08/29

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1C8273**

Received: 2011/08/23, 09:32

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/08/24	2011/08/26	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

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

Maxxam ID		KQ3468	KQ3469		
Sampling Date		2011/08/13	2011/08/13		
COC Number		5013	5013		
	Units	LICA PUFF & QFF/CLS/AUG 13,11	LICA PUFF & QFF/PORT/AUG 13,11	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2592648
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2592648
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2592648
2-Methylantracene	ug	<0.10	<0.10	0.10	2592648
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2592648
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2592648
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2592648
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2592648
Acenaphthene	ug	<0.050	<0.050	0.050	2592648
Acenaphthylene	ug	<0.050	<0.050	0.050	2592648
Anthracene	ug	<0.050	<0.050	0.050	2592648
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2592648
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2592648
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2592648
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2592648
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2592648
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2592648
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2592648
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2592648
Biphenyl	ug	<0.10	<0.10	0.10	2592648
Chrysene	ug	<0.050	<0.050	0.050	2592648
Coronene	ug	<0.10	<0.10	0.10	2592648
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2592648
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2592648
Fluoranthene	ug	0.050	<0.050	0.050	2592648
Fluorene	ug	0.054	<0.050	0.050	2592648
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2592648
m-Terphenyl	ug	<0.10	<0.10	0.10	2592648
Naphthalene	ug	<0.072	<0.072	0.072	2592648
o-Terphenyl	ug	<0.10	<0.10	0.10	2592648
Perylene	ug	<0.10	<0.10	0.10	2592648

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

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

Maxxam ID		KQ3468	KQ3469		
Sampling Date		2011/08/13	2011/08/13		
COC Number		5013	5013		
	Units	LICA PUFF & QFF/CLS/AUG 13,11	LICA PUFF & QFF/PORT/AUG 13,11	RDL	QC Batch

Phenanthrene	ug	0.308	0.130	0.050	2592648
p-Terphenyl	ug	<0.10	<0.10	0.10	2592648
Pyrene	ug	<0.050	<0.050	0.050	2592648
Quinoline	ug	<0.40	<0.40	0.40	2592648
Tetralin	ug	<0.10	<0.10	0.10	2592648
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	66	64		2592648
D10-Fluoranthene	%	96	88		2592648
D10-Fluorene (FS)	%	11 (1)	7.8 (1)		2592648
D10-Phenanthrene	%	90	82		2592648
D12-Benzo(a)anthracene	%	84	84		2592648
D12-Benzo(a)pyrene	%	78	78		2592648
D12-Benzo(b)fluoranthene	%	82	78		2592648
D12-Benzo(ghi)perylene	%	80	78		2592648
D12-Benzo(k)fluoranthene	%	76	76		2592648
D12-Chrysene	%	76	76		2592648
D12-Indeno(1,2,3-cd)pyrene	%	80	80		2592648
D12-Perylene	%	78	78		2592648
D14-Dibenzo(a,h)anthracene	%	82	82		2592648
D14-Terphenyl (FS)	%	96	92		2592648
D8-Acenaphthylene	%	70	68		2592648
D8-Naphthalene	%	60	62		2592648

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 #: B1C8273
Report Date: 2011/08/29

Test Summary

Maxxam ID KQ3468 **Collected** 2011/08/13
Sample ID LICA PUFF & QFF/CLS/AUG 13,11 **Shipped**
Matrix PUF AND FILTER **Received** 2011/08/23

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2592648	2011/08/24	2011/08/26	JIE WU

Maxxam ID KQ3469 **Collected** 2011/08/13
Sample ID LICA PUFF & QFF/PORT/AUG 13,11 **Shipped**
Matrix PUF AND FILTER **Received** 2011/08/23

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2592648	2011/08/24	2011/08/26	JIE WU

Maxxam Job #: B1C8273
Report Date: 2011/08/29

GENERAL COMMENTS

PAHMS-F

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

Samples received past hold time.

Low benzo(a)pyrene recovery in spike.

Chrysene is statistically out of control at 69.5% recovery in the spike:dup. Spike recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

Naphthalene, benzo(g,h,i)perylene and 1-methylphenanthrene positive found in blank. Samples should be considered to be possibly contaminated to the level found in the blank.

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

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

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

Sample KQ3468-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Internal standard area response criteria of d12-benzo(e)pyrene was high in sample.

Sample KQ3469-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB1C8273

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2592648 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/08/26		84	%	50 - 150
		D10-Fluoranthene	2011/08/26		92	%	50 - 150
		D10-Phenanthrene	2011/08/26		92	%	50 - 150
		D12-Benzo(a)anthracene	2011/08/26		80	%	50 - 150
		D12-Benzo(a)pyrene	2011/08/26		74	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/08/26		82	%	50 - 150
		D12-Benzo(ghi)perylene	2011/08/26		76	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/08/26		76	%	50 - 150
		D12-Chrysene	2011/08/26		80	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/08/26		76	%	50 - 150
		D12-Perylene	2011/08/26		76	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/08/26		80	%	50 - 150
		D8-Acenaphthylene	2011/08/26		76	%	50 - 150
		D8-Naphthalene	2011/08/26		82	%	50 - 150
	RPD	Acenaphthene	2011/08/26		1.3	%	60 - 130
	Spiked Blank	Acenaphthene	2011/08/26				50
	RPD	Acenaphthylene	2011/08/26		0	%	60 - 130
	Spiked Blank	Acenaphthylene	2011/08/26				50
	RPD	Anthracene	2011/08/26		0.3	%	60 - 130
	Spiked Blank	Anthracene	2011/08/26				50
	RPD	Benzo(a)anthracene	2011/08/26		5.3	%	60 - 130
	Spiked Blank	Benzo(a)anthracene	2011/08/26				50
	RPD	Benzo(a)pyrene	2011/08/26		11.6	57 (1) %	60 - 130
	Spiked Blank	Benzo(a)pyrene	2011/08/26				50
	RPD	Benzo(b)fluoranthene	2011/08/26		6.0	%	60 - 130
	Spiked Blank	Benzo(b)fluoranthene	2011/08/26				50
	RPD	Benzo(g,h,i)perylene	2011/08/26		6.8	%	60 - 130
	Spiked Blank	Benzo(g,h,i)perylene	2011/08/26				50
	RPD	Benzo(k)fluoranthene	2011/08/26		0.7	%	60 - 130
	Spiked Blank	Benzo(k)fluoranthene	2011/08/26				50
	RPD	Chrysene	2011/08/26		1.4	%	60 - 130
	Spiked Blank	Chrysene	2011/08/26				50
	RPD	Dibenz(a,h)anthracene	2011/08/26		4.2	%	60 - 130
	Spiked Blank	Dibenz(a,h)anthracene	2011/08/26				50
	RPD	Fluoranthene	2011/08/26		5.8	%	60 - 130
	Spiked Blank	Fluoranthene	2011/08/26				50
	RPD	Fluorene	2011/08/26		3.2	%	60 - 130
	Spiked Blank	Fluorene	2011/08/26				50
	RPD	Indeno(1,2,3-cd)pyrene	2011/08/26		12.0	%	60 - 130
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/08/26				50
RPD	Naphthalene	2011/08/26		84	%	60 - 130	
Spiked Blank	Naphthalene	2011/08/26				50	
RPD	Phenanthrene	2011/08/26		0.9	%	60 - 130	
Spiked Blank	Phenanthrene	2011/08/26				50	
RPD	Pyrene	2011/08/26		5.4	%	60 - 130	
Spiked Blank	Pyrene	2011/08/26				50	
Method Blank	D10-2-Methylnaphthalene	2011/08/26				50 - 150	
	D10-Fluoranthene	2011/08/26				50 - 150	
	D10-Phenanthrene	2011/08/26				50 - 150	
	D12-Benzo(a)anthracene	2011/08/26				50 - 150	
	D12-Benzo(a)pyrene	2011/08/26				50 - 150	
	D12-Benzo(b)fluoranthene	2011/08/26				50 - 150	
	D12-Benzo(ghi)perylene	2011/08/26				50 - 150	
	D12-Benzo(k)fluoranthene	2011/08/26				50 - 150	
	D12-Chrysene	2011/08/26				50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C8273

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2592648 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/08/26		76	%	50 - 150
		D12-Perylene	2011/08/26		114	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/08/26		78	%	50 - 150
		D8-Acenaphthylene	2011/08/26		86	%	50 - 150
		D8-Naphthalene	2011/08/26		86	%	50 - 150
		1-Methylnaphthalene	2011/08/26	<0.10		ug	
		1-Methylphenanthrene	2011/08/26	0.26, RDL=0.10		ug	
		2-Chloronaphthalene	2011/08/26	<0.10		ug	
		2-Methylantracene	2011/08/26	<0.10		ug	
		2-Methylnaphthalene	2011/08/26	<0.10		ug	
		3-Methylcholanthrene	2011/08/26	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/08/26	<0.10		ug	
		9,10-Dimethylantracene	2011/08/26	<0.40		ug	
		Acenaphthene	2011/08/26	<0.050		ug	
		Acenaphthylene	2011/08/26	<0.050		ug	
		Anthracene	2011/08/26	<0.050		ug	
		Benzo(a)anthracene	2011/08/26	<0.050		ug	
		Benzo(a)fluorene	2011/08/26	<0.10		ug	
		Benzo(a)pyrene	2011/08/26	<0.050		ug	
		Benzo(b)fluoranthene	2011/08/26	<0.050		ug	
		Benzo(b)fluorene	2011/08/26	<0.10		ug	
		Benzo(e)pyrene	2011/08/26	<0.10		ug	
		Benzo(g,h,i)perylene	2011/08/26	0.082, RDL=0.050		ug	
		Benzo(k)fluoranthene	2011/08/26	<0.050		ug	
		Biphenyl	2011/08/26	<0.10		ug	
		Chrysene	2011/08/26	<0.050		ug	
		Coronene	2011/08/26	<0.10		ug	
		Dibenz(a,h)anthracene	2011/08/26	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/08/26	<0.20		ug	
		Fluoranthene	2011/08/26	<0.050		ug	
		Fluorene	2011/08/26	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/08/26	<0.050		ug	
		m-Terphenyl	2011/08/26	<0.10		ug	
		Naphthalene	2011/08/26	0.104, RDL=0.072		ug	
		o-Terphenyl	2011/08/26	<0.10		ug	
		Perylene	2011/08/26	<0.10		ug	
		Phenanthrene	2011/08/26	<0.050		ug	
		p-Terphenyl	2011/08/26	<0.10		ug	
		Pyrene	2011/08/26	<0.050		ug	
		Quinoline	2011/08/26	<0.40		ug	
		Tetralin	2011/08/26	<0.10		ug	

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

Spiked Blank: A blank matrix 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: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/Aug 19,11

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Aug 18, 2011 @ 11:00 mst
Removal Date/Time: Aug 22, 2011 @ 8:23 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
19-Aug-11	08/19/2011 0:00	08/20/2011 0:00	

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
16-Aug-11	22-Aug-11	01-Sep-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-May-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
713	229	13.3	330.34

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

Comments: COC# 05528

GB1C1943 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Aug 19, 11

Technician Signiture: Jacob Roch/ Ting Xu

Your C.O.C. #: 05528

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

Report Date: 2011/09/02

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1C9356****Received: 2011/08/24, 09:06**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/08/26	2011/09/01	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

Page 1 of 7

Maxxam Job #: B1C9356
 Report Date: 2011/09/02

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

Maxxam ID		KQ8590	KQ8591		
Sampling Date		2011/08/19	2011/08/19		
COC Number		05528	05528		
	Units	LICA PUFF&QFF/CLS/AUG 14, 11	LICA PUFF&QFF/PORT/AUG 14, 11	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.14	<0.10	0.10	2595190
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2595190
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2595190
2-Methylantracene	ug	<0.10	<0.10	0.10	2595190
2-Methylnaphthalene	ug	0.31	<0.10	0.10	2595190
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2595190
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2595190
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2595190
Acenaphthene	ug	0.070	<0.050	0.050	2595190
Acenaphthylene	ug	<0.050	<0.050	0.050	2595190
Anthracene	ug	<0.050	<0.050	0.050	2595190
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2595190
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2595190
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2595190
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2595190
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2595190
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2595190
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2595190
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2595190
Biphenyl	ug	<0.10	<0.10	0.10	2595190
Chrysene	ug	<0.050	<0.050	0.050	2595190
Coronene	ug	<0.10	<0.10	0.10	2595190
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2595190
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2595190
Fluoranthene	ug	<0.050	<0.050	0.050	2595190
Fluorene	ug	0.104	<0.050	0.050	2595190
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2595190
m-Terphenyl	ug	<0.10	<0.10	0.10	2595190
Naphthalene	ug	0.156	0.082	0.072	2595190
o-Terphenyl	ug	<0.10	<0.10	0.10	2595190
Perylene	ug	<0.10	<0.10	0.10	2595190

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1C9356
 Report Date: 2011/09/02

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

Maxxam ID		KQ8590	KQ8591		
Sampling Date		2011/08/19	2011/08/19		
COC Number		05528	05528		
	Units	LICA PUFF&QFF/CLS/AUG 14, 11	LICA PUFF&QFF/PORT/AUG 14, 11	RDL	QC Batch

Phenanthrene	ug	0.256	0.106	0.050	2595190
p-Terphenyl	ug	<0.10	<0.10	0.10	2595190
Pyrene	ug	<0.050	<0.050	0.050	2595190
Quinoline	ug	<0.40	<0.40	0.40	2595190
Tetralin	ug	<0.10	<0.10	0.10	2595190
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	84	80		2595190
D10-Fluoranthene	%	96	98		2595190
D10-Fluorene (FS)	%	14 (1)	21 (1)		2595190
D10-Phenanthrene	%	86	88		2595190
D12-Benzo(a)anthracene	%	106	114		2595190
D12-Benzo(a)pyrene	%	94	94		2595190
D12-Benzo(b)fluoranthene	%	94	98		2595190
D12-Benzo(ghi)perylene	%	82	84		2595190
D12-Benzo(k)fluoranthene	%	98	100		2595190
D12-Chrysene	%	102	104		2595190
D12-Indeno(1,2,3-cd)pyrene	%	92	94		2595190
D12-Perylene	%	98	100		2595190
D14-Dibenzo(a,h)anthracene	%	94	96		2595190
D14-Terphenyl (FS)	%	97	99		2595190
D8-Acenaphthylene	%	86	86		2595190
D8-Naphthalene	%	86	82		2595190

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 #: B1C9356
 Report Date: 2011/09/02

Test Summary

Maxxam ID	KQ8590	Collected	2011/08/19
Sample ID	LICA PUFF&QFF/CLS/AUG 14, 11	Shipped	
Matrix	PUF AND FILTER	Received	2011/08/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2595190	2011/08/26	2011/09/01	JIE WU

Maxxam ID	KQ8591	Collected	2011/08/19
Sample ID	LICA PUFF&QFF/PORT/AUG 14, 11	Shipped	
Matrix	PUF AND FILTER	Received	2011/08/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2595190	2011/08/26	2011/09/01	JIE WU

Maxxam Job #: B1C9356
Report Date: 2011/09/02

GENERAL COMMENTS

PAHMS-F

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

Acenaphthylene is statistically out of control at 87% recovery in spike. Spike:dup recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

Naphthalene, 2-methylnaphthalene and phenanthrene positive found in blank. Samples should be considered to be possibly contaminated to the level found in the blank.

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

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

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

Sample KQ8590-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Sample KQ8591-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB1C9356

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2595190 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/09/01		92	%	50 - 150
		D10-Fluoranthene	2011/09/01		96	%	50 - 150
		D10-Phenanthrene	2011/09/01		84	%	50 - 150
		D12-Benzo(a)anthracene	2011/09/01		102	%	50 - 150
		D12-Benzo(a)pyrene	2011/09/01		100	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/09/01		94	%	50 - 150
		D12-Benzo(ghi)perylene	2011/09/01		84	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/09/01		98	%	50 - 150
		D12-Chrysene	2011/09/01		94	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/09/01		96	%	50 - 150
		D12-Perylene	2011/09/01		108	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/09/01		96	%	50 - 150
		RPD	D8-Acenaphthylene	2011/09/01		94	%
	D8-Naphthalene		2011/09/01		94	%	50 - 150
	Spiked Blank	Acenaphthene	2011/09/01		79	%	60 - 130
		Acenaphthene	2011/09/01	10.4		%	50
	RPD	Acenaphthylene	2011/09/01		87	%	60 - 130
		Acenaphthylene	2011/09/01	11.2		%	50
	Spiked Blank	Anthracene	2011/09/01		73	%	60 - 130
		Anthracene	2011/09/01	0.3		%	50
	Spiked Blank	Benzo(a)anthracene	2011/09/01		84	%	60 - 130
		Benzo(a)anthracene	2011/09/01	7.5		%	50
	Spiked Blank	Benzo(a)pyrene	2011/09/01		75	%	60 - 130
		Benzo(a)pyrene	2011/09/01	8.0		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/09/01		87	%	60 - 130
		Benzo(b)fluoranthene	2011/09/01	13.5		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/09/01		83	%	60 - 130
		Benzo(g,h,i)perylene	2011/09/01	10.1		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/09/01		87	%	60 - 130
		Benzo(k)fluoranthene	2011/09/01	0.9		%	50
	Spiked Blank	Chrysene	2011/09/01		83	%	60 - 130
		Chrysene	2011/09/01	1.8		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/09/01		81	%	60 - 130
		Dibenz(a,h)anthracene	2011/09/01	5.7		%	50
	Spiked Blank	Fluoranthene	2011/09/01		82	%	60 - 130
		Fluoranthene	2011/09/01	5.0		%	50
	Spiked Blank	Fluorene	2011/09/01		80	%	60 - 130
		Fluorene	2011/09/01	10.2		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/09/01		81	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/09/01	6.3		%	50
Spiked Blank	Naphthalene	2011/09/01		89	%	60 - 130	
	Naphthalene	2011/09/01	14.8		%	50	
Spiked Blank	Phenanthrene	2011/09/01		75	%	60 - 130	
	Phenanthrene	2011/09/01	9.1		%	50	
Spiked Blank	Pyrene	2011/09/01		79	%	60 - 130	
	Pyrene	2011/09/01	7.9		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/09/01		94	%	50 - 150	
	D10-Fluoranthene	2011/09/01		98	%	50 - 150	
	D10-Phenanthrene	2011/09/01		86	%	50 - 150	
	D12-Benzo(a)anthracene	2011/09/01		100	%	50 - 150	
	D12-Benzo(a)pyrene	2011/09/01		102	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/09/01		96	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/09/01		86	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/09/01		100	%	50 - 150	
	D12-Chrysene	2011/09/01		100	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C9356

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2595190 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/09/01		96	%	50 - 150
		D12-Perylene	2011/09/01		106	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/09/01		96	%	50 - 150
		D8-Acenaphthylene	2011/09/01		100	%	50 - 150
		D8-Naphthalene	2011/09/01		96	%	50 - 150
		1-Methylnaphthalene	2011/09/01	<0.10		ug	
		1-Methylphenanthrene	2011/09/01	<0.10		ug	
		2-Chloronaphthalene	2011/09/01	<0.10		ug	
		2-Methylanthracene	2011/09/01	<0.10		ug	
		2-Methylnaphthalene	2011/09/01	0.11, RDL=0.10		ug	
		3-Methylcholanthrene	2011/09/01	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/09/01	<0.10		ug	
		9,10-Dimethylanthracene	2011/09/01	<0.40		ug	
		Acenaphthene	2011/09/01	<0.050		ug	
		Acenaphthylene	2011/09/01	<0.050		ug	
		Anthracene	2011/09/01	<0.050		ug	
		Benzo(a)anthracene	2011/09/01	<0.050		ug	
		Benzo(a)fluorene	2011/09/01	<0.10		ug	
		Benzo(a)pyrene	2011/09/01	<0.050		ug	
		Benzo(b)fluoranthene	2011/09/01	<0.050		ug	
		Benzo(b)fluorene	2011/09/01	<0.10		ug	
		Benzo(e)pyrene	2011/09/01	<0.10		ug	
		Benzo(g,h,i)perylene	2011/09/01	<0.050		ug	
		Benzo(k)fluoranthene	2011/09/01	<0.050		ug	
		Biphenyl	2011/09/01	<0.10		ug	
		Chrysene	2011/09/01	<0.050		ug	
		Coronene	2011/09/01	<0.10		ug	
		Dibenz(a,h)anthracene	2011/09/01	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/09/01	<0.20		ug	
		Fluoranthene	2011/09/01	<0.050		ug	
		Fluorene	2011/09/01	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/09/01	<0.050		ug	
		m-Terphenyl	2011/09/01	<0.10		ug	
		Naphthalene	2011/09/01	0.166, RDL=0.072		ug	
		o-Terphenyl	2011/09/01	<0.10		ug	
		Perylene	2011/09/01	<0.10		ug	
		Phenanthrene	2011/09/01	0.056, RDL=0.050		ug	
		p-Terphenyl	2011/09/01	<0.10		ug	
		Pyrene	2011/09/01	<0.050		ug	
		Quinoline	2011/09/01	<0.40		ug	
		Tetralin	2011/09/01	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/Aug 25,11

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Aug 24, 2011 @ 7:36 mst
Removal Date/Time: Aug 26, 2011 @ 7:25 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
25-Aug-11	08/25/2011 0:00	08/26/2011 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
21-Aug-11	26-Aug-11	01-Sep-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-May-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
711	229	16.9	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#05789

GB1C1951 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Aug 25, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 05789

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

Report Date: 2011/09/12

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1D2440****Received: 2011/08/30, 09:18**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/09/01	2011/09/09	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B1D2440
 Report Date: 2011/09/12

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

Maxxam ID		KS2773	KS2774		
Sampling Date		2011/08/25	2011/08/25		
COC Number		05789	05789		
	Units	LICA PUFF+QFF/CLS/AUG 25,11	LICAPUFF+QFF/PORT/AUG 25,11	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2602175
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2602175
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2602175
2-Methylantracene	ug	<0.10	<0.10	0.10	2602175
2-Methylnaphthalene	ug	0.10	<0.10	0.10	2602175
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2602175
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2602175
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2602175
Acenaphthene	ug	0.074	<0.050	0.050	2602175
Acenaphthylene	ug	<0.050	<0.050	0.050	2602175
Anthracene	ug	<0.050	<0.050	0.050	2602175
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2602175
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2602175
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2602175
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2602175
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2602175
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2602175
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2602175
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2602175
Biphenyl	ug	<0.10	<0.10	0.10	2602175
Chrysene	ug	<0.050	<0.050	0.050	2602175
Coronene	ug	<0.10	<0.10	0.10	2602175
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2602175
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2602175
Fluoranthene	ug	0.060	<0.050	0.050	2602175
Fluorene	ug	0.138	<0.050	0.050	2602175
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2602175
m-Terphenyl	ug	<0.10	<0.10	0.10	2602175
Naphthalene	ug	0.080	<0.072	0.072	2602175
o-Terphenyl	ug	<0.10	<0.10	0.10	2602175
Perylene	ug	<0.10	<0.10	0.10	2602175

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1D2440
 Report Date: 2011/09/12

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

Maxxam ID		KS2773	KS2774		
Sampling Date		2011/08/25	2011/08/25		
COC Number		05789	05789		
	Units	LICA PUFF+QFF/CLS/AUG 25,11	LICAPUFF+QFF/PORT/AUG 25,11	RDL	QC Batch

Phenanthrene	ug	0.440	0.088	0.050	2602175
p-Terphenyl	ug	<0.10	<0.10	0.10	2602175
Pyrene	ug	0.062	<0.050	0.050	2602175
Quinoline	ug	<0.40	<0.40	0.40	2602175
Tetralin	ug	<0.10	<0.10	0.10	2602175
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	78	86		2602175
D10-Fluoranthene	%	110	106		2602175
D10-Fluorene (FS)	%	26 (1)	29 (1)		2602175
D10-Phenanthrene	%	100	96		2602175
D12-Benzo(a)anthracene	%	122	112		2602175
D12-Benzo(a)pyrene	%	116	110		2602175
D12-Benzo(b)fluoranthene	%	112	108		2602175
D12-Benzo(ghi)perylene	%	122	116		2602175
D12-Benzo(k)fluoranthene	%	100	96		2602175
D12-Chrysene	%	96	92		2602175
D12-Indeno(1,2,3-cd)pyrene	%	122	118		2602175
D12-Perylene	%	108	104		2602175
D14-Dibenzo(a,h)anthracene	%	124	116		2602175
D14-Terphenyl (FS)	%	108	107		2602175
D8-Acenaphthylene	%	96	100		2602175
D8-Naphthalene	%	76	84		2602175

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 #: B1D2440
Report Date: 2011/09/12

GENERAL COMMENTS

PAHMS-F

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

Acenaphthylene is statistically out of control at 99% recovery in spike and 97% recovery in spike:dup. Acceptance criteria met for both spike and dup. Data reported and flagged.

Phenanthrene is statistically out of control at 93% recovery in the spike:dup. Spike recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

Pyrene is statistically out of control at 98% recovery in the spike:dup. Spike recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

Chrysene is statistically out of control at 88% recovery in the spike:dup. Spike recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

Naphthalene and 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.

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 KS2773-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Sample KS2774-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB1D2440

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2602175 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/09/09		90	%	50 - 150	
		D10-Fluoranthene	2011/09/09		108	%	50 - 150	
		D10-Phenanthrene	2011/09/09		98	%	50 - 150	
		D12-Benzo(a)anthracene	2011/09/09		112	%	50 - 150	
		D12-Benzo(a)pyrene	2011/09/09		112	%	50 - 150	
		D12-Benzo(b)fluoranthene	2011/09/09		102	%	50 - 150	
		D12-Benzo(ghi)perylene	2011/09/09		114	%	50 - 150	
		D12-Benzo(k)fluoranthene	2011/09/09		102	%	50 - 150	
		D12-Chrysene	2011/09/09		92	%	50 - 150	
		D12-Indeno(1,2,3-cd)pyrene	2011/09/09		116	%	50 - 150	
		D12-Perylene	2011/09/09		106	%	50 - 150	
		D14-Dibenzo(a,h)anthracene	2011/09/09		116	%	50 - 150	
		D8-Acenaphthylene	2011/09/09		104	%	50 - 150	
		D8-Naphthalene	2011/09/09		88	%	50 - 150	
	RPD	Acenaphthene	2011/09/09		3.2	%	60 - 130	
		Acenaphthene	2011/09/09				50	
		Acenaphthylene	2011/09/09			99	%	60 - 130
		Acenaphthylene	2011/09/09		2.3	%	50	
		Anthracene	2011/09/09			87	%	60 - 130
		Anthracene	2011/09/09		5.0	%	50	
		Benzo(a)anthracene	2011/09/09			94	%	60 - 130
		Benzo(a)anthracene	2011/09/09		2.4	%	50	
		Benzo(a)pyrene	2011/09/09			86	%	60 - 130
		Benzo(a)pyrene	2011/09/09		4.0	%	50	
		Benzo(b)fluoranthene	2011/09/09			90	%	60 - 130
		Benzo(b)fluoranthene	2011/09/09		2.5	%	50	
		Benzo(g,h,i)perylene	2011/09/09			101	%	60 - 130
		Benzo(g,h,i)perylene	2011/09/09		2.4	%	50	
Benzo(k)fluoranthene	2011/09/09			93	%	60 - 130		
Benzo(k)fluoranthene	2011/09/09		3.2	%	50			
Chrysene	2011/09/09			87	%	60 - 130		
Chrysene	2011/09/09		0.9	%	50			
Dibenz(a,h)anthracene	2011/09/09			102	%	60 - 130		
Dibenz(a,h)anthracene	2011/09/09		3.1	%	50			
Fluoranthene	2011/09/09			100	%	60 - 130		
Fluoranthene	2011/09/09		4.9	%	50			
Fluorene	2011/09/09			91	%	60 - 130		
Fluorene	2011/09/09		2.0	%	50			
Indeno(1,2,3-cd)pyrene	2011/09/09			102	%	60 - 130		
Indeno(1,2,3-cd)pyrene	2011/09/09		2.4	%	50			
Naphthalene	2011/09/09			97	%	60 - 130		
Naphthalene	2011/09/09		11.7	%	50			
Phenanthrene	2011/09/09			92	%	60 - 130		
Phenanthrene	2011/09/09		1.9	%	50			
Pyrene	2011/09/09			92	%	60 - 130		
Pyrene	2011/09/09		5.5	%	50			
Method Blank	D10-2-Methylnaphthalene	2011/09/09			84	%	50 - 150	
	D10-Fluoranthene	2011/09/09			110	%	50 - 150	
	D10-Phenanthrene	2011/09/09			96	%	50 - 150	
	D12-Benzo(a)anthracene	2011/09/09			108	%	50 - 150	
	D12-Benzo(a)pyrene	2011/09/09			108	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/09/09			98	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/09/09			108	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/09/09			94	%	50 - 150	
	D12-Chrysene	2011/09/09			82	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D2440

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2602175 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/09/09		110	%	50 - 150
		D12-Perylene	2011/09/09		114	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/09/09		110	%	50 - 150
		D8-Acenaphthylene	2011/09/09		100	%	50 - 150
		D8-Naphthalene	2011/09/09		82	%	50 - 150
		1-Methylnaphthalene	2011/09/09	<0.10		ug	
		1-Methylphenanthrene	2011/09/09	<0.10		ug	
		2-Chloronaphthalene	2011/09/09	<0.10		ug	
		2-Methylanthracene	2011/09/09	<0.10		ug	
		2-Methylnaphthalene	2011/09/09	<0.10		ug	
		3-Methylcholanthrene	2011/09/09	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/09/09	<0.10		ug	
		9,10-Dimethylanthracene	2011/09/09	<0.40		ug	
		Acenaphthene	2011/09/09	<0.050		ug	
		Acenaphthylene	2011/09/09	<0.050		ug	
		Anthracene	2011/09/09	<0.050		ug	
		Benzo(a)anthracene	2011/09/09	<0.050		ug	
		Benzo(a)fluorene	2011/09/09	<0.10		ug	
		Benzo(a)pyrene	2011/09/09	<0.050		ug	
		Benzo(b)fluoranthene	2011/09/09	<0.050		ug	
		Benzo(b)fluorene	2011/09/09	<0.10		ug	
		Benzo(e)pyrene	2011/09/09	<0.10		ug	
		Benzo(g,h,i)perylene	2011/09/09	0.058, RDL=0.050		ug	
		Benzo(k)fluoranthene	2011/09/09	<0.050		ug	
		Biphenyl	2011/09/09	<0.10		ug	
		Chrysene	2011/09/09	<0.050		ug	
		Coronene	2011/09/09	<0.10		ug	
		Dibenz(a,h)anthracene	2011/09/09	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/09/09	<0.20		ug	
		Fluoranthene	2011/09/09	<0.050		ug	
		Fluorene	2011/09/09	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/09/09	<0.050		ug	
		m-Terphenyl	2011/09/09	<0.10		ug	
		Naphthalene	2011/09/09	0.118, RDL=0.072		ug	
		o-Terphenyl	2011/09/09	<0.10		ug	
		Perylene	2011/09/09	<0.10		ug	
		Phenanthrene	2011/09/09	<0.050		ug	
		p-Terphenyl	2011/09/09	<0.10		ug	
		Pyrene	2011/09/09	<0.050		ug	
		Quinoline	2011/09/09	<0.40		ug	
		Tetralin	2011/09/09	<0.10		ug	

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Aug 31,11

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Aug 29, 2011 @ 11:24 mst
 Removal Date/Time: Sept 01, 2011 @ 8:53 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
31-Aug-11	08/31/2011 0:00	09/01/2011 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
25-Aug-11	01-Sep-11	15-Sep-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-May-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
711	229	11.9	330.36

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

Comments: COC# 05820

GB1C7366 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Aug 25, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 05820

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

Report Date: 2011/09/20

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1D5741**

Received: 2011/09/03, 11:15

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/09/07	2011/09/20	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B1D5741
 Report Date: 2011/09/20

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

Maxxam ID		KT8197	KT8198		
Sampling Date		2011/08/31	2011/08/31		
COC Number		05820	05820		
	Units	LICA PUFF+QFF/CLS/AUG 31,2011	LICA PUFF+QFF/PORT/AUG 31,2011	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2605899
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2605899
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2605899
2-Methylantracene	ug	<0.10	<0.10	0.10	2605899
2-Methylnaphthalene	ug	0.14	<0.10	0.10	2605899
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2605899
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2605899
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2605899
Acenaphthene	ug	0.066	<0.050	0.050	2605899
Acenaphthylene	ug	<0.050	<0.050	0.050	2605899
Anthracene	ug	<0.050	<0.050	0.050	2605899
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2605899
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2605899
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2605899
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2605899
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2605899
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2605899
Benzo(g,h,i)perylene	ug	0.060	0.056	0.050	2605899
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2605899
Biphenyl	ug	<0.10	<0.10	0.10	2605899
Chrysene	ug	<0.050	<0.050	0.050	2605899
Coronene	ug	<0.10	<0.10	0.10	2605899
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2605899
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2605899
Fluoranthene	ug	<0.050	<0.050	0.050	2605899
Fluorene	ug	0.098	0.050	0.050	2605899
Indeno(1,2,3-cd)pyrene	ug	0.052	0.052	0.050	2605899
m-Terphenyl	ug	<0.10	<0.10	0.10	2605899
Naphthalene	ug	0.126	0.102	0.072	2605899
o-Terphenyl	ug	<0.10	<0.10	0.10	2605899
Perylene	ug	<0.10	<0.10	0.10	2605899
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					

Maxxam Job #: B1D5741
 Report Date: 2011/09/20

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

Maxxam ID		KT8197	KT8198		
Sampling Date		2011/08/31	2011/08/31		
COC Number		05820	05820		
	Units	LICA PUFF+QFF/CLS/AUG 31,2011	LICA PUFF+QFF/PORT/AUG 31,2011	RDL	QC Batch

Phenanthrene	ug	0.214	0.096	0.050	2605899
p-Terphenyl	ug	<0.10	<0.10	0.10	2605899
Pyrene	ug	<0.050	<0.050	0.050	2605899
Quinoline	ug	<0.40	<0.40	0.40	2605899
Tetralin	ug	<0.10	<0.10	0.10	2605899
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	78	88		2605899
D10-Fluoranthene	%	100	100		2605899
D10-Fluorene (FS)	%	28 (1)	36 (1)		2605899
D10-Phenanthrene	%	94	96		2605899
D12-Benzo(a)anthracene	%	108	108		2605899
D12-Benzo(a)pyrene	%	92	96		2605899
D12-Benzo(b)fluoranthene	%	96	98		2605899
D12-Benzo(ghi)perylene	%	98	100		2605899
D12-Benzo(k)fluoranthene	%	96	98		2605899
D12-Chrysene	%	88	86		2605899
D12-Indeno(1,2,3-cd)pyrene	%	98	100		2605899
D12-Perylene	%	90	92		2605899
D14-Dibenzo(a,h)anthracene	%	98	100		2605899
D14-Terphenyl (FS)	%	102	108		2605899
D8-Acenaphthylene	%	84	90		2605899
D8-Naphthalene	%	74	86		2605899

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 #: B1D5741
 Report Date: 2011/09/20

Test Summary

Maxxam ID KT8197 **Collected** 2011/08/31
Sample ID LICA PUFF+QFF/CLS/AUG 31,2011 **Shipped**
Matrix PUF AND FILTER **Received** 2011/09/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2605899	2011/09/07	2011/09/20	WENDY ZHAO

Maxxam ID KT8198 **Collected** 2011/08/31
Sample ID LICA PUFF+QFF/PORT/AUG 31,2011 **Shipped**
Matrix PUF AND FILTER **Received** 2011/09/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2605899	2011/09/07	2011/09/20	WENDY ZHAO

Maxxam Job #: B1D5741
Report Date: 2011/09/20

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.

Pyrene is statistically out of control at 89.0% and 88.5% recovery in the spike and spike:dup. Phenanthrene is statistically out of control at 88.8% and 86.8% recovery in the spike and spike:dup. Acenaphthylene is statistically out of control at 88.5% and 85.3% recovery in the spike and spike:dup. Data reported and flagged.

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 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 KT8197-01: PAHMS-F

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

Sample KT8198-01: 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. #:
 Site Location:

Quality Assurance Report

Maxxam Job Number: GB1D5741

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2605899 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/09/20		92	%	50 - 150
		D10-Fluoranthene	2011/09/20		102	%	50 - 150
		D10-Phenanthrene	2011/09/20		96	%	50 - 150
		D12-Benzo(a)anthracene	2011/09/20		114	%	50 - 150
		D12-Benzo(a)pyrene	2011/09/20		106	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/09/20		102	%	50 - 150
		D12-Benzo(ghi)perylene	2011/09/20		102	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/09/20		98	%	50 - 150
		D12-Chrysene	2011/09/20		90	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/09/20		104	%	50 - 150
		D12-Perylene	2011/09/20		100	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/09/20		104	%	50 - 150
		RPD	D8-Acenaphthylene	2011/09/20		92	%
	D8-Naphthalene		2011/09/20		92	%	50 - 150
	Spiked Blank	Acenaphthene	2011/09/20		87	%	60 - 130
		Acenaphthene	2011/09/20	4.7		%	50
	RPD	Acenaphthylene	2011/09/20		89	%	60 - 130
		Acenaphthylene	2011/09/20	3.7		%	50
	Spiked Blank	Anthracene	2011/09/20		82	%	60 - 130
		Anthracene	2011/09/20	1.8		%	50
	Spiked Blank	Benzo(a)anthracene	2011/09/20		95	%	60 - 130
		Benzo(a)anthracene	2011/09/20	3.8		%	50
	Spiked Blank	Benzo(a)pyrene	2011/09/20		85	%	60 - 130
		Benzo(a)pyrene	2011/09/20	2.7		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/09/20		94	%	60 - 130
		Benzo(b)fluoranthene	2011/09/20	1.6		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/09/20		93	%	60 - 130
		Benzo(g,h,i)perylene	2011/09/20	0.5		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/09/20		91	%	60 - 130
		Benzo(k)fluoranthene	2011/09/20	4.2		%	50
	Spiked Blank	Chrysene	2011/09/20		86	%	60 - 130
		Chrysene	2011/09/20	3.0		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/09/20		94	%	60 - 130
		Dibenz(a,h)anthracene	2011/09/20	0.5		%	50
	Spiked Blank	Fluoranthene	2011/09/20		96	%	60 - 130
		Fluoranthene	2011/09/20	3.5		%	50
	Spiked Blank	Fluorene	2011/09/20		88	%	60 - 130
		Fluorene	2011/09/20	3.2		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/09/20		95	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/09/20	0.3		%	50
Spiked Blank	Naphthalene	2011/09/20		99	%	60 - 130	
	Naphthalene	2011/09/20	1.5		%	50	
Spiked Blank	Phenanthrene	2011/09/20		89	%	60 - 130	
	Phenanthrene	2011/09/20	2.3		%	50	
Spiked Blank	Pyrene	2011/09/20		89	%	60 - 130	
	Pyrene	2011/09/20	0.6		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/09/20		90	%	50 - 150	
	D10-Fluoranthene	2011/09/20		100	%	50 - 150	
	D10-Phenanthrene	2011/09/20		94	%	50 - 150	
	D12-Benzo(a)anthracene	2011/09/20		106	%	50 - 150	
	D12-Benzo(a)pyrene	2011/09/20		100	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/09/20		98	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/09/20		100	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/09/20		94	%	50 - 150	
	D12-Chrysene	2011/09/20		86	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D5741

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2605899 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/09/20		102	%	50 - 150
		D12-Perylene	2011/09/20		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/09/20		102	%	50 - 150
		D8-Acenaphthylene	2011/09/20		92	%	50 - 150
		D8-Naphthalene	2011/09/20		90	%	50 - 150
		1-Methylnaphthalene	2011/09/20	<0.10		ug	
		1-Methylphenanthrene	2011/09/20	<0.10		ug	
		2-Chloronaphthalene	2011/09/20	<0.10		ug	
		2-Methylanthracene	2011/09/20	<0.10		ug	
		2-Methylnaphthalene	2011/09/20	0.14, RDL=0.10		ug	
		3-Methylcholanthrene	2011/09/20	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/09/20	<0.10		ug	
		9,10-Dimethylanthracene	2011/09/20	<0.40		ug	
		Acenaphthene	2011/09/20	<0.050		ug	
		Acenaphthylene	2011/09/20	<0.050		ug	
		Anthracene	2011/09/20	<0.050		ug	
		Benzo(a)anthracene	2011/09/20	<0.050		ug	
		Benzo(a)fluorene	2011/09/20	<0.10		ug	
		Benzo(a)pyrene	2011/09/20	<0.050		ug	
		Benzo(b)fluoranthene	2011/09/20	<0.050		ug	
		Benzo(b)fluorene	2011/09/20	<0.10		ug	
		Benzo(e)pyrene	2011/09/20	<0.10		ug	
		Benzo(g,h,i)perylene	2011/09/20	<0.050		ug	
		Benzo(k)fluoranthene	2011/09/20	<0.050		ug	
		Biphenyl	2011/09/20	<0.10		ug	
		Chrysene	2011/09/20	<0.050		ug	
		Coronene	2011/09/20	<0.10		ug	
		Dibenz(a,h)anthracene	2011/09/20	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/09/20	<0.20		ug	
		Fluoranthene	2011/09/20	<0.050		ug	
		Fluorene	2011/09/20	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/09/20	<0.050		ug	
		m-Terphenyl	2011/09/20	<0.10		ug	
		Naphthalene	2011/09/20	0.248, RDL=0.072		ug	
		o-Terphenyl	2011/09/20	<0.10		ug	
		Perylene	2011/09/20	<0.10		ug	
		Phenanthrene	2011/09/20	0.056, RDL=0.050		ug	
		p-Terphenyl	2011/09/20	<0.10		ug	
		Pyrene	2011/09/20	<0.050		ug	
		Quinoline	2011/09/20	<0.40		ug	
		Tetralin	2011/09/20	<0.10		ug	

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

Spiked Blank: A blank matrix 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
August 2011

Prepared By:



September 22, 2011

Lakeland Industry & Community Association Ambient Air Monitoring Maskwa

Table of Contents			Page
Introduction			
Calibration Procedure			
Monthly Continuous Summary			
General Monthly Summary			
Continuous Monitoring			
• Monthly Summaries, Graphs & Wind Roses			
• Sulphur Dioxide			
• Hydrogen Sulphide			
• Total Hydrocarbons			
• Nitrogen Dioxide			
• Nitric Oxide			
• Oxides of Nitrogen			
• Temperature			
• Precipitation			
• Relative Humidity			
• Barometric Pressure			
• Vector Wind Speed			
• Vector Wind Direction			
• Standard Deviation Wind Direction			
		Page	
		Calibration Reports	84
		• Sulphur Dioxide	85
		• Hydrogen Sulphide	88
		• Total Hydrocarbons	91
		• Nitrogen Dioxide	94

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: August 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 – August 2011

LICA MASKWA SITE						MAXIMUM VALUES						OPERATIONAL TIME (PERCENT)	
						OBJECTIVES			EXCEEDENCES		MONTHLY AVERAGE		1-HOUR
PARAMETER	1-HR	24-HR	1-HR	24-HR	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING			DAY
SO2 (PPB)	172	48	0	0	0.43	13	25	5	6	303(WNW)	1.7	18	100.0
H2S (PPB)	10	3	0	0	0.34	2	VAR	VAR	VAR	VAR	1.0	14	99.9
THC (PPM)	-	-	-	-	2.18	5.9	5	5	3.8	101(E)	2.5	27	99.9
NOx (PPB)	-	-	-	-	2.55	26	3	8	2.5	228(SW)	6.0	18	99.9
NO (PPB)	-	-	-	-	0.71	16	3	8	2.5	228(SW)	2.0	18	99.9
NO ₂ (PPB)	159	-	0	-	1.81	17	25	5	6	303(WNW)	3.7	25	99.9
VECTOR WS (KPH)	-	-	-	-	3.97	14.0	21	13	-	188(S)	5.7	23	100.0
VECTOR WD (DEGREES)	-	-	-	-	235(SW)	-	-	-	-	-	-	-	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	71.07	93	VAR	VAR	VAR	VAR	89.0	7	100.0
TEMPERATURE (DEG C)	-	-	-	-	15.91	28.6	22	12	3.6	308(NW)	19.9	22	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	940	951	26	VAR	VAR	VAR	948.3	26	100.0
PRECIPITATION (MM)	-	-	-	-	0.06	7.8	5	3	2.3	81(E)	16.0	7	100.0

NA-NOT APPLICABLE VAR-VARIOUS

General Monthly Summary

Equipment Operation

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

AQM STATION – LICA – Maskwa

Sulphur Dioxide (PPB)

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

No operational issue was observed during the month. The inlet filter was changed before the monthly calibration was started. Hourly maximum data at hour 3 on August 5th was invalidated due to a small power outage. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

No operational issue was observed during the month. The inlet filter was changed before the monthly calibration was started. Data for both hourly and hourly maximum between hour 13 and hour 23 on August 11th are missing, reason unknown. Hourly data were calculated using minute data. Hourly maximum data at hour 3 on August 5th was invalidated due to a small power outage. Data was corrected using daily zero information.

Total HydroCarbon (PPM)

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

No operational issue was observed during this month. The inlet filter was changed before the monthly calibration was started. Hourly maximum data at hour 3 on August 5th was invalidated due to a small power outage. 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. Hourly maximum data at hour 3 on August 5th was invalidated due to a small power outage. Data was corrected using daily zero information.

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

- System make / model - RM Young 5103VK, S/N: 46553

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

No issue was observed during the month. Hourly maximum data for WS at hour 3 on August 5th was invalidated due to a small power outage. The last wind system calibration was performed on March 10th, 2011.

Relative Humidity (PERCENT)

- System make / model - Met One 083

No operational issues observed during the month.

General Monthly Summary

AQM STATION – LICA – Maskwa

Precipitation (MM)

- System make / model - Met One 387

No operational issues observed during this month. The tipping bucket operation was checked on August 12th; the result was good.

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 August 4th. The filter on the Bard air conditioner system was replaced on August 12th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 2011

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY 1	0	0	0	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	2	0.4	24	
2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	1	0.0	24
3	0	0	0	0	0	0	0	0	8	0	0	0	2	1	0	2	0	0	0	IZS	0	0	0	0	0	8	0.6	24
4	1	2	2	1	1	1	1	3	3	2	1	2	0	0	0	0	0	0	IZS	1	0	0	0	0	0	3	0.9	24
5	0	0	0	1	0	0	0	0	0	C	C	C	C	C	0	0	IZS	0	0	0	0	0	0	0	0	1	0.1	24
6	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	IZS	0	0	1	0	5	4	1	0	5	0.6	24
7	4	1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	3	1	2	2	0	0	0	0	0	0	4	0.6	24
8	4	7	0	0	7	1	3	6	0	0	0	0	0	IZS	1	2	0	0	0	0	0	0	0	0	0	7	1.3	24
9	0	0	0	0	0	0	0	0	2	0	0	0	0	IZS	0	0	0	0	0	0	4	0	0	0	0	4	0.3	24
10	0	0	0	0	0	0	0	0	1	2	0	0	IZS	1	1	4	0	0	0	0	0	0	0	0	0	4	0.4	24
11	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0.0	24
12	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
13	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
14	0	0	0	0	0	0	0	IZS	1	0	1	1	1	1	1	1	0	0	0	0	2	0	0	0	2	0.4	24	
15	1	0	0	0	0	0	IZS	3	3	1	1	0	2	0	0	0	0	0	1	2	1	0	0	0	3	0.7	24	
16	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	
17	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.0	24	
18	0	0	0	IZS	0	0	0	6	9	5	1	1	0	4	3	5	3	1	0	0	0	0	0	0	9	1.7	24	
19	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.0	24	
20	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	
21	IZS	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	IZS	2	0.1	24
22	0	0	0	0	0	0	0	0	1	0	1	1	2	1	0	0	0	0	0	0	0	0	0	IZS	0	2	0.3	24
23	1	0	0	0	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	6	0.3	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	IZS	1	1	1	2	0.2	24	
25	0	0	0	0	0	13	8	8	1	0	0	0	0	0	0	0	0	0	2	IZS	1	0	0	0	13	1.4	24	
26	0	0	0	0	0	0	0	2	8	2	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	8	0.5	24	
27	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	
28	0	0	0	0	0	0	1	4	4	1	0	0	0	0	0	1	IZS	0	0	0	0	0	0	0	4	0.5	24	
29	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	IZS	0	0	0	1	0	0	0	0	1	0.2	24	
30	0	0	0	0	0	0	1	3	0	1	1	1	0	0	IZS	0	0	0	3	2	0	0	0	0	3	0.5	24	
31	0	0	0	0	0	3	0	0	1	3	4	2	3	IZS	2	3	4	2	2	0	0	0	0	1	4	1.3	24	
HOURLY MAX	4	7	2	1	7	13	8	8	9	5	4	2	3	4	4	5	4	2	3	4	5	4	1	1				
HOURLY AVG	0.4	0.3	0.1	0.1	0.3	0.8	0.6	1.3	1.5	0.6	0.3	0.3	0.4	0.3	0.4	0.6	0.3	0.2	0.4	0.4	0.4	0.4	0.2	0.1	0.1			

STATUS FLAG CODES

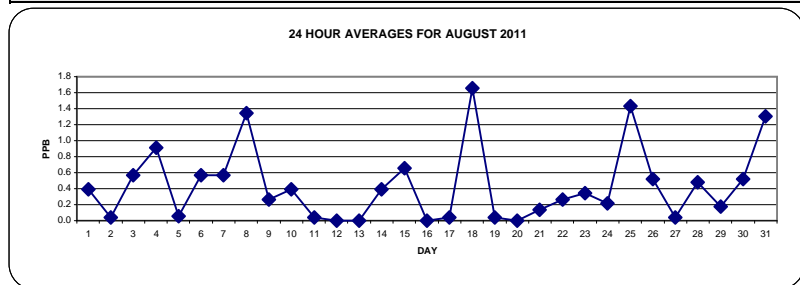
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

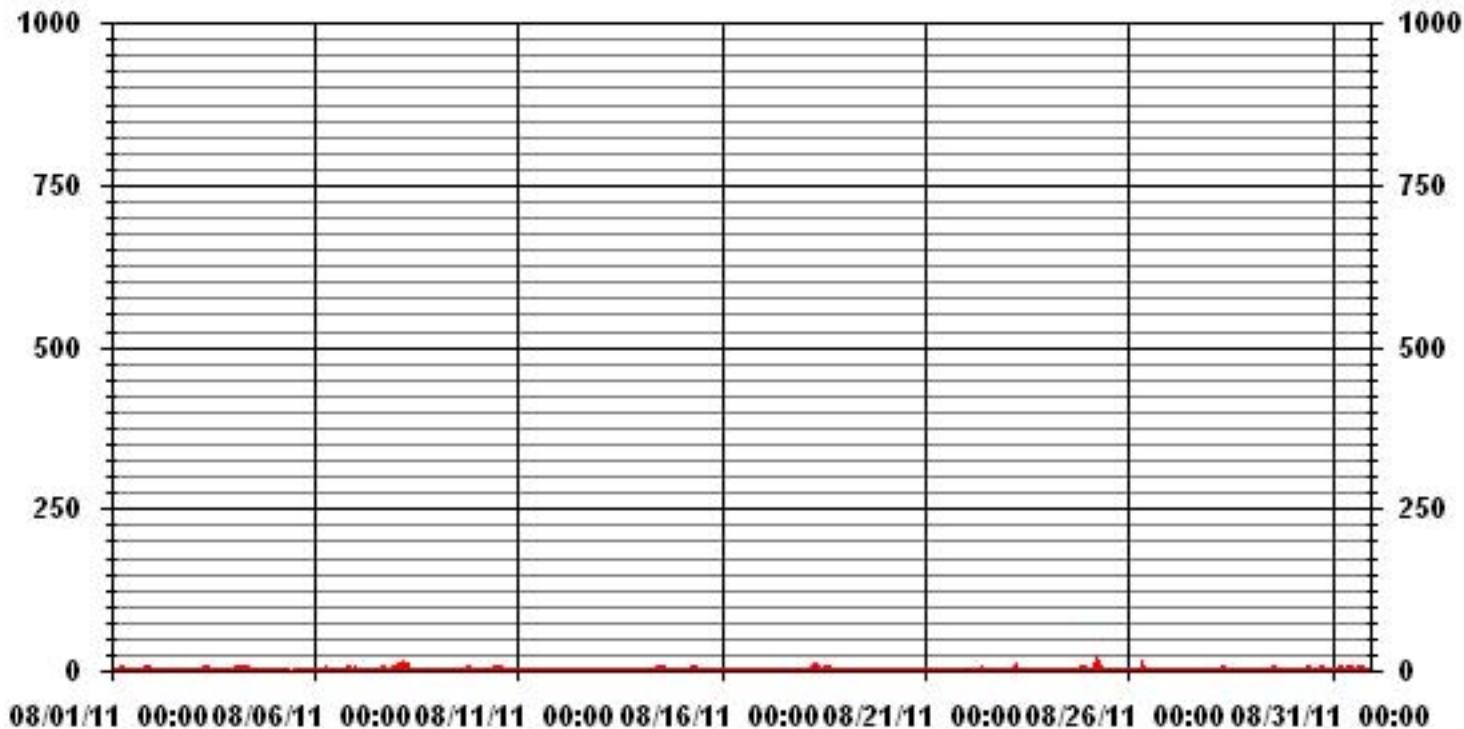
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	134
MAXIMUM 1-HR AVERAGE:	13 PPB @ HOUR(S) 5 ON DAY(S) 25
MAXIMUM 24-HR AVERAGE:	1.7 PPB ON DAY(S) 18
IZS CALIBRATION TIME:	32 HRS
OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	5 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	1.26
MONTHLY AVERAGE:	0.43 PPB



01 Hour Averages



— LICA30 SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

AUGUST 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																													
1		1	0	2	2	1	1	11	3	7	0	0	0	0	0	0	0	0	0	0	0	0	2	2	3	11	1.5	24	
2		2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	2	0.9	24	
3		1	0	0	0	0	0	0	4	15	0	0	2	8	3	0	13	7	1	IZS	1	1	1	1	1	15	2.6	24	
4		1	3	4	3	2	5	5	11	10	5	5	5	1	1	1	1	1	IZS	5	1	1	1	1	1	11	3.2	24	
5		1	1	1	P	1	1	1	1	1	C	C	C	C	IZS	0	0	IZS	0	0	1	1	0	0	0	1	0.6	24	
6		0	0	0	0	0	0	1	3	2	1	1	0	0	0	0	IZS	0	1	4	2	8	12	7	0	12	1.8	24	
7		10	5	0	0	0	0	0	0	0	0	0	0	0	0	IZS	8	2	10	9	1	0	1	4	6	10	2.4	24	
8		10	14	1	0	17	6	11	22	1	1	1	1	0	IZS	6	6	1	0	0	0	0	0	0	0	22	4.3	24	
9		0	0	0	0	0	1	0	0	4	2	0	1	IZS	1	0	0	1	0	16	17	2	0	0	0	17	2.0	24	
10		0	0	0	0	0	0	0	0	5	7	1	IZS	6	13	26	5	0	1	0	0	0	0	0	0	26	2.8	24	
11		0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	4	0	0	0	0	0	0	0	0	0	4	0.3	24	
12		0	0	0	0	0	0	0	0	0	IZS	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0.1	24	
13		0	0	0	0	0	0	0	0	IZS	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	1	0.1	24	
14		0	0	0	0	0	0	0	IZS	3	1	3	4	5	3	1	2	1	1	1	1	8	1	1	1	8	1.6	24	
15		6	0	0	0	1	2	IZS	8	8	3	7	1	12	0	2	0	0	2	2	10	6	0	0	0	12	3.0	24	
16		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	
17		0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	2	0.2	24	
18		1	0	0	IZS	0	0	2	11	18	11	6	4	7	9	7	10	11	5	1	1	0	0	0	0	18	4.5	24	
19		0	0	IZS	0	0	0	0	1	1	1	1	0	0	0	6	0	1	0	4	0	0	0	0	0	6	0.7	24	
20		0	IZS	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	2	2	1	0	0	0	0	2	0.4	24	
21		IZS	0	0	0	0	0	0	1	1	1	1	4	3	1	1	1	1	1	1	1	1	1	1	1	IZS	4	1.0	24
22		1	1	1	1	1	1	1	2	1	2	3	7	3	2	1	1	1	1	1	1	1	1	1	1	1	7	1.6	24
23		2	1	2	2	2	11	3	1	1	1	1	1	1	0	2	0	1	0	0	0	IZS	0	1	11	1.5	24		
24		0	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	6	IZS	2	4	2	6	1.3	24	
25		1	1	1	1	2	25	15	19	9	1	1	0	1	0	0	0	1	1	4	IZS	8	1	1	1	25	4.1	24	
26		1	0	0	0	0	0	0	8	17	9	1	1	0	0	0	0	0	0	IZS	0	0	0	0	0	17	1.6	24	
27		0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	IZS	1	1	9	1	0	0	9	1.0	24	
28		1	1	1	0	0	0	3	7	5	4	1	1	4	4	2	8	IZS	1	1	1	1	1	0	1	8	2.1	24	
29		1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	IZS	0	0	8	0	0	0	2	8	0.9	24		
30		0	2	0	1	0	1	3	6	3	6	4	8	3	0	IZS	1	1	1	10	5	1	1	1	1	10	2.6	24	
31		1	1	1	0	1	7	3	1	3	9	12	8	7	IZS	6	7	15	6	8	1	1	1	1	1	15	4.4	24	
HOURLY MAX		10	14	4	3	17	25	15	22	18	11	12	8	12	13	26	13	15	10	16	17	9	12	7	6				
HOURLY AVG		1.4	1.1	0.5	0.4	1.0	2.1	2.1	3.8	4.0	2.3	1.8	1.7	2.4	1.6	2.3	2.3	1.7	1.3	2.5	2.1	1.8	0.9	0.8	0.8				

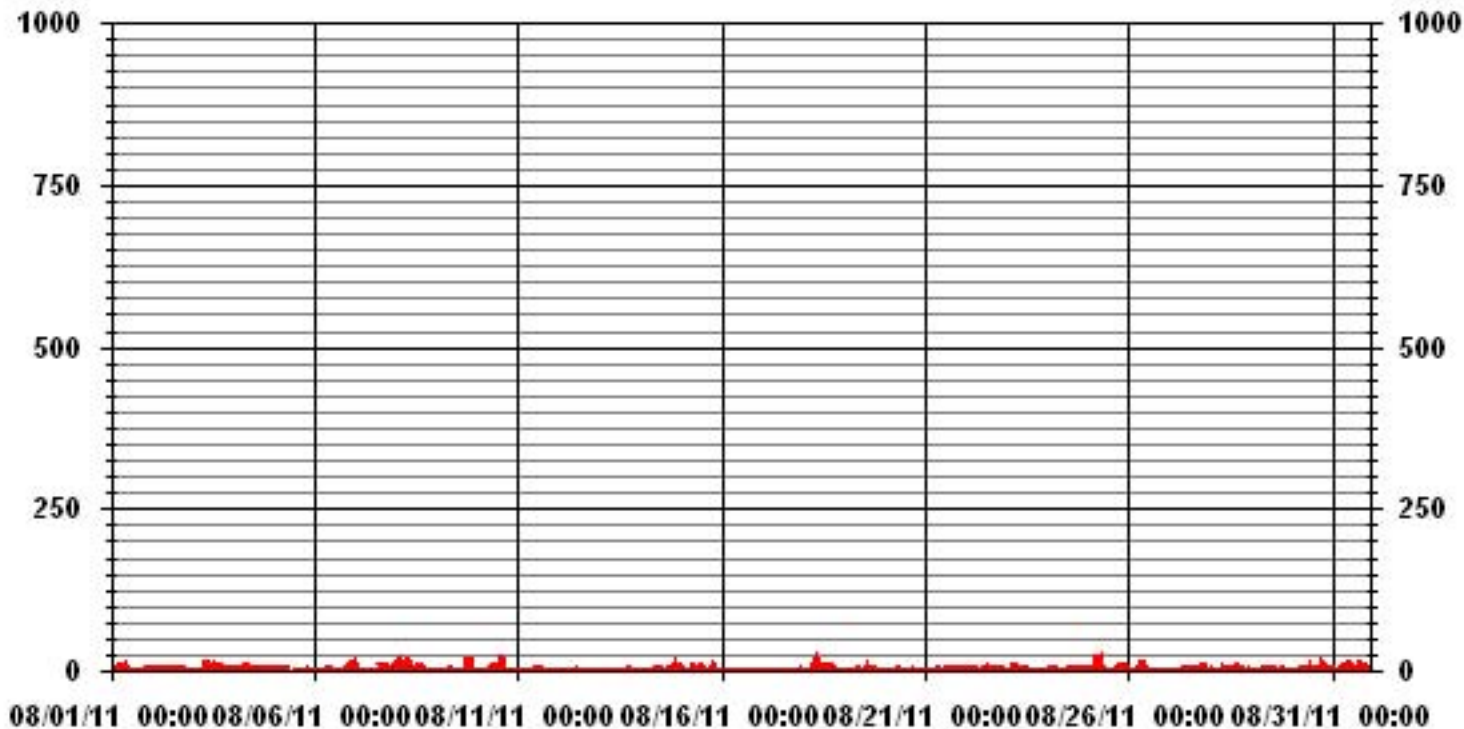
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	390					
MAXIMUM INSTANTANEOUS VALUE:	26	PPB	@ HOUR(S)	14	ON DAY(S)	10
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	3.38					

01 Hour Averages



— LICA30 SO2MAX PPB

LICA30
 SO2_ / WDR Joint Frequency Distribution (Percent)

August 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	2.12	1.98	3.25	2.54	2.40	2.68	4.95	6.36	8.20	13.29	10.46	12.16	10.74	8.76	6.64	3.39	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.12	1.98	3.25	2.54	2.40	2.68	4.95	6.36	8.20	13.29	10.46	12.16	10.74	8.76	6.64	3.39	

Calm : .00 %

Total # Operational Hours : 707

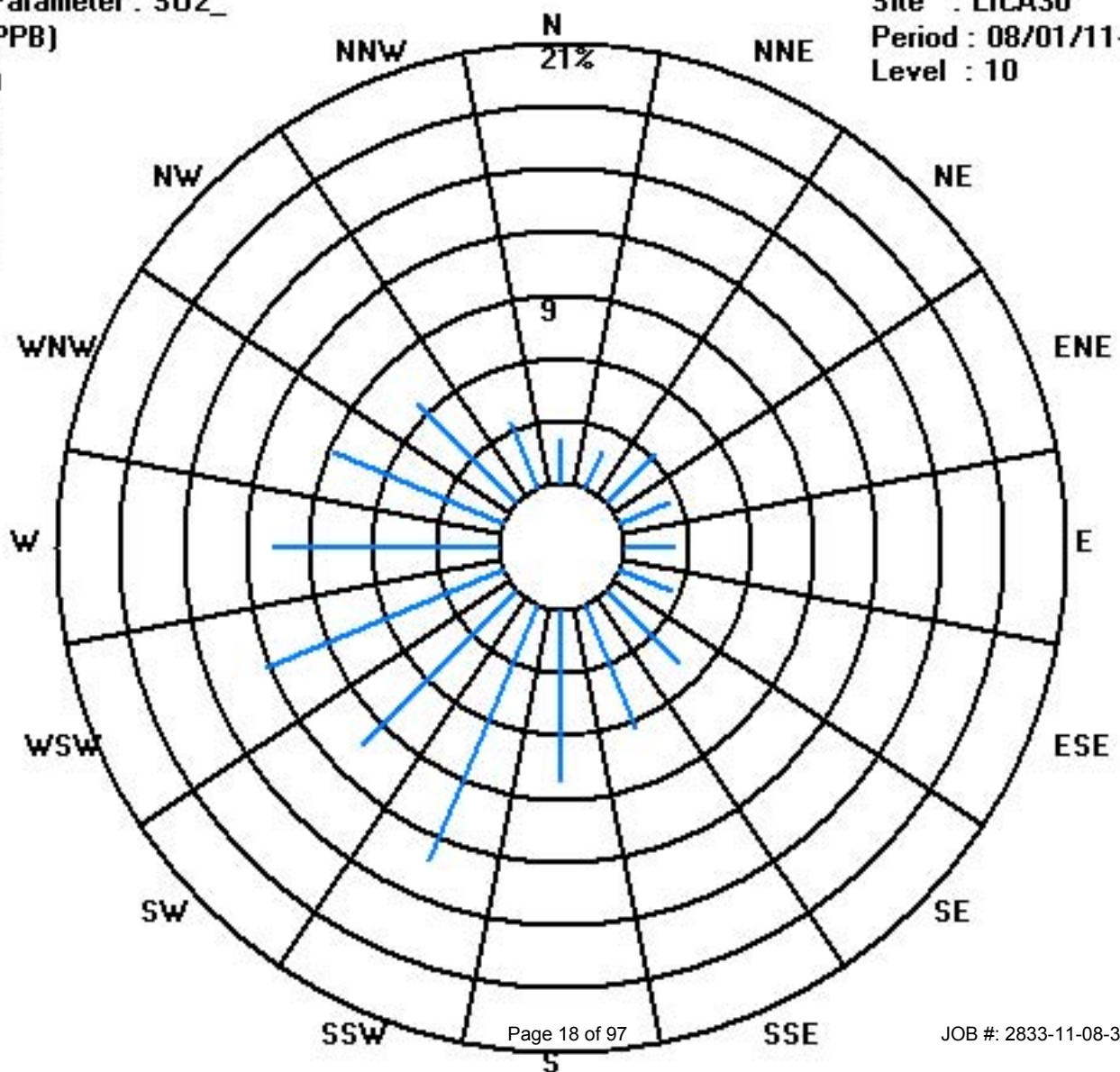
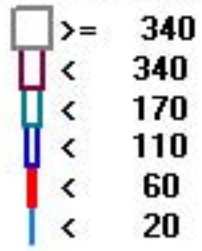
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	15	14	23	18	17	19	35	45	58	94	74	86	76	62	47	24	707
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	15	14	23	18	17	19	35	45	58	94	74	86	76	62	47	24	

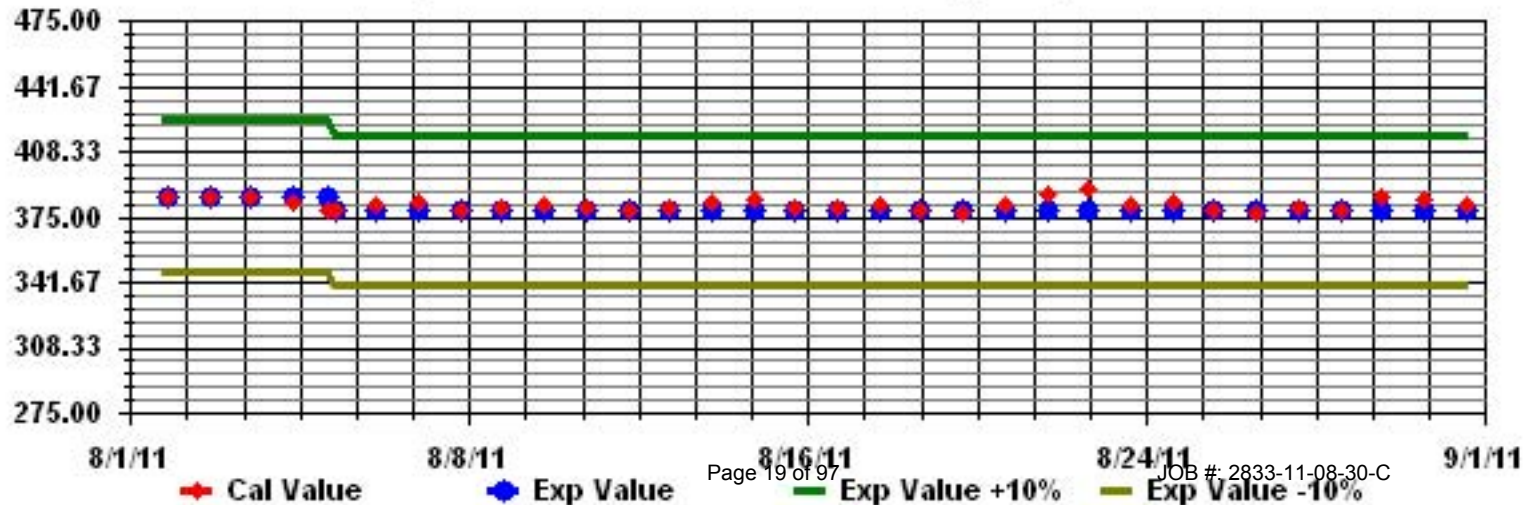
Calm : .00 %

Total # Operational Hours : 707

Class Limits (PPB)



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 2011

HYDROGEN SULPHIDE (H₂S) hourly averages in ppb

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

STATUS FLAG CODES

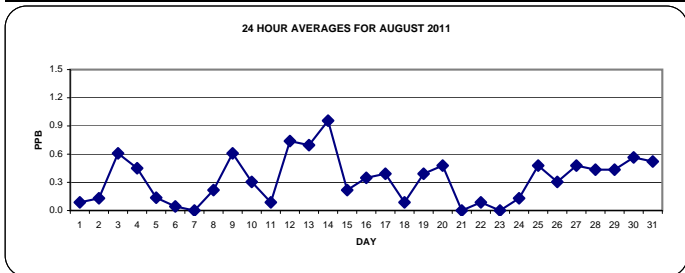
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

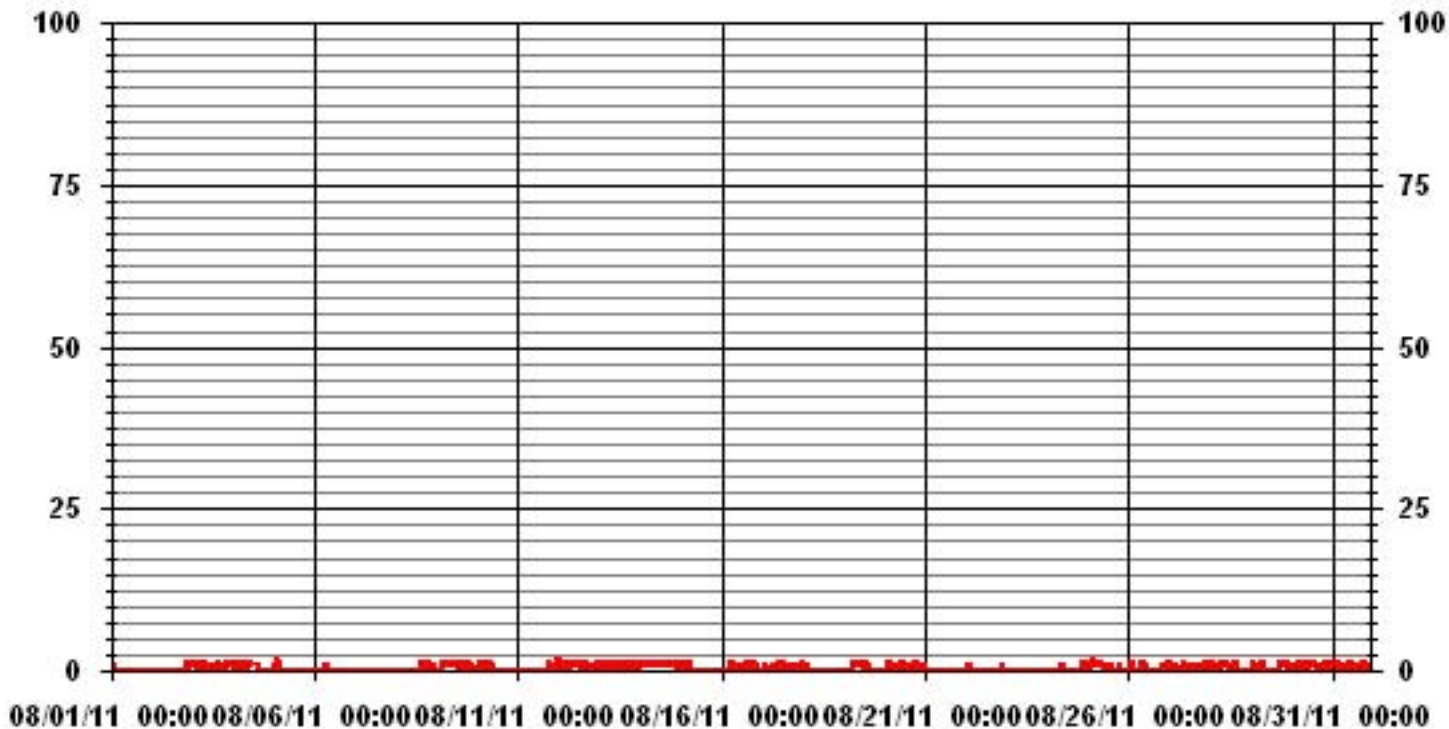
ALBERTA ENVIRONMENT: 1-HR 10 PPB 24-HR 3 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF 24-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	235				
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	1.0	PPB			14
				VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	3	HRS	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	0.48		MONTHLY AVERAGE:	0.34	PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 2011

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

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

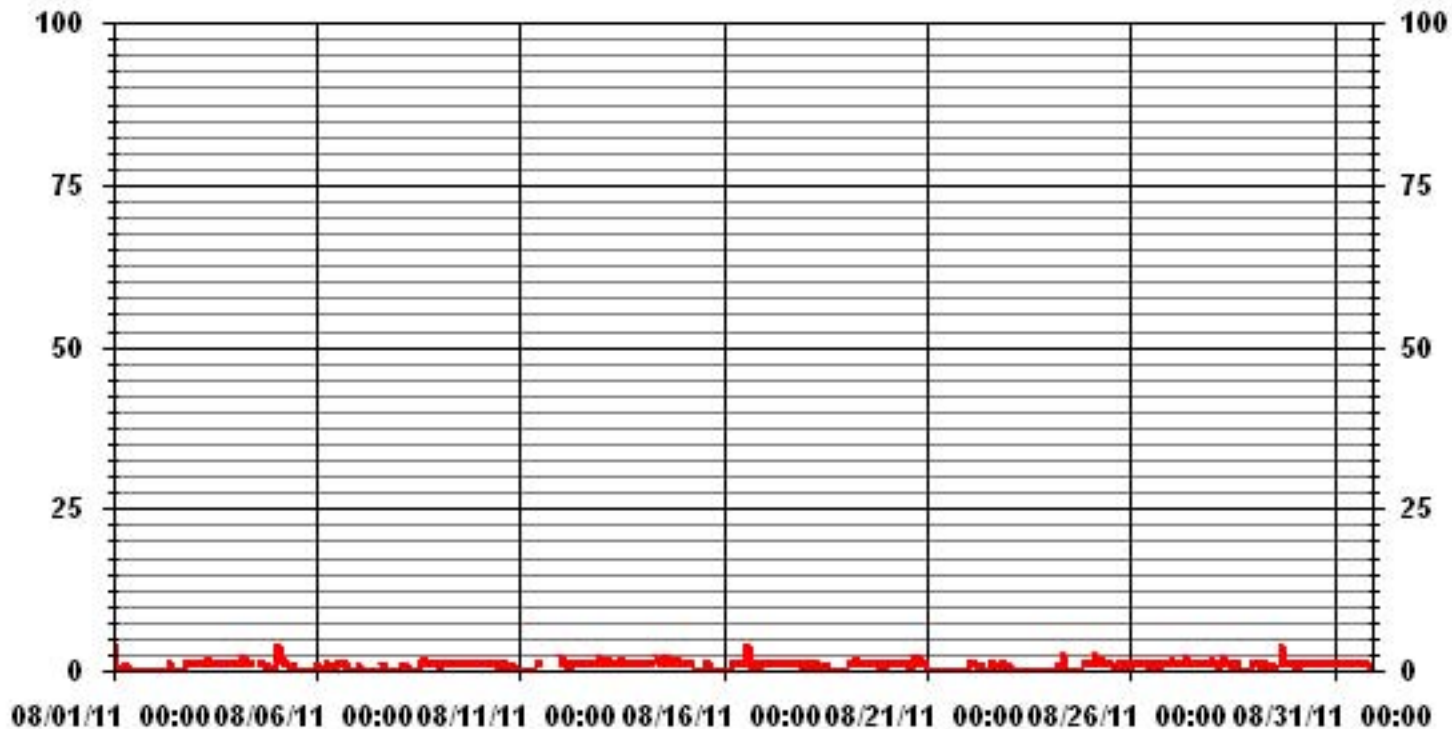
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	428					
MAXIMUM INSTANTANEOUS VALUE:	4	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
IZS CALIBRATION TIME:	32	HRS		OPERATIONAL TIME:	730	HRS
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.64					

01 Hour Averages



LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

August 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	2.11	1.97	3.24	2.54	2.40	2.68	4.94	6.63	8.47	13.27	10.31	12.14	10.59	8.75	6.49	3.38	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.11	1.97	3.24	2.54	2.40	2.68	4.94	6.63	8.47	13.27	10.31	12.14	10.59	8.75	6.49	3.38	

Calm : .00 %

Total # Operational Hours : 708

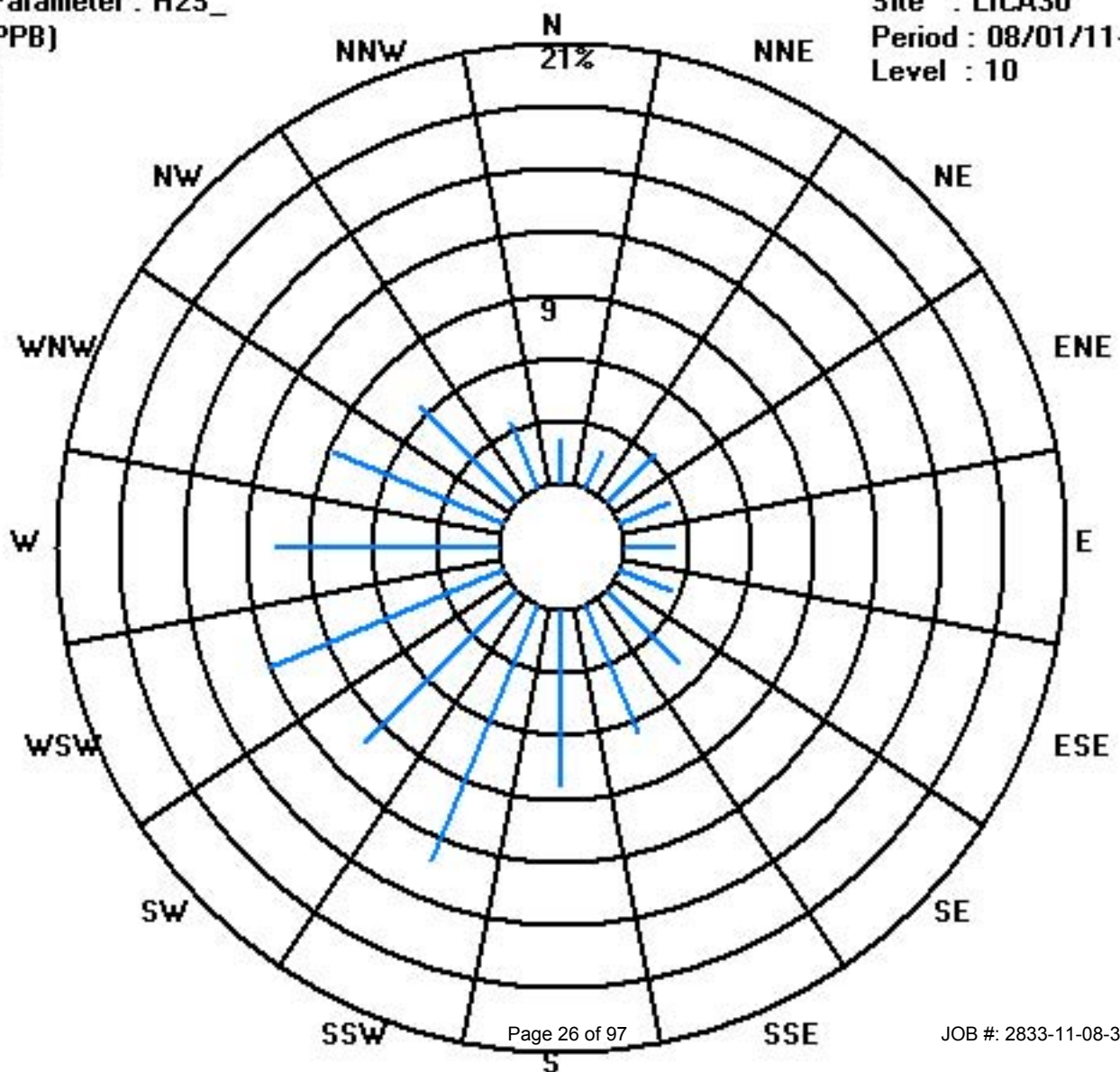
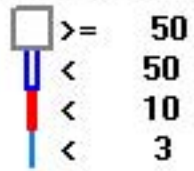
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	15	14	23	18	17	19	35	47	60	94	73	86	75	62	46	24	708
< 10																	
< 50																	
>= 50																	
Totals	15	14	23	18	17	19	35	47	60	94	73	86	75	62	46	24	

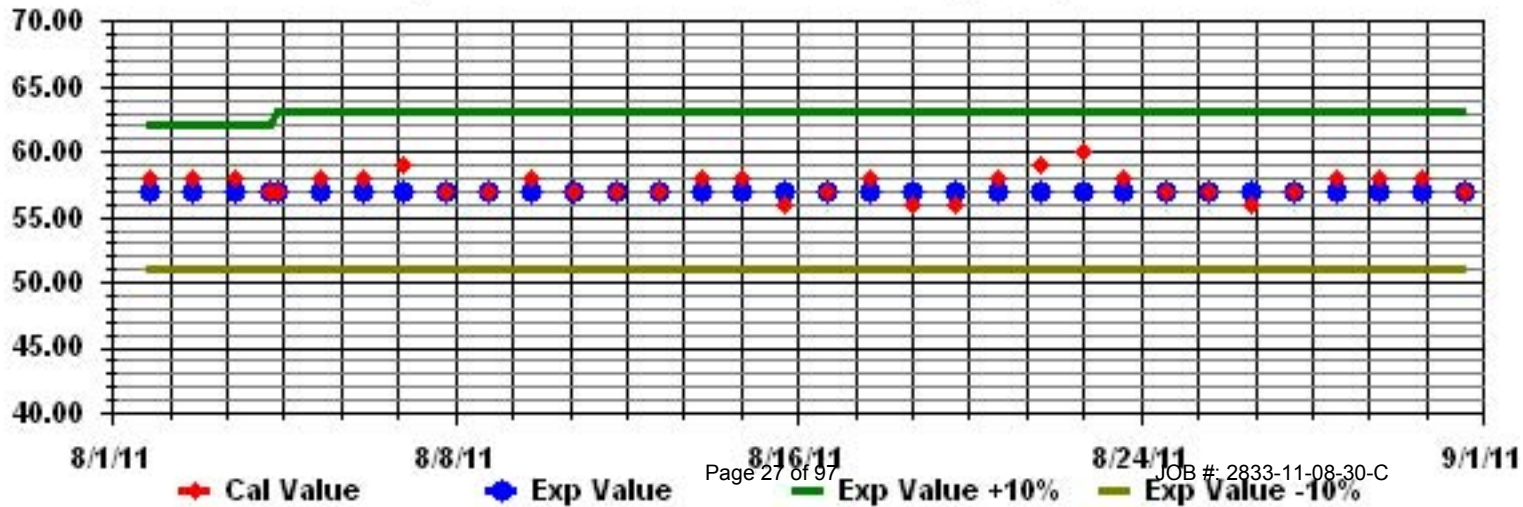
Calm : .00 %

Total # Operational Hours : 708

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

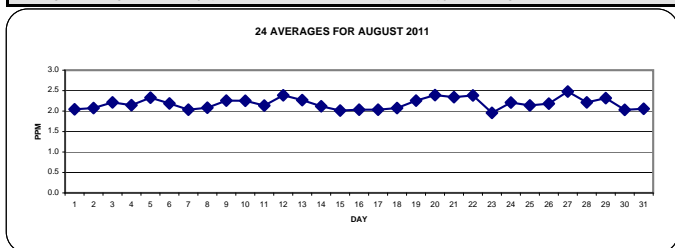
AUGUST 2011

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		1.9	2	2.3	2.1	2.1	2.1	2.3	2.1	2.1	2	1.9	2	2	1.9	1.9	1.9	1.9	1.9	2	2	IZS	2.1	2.2	2.3	2.3	2.0	24	
2		2.3	2.2	2.1	2	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	IZS	2.1	2.2	2.3	2.3	2.3	2.1	24
3		2.4	2.5	2.6	2.6	2.5	2.4	2.4	2.4	2.6	2.1	2.1	2	2.1	2	1.9	2	1.9	2	IZS	2	2	2	2.2	2.2	2.6	2.2	24	
4		2.3	2.2	2.2	2.3	2.2	2.5	2.4	2.1	2	2	2	2	2	C	C	C	C	2	2	2	2	2.1	2.3	2.3	2.5	2.1	24	
5		2.4	2.5	2.4	1.9	2.1	5.9	2.3	2.2	2.1	2.1	2.1	2.1	2	M	2	2	IZS	2.1	2.1	2.2	2.2	2.2	2.2	2.1	5.9	2.3	23	
6		2.1	2.1	2.2	2.4	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2	2.2	2.1	IZS	2.2	2.3	2.2	2.2	2.6	2.2	2.2	2	2.6	2.2	24	
7		2.1	2.1	2	2	2	2.1	2.1	2.1	2.1	2	2	2	2	2	IZS	2.1	2	2	2.1	2	2	2	2	2	2	2.1	2.0	24
8		2.1	2.1	2	2	2.1	2.2	2.3	2.1	2	2	2	2	2	IZS	2	2	2	2	2	2	2.1	2.2	2.2	2.3	2.2	2.3	2.1	24
9		2.3	2.6	2.7	2.7	2.7	2.7	2.5	2.5	2.3	2.1	2.1	2.2	IZS	2.1	2	2	2	2	2	2	2	2	2	2.1	2.3	2.7	2.3	24
10		2.4	2.5	2.4	2.6	2.6	2.5	2.5	2.4	2.3	2.1	2.1	IZS	2	2	2.1	2	2	2	2	2.1	2.2	2.2	2.3	2.3	2.2	2.6	2.3	24
11		2.1	2.2	2.2	2.2	2.5	2.3	2.3	2.1	2	2	IZS	2	2	2	2	2	2	2	2	2	2	2.1	2.3	2.4	2.4	2.5	2.1	24
12		2.5	2.6	3.1	2.9	2.8	2.8	3.1	2.5	2.4	IZS	2.4	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	3.1	2.4	24
13		2.2	2.5	2.5	2.6	2.5	2.5	2.5	2.5	IZS	2.3	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.6	2.3	24
14		2.2	2.2	2.2	2.2	2.2	2.1	IZS	2.1	2.1	2.1	2.1	2.1	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.1	1.9	1.9	2.3	2.1	24
15		2	2	2	2	2.1	2.1	IZS	2	2	2	2	2	2	2	2	1.9	2	2	2	2	2	2	2	2.1	2.1	2.1	2.0	24
16		2.1	2.1	2.1	2.1	2.1	IZS	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2	2	2.1	2.0	24
17		2	2.1	2.1	2.1	IZS	2	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2.2	2.1	2	2	2.2	2.0	24
18		2.2	2.1	2.1	IZS	2.1	2.1	2.2	2.1	2	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	24
19		2.3	2.3	IZS	2.3	2.3	2.6	2.8	2.9	2.6	2.5	2.3	2.2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.2	2.3	2.9	2.3	24
20		2.4	IZS	2.5	2.6	2.7	2.7	2.7	2.5	2.4	2.4	2.6	2.3	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.4	2.7	2.4	24
21		IZS	2.5	2.6	2.7	2.8	2.7	2.4	2.5	2.5	2.5	2.3	2.3	2.4	2.3	2.1	2	2	2	2	2	2.1	2.1	2.3	2.4	IZS	2.8	2.3	24
22		2.7	2.8	3	3.2	3.2	3.1	3	2.7	2.4	2.1	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	2	2.1	2.2	2.3	IZS	2.5	3.2	2.4	24
23		2.1	2.1	2	2.1	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	IZS	2	2.1	2.1	2.0	24	
24		2.1	2.2	2.3	2.3	2.3	2.4	2.5	2.5	2.4	2.3	2.2	2.2	2.2	2.1	2	2	2	2	2	2	2.1	IZS	2.2	2.2	2.3	2.5	2.2	24
25		2.4	2.6	2.6	2.8	2.2	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	IZS	2.1	2	2.1	2.1	2.8	2.1	24
26		2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.4	2.2	2.1	2	2.2	2.1	2.1	2	2	2	2	2	IZS	2.2	2.2	2.3	2.4	2.6	2.6	2.2	24
27		2.7	2.7	2.5	2.8	3.1	2.8	2.9	3	2.6	2.4	2.5	2.5	2.5	2.2	2.2	2.2	2.3	IZS	2.4	2.5	2	2	2	2.2	3.1	2.5	24	
28		2.5	2.2	2.2	2.2	2.2	2.2	2.7	2.9	2.2	2.1	2	2	2	2	2	2	IZS	2	2	2.1	2.2	2.3	2.5	2.4	2.9	2.2	24	
29		2.4	2.4	2.5	2.8	2.6	2.7	2.8	2.6	2.5	2.4	2.4	2.2	2.1	2.1	2.1	IZS	2	2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.8	2.3	24
30		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	1.9	IZS	1.9	1.9	1.9	2	2	2	2.1	2.1	2.2	2.2	2.0	24
31		2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2	2	2	2	2	2	IZS	2	2	2	2	2	2	2.1	2.1	2.2	2.2	2.2	2.1	24
HOURLY MAX		2.7	2.8	3.1	3.2	3.2	5.9	3.1	3.0	2.6	2.5	2.6	2.5	2.5	2.3	2.2	2.2	2.3	2.3	2.4	2.5	2.6	2.4	2.5	2.6				
HOURLY AVG		2.3	2.3	2.3	2.4	2.4	2.5	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2			

STATUS FLAG CODES

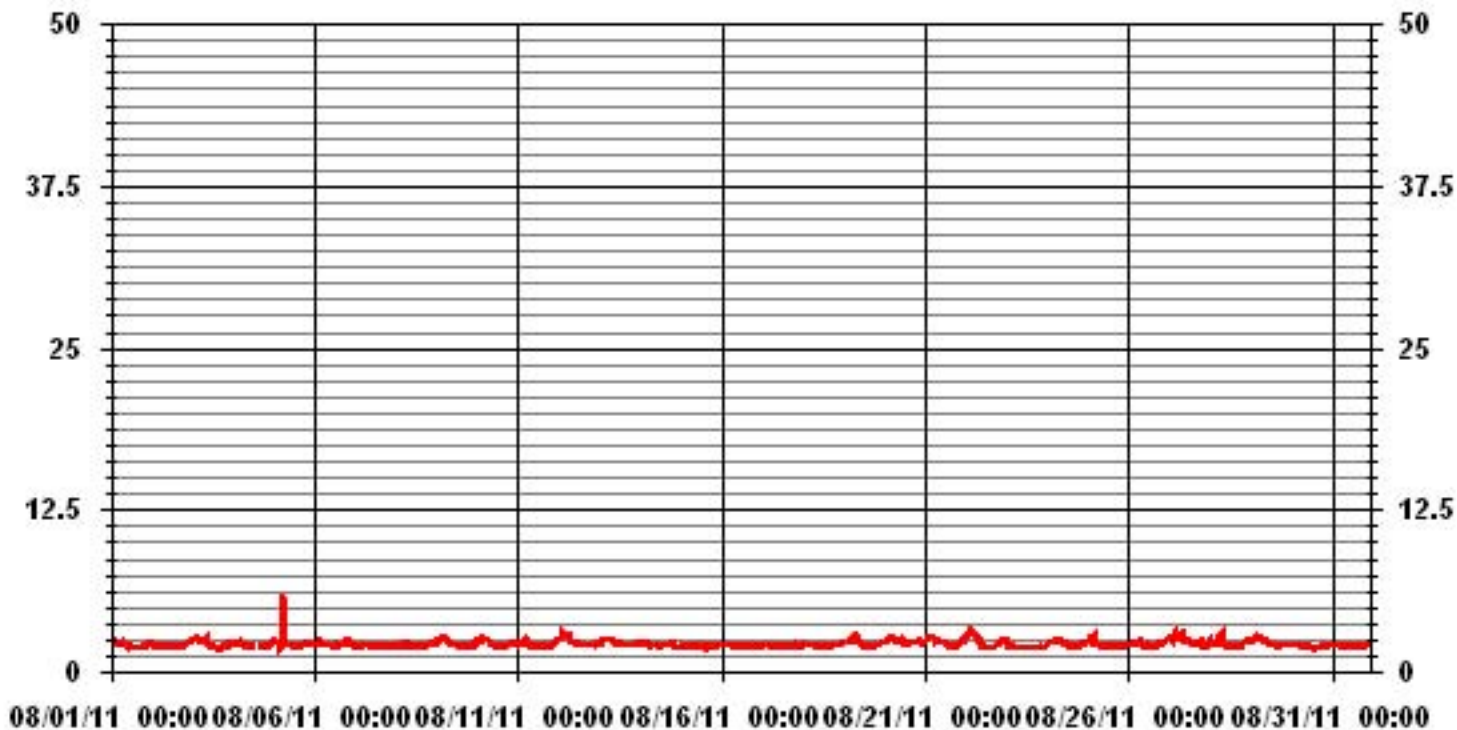
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	708					
MAXIMUM 1-HR AVERAGE:	5.9	PPM	@ HOUR(S)	5	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	2.5	PPM			ON DAY(S)	27
					VAR- VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	0.27		MONTHLY AVERAGE:	2.18	PPM	

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 2011

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR							
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.						
DAY																																	
1	2.1	2.3	3.1	2.6	2.3	2.5	3.4	2.6	2.6	2.2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.2	2.3	2.3	3.4	2.3	24		
2	2.3	2.3	2.2	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.2	2.3	2.4	2.4	2.4	2.1	24
3	2.4	2.6	2.7	2.7	2.7	2.6	2.8	2.8	3.3	2.1	2.1	2.2	2.3	2.1	2	2.1	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.3	2.3	3.3	2.4	24
4	2.5	2.2	2.4	2.4	2.5	2.7	2.8	2.6	2.3	2.1	2.1	2.1	2	2	C	C	C	C	2.1	2.1	2	2	2.1	2.3	2.3	2.4	2.8	2.3	2.4	2.1	24		
5	2.7	2.6	2.8	P	2.3	12.3	3.2	2.3	2.3	2.2	2.2	2.1	M	M	2.1	2.1	IZS	2.1	2.2	2.3	2.2	2.2	2.2	2.1	12.3	2.8	2.1	2.1	2.1	2.1	24		
6	2.1	2.2	2.2	2.6	2.6	2.3	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.3	2.1	IZS	2.3	2.6	2.3	2.4	3.3	2.9	3	2.1	3.3	2.4	2.4	2.4	2.4	2.4	24		
7	2.7	2.7	2.1	2	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2.2	IZS	2.3	2	2.2	2.5	2	2	2	2	2	2	2	2	2	2.7	2.1	24		
8	2.3	2.3	2.1	2.1	2.3	2.2	2.5	2.3	2.1	2.1	2	2	2	2	IZS	2	2.1	2	2	2	2.1	2.1	2.3	2.3	2.4	2.4	2.5	2.2	2.4	2.5	2.2	24	
9	2.5	2.8	2.7	2.9	2.9	2.9	2.6	2.5	2.4	2.3	2.2	2.3	IZS	2.1	2	2	2	2	2	2.1	2.1	2.1	2.1	2.3	2.5	2.9	2.4	2.4	2.4	2.4	24		
10	2.5	2.5	2.6	2.7	2.8	2.6	2.5	2.5	2.4	2.3	2.1	IZS	2.1	2	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.5	2.4	2.2	2.8	2.3	2.4	2.5	2.2	2.4	24		
11	2.2	2.3	2.2	2.7	2.7	2.4	2.3	2.2	2	2	IZS	2	2	2	2	2	2	2	2	2	2	2.1	2.2	2.3	2.6	2.5	2.7	2.2	2.4	2.5	2.2	24	
12	2.6	3.1	3.2	3.2	3	3.1	3.7	3.3	2.5	IZS	2.5	2.5	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.3	3.7	2.6	2.4	2.6	2.4	24		
13	2.3	2.9	2.6	2.6	2.6	2.5	2.5	2.5	IZS	2.4	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.9	2.3	2.4	2.5	2.2	24		
14	2.3	2.3	2.2	2.2	2.3	2.3	2.1	IZS	2.3	2.1	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.5	2.4	2.3	2	2	2.5	2.2	2.4	2.5	2.2	24	
15	2	2	2	2.2	2.2	2.3	IZS	2	2.1	2	2	2.1	2	2	2	2	2	2	2	2	2	2.1	2.1	2	2.1	2.1	2.3	2.1	2.4	2.5	2.2	24	
16	2.1	2.1	2.1	2.1	2.1	IZS	2.2	2.1	2.1	2.1	2.1	2	2	2	2.1	2	2	2	2	2	2	2	2	2	2	2.1	2.2	2.1	2.4	2.5	2.2	24	
17	2.1	2.1	2.1	2.1	IZS	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.2	2.2	2	2.1	2.2	2.1	2.4	2.5	2.2	24	
18	2.2	2.2	2.1	IZS	2.2	2.2	2.2	2.1	2.1	2.1	2.6	2.1	2.1	2	2.1	2	2	2	2	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.6	2.2	2.4	2.5	2.2	24	
19	2.4	2.4	IZS	2.4	2.5	2.7	3	3	2.7	2.6	2.4	2.3	2.1	2	2.2	2	2	2	2	2	2.2	2.2	2.2	2.3	2.4	3	2.3	2.4	2.5	2.2	24		
20	2.5	IZS	2.6	2.7	2.8	2.8	2.8	2.8	2.5	2.6	2.7	2.6	2.2	2.1	2.2	2.4	2.4	2.3	2.3	2.4	2.4	2.5	2.4	2.4	2.8	2.5	2.4	2.5	2.2	2.4	24		
21	IZS	2.7	2.7	2.8	3.1	3.2	2.5	2.5	2.5	2.5	2.5	2.3	2.4	2.4	2.1	2	2	2	2	2.1	2.1	2.2	2.3	2.7	IZS	3.2	2.4	2.4	2.5	2.2	24		
22	3	3	3.2	3.3	3.4	3.3	3.3	3	2.6	2.3	2.1	2	2	2	1.9	1.9	1.9	1.9	2.1	2.2	2.3	2.4	2.6	IZS	2.8	3.4	2.5	2.4	2.5	2.2	24		
23	2.7	2.2	2.1	2.3	2.2	2	2	1.9	1.9	1.9	2	2	1.9	2	2	2	2	2	2	1.9	1.9	2	2	IZS	2	2.1	2.7	2.0	2.4	2.5	2.2	24	
24	2.3	2.2	2.3	2.4	2.4	2.5	2.5	2.6	2.4	2.4	2.2	2.3	2.2	2.2	2.1	2	2	2	2	2.1	2.2	IZS	2.3	2.5	2.4	2.6	2.3	2.4	2.5	2.2	24		
25	2.6	2.7	2.7	3.4	2.4	2.2	2.1	2.2	2.2	2	2	2	2	2.1	2	2	2	2	2.1	2.1	IZS	2.1	2.1	2.2	2.2	3.4	2.2	2.4	2.5	2.2	24		
26	2.2	2.2	2.3	2.3	2.3	2.4	2.5	2.7	2.3	2.1	2.1	2.3	2.2	2.1	2.1	2.1	2.1	2	2	IZS	2.3	2.4	2.3	2.6	2.7	2.7	2.3	2.4	2.5	2.2	24		
27	3	3	2.6	2.9	3.7	3	3.2	3.2	2.7	2.5	2.6	2.6	2.6	2.4	2.2	2.2	2.4	IZS	2.5	2.7	2.4	2	2.2	2.3	3.7	2.6	2.4	2.5	2.2	24			
28	2.9	2.5	2.3	2.2	2.3	2.4	3.6	3.4	2.5	2.2	2.1	2	2	2.1	2	2	IZS	2	2.1	2.2	2.4	2.4	2.8	2.7	3.6	2.4	2.5	2.2	2.4	2.5	2.2	24	
29	2.6	2.5	3.2	3.1	2.8	2.8	2.9	2.8	2.5	2.4	2.4	2.3	2.1	2.1	2.1	IZS	2	2.1	2.2	2.2	2.3	2.2	2.3	2.2	3.2	2.4	2.5	2.2	2.4	2.5	2.2	24	
30	2.1	2.1	2.3	2.1	2.1	2.2	2.2	2.2	2	2	2.3	2	2	2	2	IZS	1.9	1.9	2	2	2	2	2.1	2.1	2.2	2.2	2.3	2.1	2.4	2.5	2.2	24	
31	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2	2	IZS	2	2	2	2	2	2.1	2.1	2.1	2.2	2.3	2.2	2.3	2.1	2.4	2.5	2.2	24		
HOURLY MAX	3	3	3	3	4	12	4	3	3	3	3	3	3	3	2	2	2	2	3	3	3	3	3	3	3								
HOURLY AVG	2.4	2.4	2.5	2.5	2.5	2.8	2.6	2.5	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.3								

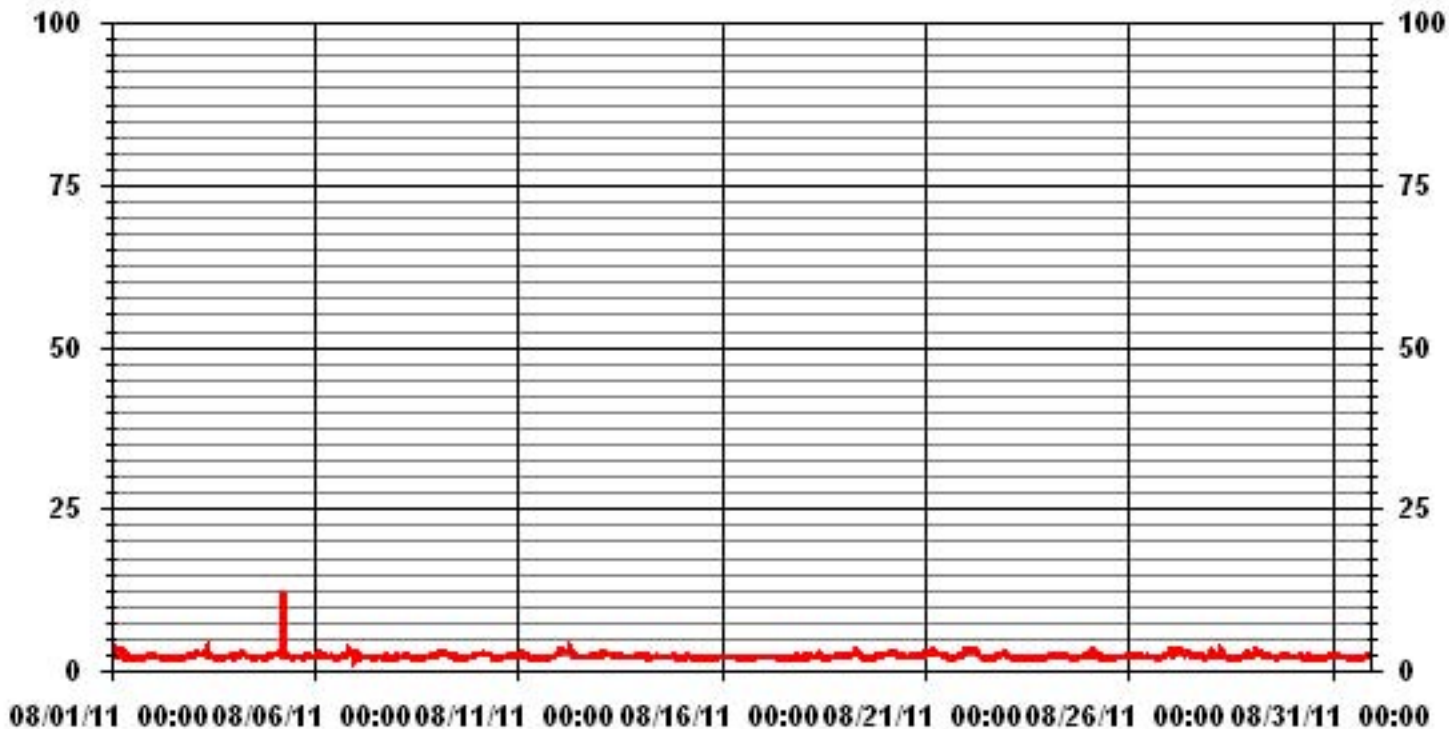
STATUS FLAG CODES

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:	706					
MAXIMUM INSTANTANEOUS VALUE:	12.3	PPM	@ HOUR(S)	5	ON DAY(S)	5
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.49					

01 Hour Averages



— LICA30 THCMAX PPM

LICA30
 THC / WDR Joint Frequency Distribution (Percent)

August 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	1.97	1.83	3.24	2.40	2.40	2.54	4.94	6.35	8.19	13.13	10.02	12.14	10.73	8.75	6.63	3.24	98.58
< 10.0	.00	.14	.00	.14	.14	.14	.00	.28	.28	.14	.14	.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	1.97	1.97	3.24	2.54	2.54	2.68	4.94	6.63	8.47	13.27	10.16	12.14	10.73	8.75	6.63	3.24	

Calm : .00 %

Total # Operational Hours : 708

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	14	13	23	17	17	18	35	45	58	93	71	86	76	62	47	23	698
< 10.0		1		1	1	1		2	2	1	1						10
< 50.0																	
>= 50.0																	
Totals	14	14	23	18	18	19	35	47	60	94	72	86	76	62	47	23	

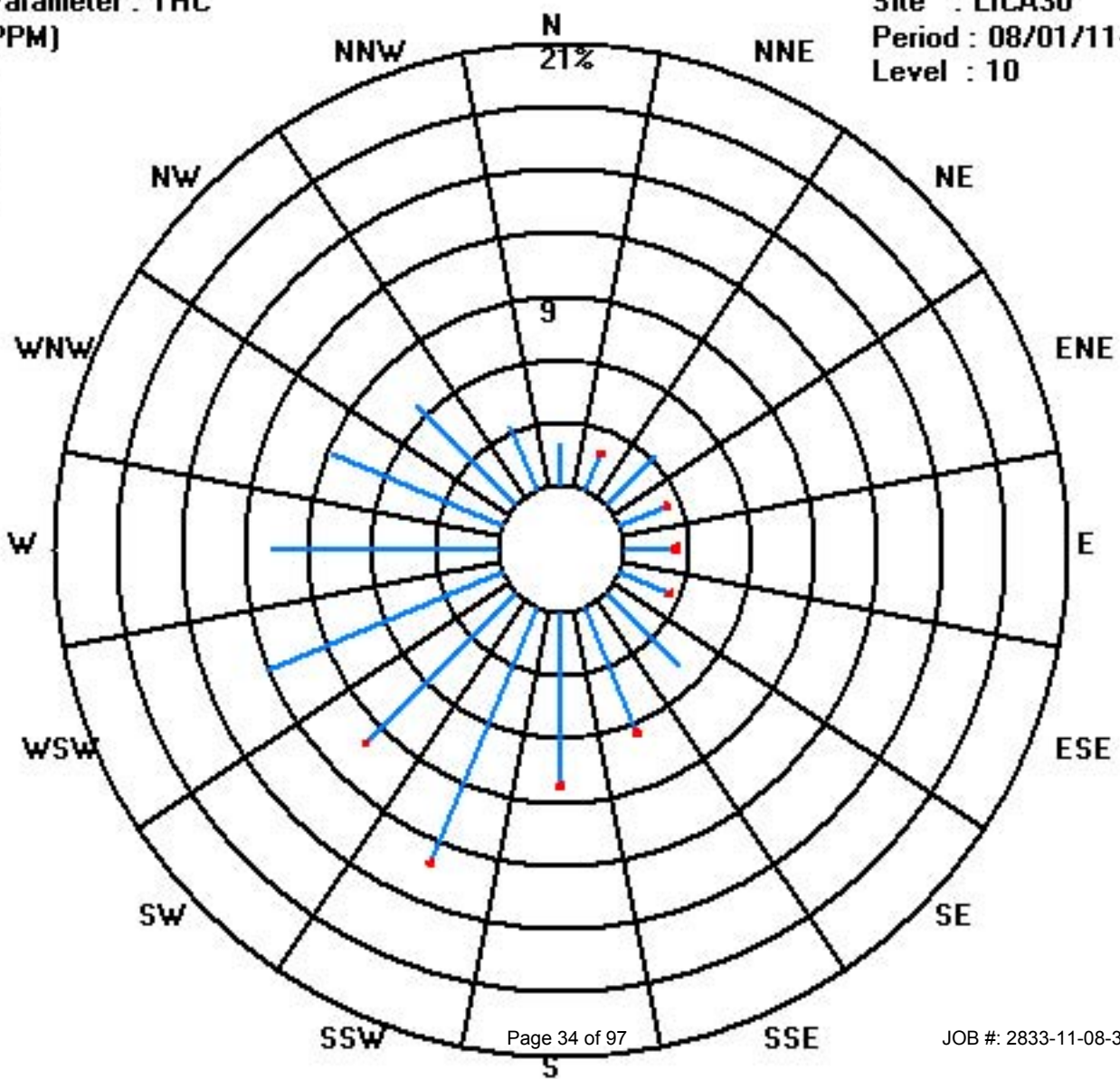
Calm : .00 %

Total # Operational Hours : 708

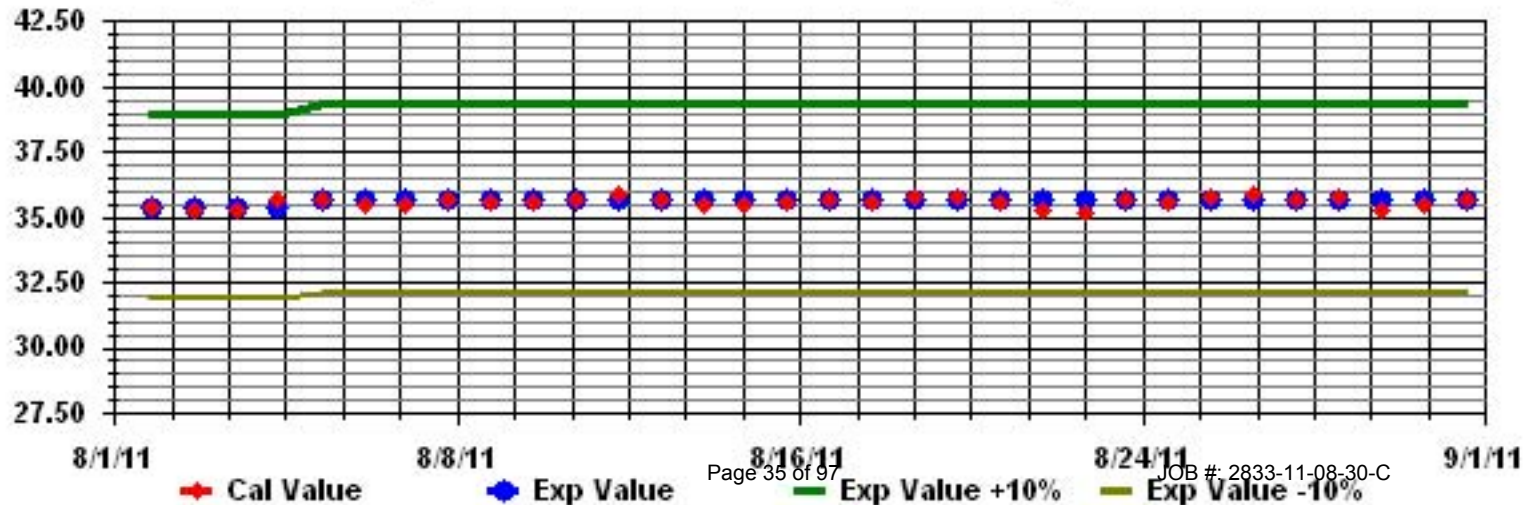
Class Limits (PPM)

Period : 08/01/11-08/31/11

Level : 10



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



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	4	2	6	4	5	6	6	6	4	1	0	0	0	1	1	1	0	0	0	0	IZS	3	3	4	6	2.5	24	
2	6	4	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	IZS	0	0	0	2	6	1.2	24	
3	4	3	5	4	3	2	2	5	10	1	1	1	3	3	0	3	1	1	IZS	1	1	1	3	3	10	2.7	24	
4	4	5	7	5	7	9	6	5	4	3	2	C	C	C	C	C	C	IZS	2	1	0	1	1	1	9	3.7	24	
5	1	1	1	2	2	4	1	3	3	3	2	1	1	M	0	0	IZS	0	0	1	1	0	0	0	4	1.2	23	
6	0	0	0	0	0	0	0	2	3	1	0	0	2	3	1	IZS	1	4	2	1	12	7	4	0	12	1.9	24	
7	8	5	2	0	0	1	2	4	2	1	1	0	1	1	IZS	8	1	4	3	0	0	0	1	0	8	2.0	24	
8	8	9	0	0	8	4	5	4	1	1	1	0	0	IZS	1	2	0	0	0	0	0	0	0	0	0	9	1.9	24
9	0	3	4	2	1	1	6	5	9	2	1	1	IZS	2	2	1	1	1	2	8	3	2	2	2	9	2.7	24	
10	2	2	1	1	3	3	7	4	7	8	2	IZS	2	1	11	1	0	1	0	0	0	0	0	0	11	2.4	24	
11	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0.1	24	
12	0	0	0	0	0	0	0	2	2	IZS	2	2	2	0	0	0	0	0	0	0	0	0	1	2	0	2	0.6	24
13	0	0	1	1	1	2	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
14	1	1	0	0	0	0	1	IZS	3	1	3	4	3	3	2	2	1	1	2	2	6	3	1	2	6	1.8	24	
15	3	2	1	1	3	5	IZS	5	3	3	2	1	3	1	1	1	2	5	6	6	1	1	1	1	6	2.5	24	
16	1	2	1	1	1	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0.3	24	
17	0	0	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	1	0	1	4	0.3	24	
18	3	1	1	IZS	2	2	9	10	6	4	2	1	1	7	5	6	3	3	4	5	1	1	1	1	10	3.4	24	
19	1	1	IZS	0	2	4	4	3	3	1	1	1	0	0	0	0	0	1	2	0	0	0	0	0	4	1.0	24	
20	0	IZS	1	1	2	1	2	3	4	4	3	2	1	1	1	1	2	2	3	1	1	1	1	1	4	1.7	24	
21	IZS	1	1	1	1	2	2	2	2	1	1	2	1	1	1	1	1	1	1	2	2	2	IZS	2	1.4	24		
22	3	3	2	2	2	2	4	5	1	3	4	5	2	2	1	1	1	1	0	0	1	IZS	1	5	2.1	24		
23	4	3	3	2	1	14	4	1	1	1	1	1	0	1	1	1	0	0	0	0	1	IZS	0	1	14	1.8	24	
24	0	2	4	4	3	4	3	3	1	1	0	0	0	0	0	0	0	0	0	3	IZS	5	3	4	5	1.7	24	
25	2	2	1	2	2	17	9	11	5	1	1	1	1	1	1	1	1	8	IZS	6	1	5	4	17	3.7	24		
26	1	2	1	1	1	4	3	5	6	4	1	2	1	1	1	1	1	IZS	1	2	2	3	2	6	2.0	24		
27	1	1	1	1	1	2	1	2	2	2	2	2	2	1	1	1	1	IZS	1	1	4	2	1	1	4	1.5	24	
28	11	7	5	1	2	2	8	10	8	5	1	1	1	1	1	1	IZS	0	0	0	0	0	1	11	2.9	24		
29	1	0	0	0	0	0	0	3	1	1	1	0	0	0	0	IZS	1	1	1	3	1	2	2	3	3	0.9	24	
30	1	4	5	3	1	6	6	5	1	2	2	2	2	1	IZS	0	0	0	3	2	1	0	0	0	6	2.0	24	
31	0	0	1	1	4	7	2	1	2	3	2	1	1	IZS	2	2	3	1	2	0	0	0	1	5	7	1.8	24	
HOURLY MAX	11	9	7	5	8	17	9	11	10	8	3	4	5	7	11	8	3	4	8	8	12	7	5	5				
HOURLY AVG	2.3	2.2	1.9	1.4	2.0	3.5	3.1	3.7	3.3	1.9	1.3	1.1	1.2	1.2	1.4	1.3	0.8	1.0	1.5	1.4	1.8	1.3	1.3	1.4				

STATUS FLAG CODES

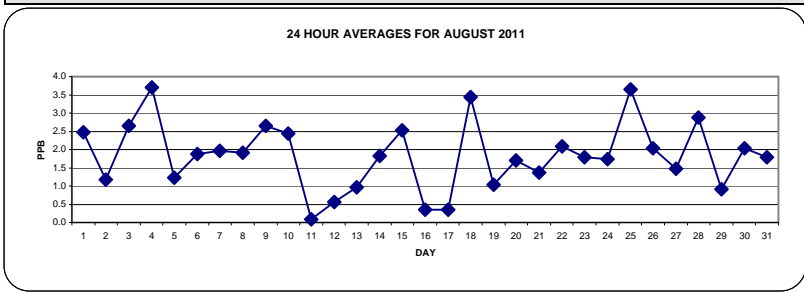
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

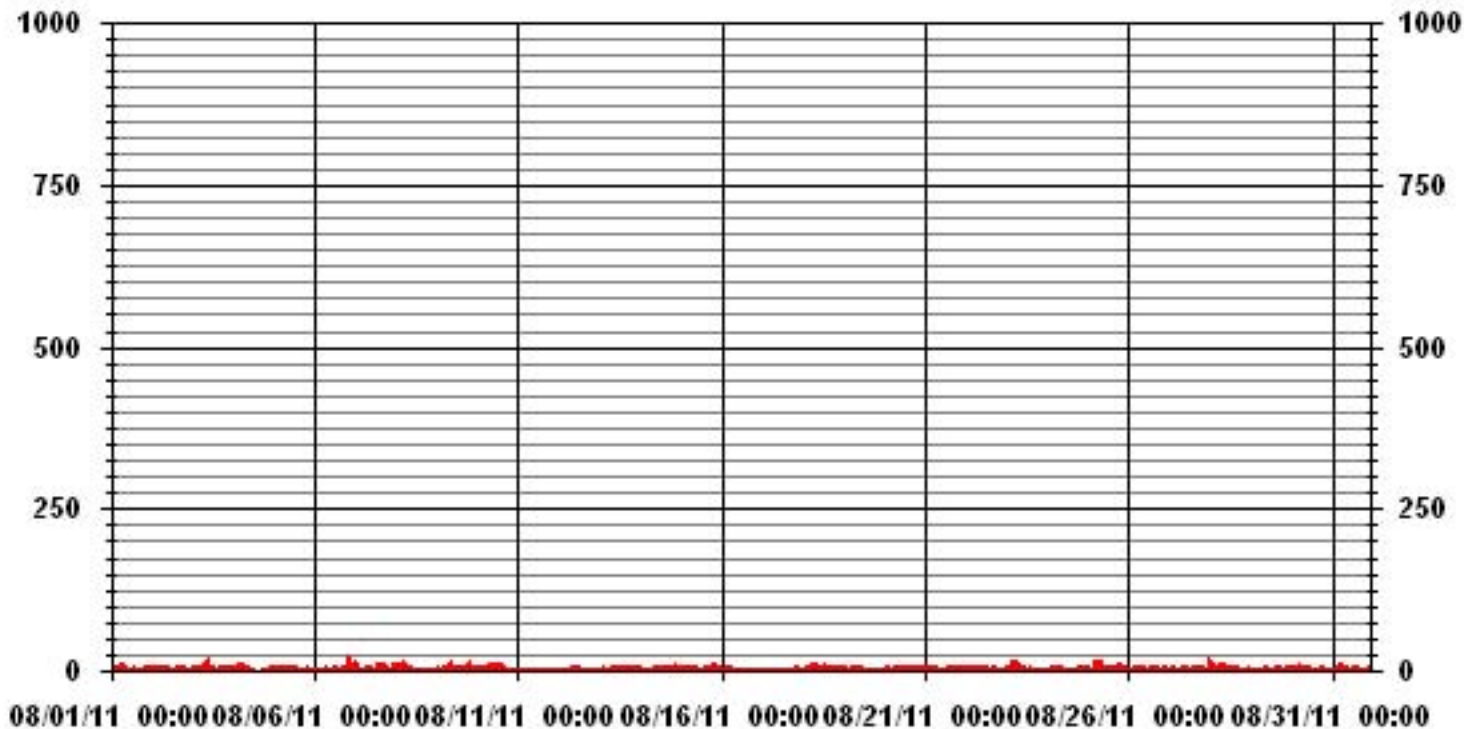
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	512					
MAXIMUM 1-HR AVERAGE:	17	PPB	@ HOUR(S)	5	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	3.7	PPB			ON DAY(S)	25
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	2.18		MONTHLY AVERAGE:	1.81	PPB	



01 Hour Averages



— LICA30 NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	8	4	14	8	8	8	13	10	10	1	1	1	1	2	1	1	1	1	1	1	1	IZS	5	6	8	14	5.0	24
2	7	7	2	2	2	2	4	3	10	1	1	1	2	1	1	1	1	1	1	1	IZS	1	1	1	4	10	2.5	24
3	5	4	6	5	4	4	4	10	13	2	2	2	8	6	1	15	11	3	IZS	2	2	2	4	5	15	5.2	24	
4	6	8	12	11	15	14	10	10	9	5	C	C	C	C	C	C	C	IZS	8	2	1	2	2	1	15	7.3	24	
5	2	2	3	P	3	7	3	4	4	23	8	3	M	M	1	1	IZS	1	1	5	5	1	0	0	23	3.9	21	
6	0	2	1	1	0	0	2	6	5	2	3	1	5	5	3	IZS	5	7	5	4	17	19	12	0	19	4.6	24	
7	19	13	4	1	1	2	5	7	6	2	3	1	2	2	IZS	15	3	15	11	1	1	2	3	8	19	5.5	24	
8	16	16	2	1	15	9	7	12	1	10	2	2	1	IZS	5	7	1	1	1	1	1	1	1	0	16	4.9	24	
9	1	5	6	3	1	9	10	7	14	13	1	2	IZS	2	4	2	2	2	17	20	6	3	2	3	20	5.9	24	
10	2	2	2	2	4	4	14	5	13	15	2	IZS	5	11	21	5	2	2	1	1	1	0	1	1	21	5.0	24	
11	0	0	0	0	0	0	1	0	1	0	1	IZS	1	2	1	5	1	1	0	0	0	0	1	1	0	5	0.7	24
12	1	1	0	0	1	1	1	3	2	IZS	3	3	12	1	1	1	1	0	0	0	1	7	3	2	12	2.0	24	
13	1	1	1	1	2	2	2	1	IZS	2	2	2	2	2	2	1	1	2	2	2	1	2	2	1	2	1.6	24	
14	1	1	1	1	1	1	1	IZS	6	4	6	8	8	8	3	4	1	3	3	3	19	6	2	5	19	4.2	24	
15	15	3	2	2	6	13	IZS	13	7	6	5	2	9	1	4	1	1	8	8	18	17	1	2	1	18	6.3	24	
16	2	4	2	2	2	IZS	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	4	0.8	24	
17	0	1	1	1	IZS	2	2	1	1	1	0	0	0	0	1	0	0	0	0	6	8	2	1	4	8	1.4	24	
18	4	2	1	IZS	5	6	12	13	10	7	4	4	9	14	8	12	7	8	8	8	2	1	1	1	14	6.4	24	
19	1	1	IZS	2	4	5	5	5	4	3	3	2	0	0	5	0	2	2	5	1	1	1	0	0	5	2.3	24	
20	1	IZS	3	2	2	2	3	5	7	6	4	3	2	1	1	2	2	5	4	4	2	2	2	2	7	2.9	24	
21	IZS	2	2	2	2	3	3	3	3	2	2	3	2	2	2	2	2	1	2	2	3	3	3	IZS	3	2.3	24	
22	4	4	3	3	2	3	3	5	8	3	6	7	8	5	3	2	2	1	1	1	1	2	IZS	1	8	3.4	24	
23	10	5	6	6	9	26	12	2	2	1	1	2	1	1	1	3	1	1	1	1	1	1	IZS	0	5	26	4.3	24
24	1	5	6	6	4	5	5	4	3	2	1	1	1	1	1	2	2	3	1	8	IZS	12	10	7	12	4.0	24	
25	2	2	2	3	8	21	15	17	11	1	2	2	1	1	2	1	3	5	11	IZS	13	3	11	9	21	6.3	24	
26	7	5	2	1	3	5	4	8	11	7	2	3	2	2	2	1	2	2	IZS	2	3	2	4	4	11	3.7	24	
27	2	2	2	2	2	3	2	3	3	2	2	2	2	2	2	2	2	IZS	2	2	21	8	2	2	21	3.2	24	
28	16	15	15	2	7	4	13	13	11	10	1	2	5	6	3	6	IZS	0	0	0	1	0	2	2	16	5.8	24	
29	1	1	1	1	1	0	1	7	2	2	2	1	1	1	1	IZS	2	2	2	13	2	4	3	7	13	2.5	24	
30	1	10	8	7	2	9	9	9	3	5	5	7	16	2	IZS	0	0	0	9	8	4	1	0	0	16	5.0	24	
31	1	0	8	5	7	13	7	3	4	8	7	3	4	IZS	4	5	11	3	6	3	0	0	6	6	13	5.0	24	
HOURLY MAX	19	16	15	11	15	26	15	17	14	23	8	8	16	14	21	15	11	15	17	20	21	19	12	9				
HOURLY AVG	4.6	4.3	3.9	2.9	4.1	6.1	5.9	6.3	6.1	4.9	2.8	2.4	4.0	3.0	3.1	3.3	2.5	2.7	3.8	4.1	4.7	3.2	2.9	3.0				

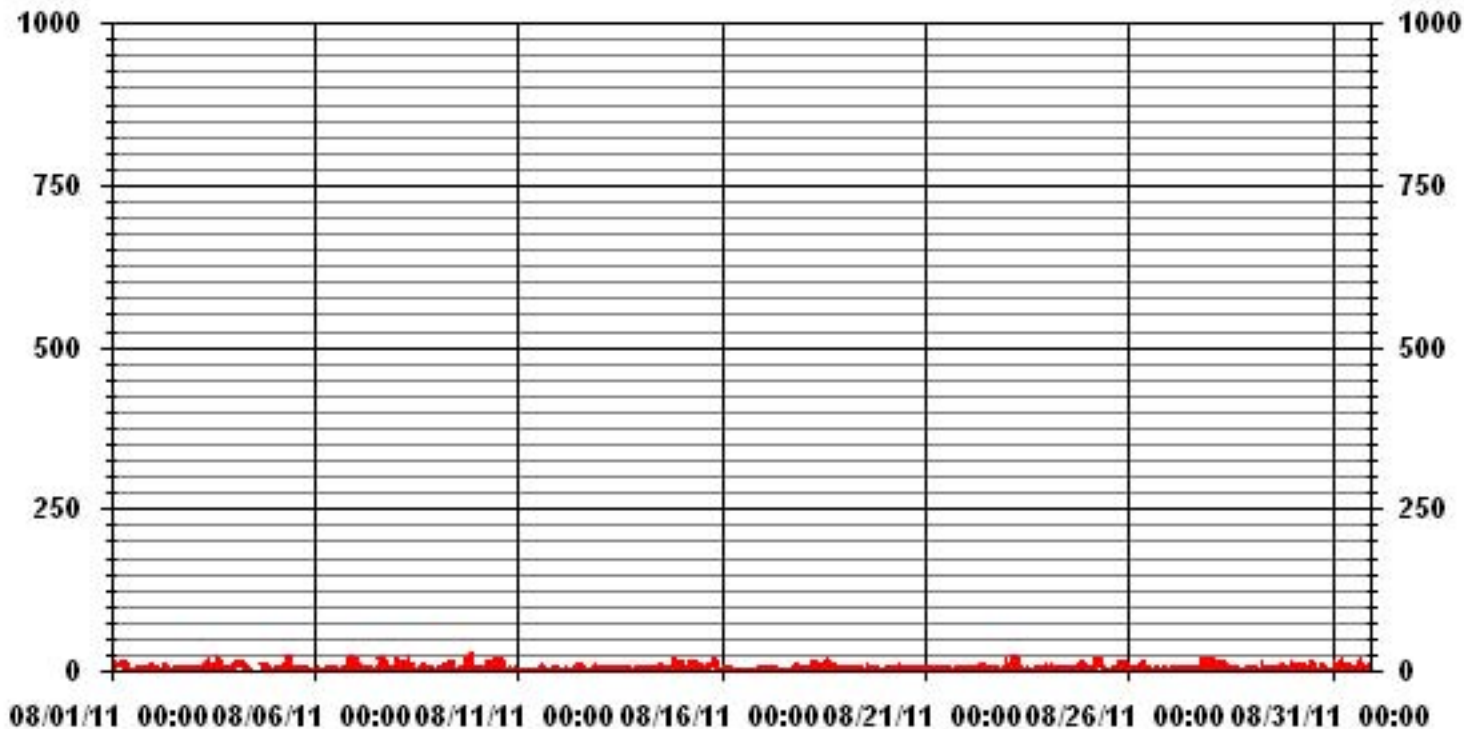
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	635					
MAXIMUM INSTANTANEOUS VALUE:	26	PPB	@ HOUR(S)	5	ON DAY(S)	23
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION	4.25					

01 Hour Averages



— LICA30 NO2MAX PPB

LICA30
 NO2_ / WDR Joint Frequency Distribution (Percent)

August 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	1.98	1.98	3.26	2.55	2.41	2.69	4.96	6.66	8.51	13.33	10.21	12.19	10.63	8.79	6.52	3.26	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.98	1.98	3.26	2.55	2.41	2.69	4.96	6.66	8.51	13.33	10.21	12.19	10.63	8.79	6.52	3.26	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	14	14	23	18	17	19	35	47	60	94	72	86	75	62	46	23	705
< 110																	
< 210																	
>= 210																	
Totals	14	14	23	18	17	19	35	47	60	94	72	86	75	62	46	23	

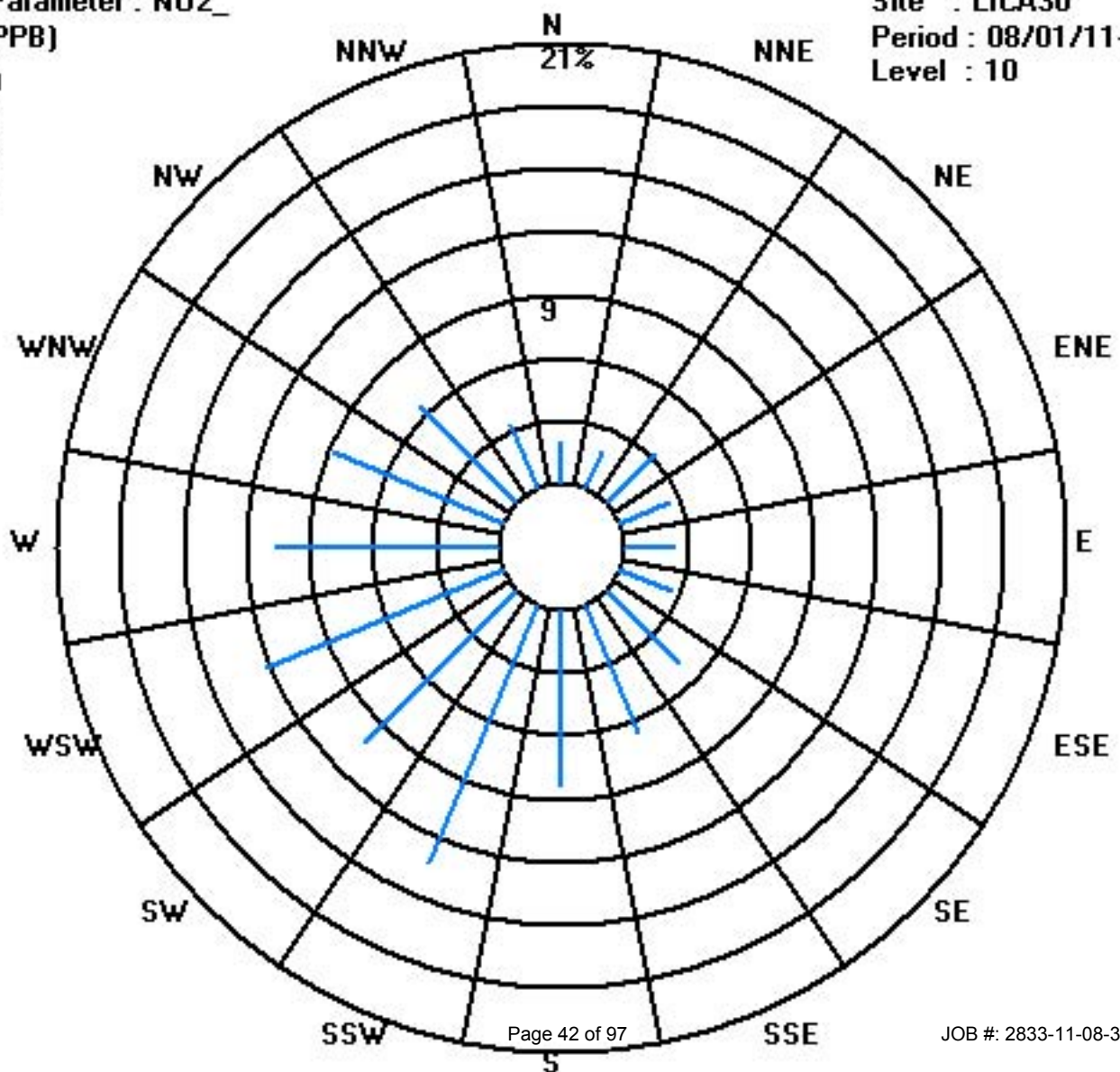
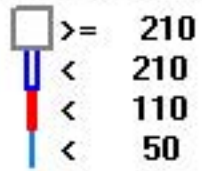
Calm : .00 %

Total # Operational Hours : 705

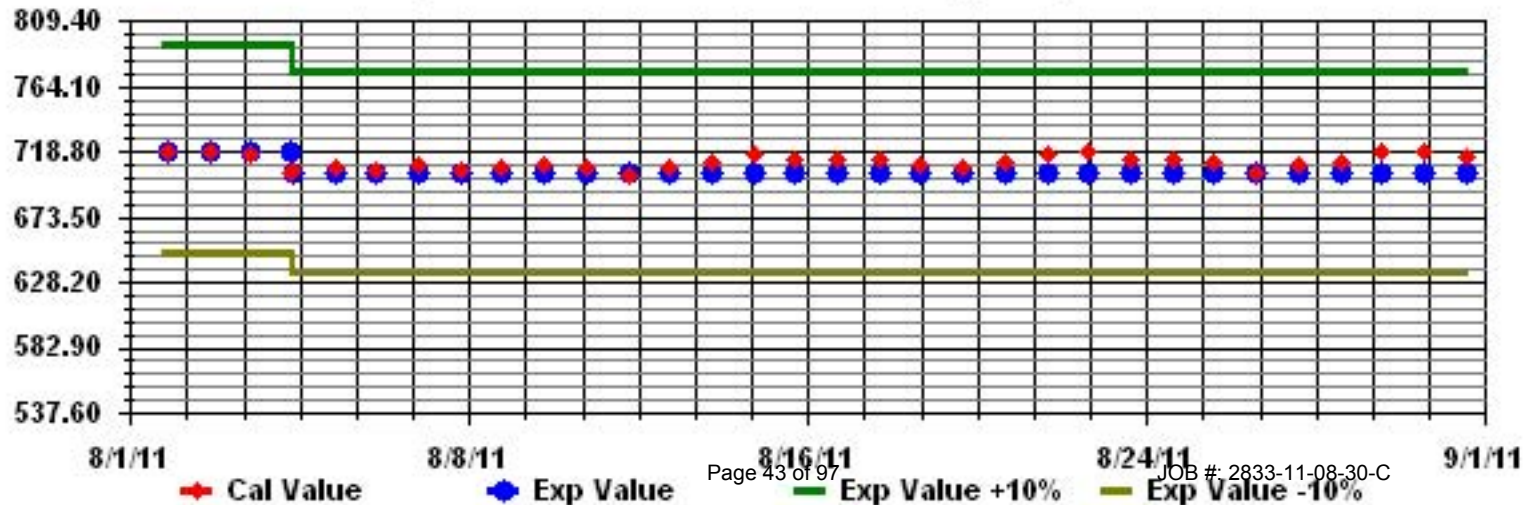
Class Limits (PPB)

Period : 08/01/11-08/31/11

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOICATION - MASKWA

AUGUST 2011

NITRIC OXIDE hourly averages in ppb

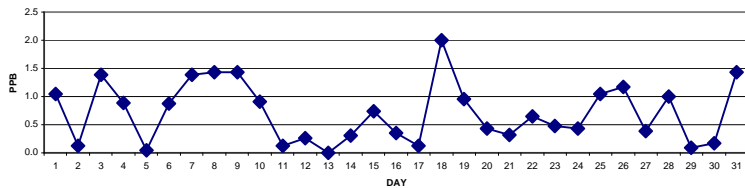
MST

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	2	1	1	3	7	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	1	1	5	16	1	1	0	2	2	0	1	1	1	0	0	0	0	0	0	0	0	0	0
4	0	0	1	1	2	5	3	2	1	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	5	1	0	0	0	1	2	5	3	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	6	9	0	0	7	1	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	7	9	5	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	3	2	3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
12	0	0	0	0	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
15	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
16	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
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
18	0	0	0	0	0	0	4	9	8	4	1	0	0	6	4	6	2	1	1	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	3	6	6	3	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	1	2	3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	2	2	2	3	0	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	1	0	0	0	0	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	1	0	1	2	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	10	2	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	1	1	1	1	0	1	3	5	9	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	1	0	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	1	0	0	0	1	1	4	7	5	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
29	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	0	0
30	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	1	1	1	5	1	1	2	3	4	1	2	0	2	2	3	1	1	0	0	0	0	0	0	0	0	0
HOURLY MAX	6	9	2	1	7	10	9	9	16	4	4	2	2	6	5	6	3	3	2	2	6	6	2	1				
HOURLY AVG	0.5	0.4	0.2	0.2	0.5	1.8	2.1	2.9	2.8	1.0	0.5	0.2	0.4	0.4	0.5	0.6	0.3	0.3	0.3	0.1	0.3	0.3	0.2	0.1				

STATUS FLAG CODES

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

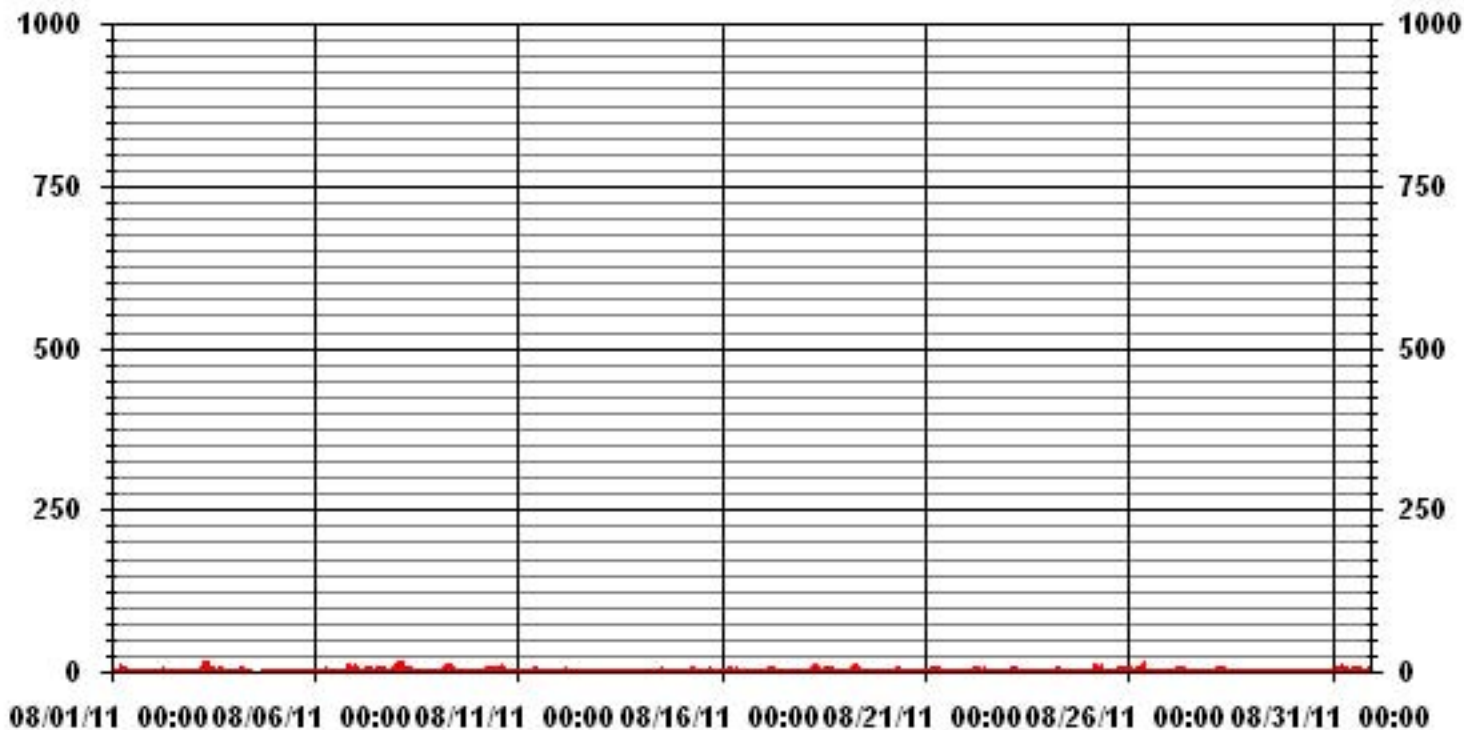
24 HOUR AVERAGES FOR AUGUST 2011



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	212
MAXIMUM 1-HR AVERAGE:	16 PPB @ HOUR(S) 8 ON DAY(S) 3
MAXIMUM 24-HR AVERAGE:	2.0 PPB ON DAY(S) 18
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	1.65
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
MONTHLY AVERAGE:	0.71 PPB

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	0:00	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	2	1	8	4	4	6	18	10	13	1	1	1	1	1	1	1	1	1	1	0	IZS	1	1	1	1	18	3.4	24
2	1	1	1	1	1	1	4	3	13	1	1	1	2	1	1	1	1	1	1	IZS	1	1	1	1	1	13	1.8	24
3	1	1	1	2	4	4	3	13	26	2	2	2	6	5	1	7	3	2	IZS	0	0	0	0	0	0	26	3.7	24
4	0	1	6	4	9	10	8	7	6	2	C	C	C	C	C	C	C	IZS	2	0	0	0	0	0	10	3.4	24	
5	0	0	0	P	0	0	0	0	1	17	14	0	M	M	0	0	IZS	1	1	1	1	1	1	1	17	2.0	21	
6	0	1	1	1	1	1	2	3	2	1	2	1	1	1	1	IZS	2	5	2	1	11	25	9	1	25	3.3	24	
7	19	4	1	1	1	4	6	11	8	2	3	1	2	2	IZS	19	2	21	12	0	0	0	1	4	21	5.4	24	
8	21	22	0	0	22	6	8	20	1	18	0	1	0	IZS	3	5	0	0	0	0	0	0	0	0	22	5.5	24	
9	0	0	0	0	2	50	14	8	17	14	0	1	IZS	0	1	0	0	0	0	1	0	0	0	0	50	4.7	24	
10	0	0	0	0	0	0	9	2	7	7	0	IZS	3	6	15	3	1	2	1	1	1	0	1	1	15	2.6	24	
11	1	1	1	1	1	1	1	1	1	1	1	IZS	1	2	1	3	1	1	1	1	1	1	1	1	3	1.1	24	
12	1	1	1	1	6	2	3	3	2	IZS	0	0	10	0	0	0	0	0	0	0	0	0	0	0	10	1.3	24	
13	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0.6	24
14	1	1	1	1	1	0	0	IZS	5	2	3	4	4	2	1	1	1	1	1	1	4	1	0	1	5	1.6	24	
15	4	1	0	0	1	4	IZS	8	5	6	3	1	10	1	3	1	0	3	2	10	6	1	1	1	10	3.1	24	
16	1	1	1	1	2	IZS	4	4	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.4	24	
17	1	1	1	1	IZS	3	3	3	2	1	1	1	2	1	2	3	1	1	1	1	1	1	1	1	3	1.5	24	
18	1	1	1	IZS	1	2	7	15	16	9	5	2	8	14	9	18	9	5	2	2	0	0	0	0	18	5.5	24	
19	0	0	IZS	0	0	4	8	11	5	5	4	2	0	0	6	0	0	0	2	0	0	0	0	0	11	2.0	24	
20	0	IZS	0	1	0	1	3	4	5	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	5	0.9	24	
21	IZS	1	1	1	3	30	1	1	2	1	1	1	1	1	1	1	1	1	0	1	1	1	1	IZS	30	2.4	24	
22	1	1	1	1	1	12	12	4	6	1	3	4	4	2	2	1	1	1	1	1	1	1	1	IZS	1	12	2.7	24
23	2	1	1	3	4	30	6	2	1	1	1	1	1	1	2	2	0	0	1	1	IZS	1	1	30	2.8	24		
24	1	1	1	1	1	2	3	5	3	2	1	1	1	1	1	1	2	1	1	IZS	0	0	0	5	1.3	24		
25	0	0	0	0	0	17	7	13	7	0	0	0	0	0	0	0	1	2	IZS	5	1	1	2	17	2.4	24		
26	1	2	1	1	1	2	5	10	18	7	1	2	1	1	1	1	1	1	IZS	1	1	1	1	1	18	2.7	24	
27	1	1	1	1	2	7	1	2	2	1	1	1	1	1	1	1	1	IZS	1	1	6	1	1	1	7	1.6	24	
28	3	2	2	1	4	2	12	12	8	6	1	1	3	3	2	3	IZS	0	0	0	0	0	0	0	12	2.8	24	
29	0	0	0	0	0	0	1	6	1	1	0	0	0	0	0	IZS	0	0	0	4	0	0	0	1	6	0.6	24	
30	0	0	0	0	0	1	4	6	2	4	2	5	12	0	IZS	1	1	1	4	2	1	1	1	1	12	2.1	24	
31	1	1	3	3	2	16	4	3	3	9	10	4	5	IZS	4	5	9	2	2	1	1	1	1	3	16	4.0	24	
HOURLY MAX	21	22	8	4	22	50	18	20	26	18	14	5	12	14	15	19	9	21	12	10	11	25	9	4				
HOURLY AVG	2.1	1.6	1.2	1.1	2.5	7.3	5.2	6.3	6.3	4.3	2.2	1.4	2.9	1.7	2.2	2.8	1.4	1.9	1.4	1.2	1.6	1.4	0.9	0.9				

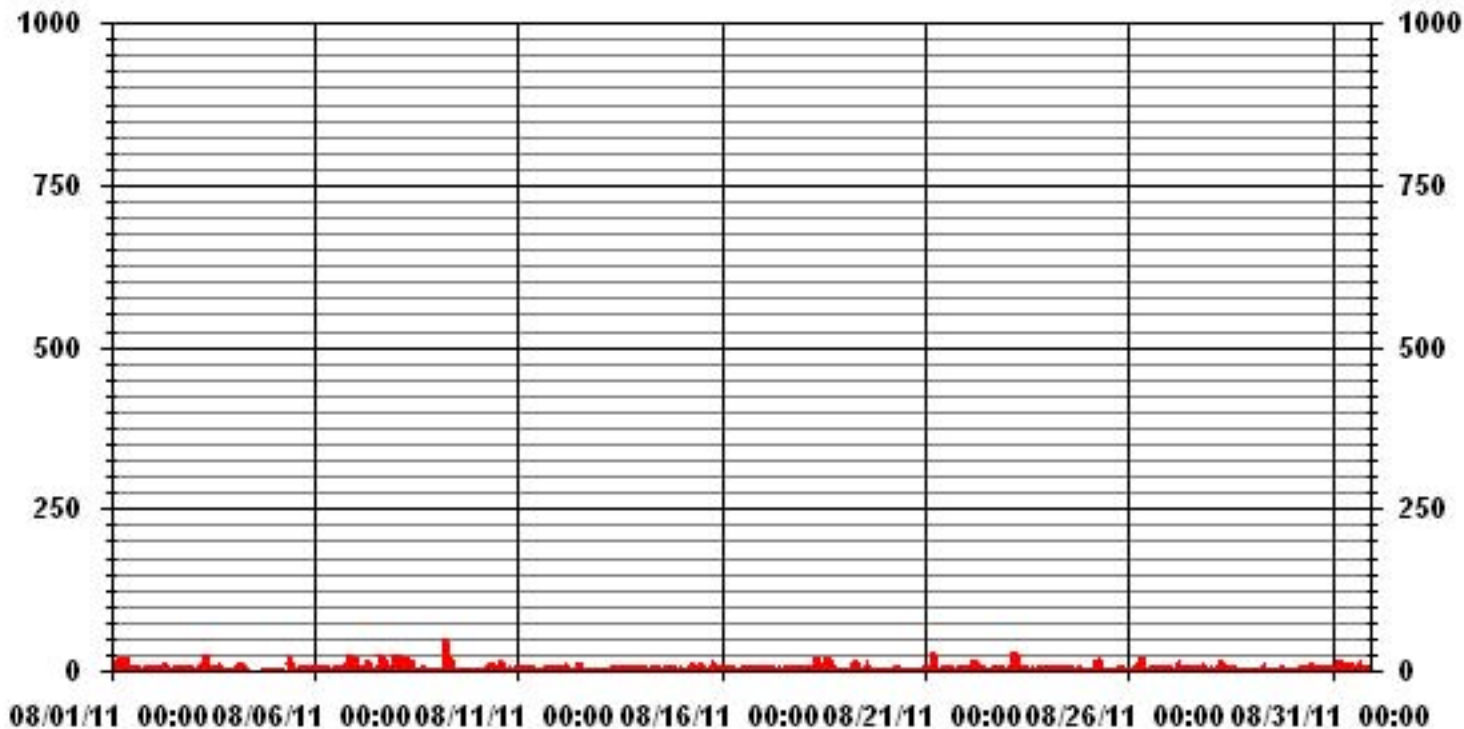
STATUS FLAG CODES

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:	532					
MAXIMUM INSTANTANEOUS VALUE:	50	PPB	@ HOUR(S)	5	ON DAY(S)	9
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION	4.53					

01 Hour Averages



— LICA30 — NOMAX — PPB

LICA30
 NO_ / WDR Joint Frequency Distribution (Percent)

August 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	1.98	1.98	3.26	2.55	2.41	2.69	4.96	6.66	8.51	13.33	10.21	12.19	10.63	8.79	6.52	3.26	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.98	1.98	3.26	2.55	2.41	2.69	4.96	6.66	8.51	13.33	10.21	12.19	10.63	8.79	6.52	3.26	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	14	14	23	18	17	19	35	47	60	94	72	86	75	62	46	23	705
< 110																	
< 210																	
>= 210																	
Totals	14	14	23	18	17	19	35	47	60	94	72	86	75	62	46	23	

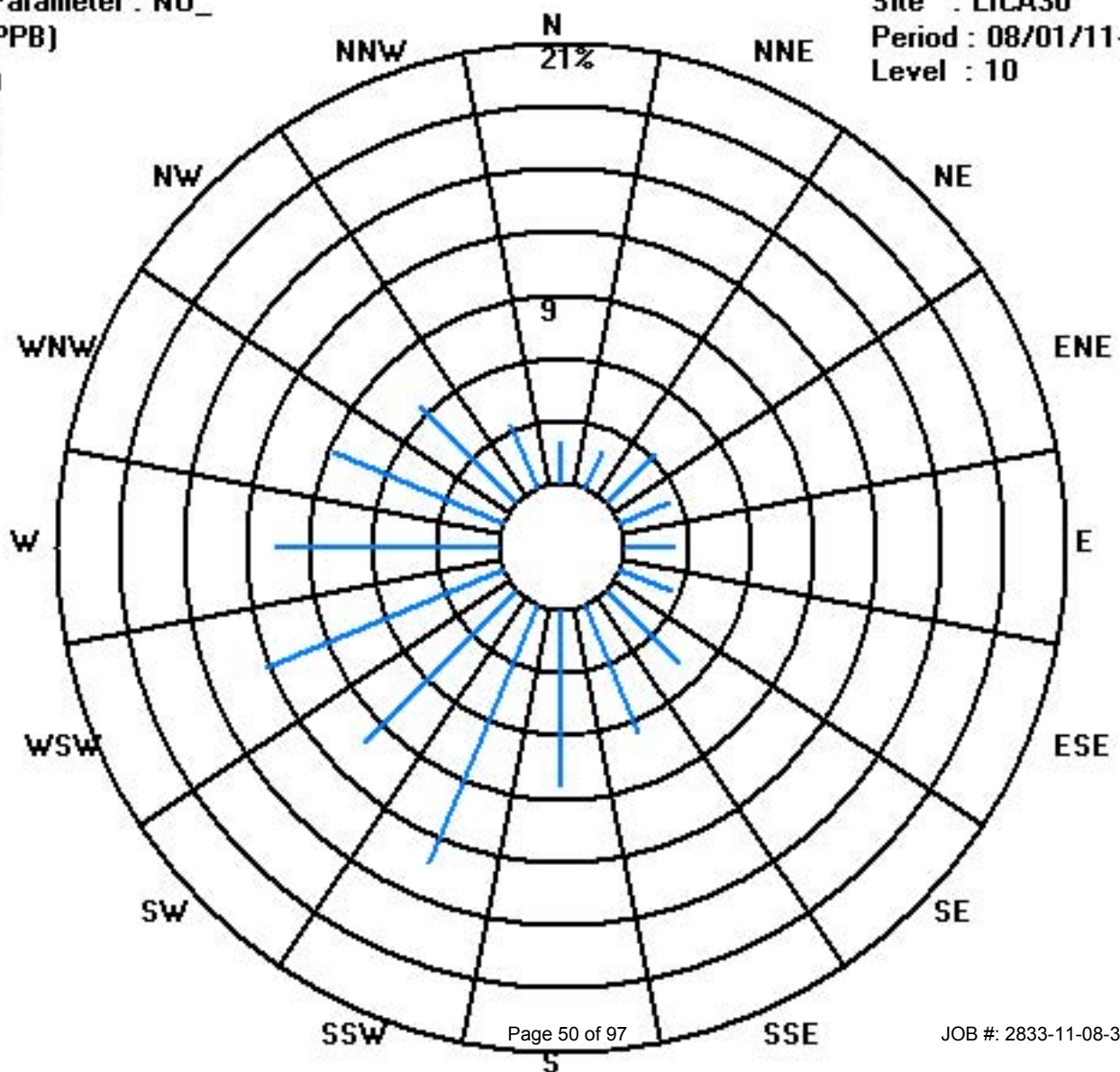
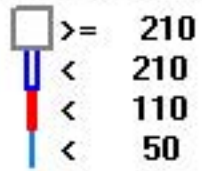
Calm : .00 %

Total # Operational Hours : 705

Class Limits (PPB)

Period : 08/01/11-08/31/11

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
AUGUST 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	5	3	8	6	6	9	14	11	7	1	1	1	1	1	0	1	1	1	1	1	IZS	4	4	5	14	4.0	24	
2	6	4	2	1	1	2	2	2	3	1	1	1	1	1	1	1	1	1	1	1	IZS	1	0	1	2	6	1.6	24
3	4	4	5	4	3	3	3	9	26	1	2	1	6	6	0	4	2	2	IZS	0	0	0	2	3	26	3.9	24	
4	3	5	8	6	10	14	9	7	5	4	2	C	C	C	C	C	C	IZS	3	0	0	0	0	0	14	4.5	24	
5	0	1	1	1	1	3	1	2	3	3	1	1	1	M	0	0	IZS	0	1	1	1	0	0	0	3	1.0	23	
6	0	0	0	0	0	0	0	3	4	1	1	0	2	3	1	IZS	2	6	2	1	18	14	6	0	18	2.8	24	
7	13	6	2	0	0	1	4	9	4	1	2	1	2	1	IZS	16	2	8	6	0	1	1	1	1	1	16	3.6	24
8	15	19	0	0	16	6	10	10	2	2	1	0	0	IZS	2	4	0	0	0	1	0	0	0	0	0	19	3.8	24
9	0	3	4	2	1	10	15	11	21	5	1	2	IZS	1	1	1	0	0	1	7	2	1	1	1	1	21	4.0	24
10	0	1	0	1	2	2	9	5	10	11	1	IZS	3	2	16	2	1	1	0	0	0	0	0	0	16	2.9	24	
11	0	0	0	0	0	0	0	0	0	0	0	IZS	0	1	0	3	0	0	0	0	0	0	0	0	0	3	0.2	24
12	0	0	0	0	1	1	1	3	3	IZS	2	2	2	0	0	0	0	0	0	0	0	0	1	2	0	3	0.8	24
13	0	0	1	1	1	2	2	1	IZS	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
14	1	1	0	0	1	0	1	IZS	6	1	4	5	4	4	2	2	1	1	2	2	6	3	1	2	6	2.2	24	
15	4	2	1	1	3	6	IZS	7	4	4	2	1	4	0	1	0	0	1	5	6	6	0	0	0	7	2.5	24	
16	0	1	0	0	0	IZS	4	2	1	1	1	1	1	1	1	0	0	1	0	1	0	1	2	1	1	4	0.9	24
17	1	1	2	1	IZS	2	2	2	1	1	1	0	1	1	1	1	1	1	0	2	5	2	1	2	5	1.4	24	
18	4	2	2	IZS	2	2	14	20	15	10	3	2	2	13	9	13	6	5	5	6	1	1	1	0	20	6.0	24	
19	1	1	IZS	2	4	9	11	11	8	5	4	3	1	1	2	1	2	3	4	2	1	1	1	1	11	3.4	24	
20	1	IZS	0	1	1	1	2	5	7	7	3	1	0	0	0	0	0	0	1	2	0	0	0	0	7	1.4	24	
21	IZS	2	2	1	1	3	2	3	3	2	1	2	2	1	1	1	1	1	1	1	2	2	2	IZS	3	1.7	24	
22	3	3	3	3	2	3	4	6	8	2	3	6	7	3	2	1	1	1	0	1	0	1	IZS	0	8	2.7	24	
23	4	2	2	1	1	21	4	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	IZS	0	1	21	1.7	24
24	0	2	5	5	3	4	5	5	3	2	1	1	1	1	1	0	1	0	4	IZS	5	3	3	3	5	2.4	24	
25	1	1	0	1	1	26	11	16	6	0	0	0	0	0	0	0	1	9	IZS	7	1	5	5	5	26	4.0	24	
26	2	2	1	1	1	5	5	9	15	8	1	2	2	2	1	1	1	1	IZS	1	2	2	3	2	15	3.0	24	
27	1	1	1	1	1	2	1	3	3	2	2	2	2	1	1	1	2	IZS	2	1	5	2	1	1	5	1.7	24	
28	12	8	5	1	2	2	11	16	14	8	1	1	2	1	2	2	IZS	0	0	0	0	0	1	1	16	3.9	24	
29	1	0	0	0	0	0	1	5	2	2	1	0	0	0	1	IZS	1	1	0	3	1	1	1	2	5	1.0	24	
30	0	3	4	3	0	6	7	7	1	2	3	3	2	0	IZS	0	0	0	3	2	2	0	0	0	7	2.1	24	
31	0	0	2	2	5	12	3	2	3	5	6	2	4	IZS	4	5	7	3	3	1	1	1	2	7	12	3.5	24	
HOURLY MAX	15	19	8	6	16	26	15	20	26	11	6	6	7	13	16	16	7	8	9	7	18	14	6	7				
HOURLY AVG	2.7	2.6	2.0	1.5	2.3	5.2	5.3	6.4	6.3	3.1	1.8	1.4	1.9	1.7	1.9	2.2	1.2	1.4	1.8	1.6	2.2	1.5	1.4	1.4				

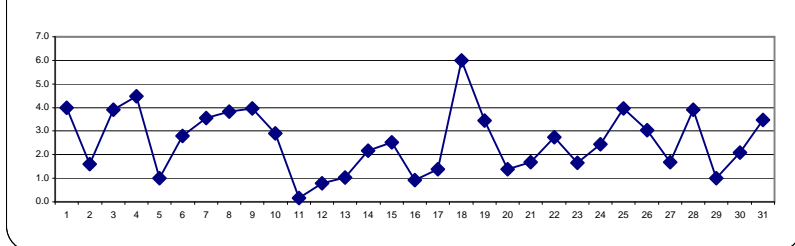
STATUS FLAG CODES

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

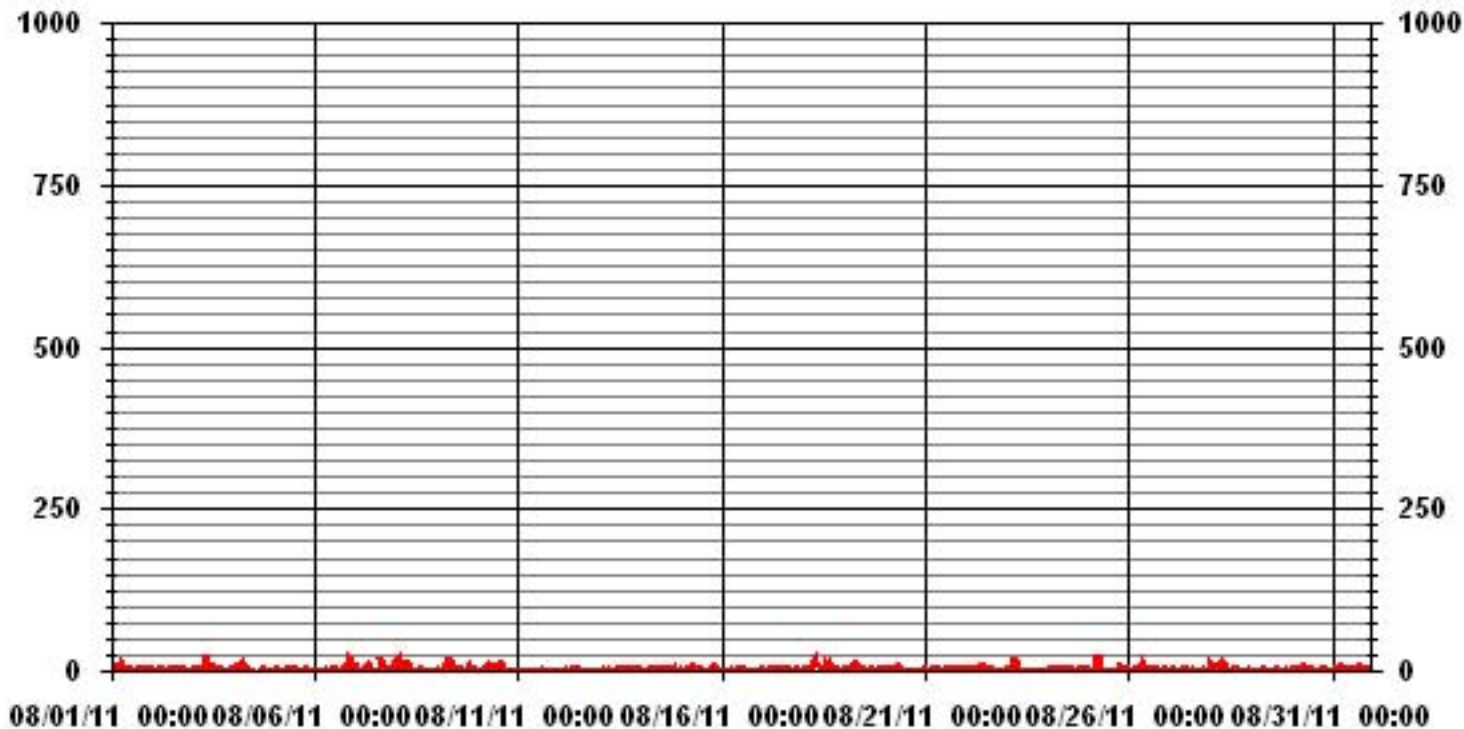
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	534					
MAXIMUM 1-HR AVERAGE:	26	PPB	@ HOUR(S)	8	ON DAY(S)	3
MAXIMUM 24-HR AVERAGE:	6.0	PPB			ON DAY(S)	18
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	3.60		MONTHLY AVERAGE:	2.55	PPB	

24 HOUR AVERAGES FOR AUGUST 2011



01 Hour Averages



— LICA30 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 2011

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY	24-HOUR	
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1	10	5	22	13	12	14	31	20	23	2	2	2	1	2	1	2	1	1	1	1	1	IZS	6	7	9	31	8.2	24	
2	8	7	2	2	3	3	7	6	21	2	2	2	3	2	2	2	2	2	1	IZS	2	1	1	4	21	3.8	24		
3	6	5	6	6	9	9	7	23	39	4	4	4	14	11	2	21	14	4	IZS	2	1	2	4	4	39	8.7	24		
4	6	9	18	15	23	23	18	16	14	7	C	C	C	C	C	C	C	IZS	10	1	1	1	1	1	23	10.3	24		
5	1	2	2	P	2	6	2	4	4	40	22	2	M	M	1	1	IZS	1	1	5	5	1	1	0	40	5.2	21		
6	0	2	1	1	0	0	3	10	6	3	4	1	6	5	4	IZS	8	12	8	5	26	43	21	1	43	7.4	24		
7	38	16	4	1	1	5	11	18	13	3	6	2	3	3	IZS	35	5	37	23	2	1	3	5	13	38	10.8	24		
8	37	39	2	1	38	16	17	32	2	28	3	3	1	IZS	9	12	2	1	1	1	1	1	1	1	1	39	10.8	24	
9	1	5	6	3	3	57	24	16	31	28	2	4	IZS	2	4	2	1	1	17	20	5	2	2	2	57	10.3	24		
10	1	2	1	1	3	3	23	7	20	21	2	IZS	8	17	36	8	2	3	1	1	1	0	1	1	36	7.1	24		
11	1	0	0	1	0	0	2	0	1	1	IZS	2	4	2	8	1	1	1	1	0	0	1	1	0	8	1.2	24		
12	1	2	0	1	7	2	3	5	4	IZS	2	3	21	1	1	1	1	1	1	1	0	7	3	2	21	3.0	24		
13	1	1	1	1	2	3	3	2	IZS	2	2	2	2	2	2	1	1	1	2	2	2	2	2	1	3	1.7	24		
14	2	1	1	1	1	1	1	IZS	11	6	10	12	12	10	4	5	1	4	3	3	23	6	2	5	23	5.4	24		
15	19	3	2	2	6	16	IZS	20	11	10	7	2	18	1	6	1	0	10	8	26	22	0	2	0	26	8.3	24		
16	1	3	2	1	3	IZS	8	6	2	2	2	2	2	1	2	2	1	1	1	1	2	3	2	1	8	2.2	24		
17	1	2	2	2	IZS	4	4	4	2	2	2	2	3	2	4	4	2	2	1	7	8	3	2	5	8	3.0	24		
18	6	3	2	IZS	6	9	19	29	26	16	10	6	17	28	16	29	16	13	10	11	2	1	1	1	29	12.0	24		
19	1	2	IZS	3	6	10	14	16	11	9	8	5	2	2	13	2	3	4	9	2	2	2	2	1	16	5.6	24		
20	2	IZS	2	2	2	2	5	9	12	10	6	3	1	0	0	1	1	4	4	4	1	1	1	1	12	3.2	24		
21	IZS	3	2	2	4	28	3	4	4	3	2	3	3	2	2	3	2	2	2	2	2	3	3	3	IZS	28	3.9	24	
22	4	4	3	3	3	13	14	8	15	4	9	11	12	7	4	2	3	1	1	1	1	3	IZS	1	15	5.5	24		
23	11	5	5	8	12	52	16	2	1	1	0	2	1	0	0	4	2	0	0	0	0	IZS	1	6	52	5.6	24		
24	1	5	6	6	4	6	6	8	5	3	1	1	2	1	2	2	2	4	2	9	IZS	11	10	7	11	4.5	24		
25	2	1	1	2	7	37	22	29	18	1	2	2	1	1	1	1	3	6	13	IZS	15	3	11	10	37	8.2	24		
26	8	7	2	2	4	6	9	17	29	14	2	4	3	3	3	2	2	2	2	IZS	2	3	3	4	4	29	5.9	24	
27	2	2	2	2	3	9	2	5	5	3	3	3	3	2	3	2	IZS	2	2	26	8	2	2	26	4.1	24			
28	17	17	17	2	11	5	24	24	18	16	2	2	8	8	5	9	IZS	1	0	0	1	0	2	2	24	8.3	24		
29	1	1	1	1	1	1	2	13	3	3	2	1	1	1	1	IZS	2	1	1	17	2	3	2	7	17	3.0	24		
30	1	10	6	6	1	10	13	15	4	9	6	11	28	1	IZS	1	0	0	12	8	4	1	0	1	28	6.4	24		
31	1	0	10	8	9	28	9	5	5	16	16	7	9	IZS	9	11	20	6	8	4	1	1	7	9	28	8.7	24		
HOURLY MAX	38	39	22	15	38	57	31	32	39	40	22	12	28	28	36	35	20	37	23	26	26	43	21	13					
HOURLY AVG	6.4	5.5	4.4	3.4	6.2	12.6	10.7	12.4	12.0	9.0	4.9	3.7	6.8	4.3	5.1	6.0	3.6	4.3	5.0	4.8	5.6	4.1	3.5	3.4					

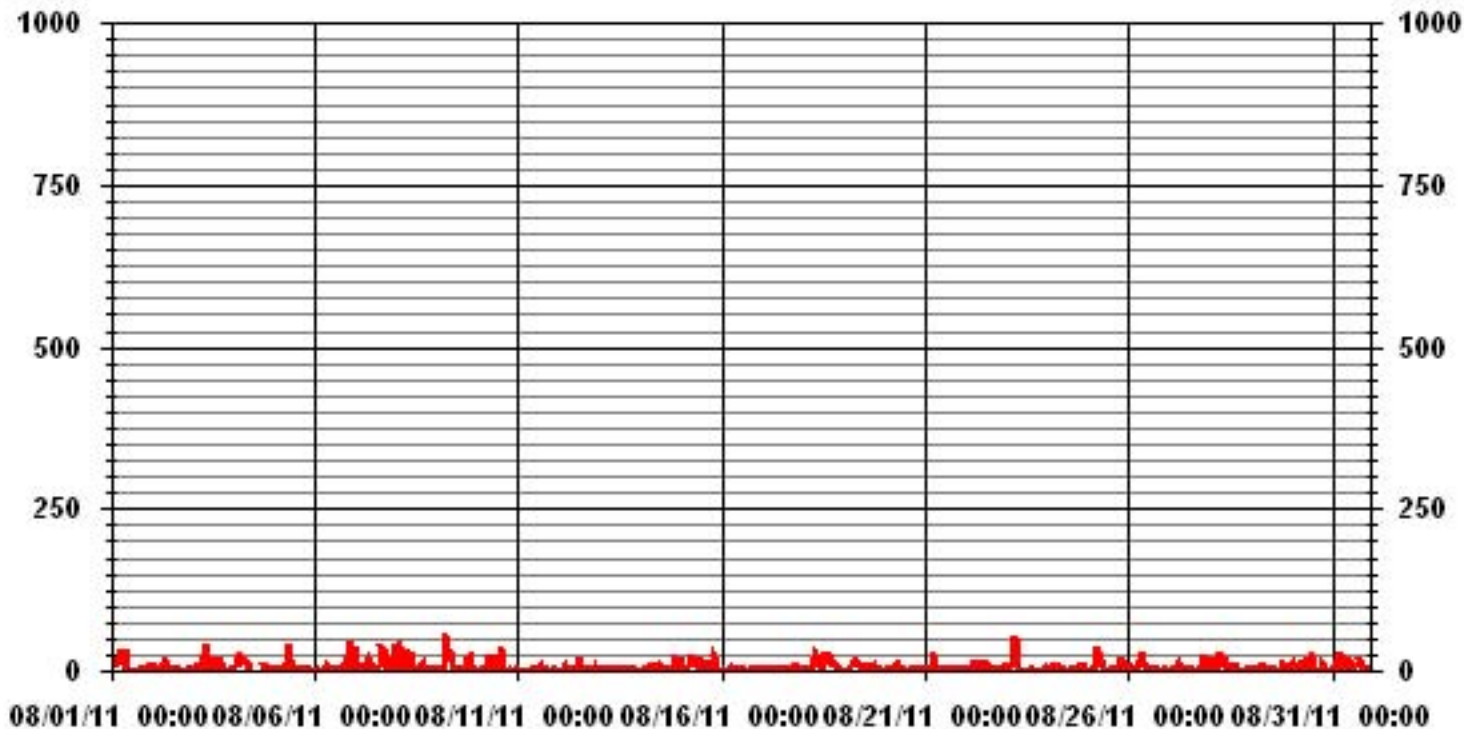
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	668					
MAXIMUM INSTANTANEOUS VALUE:	57	PPB	@ HOUR(S)	5	ON DAY(S)	9
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741 HRS		
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION	8.00					

01 Hour Averages



— LICA30 NOXMAX PPB

LICA30
 NOX_ / WDR Joint Frequency Distribution (Percent)

August 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	1.98	1.98	3.26	2.55	2.41	2.69	4.96	6.66	8.51	13.33	10.21	12.19	10.63	8.79	6.52	3.26	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.98	1.98	3.26	2.55	2.41	2.69	4.96	6.66	8.51	13.33	10.21	12.19	10.63	8.79	6.52	3.26	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	14	14	23	18	17	19	35	47	60	94	72	86	75	62	46	23	705
< 110																	
< 210																	
>= 210																	
Totals	14	14	23	18	17	19	35	47	60	94	72	86	75	62	46	23	

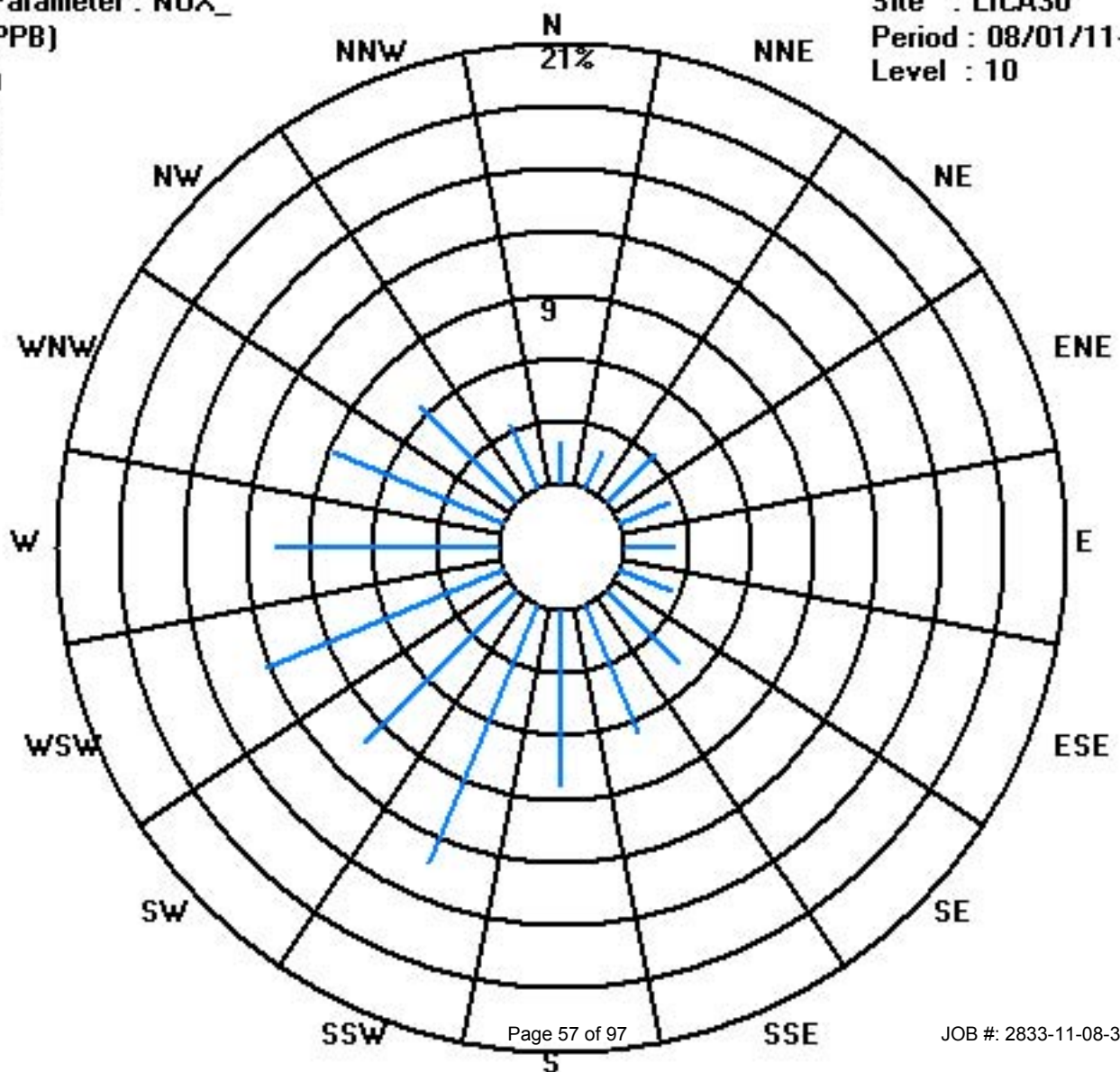
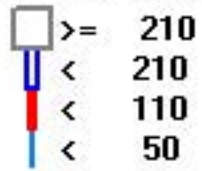
Calm : .00 %

Total # Operational Hours : 705

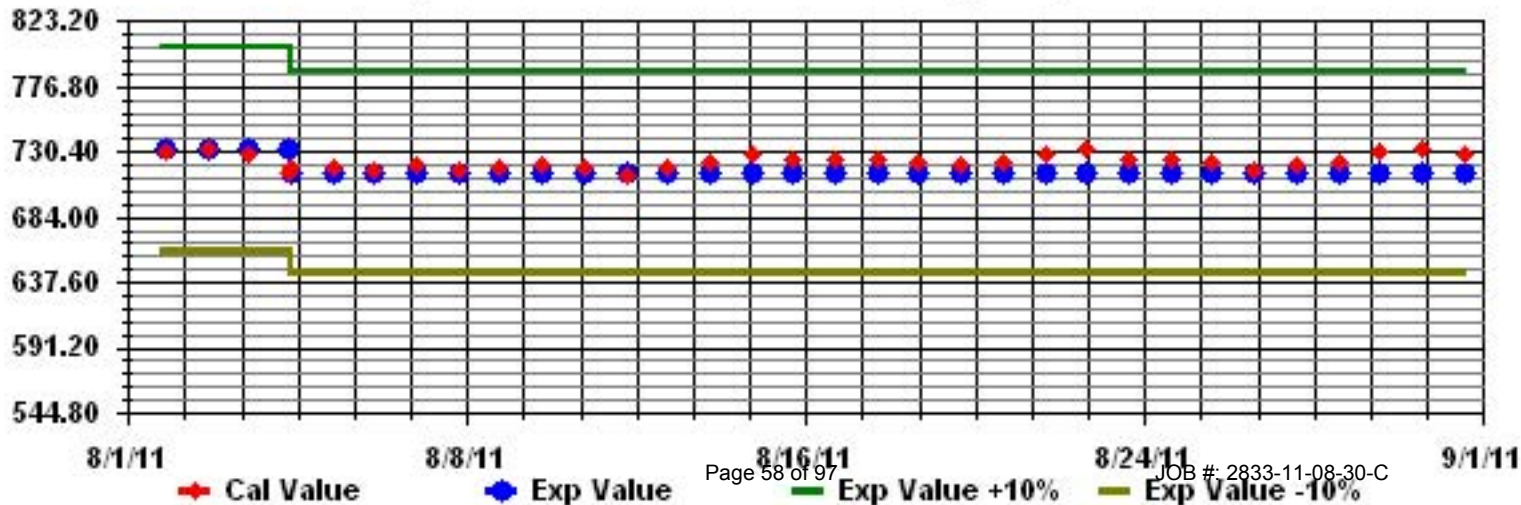
Class Limits (PPB)

Period : 08/01/11-08/31/11

Level : 10



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



Temperature

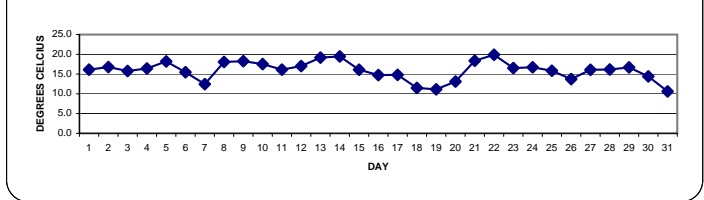
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
AUGUST 2011
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY 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	13.8	13.5	13.1	12.1	11.5	11.5	14	16.4	17	17.9	19.1	19.2	20.1	20.1	20	20.1	19.8	19.6	19.1	16.9	14.5	13.1	12.5	12.1	20.1	16.1	24	
2	12.1	11.7	11.8	10.7	10.2	11	13.9	16.7	18.1	19.5	20.3	21.6	22.2	22.5	22.7	22.9	22.4	22	20.4	16.7	14	13.1	12.9	13.1	22.9	16.8	24		
3	13.3	12.9	11.8	10.7	10.3	10.7	13.4	15.7	19.6	19.7	20.7	22	21.1	22	22.8	17.2	16.6	19.3	16.9	15.2	13.3	12	10.6	10.9	22.8	15.8	24		
4	11.1	10.5	9.9	9.1	8.7	8.8	10.9	15.5	18.6	20.3	21.7	22.2	22.5	23.2	22.1	23.8	23.6	22.4	19.4	16.6	13.8	13.1	13.6	12.6	23.8	16.4	24		
5	12.6	11.8	11.6	11.9	12	12.4	12.8	14.5	17.5	20.5	21.3	23.5	24	24.4	25.3	25	24.3	23.4	22.6	18.6	16.7	16.6	16.7	16.6	25.3	18.2	24		
6	16	14.1	12.7	11.4	11.3	12.3	15.7	18	18.7	18.5	19.1	17.5	15.4	15.6	15.6	15.5	16.1	19.1	18.8	16.7	15.2	13.5	12.7	11.6	19.1	15.5	24		
7	11.1	10.5	10.2	10.6	10.8	11	11.3	11.5	11.8	12.2	12.1	11.9	12.1	12.9	13.9	13.4	14.1	14.1	14.7	14.4	13.7	13.6	13.5	13.4	14.7	12.5	24		
8	13.3	12.9	12.5	12.2	11.8	11.2	13.5	16.6	18.6	20.8	22.6	23.3	24.4	25.4	25.8	25.5	23.7	24	22.7	18.4	15.6	13.7	12.7	12.2	25.8	18.1	24		
9	11.8	12.4	11.9	10.7	10.7	10.9	13.2	17.5	22	23.8	24.1	24.8	24.7	24.4	25.4	25.2	25.1	24.6	20.9	17.7	16.6	14.9	12.8	12.1	25.4	18.3	24		
10	11.3	10.8	10.2	9.6	10	10.3	13	17.4	21.1	23.2	24.9	25.9	26.6	24.6	19.6	21.6	22.5	22	21.4	18.4	16.5	14.8	12.8	12.3	26.6	17.5	24		
11	12.3	10.8	10.1	9	8.7	9	11.3	15.7	18.1	20.6	22.2	23.4	21.3	22.6	24	20.9	22.3	23	20.9	16	12.9	11.2	10.5	10.1	24.0	16.1	24		
12	10	9.4	9	8.6	8.4	8.6	11	16.2	19.1	21	22.4	23.9	24.5	24.7	24.2	24.1	24.1	23.5	21.8	18.5	16.3	14.9	12.6	11.6	24.7	17.0	24		
13	11.1	11.4	13.8	13.1	13	13.3	14.9	17.4	19.6	22	24.2	25	24.1	23.8	24.3	26.5	26.9	26.7	24.5	19.6	17.1	16.9	16	14.8	26.9	19.2	24		
14	13.6	13.4	13.4	13.3	12.8	12.7	14.5	17.5	20	20.6	23.1	25	26.1	26.6	26.2	25.4	25.7	23.3	20.7	19.6	19.7	18.5	17.9	17.4	26.6	19.5	24		
15	17	15.8	14.7	12.3	11.9	12.6	13.9	16.7	18.6	19.1	20	21.2	22.1	21.1	20.8	19	18.3	16.5	15.1	14.1	13.1	11.8	10.9	9.8	22.1	16.1	24		
16	9.5	9.4	9.2	8.6	8.3	8.2	9.5	13.2	15.5	16.8	17.9	19.3	20.1	20.7	20.4	20.6	20.5	19.8	18.1	15.8	14.9	12.9	12.7	12.1	20.7	14.8	24		
17	11	10.3	11.1	10.4	9.8	10	11.1	13.8	15.7	16.8	18.5	19.4	20.3	20.5	20.4	18.6	18.8	16.8	15.5	14.4	13.7	13.3	12.8	12	20.5	14.8	24		
18	10.8	9.8	9.2	7.7	7.6	7.6	9.5	10.5	14	16	17.1	16.5	16.2	13.4	14.4	15.1	15.4	12.4	12.7	9.8	8.6	7.9	7.2	6.4	17.1	11.5	24		
19	6.1	6.5	6.2	5.8	6.5	6.7	7.4	8.7	10.7	11.5	14.8	17.2	19.5	19.8	19.9	17.1	13	14.2	13.3	9.7	8.5	8.1	8.1	8	19.9	11.1	24		
20	7.7	6.8	6.1	5.1	5.2	6.5	9.6	11.4	12.2	14.1	15	16.4	18.3	19	19.5	20.1	19.6	18.7	16.6	14.9	13	13.8	13.4	11.5	20.1	13.1	24		
21	9.9	9	8.5	8	8	10.1	13.1	14.2	17.5	20.1	23.1	24.7	25.3	25.9	26.5	26.7	26.9	26.2	22.5	20.2	20.1	19.9	18.3	16.1	26.9	18.4	24		
22	14.7	13.6	13.2	12.7	12	11.5	13.2	18.5	23.1	25.5	25.5	27.4	28.6	28.4	28.2	26.9	26.5	24.2	21.2	18.3	17.1	16.2	15.3	15.5	28.6	19.9	24		
23	16.1	15.5	15	14.7	14.5	14.3	14.4	14.6	15.6	16.7	18.5	19.9	20.1	20.4	21	20.7	20.6	20.1	18	15.5	13.9	13	12	11.5	21.0	16.5	24		
24	9.6	9.6	9.4	8.5	8	8	9.8	13.8	17	18.7	20.5	21.8	23.1	23.8	24.8	24.8	25.8	26	21.8	18.7	15.4	13.7	14	14.5	26.0	16.7	24		
25	14	13.5	13.7	13.9	13.9	14.6	13.9	15.3	17.8	18.7	19	19.5	19.5	19.5	19.8	19.7	19.8	18.6	16.6	15.5	13.3	10.7	10.3	9.2	19.8	15.8	24		
26	8.6	7.9	6.6	7	5.6	5.2	6.8	12.7	17	18.9	19.8	20.5	21	20.9	20.8	19.9	20.1	19.8	17.2	13.8	11.9	9.8	9	8.6	21.0	13.7	24		
27	8.2	8.2	8	8	8.2	8	8	14.2	17.7	19.3	20.7	21.3	22.9	24.6	25	25	23.8	22.3	20.4	18.3	17.8	14	11.4	10.6	25.0	16.1	24		
28	11.1	11.6	10.3	10.3	9	8.8	10.7	15.2	18	20.4	22	23.1	23.4	23.9	24.3	24.2	24	23.1	19	14.4	11.9	10.5	9.6	8.9	24.3	16.2	24		
29	8.3	7.8	7.5	7.5	7.1	6.9	8.3	14.5	18.4	20.4	22.5	23.9	24.4	25.3	25.5	25	24.8	23.2	21.3	19	16.1	15.1	14.1	13.8	25.5	16.7	24		
30	12.7	12.2	10.6	11.5	11.8	11.5	12.5	14.9	16.3	17.8	18.1	18.8	18.9	19.2	20.2	19.5	19.5	19	15.4	12.6	9.3	8.6	7.6	7.4	20.2	14.4	24		
31	7.3	6.2	6	5.9	6	7.2	7.4	8.9	10	11.9	13.8	15.6	16.7	15.7	16.3	17.4	16.9	15.7	13.4	10.1	7.9	6.3	5.6	6.2	17.4	10.6	24		
HOURLY MAX		17.0	15.8	15.0	14.7	14.5	14.6	15.7	18.5	23.1	25.5	25.5	27.4	28.6	28.4	28.2	26.9	26.9	26.7	24.5	20.2	20.1	19.9	18.3	17.4				
HOURLY AVG		11.5	11.0	10.6	10.0	9.8	10.0	11.7	14.8	17.3	18.8	20.1	21.2	21.6	21.8	21.9	21.5	21.3	20.8	18.8	16.1	14.3	13.1	12.3	11.7				

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

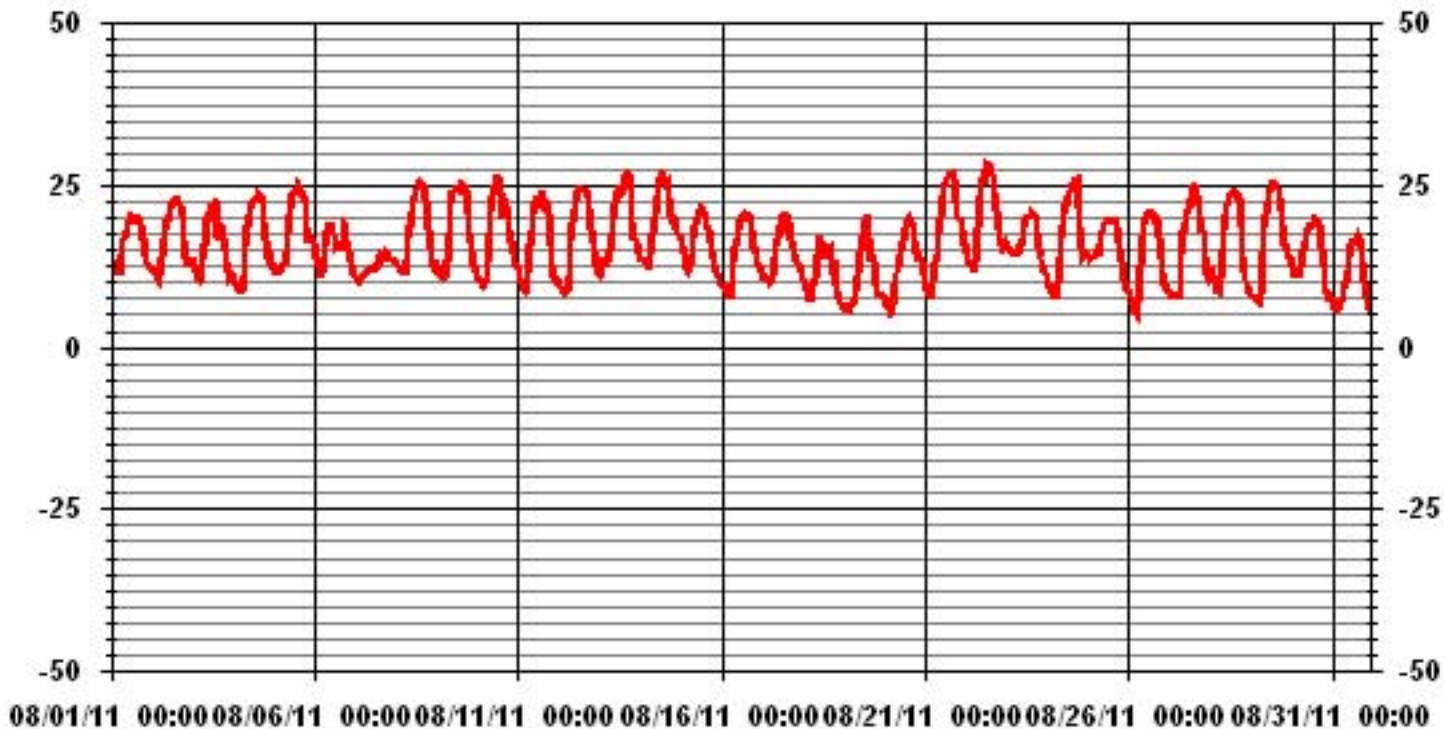
24 HOUR AVERAGES FOR AUGUST 2011



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	5.1 °C	@ HOUR(S)	3	ON DAY(S)	20
MAXIMUM 1-HR AVERAGE:	28.6 °C	@ HOUR(S)	12	ON DAY(S)	22
MAXIMUM 24-HR AVERAGE:	19.9 °C			ON DAY(S)	22
CALIBRATION TIME:	0	HRS			
OPERATIONAL TIME:			744	HRS	
STANDARD DEVIATION:	5.45				
AMD OPERATION UPTIME:			100.0	%	
MONTHLY AVERAGE:	15.91	°C			

01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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		1.1	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	1.1	1.2	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	0.3	0.4	0	0	0	0	0	0	0	0	0.4	0.7	24
4		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	0.1	0.1	24
5		0	0	0	7.8	0.5	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.8	8.7	24
6		0	0	0	0	0	0	0	0	0	0	0	5.4	0.3	1	0.3	0.1	0	0	0	0	0	0	0	0	0	5.4	7.1	24
7		0	0.1	0	0	0	0	0	1.3	2.3	1	0.9	4.5	2.3	0.7	0.2	0.9	0	1.7	0	0	0	0	0.1	0	4.5	16.0	24	
8		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
9		0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0.4	0.5	24	
10		0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	24
11		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	0.1	0.1	24
12		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1.0	1.0	24
13		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
14		0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	0.3	1.2	0.2	1.2	2.1	24
15		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	0.1	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	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	0.2	0.1	0	0.2	0.6	0	0	0	0.1	0	0	0	0.6	1.2	24
19		0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	2.4	0	0	0	0	0	0	0	0	2.4	2.5	24
20		0.1	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	24
21		0	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	24
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
23		2.3	0.4	0.3	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	2.3	3.1	24
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
25		0.1	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3	24
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4	0	0	0	0.4	0.7	24
28		0.1	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	24
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0	0	0.4	0.4	24
30		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
31		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	0.1	0.1	24

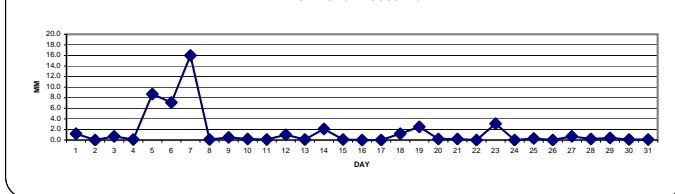
STATUS FLAG CODES

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

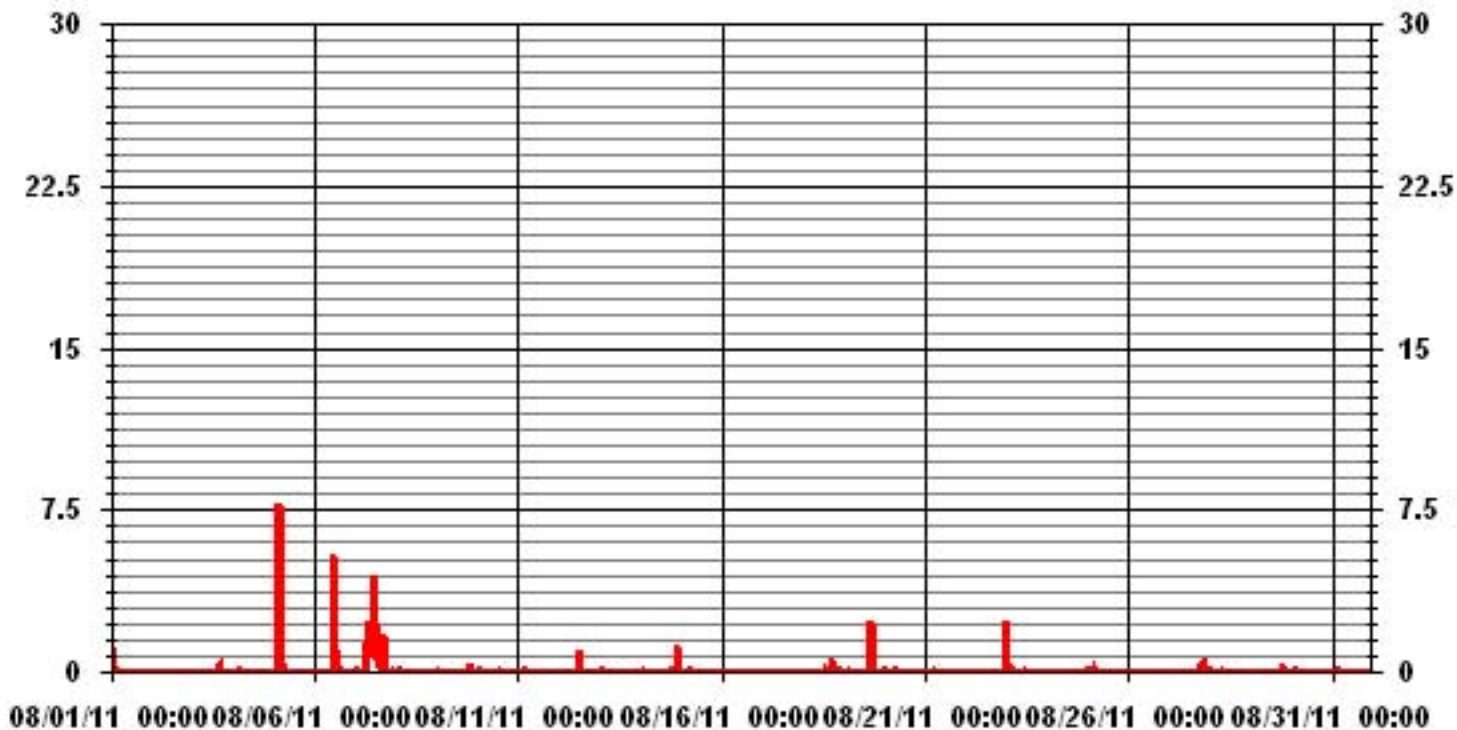
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	7.8	MM	HOUR(S)	3	ON DAY(S)	5
MAXIMUM DAILY TOTAL	16.0	MM			ON DAY(S)	7
MONTHLY TOTAL	47.0	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	0.44		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.06	MM	

DAILY TOTALS FOR AUGUST 2011



01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 2011

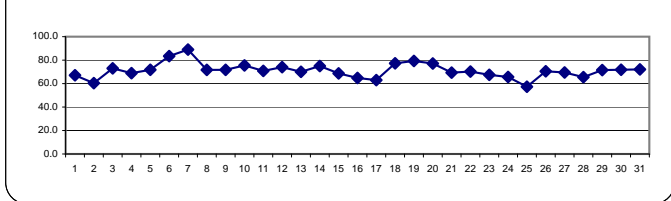
RELATIVE HUMIDITY hourly averages (%)

MST																										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		90	91	92	92	92	91	84	75	65	55	51	49	46	45	46	47	47	49	57	67	74	79	81	92	92	67.1	24
2		80	78	73	77	78	76	66	59	55	50	47	42	41	40	38	39	39	40	47	64	78	80	82	80	82	60.4	24
3		80	84	87	90	91	90	82	75	61	62	61	53	50	47	43	63	75	67	76	74	78	83	90	90	91	73.0	24
4		89	90	90	91	91	91	85	71	59	52	48	46	47	43	48	43	41	49	63	72	81	86	87	91	91	68.9	24
5		90	91	91	86	88	87	88	84	75	64	62	55	50	50	48	48	50	55	64	80	82	81	79	74	91	71.8	24
6		73	81	88	91	92	92	82	75	71	73	73	80	88	90	90	88	76	76	84	85	87	88	89	92	83.4	24	
7		88	89	89	87	87	90	90	89	90	90	89	90	90	88	87	88	87	90	90	90	90	89	89	90	90	89.0	24
8		89	89	87	88	89	91	86	76	70	64	59	56	48	42	37	44	55	53	59	76	86	91	92	93	93	71.7	24
9		93	93	93	93	93	93	93	80	65	59	55	50	50	51	47	47	49	51	57	66	75	85	91	92	93	71.7	24
10		92	93	93	93	93	93	91	75	65	59	55	49	46	46	65	63	59	67	71	85	90	92	91	86	93	75.5	24
11		83	88	90	92	92	93	91	75	65	56	49	46	50	45	42	53	48	47	59	75	87	91	91	92	93	70.8	24
12		92	92	92	93	93	93	81	71	64	60	56	53	51	53	52	52	55	62	78	83	80	87	90	93	74.0	24	
13		91	90	81	83	83	81	76	68	63	58	53	49	51	55	54	50	49	53	61	79	87	88	88	90	91	70.0	24
14		92	91	92	91	92	92	90	80	72	70	63	57	55	55	57	61	60	69	81	86	80	75	70	68	92	75.0	24
15		77	77	78	88	90	89	85	76	69	67	62	54	48	52	50	56	58	61	62	60	61	71	76	82	90	68.7	24
16		84	86	87	89	90	90	86	73	64	58	52	47	44	42	42	42	43	43	50	61	65	74	71	72	90	64.8	24
17		76	80	74	75	76	76	72	64	58	55	49	46	44	44	44	50	52	60	66	69	71	69	69	72	80	63.0	24
18		78	83	87	90	91	91	84	79	67	59	55	56	58	70	69	64	63	80	80	88	89	91	91	92	92	77.3	24
19		92	92	92	92	93	92	92	89	84	81	70	62	52	47	44	51	72	72	76	90	92	92	92	92	93	79.3	24
20		92	92	92	92	92	93	93	89	86	77	73	64	53	53	53	51	56	64	72	80	85	80	81	88	93	77.1	24
21		91	92	92	92	92	93	86	82	70	64	56	48	45	46	43	43	46	48	61	70	72	71	76	85	93	69.3	24
22		91	92	93	93	93	93	93	79	59	50	48	44	42	39	36	41	42	56	71	80	84	87	90	90	93	70.3	24
23		88	91	92	92	88	88	87	85	78	69	57	47	48	44	42	42	42	44	52	61	67	69	72	74	92	67.5	24
24		83	83	83	85	87	86	81	70	60	56	49	40	41	41	40	42	41	43	59	69	82	87	84	83	87	65.6	24
25		86	89	90	86	81	69	65	57	42	35	35	32	34	35	35	37	39	43	51	55	61	70	72	77	90	57.3	24
26		81	84	89	90	91	92	92	78	61	54	51	49	46	45	44	50	49	50	64	79	82	89	91	91	92	70.5	24
27		91	92	92	92	90	91	92	74	61	54	52	53	51	42	41	41	49	58	65	74	54	77	89	92	92	69.5	24
28		90	84	87	87	90	90	86	71	60	52	46	40	37	34	34	34	35	37	53	73	82	88	90	92	92	65.5	24
29		92	92	92	92	92	93	77	61	56	51	48	47	45	46	46	50	58	65	72	87	87	87	88	88	93	71.5	24
30		89	89	92	92	91	92	89	78	69	61	60	55	51	50	46	46	48	46	58	71	84	86	90	90	92	71.8	24
31		90	91	92	92	91	87	85	83	77	67	61	53	48	49	49	44	46	50	58	73	81	87	89	87	92	72.1	24
HOURLY MAX		93	93	93	93	93	93	93	89	90	90	89	90	90	90	90	90	88	90	90	90	92	92	92	92	93		
HOURLY AVG		86.9	88.0	88.5	89.2	89.4	88.9	85.7	76.4	66.9	61.0	56.5	52.1	50.1	49.2	48.8	50.5	52.6	55.9	63.8	73.9	79.0	82.5	84.4	85.6			

STATUS FLAG CODES

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

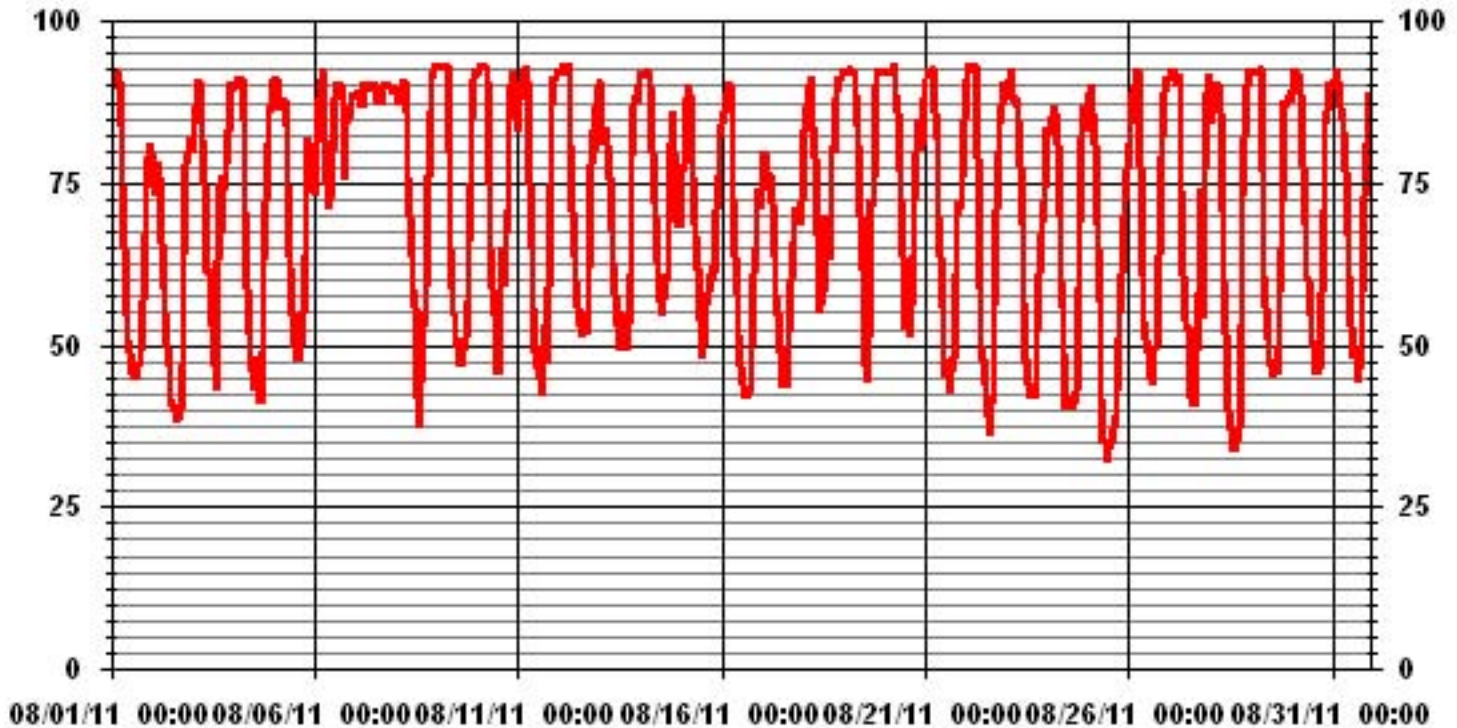
24 HOUR AVERAGES FOR AUGUST 2011



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	93	%	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	89.0	%			ON DAY(S)	7
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	18.08		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	71.07	%	

01 Hour Averages



Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

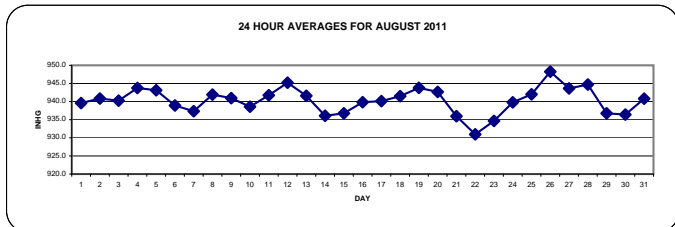
AUGUST 2011

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			
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		937	936	937	937	937	938	938	939	940	940	941	940	940	941	941	941	941	941	941	941	941	941	941	941	941	941	941	939.6	24
2		941	941	941	941	941	941	941	942	942	942	942	942	942	941	941	941	941	940	940	940	940	939	939	939	939	943	940.8	24	
3		939	939	939	939	939	940	940	940	941	941	941	941	941	941	940	941	939	940	941	940	941	941	941	941	941	941	940.3	24	
4		942	942	942	942	943	943	943	944	945	946	946	945	945	945	944	944	944	944	944	944	944	943	943	943	943	946	943.8	24	
5		943	943	943	944	943	943	943	944	944	945	944	944	944	944	944	943	943	942	942	942	942	942	942	942	942	945	943.1	24	
6		941	940	940	940	940	939	939	940	940	940	939	940	938	939	938	938	938	938	938	938	938	938	938	938	937	941	938.9	24	
7		937	938	938	938	938	937	937	937	937	937	937	936	937	936	936	936	937	937	937	937	938	938	939	939	939	939	937.3	24	
8		939	939	940	940	941	941	941	942	943	943	943	943	943	943	943	943	943	943	943	943	942	942	942	942	942	943	941.9	24	
9		942	942	942	941	941	941	942	942	943	943	943	942	942	941	941	940	940	940	940	940	939	939	939	939	938	943	941.0	24	
10		938	938	937	937	938	938	938	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	938.6	24	
11		939	939	939	939	940	940	941	942	942	943	943	943	942	942	942	942	943	943	943	943	943	943	943	943	943	943	941.8	24	
12		943	943	943	944	944	944	944	945	946	947	947	947	946	946	946	945	946	946	946	946	946	946	946	945	944	947	945.2	24	
13		944	944	944	944	943	943	943	943	943	943	942	942	942	941	941	940	940	940	940	939	939	939	939	938	944	941.6	24		
14		938	938	938	938	938	937	937	938	938	937	937	937	936	936	936	936	935	934	935	935	934	933	933	932	938	936.1	24		
15		935	935	934	934	935	935	935	936	936	937	937	937	937	937	937	938	938	938	938	938	938	939	939	939	939	939	936.8	24	
16		939	939	939	939	939	939	940	940	941	940	940	940	940	940	940	941	940	940	940	940	940	940	940	940	941	939.8	24		
17		940	940	940	940	940	941	941	941	941	941	941	941	941	941	940	940	940	939	939	939	939	939	939	939	941	940.1	24		
18		939	939	939	939	939	940	940	941	941	942	942	942	942	942	942	943	943	943	943	943	943	943	943	943	943	943	941.5	24	
19		943	943	943	943	944	944	943	944	944	945	945	945	944	944	944	944	944	943	944	943	944	943	944	944	945	943.8	24		
20		944	944	942	943	943	943	944	944	944	944	944	944	944	944	943	943	942	942	941	941	941	940	940	940	944	942.7	24		
21		940	939	939	939	938	938	938	938	938	938	938	937	936	935	935	934	934	933	933	933	933	933	932	932	940	936.0	24		
22		932	931	931	931	931	931	931	931	932	932	932	932	931	931	931	931	931	931	931	931	930	930	930	929	932	931.0	24		
23		930	930	930	930	931	931	932	932	933	933	934	934	935	935	936	936	937	938	938	938	939	940	940	940	940	940	934.7	24	
24		940	940	941	941	941	941	941	942	942	942	942	941	940	939	939	939	938	938	938	938	938	938	938	938	942	939.8	24		
25		938	939	939	938	939	940	941	941	941	942	942	942	942	942	943	943	943	944	944	944	945	945	945	946	946	942.0	24		
26		947	947	947	947	948	948	948	950	951	951	951	951	950	950	949	949	948	948	948	947	946	946	946	945	951	948.3	24		
27		945	945	944	944	944	944	944	944	945	945	944	944	944	944	943	943	943	943	942	942	942	943	943	943	945	943.6	24		
28		944	944	944	944	944	945	945	946	947	947	947	947	946	946	946	945	945	944	944	943	943	943	942	942	947	944.7	24		
29		941	941	941	940	940	940	939	939	939	939	938	937	936	935	935	934	934	933	933	933	933	934	934	941	936.8	24			
30		934	934	934	934	935	935	935	936	936	937	937	937	937	937	937	937	937	937	938	938	938	938	938	938	938	938	936.4	24	
31		938	938	938	939	939	939	940	941	941	942	942	942	942	941	942	941	942	942	942	942	942	942	941	941	942	940.8	24		
HOURLY MAX		947	947	947	947	948	948	948	950	951	951	951	951	950	950	949	948	948	948	947	946	946	946	946	946	942	940.8	24		
HOURLY AVG		940	940	940	940	940	940	940	941	941	941	941	941	941	941	940	940	940	940	940	940	940	940	940	940	940	940	940.8	24	

STATUS FLAG CODES

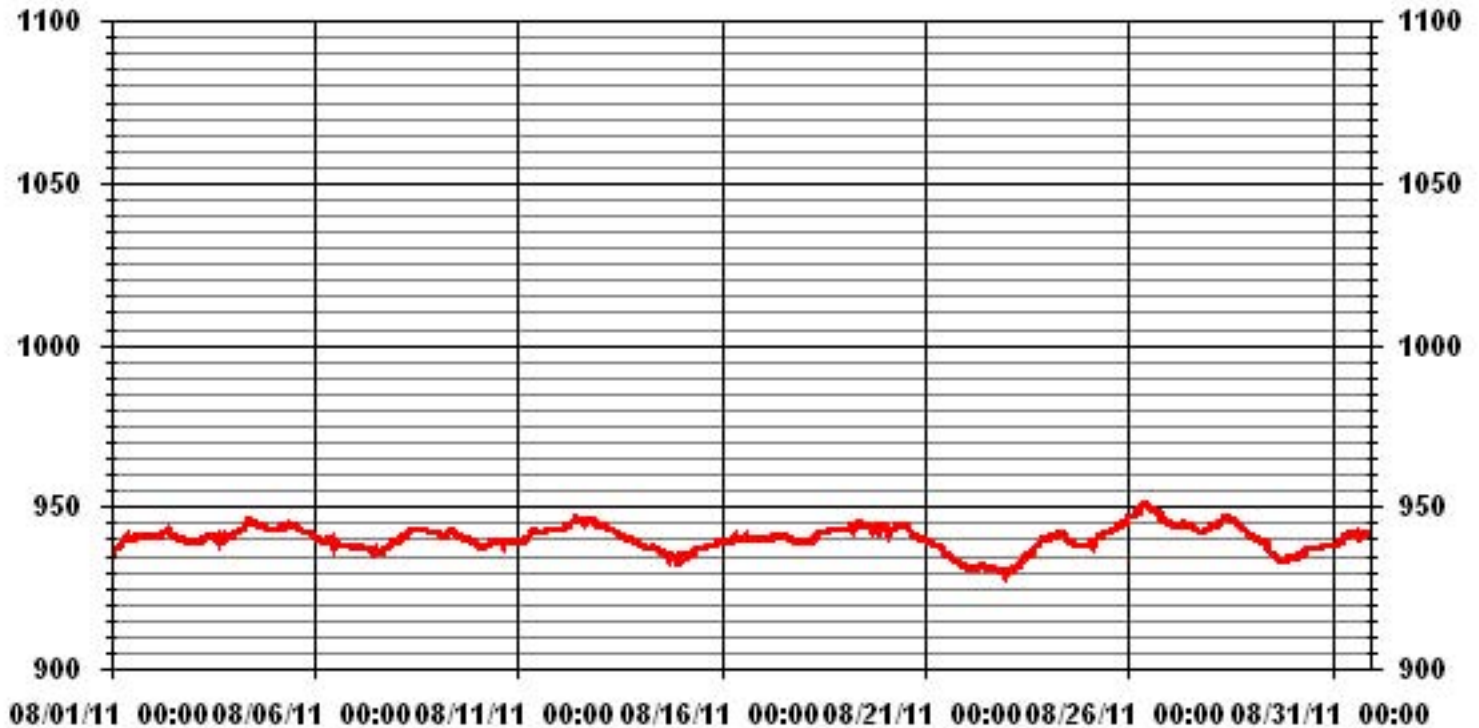
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	951 MB	@ HOUR(S)	VAR	ON DAY(S)	26
MAXIMUM 24-HR AVERAGE:	948.3 MB			ON DAY(S)	26
				VAR-VARIOUS	
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:		744 HRS	
		AMD OPERATION UPTIME:		100.0 %	
STANDARD DEVIATION:	3.83	MONTHLY AVERAGE:		940 MB	

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 2011

WIND SPEED hourly averages (km/hr)

MST																											
HOURLY MAX	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.
HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	
DAY																											
1	3.2	0.4	2.9	1.4	2.4	2.4	3.2	5.9	5.9	7.9	6.4	8	8.2	8.2	7.1	6.6	6.7	5.9	4.5	3.6	4.6	5.5	5.9	6.1	8.2	4.4	24
2	5.8	3.1	2.9	2.6	3	2.8	3.9	3.8	5.4	5.2	6.6	6.8	5.7	6.3	5.9	5.7	6.7	5.4	3	2.3	3.7	4.7	4.4	4.7	6.8	4.3	24
3	5.5	4.9	3.9	2.9	2.8	1.9	1	1.1	2.5	4.2	5.1	4.9	5.7	3.8	5.1	7.2	0.8	3.3	3.9	2.9	2.4	1.4	1.8	2	7.2	2.8	24
4	1.3	1.2	1.6	1.6	2.3	1.1	1.4	1.8	3	3.2	4	2.5	3.2	7	1.5	0.8	5.4	3	2.6	4.4	1.6	0.3	1.8	1.4	7	0.8	24
5	1.1	0.9	2	2.3	2.6	3.8	2.4	2.9	1.4	4.9	6.1	4.6	5.7	6.3	5.5	5.7	6.9	4.2	2.6	2.2	3.7	5.8	6.2	7.4	7.4	3.4	24
6	5.4	2.6	2.9	3.4	2.2	2.6	4	3.7	3.9	4.1	4.3	3.7	2.2	1.1	1	1.5	1.3	3.3	3.5	3.2	3.9	3.4	3.2	3.9	5.4	1	24
7	3.1	3.2	2.9	3.2	3.1	2.3	2.7	2.4	2.4	3.4	3.3	3.9	4.4	5.5	6.5	7.6	5.5	5	4.3	5.2	4.4	5.5	5.3	4.5	7.6	3.3	24
8	4.7	4.5	4.2	4.1	2.4	1.9	2.8	3.8	3.2	3.4	3.5	3.8	4.5	3.8	4.2	2.4	5.4	4.8	3.5	3.7	4	3.1	2.8	2.1	5.4	1	24
9	2.7	3.6	1.2	2.1	0.9	0.7	1.4	1.2	1.8	2.5	4.2	6.4	4.7	6.4	8.2	8	6.2	4.1	4.2	2.8	7.6	2.6	0.8	1.5	8.2	3.2	24
10	1.9	2.1	1	1.4	2.7	1.7	1.2	1.7	2.9	4.5	3.2	2.3	4.3	4.9	2.6	2	3.7	2.3	1.7	2.4	0.6	0.5	1.6	2.4	4.9	1	24
11	3.6	2.2	2.1	0.6	1.9	2.1	2.4	4.8	4	3.9	3.5	3.5	2.2	2.4	2.6	3.3	4.6	3.2	2.6	2.2	2	0.9	0.6	0.7	4.8	1.9	24
12	0.4	0.4	0.6	0.7	0.2	0.5	0.2	4.9	4.4	6.9	7.9	6.7	7.5	7.8	9.4	10.8	10.6	6.9	5.2	2.7	2.5	2.9	1.3	1.8	10.8	3.7	24
13	1.7	2.4	4.3	4	3.8	3.1	4.7	6.4	6.2	8	8.3	8.2	8.7	8	6.8	6.8	4.3	3.3	2.3	2.7	3	3.5	3.6	3.2	8.7	3.8	24
14	2.9	3.2	4.9	5.9	3.2	4.6	4.9	4.5	3.2	5	4.8	7.3	6.9	4.1	3.2	3.6	5.6	2.5	0.4	1.4	1.8	4.5	8.7	2.6	8.7	2.5	24
15	8.2	7.1	6.7	1.3	0.8	2.5	3.4	3.9	5.1	4.8	3.9	6.1	5.5	6.3	6.5	5.8	6.9	7.3	4.8	5.5	3.5	2.3	2.2	2.4	8.2	4	24
16	3.1	3.4	3	2.6	2.9	2.5	4.2	3.8	5.8	5.8	7	7.7	8.2	8.7	7.9	7.2	7.4	6.6	3.8	2.6	3	2.3	3.3	3.9	8.7	4.6	24
17	2.1	2.3	4.2	3.9	2.7	3	3.8	5.1	5.6	6.7	5.9	6.4	6.2	6.2	6.3	5	4	3.5	2.9	2.8	2.8	3.3	4.2	4.7	6.7	4.2	24
18	2.7	3.5	2.4	1.9	2.9	3.4	5.3	5.4	5.7	7.2	5.4	4.6	6.4	5.1	5.1	5.7	5.4	2.7	2	2	1.7	1.8	1.3	2.3	7.2	3.2	24
19	1.6	2.4	3.4	3.8	4.3	4.8	6	4.4	4.7	5.1	4.5	5	4.7	6.3	4.8	6.9	6	2	1.5	3.2	2.9	1.1	1.6	1.7	6.9	2.3	24
20	2.2	0.5	1.3	0.8	1.3	0.6	0.5	0.5	2.5	2.8	5.2	5.5	6.4	6.6	7.5	6.1	4.8	3.3	3	1.8	2.2	5.8	4.8	0.5	7.5	2.8	24
21	0.3	0.3	0.8	1	0.9	3	3.1	3.6	6	8.9	9.6	10.6	12.4	14	11.9	9.2	6.4	5.4	4.6	4	4.6	5.3	3.4	0.7	14	5	24
22	1.4	0.2	0.3	0.7	0.3	0.2	0.3	3.2	3.2	3	4.8	3.5	3.6	3.5	3.6	3.2	2.9	2.2	1.5	2.3	1.8	0.9	1	1.4	4.8	1.5	24
23	2.1	1.4	0.6	1.6	4.3	3.6	4.3	5.7	7.7	7.1	9.6	8.3	10.6	13.8	11	11.6	10.7	9.2	5.4	3.5	3.5	3.2	2.9	3.3	13.8	5.7	24
24	4.1	5.4	5	4.3	4.6	3.6	2.7	4.7	6.1	7.4	10.5	13.8	12.1	13.9	11.8	8.1	4.9	2.8	1.7	1.8	0.7	0.7	0.2	1.4	13.9	5.2	24
25	0.6	1.6	1	2	2.5	6	4.9	5.3	6.6	7.9	7.2	8.5	10	10.4	8.3	9.8	7.7	8.5	6.5	6.4	3.9	2.4	3	2.4	10.4	5.3	24
26	2.4	2.8	2.2	2.4	0.6	1.6	0.4	0.6	1.3	2.8	3.9	4.7	3.8	5.8	6	5.5	6.8	4.2	2.7	2.3	2.8	1.9	0.8	0.9	6.8	2.4	24
27	0.7	0.1	0.5	0.8	0.1	0.3	1.1	1	5.2	7.2	6.1	5	4.6	6.9	7.7	7	4.4	3.9	3.6	3.3	6.5	2.7	0.2	2.6	7.7	2.6	24
28	2	2.4	3.5	4	2.3	2.3	3.4	5.2	6	5.6	5.8	6.4	7.4	5.8	4.9	4.7	4.7	3.4	1.6	2.5	2	1.2	1.2	0.5	7.4	3.1	24
29	0.4	0.6	0.3	0.8	0.2	0.9	1.4	1.9	5.4	7.6	8.5	8.9	9.6	10.6	9.8	9.1	4.8	3.6	1	4.5	3.1	4.2	3.4	3.2	10.6	2.7	24
30	3.2	2	1.2	2.2	1.4	1.3	2.7	5.5	6.1	5.7	5.2	5.2	5.1	4.9	5.2	5.2	4	4.5	5.3	2.4	1.2	2.4	2.3	2.5	6.1	2.9	24
31	2.1	2.4	1.5	2.2	2.9	4.6	3	4.5	3.2	6.4	6.6	6.8	6	5.4	4.6	5	6	4.2	3.3	2.4	1.7	0.9	1.2	2	6.8	3	24
HOURLY MAX	8.2	7.1	6.7	5.9	4.6	6.0	6.0	6.4	7.7	8.9	10.5	13.8	12.4	14.0	11.9	11.6	10.7	9.2	6.5	6.4	7.6	5.8	8.7	7.4			
HOURLY AVG	2.7	2.4	2.4	2.3	2.2	2.4	2.8	3.7	4.4	5.5	5.8	6.1	6.3	6.8	6.2	6.0	5.5	4.3	3.2	3.1	3.0	2.8	2.7	2.6			

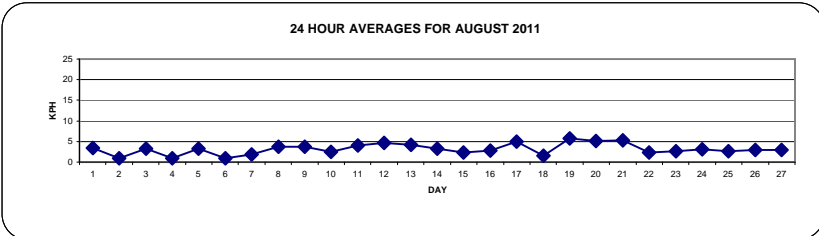
STATUS FLAG CODES

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

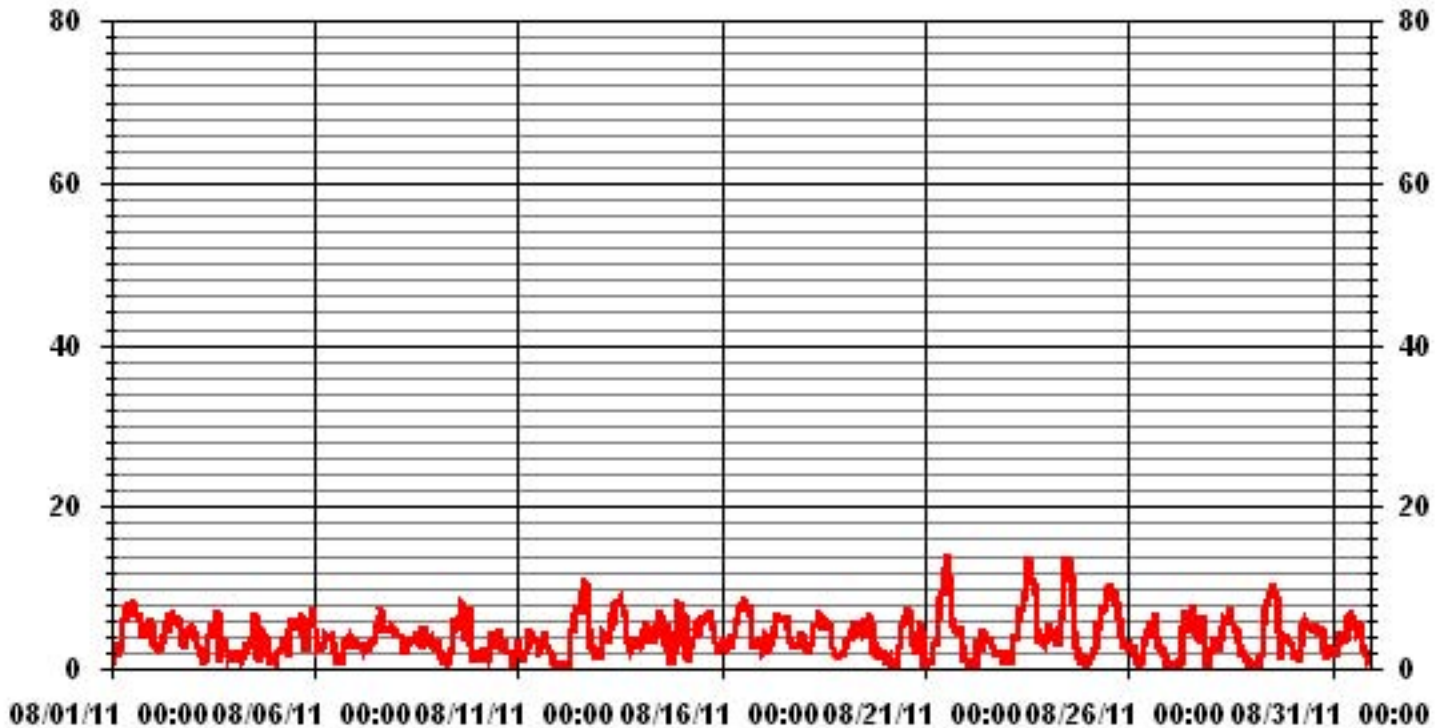
LAST CALIBRATION:	March 10, 2011
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MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	14.0 KPH	@ HOUR(S)	13	ON DAY(S)	21
MAXIMUM 24-HR AVERAGE:	5.7 KPH			ON DAY(S)	23
CALMS (≤ 1 KPH)	7.80 %	OPERATIONAL TIME:		744 HRS	
MONTHLY CALIBRATION TIME:	0 HRS	AMD OPERATION UPTIME		100.0 %	
STANDARD DEVIATION	2.47	MONTHLY AVERAGE		3.97 KPH	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	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	
DAY																									
1	15.7	9.3	18.4	8.8	14.8	9.2	14.2	22.8	28.3	28.7	32.5	32.7	41.6	35	31.9	28.7	29.7	30.4	28.5	18.3	10.6	11.1	13.2	13.1	41.6
2	11.6	12.6	12.6	14.3	8.9	11.2	15.5	16.4	20.3	24.5	32.4	29.3	30.2	26.8	29.5	25.9	29.6	22.3	18.9	7.1	8	8.3	11.7	9.7	32.4
3	11.4	11.6	9.7	7.1	7.9	8	6.7	6.5	14.2	11.8	14.5	20.8	23.3	18.3	19.7	42	6.8	12.5	15.4	14.7	10.6	11.6	6.6	6.9	42
4	5.9	10	11.8	10.6	9	7.8	6.5	7.3	9.4	12.3	18.1	15.5	26.9	22.9	22.6	20.1	25.5	15	10.3	9.2	6.7	15.3	5.1	5.1	26.9
5	6	4	21.9	P	19.7	22.8	8.5	13	7.9	18	15.1	13.3	19.6	18.3	19.1	15.5	17.2	11.2	7.6	6.9	8.4	14.9	16.6	18	22.8
6	15.1	9.2	7.3	6.7	7.4	7.2	13.7	14.7	16.1	16.3	19.7	18.6	18	11.4	23	9.6	7.4	15.6	15	17.2	20.9	14.8	16.4	12.1	23
7	16.4	11.5	9.2	9.1	11.7	11.3	12	9.1	12.1	18.5	18	20.6	21.5	28.4	28.2	29.4	22.2	23	16.2	20.3	19.5	22.6	17.9	18.1	29.4
8	16.8	16.8	19.6	15.7	16.7	9.4	12	16.7	11.7	13.6	13.5	12.1	17.6	17.3	14.7	15.5	15.6	11.3	11.5	6.9	6.8	5.1	5.2	5.7	19.6
9	7.3	8.9	7.1	5.4	4.6	4.2	5.5	5.9	6.8	10.7	14.2	17.5	22.1	23	24.5	24.4	23.7	15.3	33.7	12	20.7	15.9	4.1	6.3	33.7
10	4.6	6	4.5	5.8	12.6	6.9	7.3	7.9	10.3	14.4	11.6	16.2	25.6	29.9	14.3	18.4	15.9	6.1	5.1	6.2	3.3	5.4	8.2	7.8	29.9
11	10.1	8.3	7.2	5	5.6	5.1	8.2	13.9	13.2	13.7	13	16.2	12.9	14.1	14.7	15.3	14.1	11.9	7.1	4.4	4.5	3.2	3.6	3.2	16.2
12	2.9	3.7	3.7	3.5	2.2	4	3.7	12.7	11.6	17.4	21.7	21.3	21.8	23.1	26.5	25.8	22.8	18	11.9	5.8	17.7	10.5	5.7	5.7	26.5
13	6.5	12.8	10.6	8.2	10.2	10.2	14.7	18.7	17.9	21.6	27.8	25.4	25.3	24.3	24.6	20.9	12.4	11.4	8.5	5.7	7.2	7.9	9.1	8.3	27.8
14	8.2	7.4	11.6	11.8	8.5	11.8	12.3	15.2	12	14.4	16.8	22.1	24.4	16.1	13.5	11.9	18.2	12.6	6.9	8	20.8	21.6	26.8	31.6	31.6
15	35.1	26	23.5	7	6.9	11.7	14.5	15.8	19.3	16.6	21.5	23.4	22.7	29	23.9	22.5	27.6	29.3	23	23.9	17.7	8.3	7.6	9.4	35.1
16	13	13.3	12.8	12.2	14.4	8.5	8.6	14.8	24	23.6	32.7	33.2	35.4	39	35.5	34.5	31.4	32.2	23.3	12.6	12.5	11.9	16.5	11.6	39
17	11.9	9.9	18.7	16.7	12	13.4	19.6	22.8	26.1	27.5	25.1	30.4	25.1	26.3	26.3	24.1	20.8	16.5	13.3	12.1	11.3	15	17.1	15.6	30.4
18	12.6	11.6	10.3	7.5	11.1	15.6	22.3	23.6	20.1	28.5	22	23.7	39.1	26.7	20.1	21.1	21.7	17.7	9.6	7.8	7.2	6.8	5	5.3	39.1
19	6.4	7.3	8.1	9	9.5	11.6	13.6	15.6	14.7	12.8	14.2	15.7	22.2	25.6	28.6	25.2	21.8	9.2	9.7	6.4	6.4	5	4.2	5.4	28.6
20	8.1	3.3	4.9	2.9	5.9	3.1	6	5.3	9	10.6	12.3	15.2	18.1	19.6	21.1	17.7	14.8	9.9	11.2	6.4	14.7	17.8	15.1	8.3	21.1
21	3.1	3.2	3.9	5.5	4.8	13.6	14.7	14.9	19.2	24.9	28.5	31.9	34.6	35	30.5	30.3	21.1	20.2	10.8	9.4	10.5	11.2	8.5	13.8	35
22	5.5	3.7	3.7	3.7	5.7	4.8	5.3	9.7	13.2	9.9	16.4	14.5	32.8	13.9	15.3	13.2	13.7	9	6.2	4.6	3.4	3.6	4.5	5.2	32.8
23	34.1	9.8	9.3	16.3	18.5	18.1	18	23.1	24.8	31.1	40.9	42	52.8	45.5	43.9	46	46.5	38.9	25.5	17.2	13	12.4	12.7	11.2	52.8
24	10	13.8	10.9	10.5	12.6	10	8.4	12.3	15.3	21.1	27.2	33.9	28.7	33.9	28	22	21.3	14	8.5	9.1	4.8	5.2	6.3	4.8	33.9
25	5.2	4.4	7.7	9.1	16.3	25	20.6	21.8	30.1	37.3	35.5	38.2	38.6	43.4	35.8	38.7	33.9	29.8	22.8	26.6	21.4	11.5	15.8	8.5	43.4
26	9.3	8.9	7	7.3	5.8	4.2	3.2	4.7	6	13.4	14.3	19.6	21.2	16.7	18	16.1	16.1	12.2	6.6	5.3	5.8	5.1	4.3	5.2	21.2
27	2.8	1.7	3.7	7.6	5.1	2.9	4.3	8	13.6	20.1	16.5	12.7	16.5	19.3	18.5	19.6	16.1	11.1	7.9	39.6	53.4	11.8	4.2	7.2	53.4
28	10.1	10.7	8	9	6.4	8.6	14	18.4	21.6	16.8	22.4	24.6	28.6	26.2	20.7	20.1	16.4	15.7	8.4	7.2	4.8	5	4.1	3.8	28.6
29	3.7	3.2	3.8	4	2.8	3.5	4.7	11.6	19.9	21.6	24.5	28.1	25.4	30.3	28.5	30.5	16	11.5	7.9	36.5	20.4	18.2	14.8	13.3	36.5
30	10.1	7.9	6	10.8	6.4	7.3	12.1	19.7	20.6	20.5	18.1	17.8	18.4	28.8	21.9	24.6	19.5	18.4	23.8	16	5.9	9.7	8.2	5.8	28.8
31	8.6	8.9	7.7	15.8	11.8	24.5	10.4	12.1	21.9	23	25.1	26.5	22.6	20.5	18.4	20.6	23.5	19.6	14.4	8.3	7.5	8.1	6.9	10.1	26.5
PEAK	35.1	26.0	23.5	16.7	19.7	25.0	22.3	23.6	30.1	37.3	40.9	42.0	52.8	45.5	43.9	46.0	46.5	38.9	33.7	39.6	53.4	22.6	26.8	31.6	

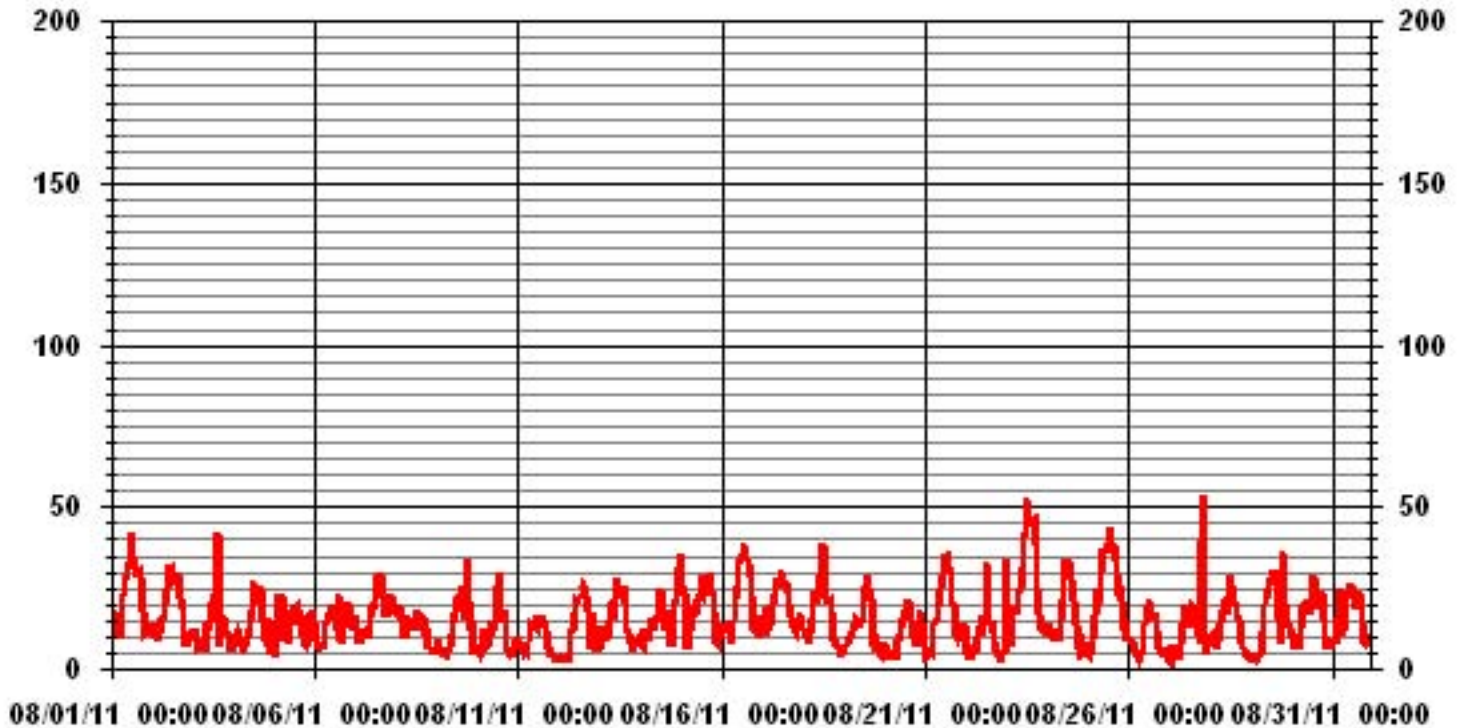
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	53.4	KPH	@ HOUR(S)	20
			ON DAY(S)	27

01 Hour Averages



LICA30
WSP / WDR Joint Frequency Distribution (Percent)

August 2011

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	1.74	1.88	3.22	2.55	2.41	2.41	3.89	4.83	5.91	9.40	10.48	9.94	7.39	5.51	5.64	3.36	80.64
< 12.0	.26	.26	.00	.00	.00	.13	.80	1.74	2.41	3.36	.40	1.88	3.09	3.09	1.07	.00	18.54
< 20.0	.00	.00	.00	.00	.00	.00	.00	.00	.26	.40	.00	.00	.00	.13	.00	.00	.80
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.01	2.15	3.22	2.55	2.41	2.55	4.70	6.58	8.60	13.17	10.88	11.82	10.48	8.73	6.72	3.36	

Calm : .00 %

Total # Operational Hours : 744

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	13	14	24	19	18	18	29	36	44	70	78	74	55	41	42	25	600
< 12.0	2	2				1	6	13	18	25	3	14	23	23	8		138
< 20.0									2	3				1			6
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	15	16	24	19	18	19	35	49	64	98	81	88	78	65	50	25	

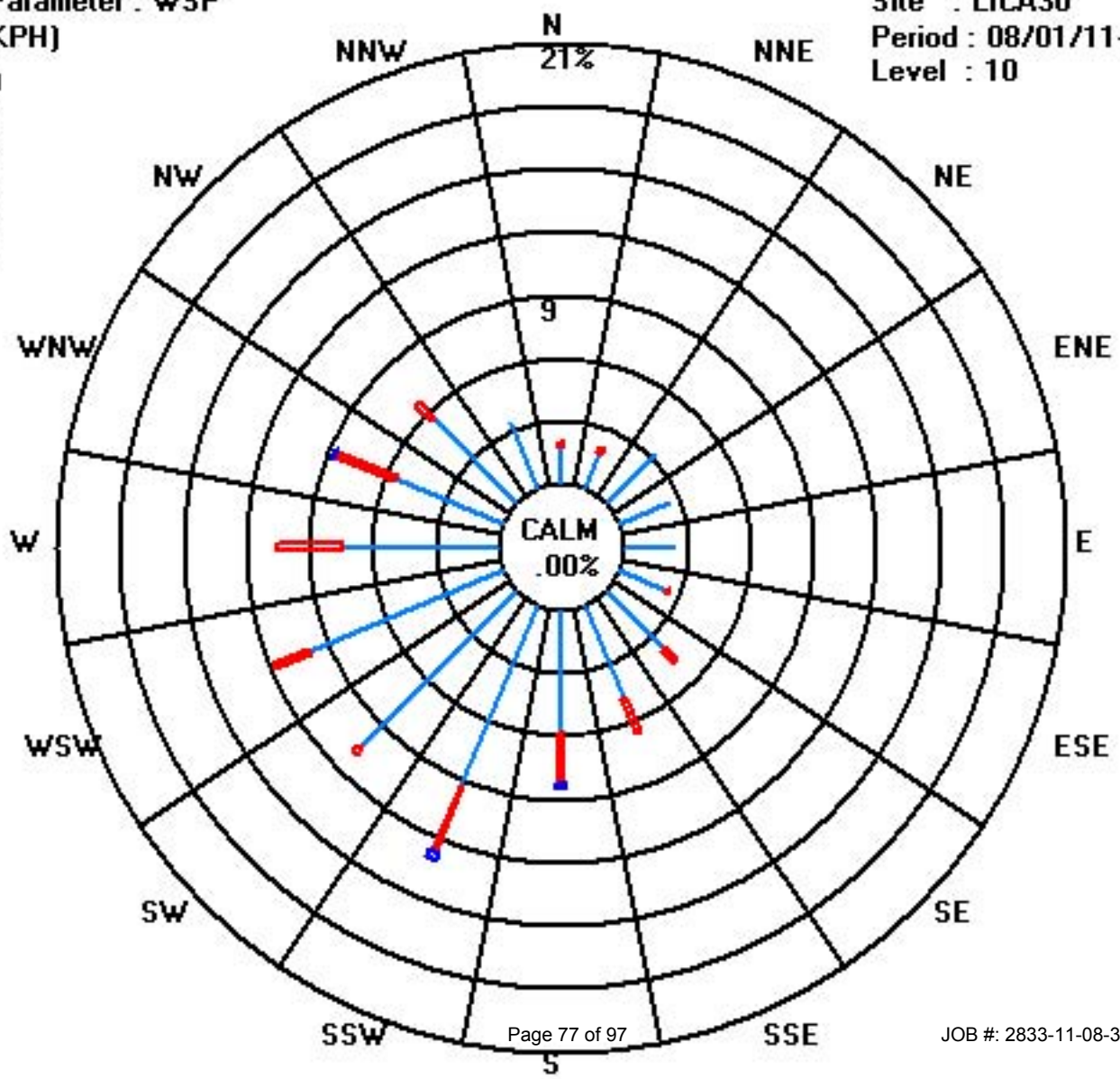
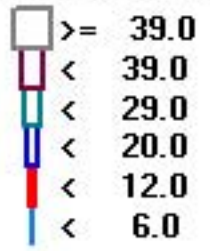
Calm : .00 %

Total # Operational Hours : 744

Class Limits (KPH)

Period : 08/01/11-08/31/11

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	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	AVG.	QUADRANT		
DAY																													
1		136	300	301	258	247	253	295	281	281	284	255	247	247	254	257	257	256	252	252	243	214	204	202	204	250	WSWW	24	
2		210	239	254	252	227	239	267	243	230	244	243	272	249	260	251	265	256	256	266	233	200	202	203	205	242	WSW	24	
3		203	208	213	222	219	221	256	271	228	223	215	258	287	290	234	313	49	213	222	257	235	256	212	211	239	WSW	24	
4		238	275	265	238	229	238	287	313	303	333	328	312	268	215	347	355	227	100	67	139	100	284	133	138	256	WSW	24	
5		56	114	342	81	66	101	124	189	113	158	171	153	173	178	139	167	180	157	126	100	127	140	146	149	148	SE	24	
6		137	85	51	26	42	51	67	97	98	102	96	161	67	35	168	263	284	288	330	293	297	298	315	359	53	NE	24	
7		307	249	245	221	229	259	252	234	257	258	249	263	255	261	283	303	321	322	313	360	330	319	321	321	289	WNW	24	
8		308	309	333	330	287	235	287	327	347	336	334	11	355	338	318	82	127	153	150	176	186	195	195	192	306	NW	24	
9		207	211	208	199	221	227	216	223	275	242	214	212	236	210	209	210	223	234	337	199	203	223	169	199	218	SW	24	
10		188	199	152	124	191	202	270	270	298	305	309	315	306	314	261	327	13	192	189	215	171	354	14	64	281	W	24	
11		45	49	74	50	74	72	45	53	63	68	73	104	117	165	168	98	147	135	128	157	162	170	97	176	97	E	24	
12		211	65	111	173	201	156	30	197	210	193	194	198	193	198	196	199	194	195	196	146	90	88	48	63	189	S	24	
13		128	182	192	189	180	174	185	187	179	161	147	168	169	157	171	153	164	136	90	60	43	49	51	50	157	SSE	24	
14		43	48	38	31	32	47	39	50	82	44	108	121	126	121	121	94	71	145	66	268	8	163	176	274	84	E	24	
15		321	0	21	230	269	261	307	307	311	298	293	292	295	287	283	275	285	280	283	283	268	238	237	243	295	WNW	24	
16		256	260	256	253	247	221	206	248	254	242	251	264	276	289	284	277	275	268	265	234	227	260	259	222	260	WSW	24	
17		242	240	254	262	252	247	253	259	254	236	256	243	246	242	248	256	260	246	247	229	229	247	229	220	246	WSW	24	
18		248	217	231	235	234	265	287	303	310	306	280	309	300	314	310	306	326	304	271	235	229	231	215	212	286	WNW	24	
19		213	214	202	203	209	210	204	210	195	212	223	223	235	260	315	14	359	338	330	194	189	191	181	197	227	SW	24	
20		195	194	193	151	207	124	218	333	164	189	189	189	163	162	171	179	179	109	118	105	132	141	147	134	164	SSE	24	
21		17	184	16	70	33	152	152	136	164	178	168	170	181	188	188	185	178	174	163	161	163	183	183	22	174	S	24	
22		147	61	194	230	158	66	164	225	265	244	281	270	308	309	275	254	256	227	210	195	163	155	195	172	255	WSW	24	
23		231	248	345	298	342	298	269	275	277	276	280	275	278	286	284	286	280	281	271	256	232	251	263	226	278	W	24	
24		206	208	212	205	202	203	198	210	198	195	192	200	200	200	198	203	226	251	268	292	216	354	271	111	204	SSW	24	
25		123	173	238	221	269	303	308	297	286	277	267	281	281	279	276	278	284	285	290	306	276	255	267	258	281	W	24	
26		239	228	209	222	192	184	111	309	289	230	234	216	214	196	204	192	196	190	156	152	149	141	174	14	201	SSW	24	
27		9	8	29	162	182	347	19	181	188	206	192	190	170	189	189	191	167	175	179	230	282	30	233	210	194	SSW	24	
28		254	264	210	214	228	234	281	292	284	288	286	286	294	283	296	266	291	275	254	208	180	179	179	183	270	W	24	
29		145	155	1	117	118	104	52	87	134	155	137	145	143	147	144	158	140	124	137	330	3	347	331	347	137	SE	24	
30		360	298	224	227	241	274	311	323	320	314	318	315	288	253	270	269	257	266	301	308	235	221	211	208	288	WNW	24	
31		233	212	244	253	253	304	224	207	297	302	322	314	312	303	310	308	302	303	284	233	234	245	249	260	288	WNW	24	
HOURLY AVG		360	309	345	330	342	347	311	333	347	336	334	315	355	338	347	355	359	338	337	360	330	354	331	359				

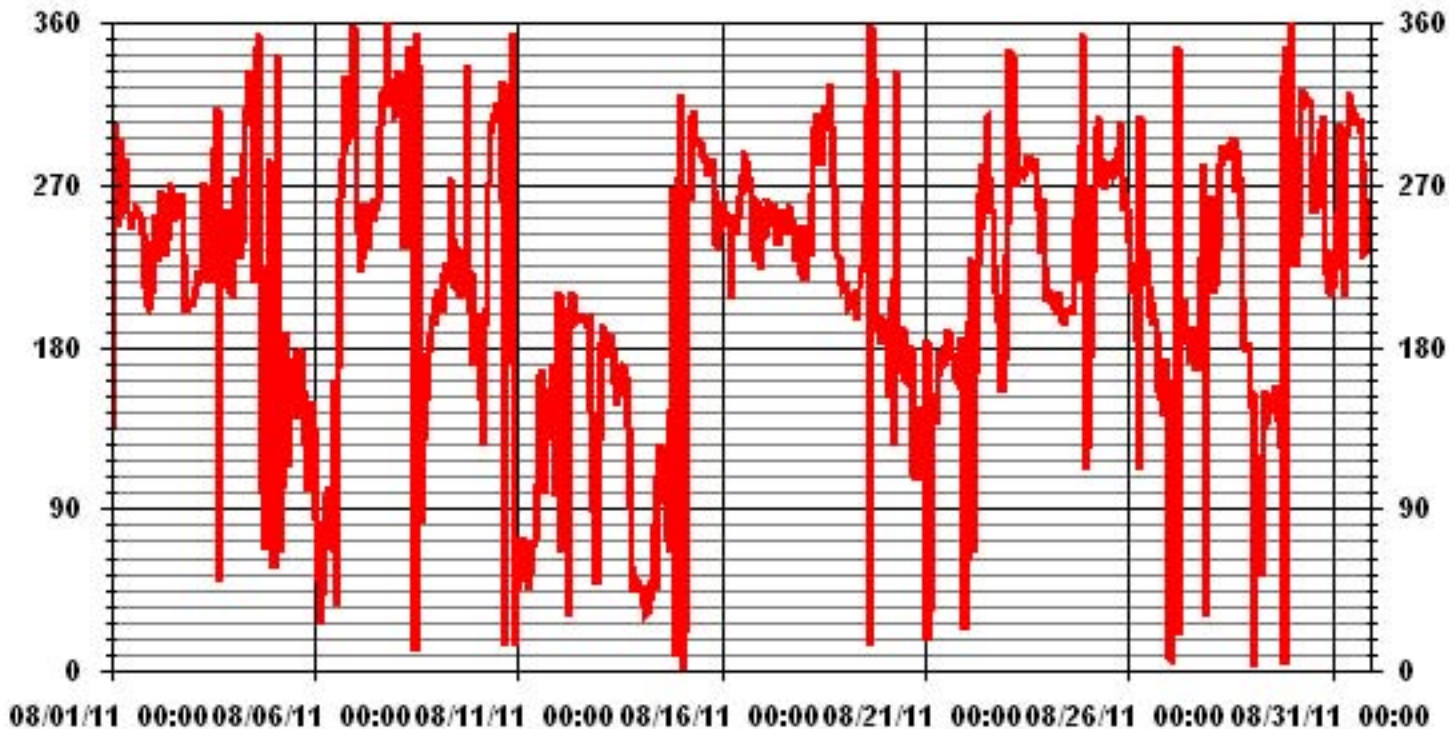
STATUS FLAG CODES

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

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

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION	79.43		AMD OPERATION UPTIME	100.0	%
			MONTHLY AVERAGE	235	DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

AUGUST 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	48	53	36	47	36	33	38	40	43	39	44	47	43	44	47	47	42	45	45	38	16	12	11	13
2	16	33	40	40	31	36	38	42	36	41	41	48	47	42	45	44	41	42	48	25	12	8	9	13
3	12	14	14	16	17	27	46	37	44	30	28	39	37	50	43	37	38	31	31	40	29	44	37	22
4	34	49	50	42	30	34	20	43	41	48	42	55	43	33	46	82	34	42	35	16	19	32	22	13
5	42	17	51	26	63	28	20	40	43	32	30	36	38	32	33	28	23	19	12	12	14	17	18	18
6	17	20	17	6	13	18	27	31	37	38	30	35	39	56	50	45	43	38	38	39	41	40	38	27
7	41	36	34	30	31	34	41	35	41	43	42	40	41	45	40	38	43	39	36	27	33	35	35	37
8	37	34	36	40	46	38	44	40	40	45	47	49	43	47	44	47	28	22	16	9	6	5	5	8
9	11	12	36	5	21	18	17	44	43	45	32	31	42	37	27	27	33	33	42	28	15	34	53	47
10	32	23	29	33	22	42	52	41	34	34	44	62	43	44	38	41	45	17	11	12	25	43	16	15
11	15	20	27	27	19	18	19	25	33	44	50	50	41	48	53	29	25	25	14	9	8	3	27	29
12	18	31	29	12	1	33	58	17	26	19	25	29	27	28	21	21	19	20	16	8	28	20	16	17
13	11	29	15	13	16	25	22	22	25	25	30	28	31	27	24	24	30	26	23	12	13	14	13	14
14	13	14	16	13	15	19	20	29	32	27	36	34	32	37	36	26	31	36	34	35	49	58	37	30
15	41	30	25	30	59	38	38	44	38	37	48	44	43	44	40	43	39	40	41	36	41	32	31	32
16	39	37	36	35	33	24	19	40	38	40	45	45	44	42	42	44	44	43	45	34	32	38	38	24
17	35	35	41	39	41	38	46	39	40	41	47	43	44	45	43	42	45	38	36	32	33	38	36	31
18	37	24	30	32	27	35	40	38	40	40	46	45	43	36	41	40	39	44	37	31	32	27	17	13
19	10	17	10	9	14	17	18	27	21	31	35	38	47	41	39	27	28	34	56	5	6	27	34	21
20	13	36	40	12	30	15	43	34	41	29	20	25	31	29	32	33	23	23	17	17	43	22	27	49
21	56	28	18	27	10	30	47	25	31	24	25	25	26	22	22	25	23	22	15	14	16	14	16	41
22	12	29	54	31	36	53	27	33	40	40	40	52	45	45	41	44	39	24	36	10	17	11	4	11
23	58	44	48	55	34	41	38	45	36	43	42	46	43	36	42	37	38	37	41	37	29	37	36	30
24	11	13	16	12	11	11	20	23	20	22	21	20	21	22	22	24	33	42	36	42	36	29	68	31
25	43	24	28	34	41	35	34	39	44	42	46	44	44	42	45	42	46	37	35	35	37	38	38	30
26	29	28	24	25	26	28	22	42	50	42	44	42	52	35	28	23	19	22	8	6	9	11	20	36
27	4	2	16	43	30	21	6	31	23	22	25	25	29	27	25	23	21	16	13	27	46	22	21	31
28	32	37	15	13	24	29	35	32	38	34	41	46	41	46	45	42	41	41	40	21	6	22	10	11
29	28	54	30	24	4	22	14	25	30	29	29	31	28	30	28	26	26	19	48	52	34	33	35	28
30	22	32	55	34	32	44	36	39	41	41	42	39	42	45	46	42	44	45	39	42	36	29	22	19
31	33	21	33	39	32	42	30	25	47	40	44	42	43	44	42	43	38	40	38	34	34	33	32	35

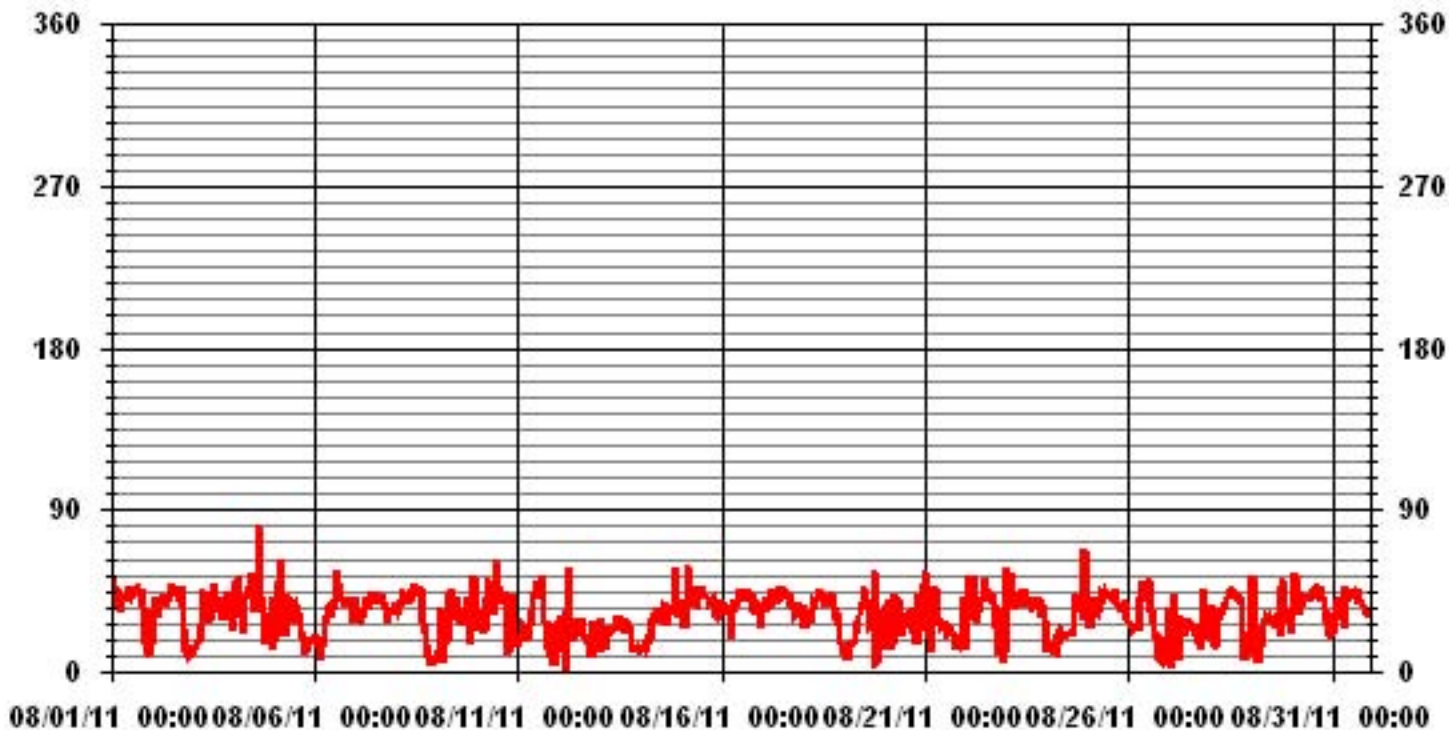
STATUS FLAG CODES

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

LAST CALIBRATION: March 10, 2011

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO2 Calibration Report Station Information

Calibration Date	August 5, 2011	Previous Calibration	July 12, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	9:27	End Time (MST)	13:23
Reason:	Monthly Calibration		
Barometric Pressure	945 mmHg	Station Temperature	25 Deg C
Cal Gas	49 ppm	Gas Cyl. #	LL103822
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	February 4, 2013
		Chart Rec. Output	0 - 1 Volts

Equipment Information

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

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0 - 1000 ppb				
Sample Flow / Box Temp	604 ccm	32.7 Deg C	605 ccm	32.4 Deg C	
HVPS / Lamp Setting	494	2861.4	494	2861	
PMT / RxCell Temp	7.7 Deg C	50 Deg C	7.7 Deg C	50 Deg C	
Converter / IZS Temp	NA Deg C	45 Deg C	NA Deg C	45.0 Deg C	
Offset / Slope	37.4	1.128	38.8	1.119	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4997	0	0	1	N/A
4997	0	0	0	N/A
4923	76.5	750	756	0.9918
4923	76.5	750	751	0.9984
4961	40.8	400	396	1.0093
4980	17.3	170	170	1.0000
4997	0	0	0	N/A
Sum of Least Squares				1.0007
New Correction Factor				0.9984

	Before Calibration	After Calibration
Auto Zero	1.3	0.7
Auto Span	383.0	378.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9986
Current Correction Factor Before Span Adjust:	0.9918
Percent Change:	0.7%

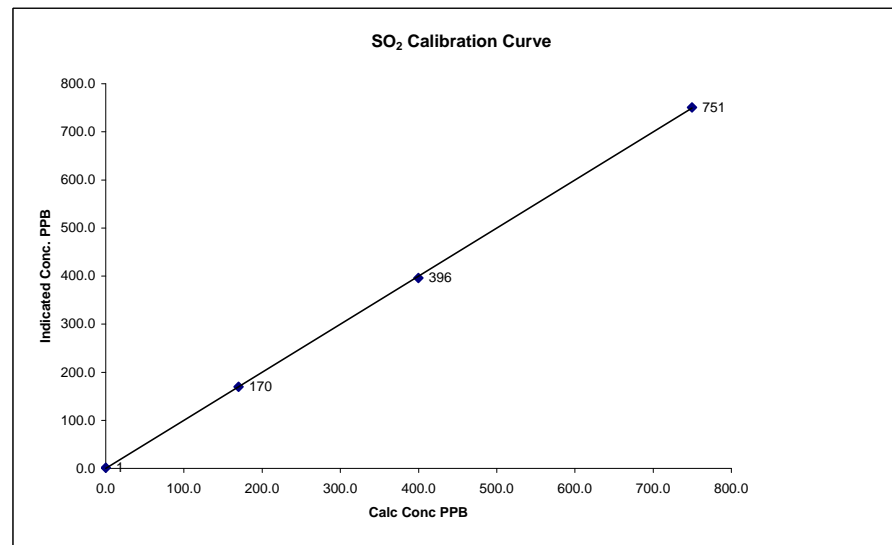
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

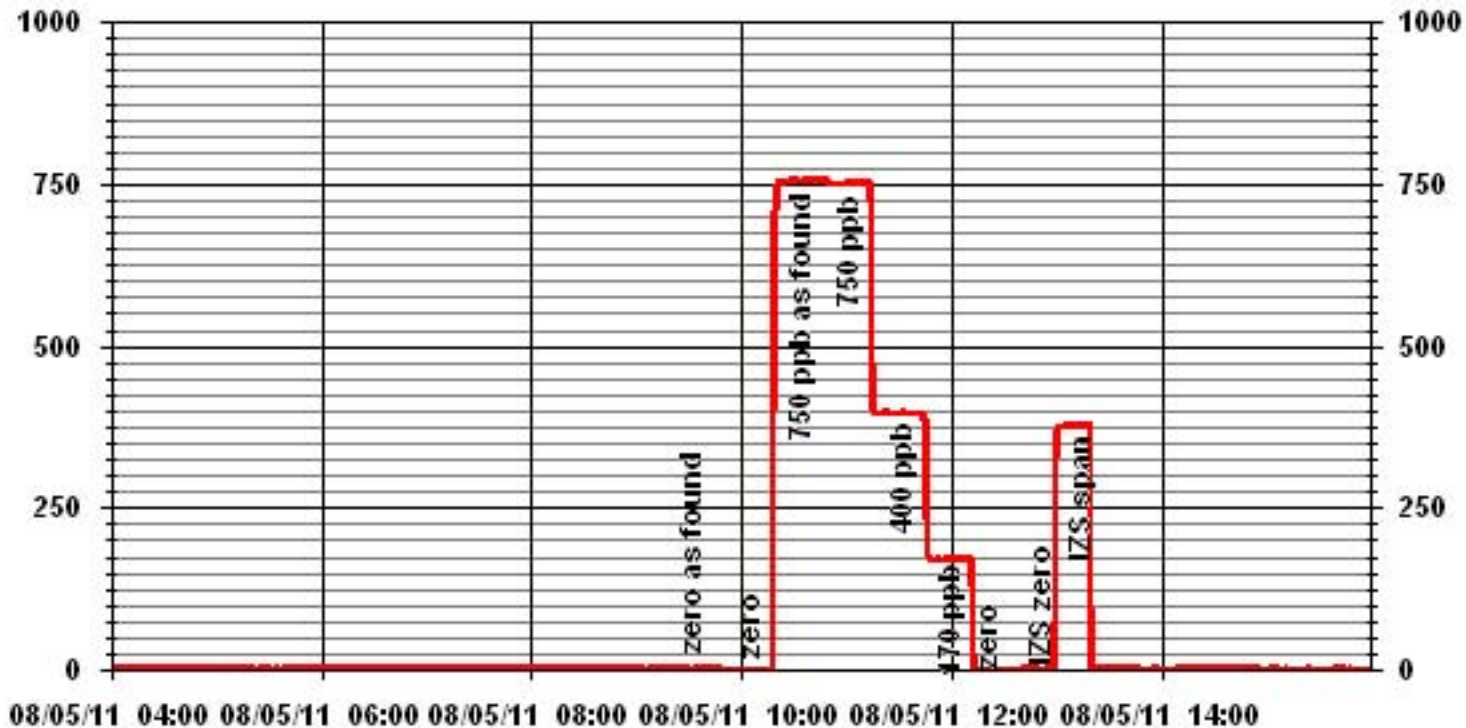
Calibration Date	August 5, 2011
Company	Lakeland Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	9:27
End Time (MST)	13:23

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	1	n/a		0.999949
170	170	0.9978		0.999580
400	396	1.0093		
750	751	0.9984		-0.137052



Notes:

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	August 4, 2011	Previous Calibration	July 13, 2011
Company	Lakelnad Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	10:55	End Time (MST)	14:09
Reason:	Monthly Calibration		
Barometric Pressure	946 mBar	Station Temperature	25 Deg C
Cal Gas	10.2 ppm	Gas Cyl. #	BLM00080
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	February 22, 2012
		Chart Rec. Output	0 - 1 Volts

Equipment Information

Analyzer Make / Model:	API 101E	S/N :	511	Method:	Fluorescent
Converter Make / Model:	Internal	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Chart Recorder Make / Model:	Not in use		S/N:	NA	
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 100	ppb	
Sample Flow / Box Temp	524 ccm, 36.2 Deg C	523 ccm, 36.7 Deg C	
HVPS / Lamp Setting	552, 2070	552, 2049	
PMT / RxCell Temp	7.9 Deg C, 50 Deg C	7.9 Deg C, 50 Deg C	
Converter / IZS Temp	315.3 Deg C, 45 Deg C	314.5 Deg C, 45.0 Deg C	
Offset / Slope	29.2, 1.035	29.2, 1.035	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	NA
	No Zero Adj			
4959	39.2	80	80	1.0000
	No Span Adj			
4979	19.6	40	41	0.9755
4986	11.2	23	24	0.9525
4996	0	0	0	NA
Sum of Least Squares				0.9923
New Correction Factor				

Before Calibration

After Calibration

Auto Zero	0.3	0.8
Auto Span	58.0	57.1
Sample Lines Connected		YES

Percent Change

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

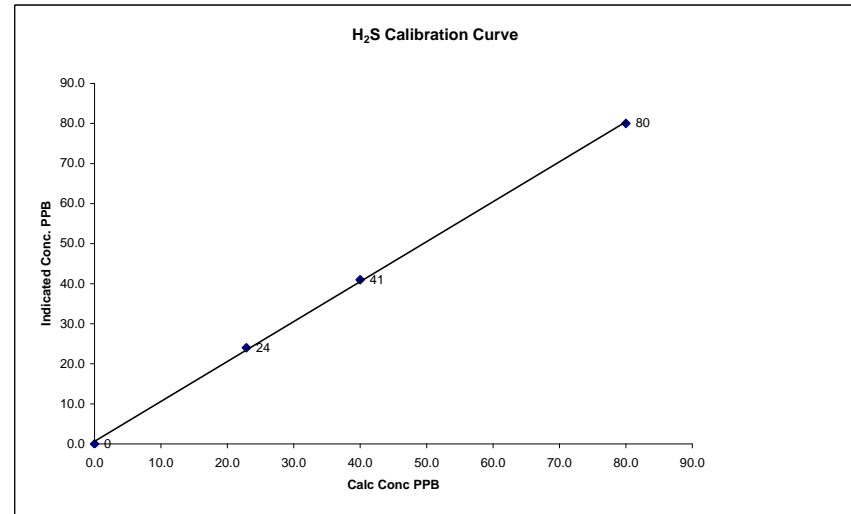
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

H₂S Calibration Curve

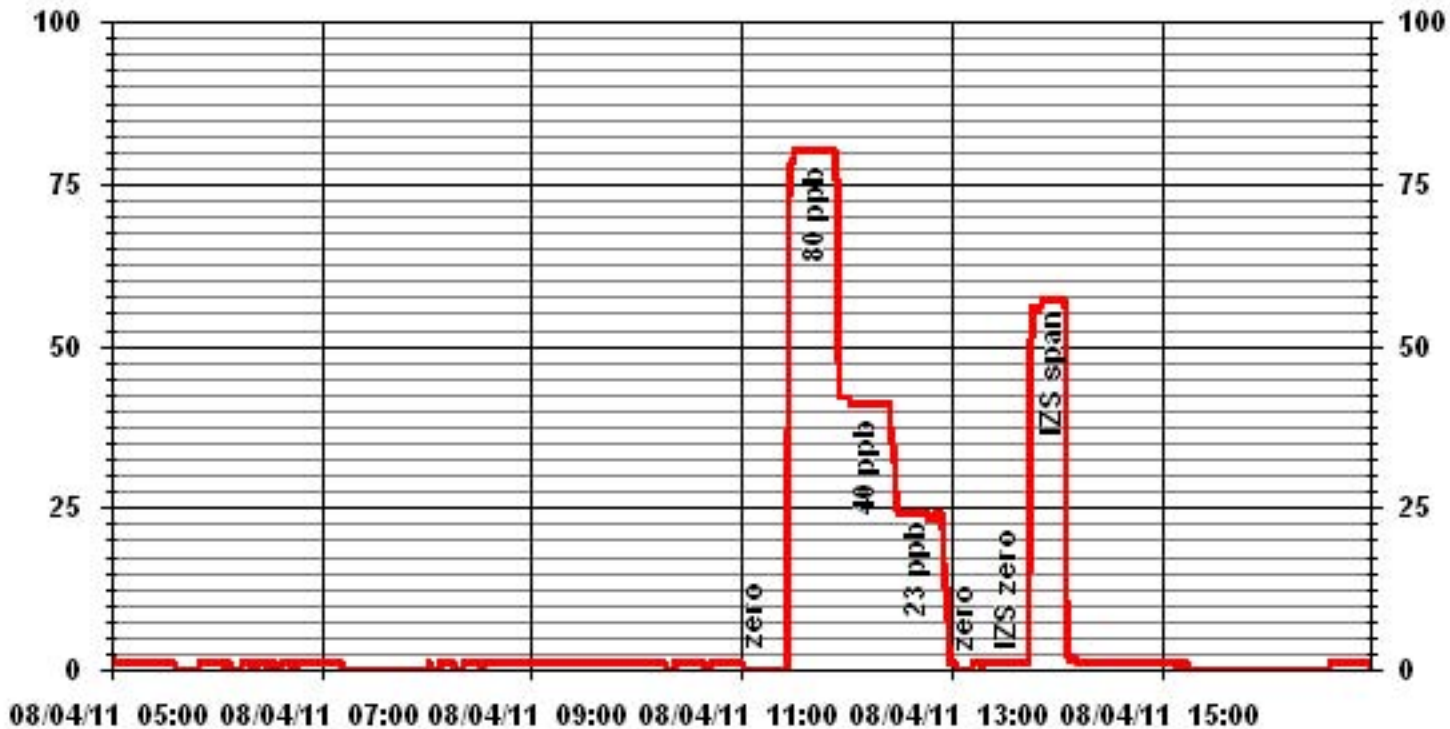
Calibration Date	August 4, 2011
Company	Lakelnad Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	10:55
End Time (MST)	14:09

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999669
0	0		Intercept	(± 3% F.S.)	0.643283
23	24	0.9525			
40	41	0.9755			
80	80	1.0000			



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	August 4, 2011	Previous Calibration	July 13, 2011
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	Maskwa		
Start Time (MST)	13:28	End Time (MST)	16:53
Reason:	Monthly Calibration		
Barometric Pressure:	945 mmHg	Station Temperature:	25 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	CH4 593 PPM	C3H8 205 PPM	
	TOTAL CH4 1156.8 PPM	Gas Cyl. # LL84567	Cal Gas Expiry Date: June 7, 2014
DAS make & Model:	ESC 8832	S/N :	AO 791
Chart Recorder:	NA	S/N:	NA
Output Voltage Range:	0 - 10 VDC	Chart Speed:	NA mm/hr

Analyzer Information			
Make / Model	Thermo 51C-LT	S/N :	436609738
Method	Flame Ionization		

Analyzer Settings				
	Before Calibration		After Calibration	
Concentration Range	0 - 50	ppm	0 - 50	ppm
Sample Pressure	7.5	psi	7.5	psi
Hydrogen Pressure	8	psi	8	psi
Air Pressure	20	psi	20	psi

Calibration Data				
Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
1998	0.0	0.0	0.0	NA
	No Zero Adj Needed			
1998	70.0	39.2	39.1	1.0014
1998	70.0	39.2	39.4	0.9938
1998	34.9	19.9	19.8	1.0030
1998	20.0	11.5	11.5	1.0000
1999	0.0	0.0	0.0	NA
New Correction Factor:				0.9938

Percent Change	
Previous Calibration Correction Factor:	0.9936
Current Correction Factor Before Span Adjust:	1.0014
Percent Change:	-0.8%

IZS Calibration Data		
	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	35.3	35.7
Sample Lines Connected	YES	

Cylinder Pressures			
Span	2000 psi	Hydrogen	1000 psi
		Zero Air	32 psi

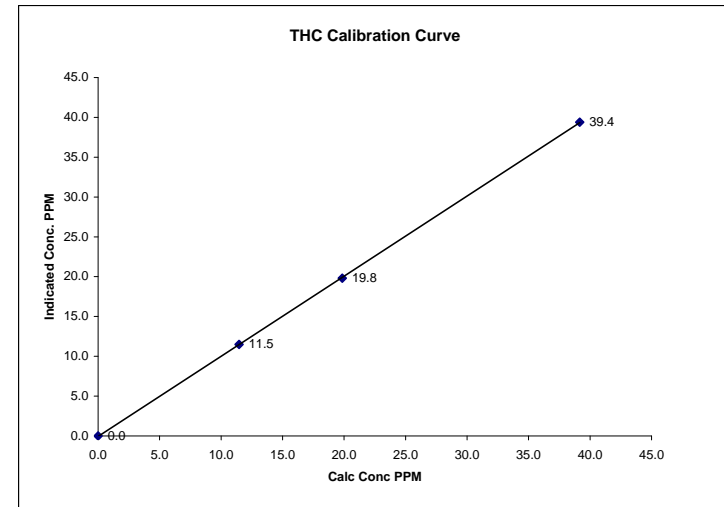
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

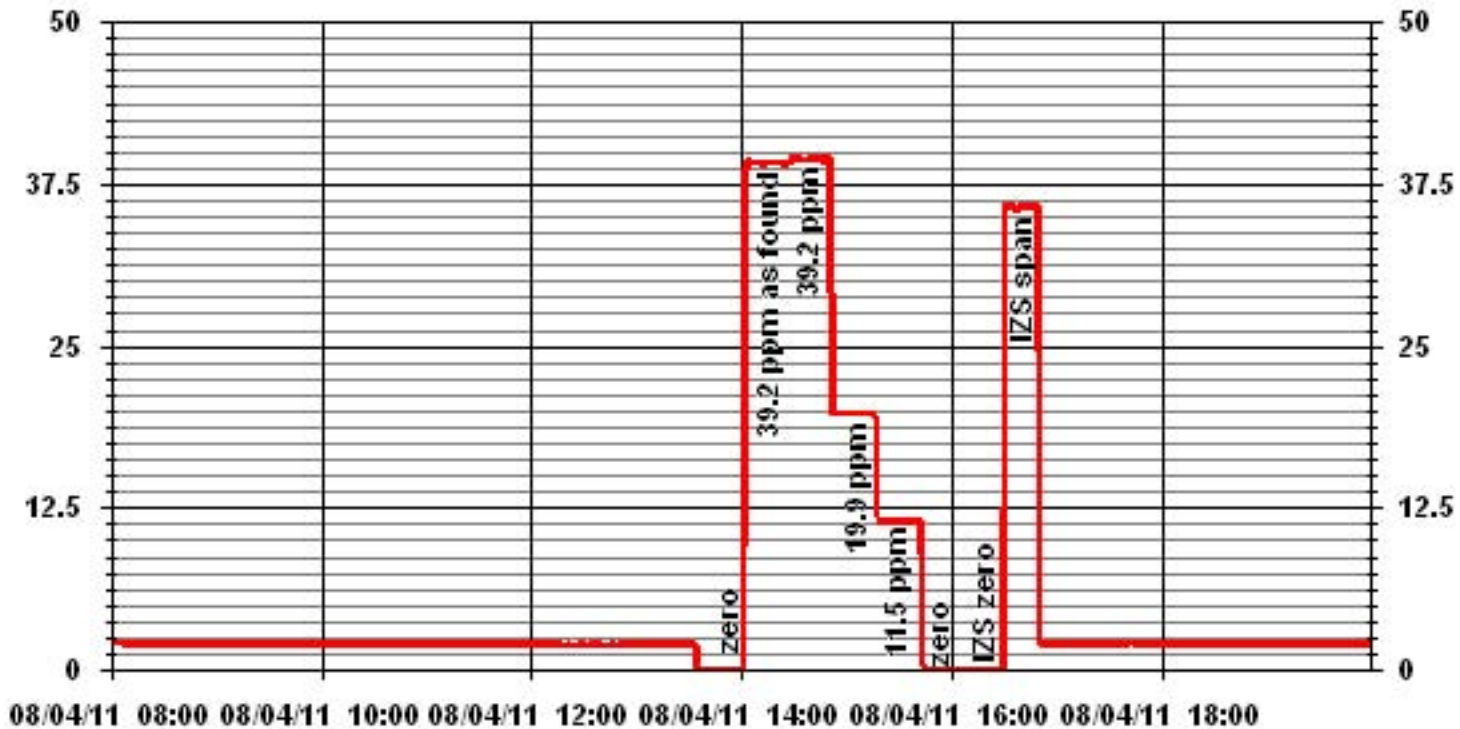
Calibration Date	August 4, 2011		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Maskwa		
Start Time (MST)	13:28	End Time (MST)	16:53

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope (0.85 to 1.15)	Correlation Coefficient Intercept (±3% F.S.)
0.0	0.0	NA	0.99973	1.006028
11.5	11.5	0.9969		-0.05069
19.9	19.8	1.0030		
39.2	39.4	0.9938		



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	August 4, 2011	Previous Calibration	July 13, 2011
Company	LICA	Plant/Location	Maskwa
Start Time (MST)	10:55	End Time (MST)	16:49
Reason:	Monthly Calibration		
Barometric Pressure	946 mBar	Station Temperature	25 Deg C
Cal Gas Concentration	NOx 51.7 ppm	NO	50.4 ppm
Cal Gas Cylinder #	LL103822	Cal Gas Expiry date	February 4, 2013
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	0 - 1 Volts

Equipment Information

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

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0 - 1000		ppb		
Sample Flow/Conv. Temp	461 ccm	315.7 Deg C	453 ccm	317 Deg C	
Ozone Flow / Vacuum	79 ccm	5.4 °Hg-A	79 ccm	5.3 °Hg-A	
HVPS / A ZERO	767 Volts	17.3 MV	767 Volts	17.4 MV	
Rx/ Temp / PMT Temp	50.0 Deg C	6.6 Deg C	50.0 Deg C	6.6 Deg C	
Box Temp / IZS Temp	32.8 Deg C	45.1 Deg C	33.3 Deg C	45.1 Deg C	
Offset	0.2 NOx	0.0 NO	1.8 NOx	-0.1 NO	
Slope	1.172 NOx	1.141 NO	1.163 NOx	1.132 NO	
NO ₂ COEF / Conv Efficiency	NA	0.994	NA	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	NA	0	0	NA	1	0	1	NA	NA
4995	0.0	NA	0	0	NA	0	0	0	NA	NA
4921	74.2	NA	768	749	NA	775	754	21	0.9922	0.9929
4921	74.2	NA	768	749	NA	769	748	21	1.0000	1.0009
4960	34.6	NA	358	349	NA	358	349	9	1.0000	1.0000
4973	19.8	NA	205	200	NA	205	200	4	1.0000	1.0000
4995	0.0	NA	0	0	NA	0	0	-1	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO ₂ Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4921	74.2	NA	768	749	NA	767	748	19	NA	NA
No Adj needed										
4921	74.2	600	768	NA	562	767	205	562	1.0000	100.00%
4921	74.2	250	768	NA	246	768	521	247	0.9960	100.44%
4921	74.2	140	768	NA	146	767	621	146	1.0000	100.00%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 0.999	NO= 1.001	NO2= 0.999
				NOx= 1.0000	NO= 1.0009	NO2= 1.0000
Average Converter Efficiency= 100.15%						

Before Calibration **After Calibration**

Auto Zero	0.8 NOx	0.1 NO2	0.0 NOx	-1.4 NO2
Auto Span	729 NOx	717 NO2	716 NOx	704 NO2
Sample Lines Connected: YES				
Percent Change from Previous Calibration	NOx	0.8%	NO	0.7%
			NO2	0.2%

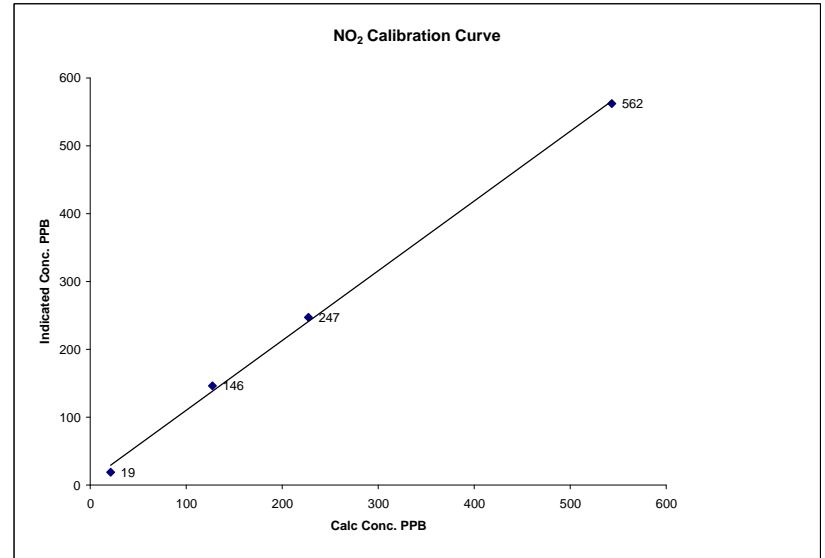
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu.

NO₂ Calibration Curve

Calibration Date	August 4, 2011
Company	LICA
Plant / Location	Maskwa
Start Time (MST)	10:55
End Time (MST)	16:49

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	
21	19	N/A			0.998660
127	146	0.8699			1.028739
227	247	0.9190			7.40440
543	562	0.9662			

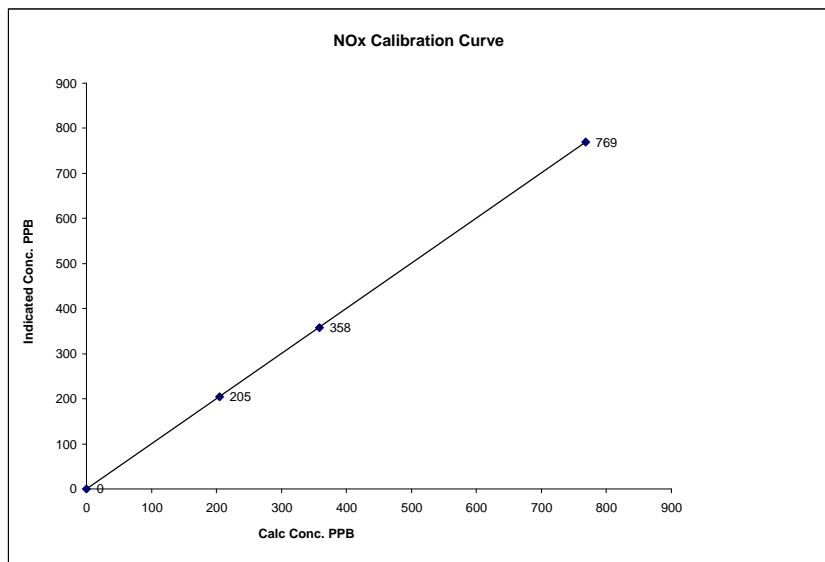


Notes:

NOx Calibration Curve

Calibration Date	August 4, 2011		
Company	LICA		
Plant / Location	Maskwa		
Start Time (MST)	10:55	End Time (MST)	16:49

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999999
0	0	N/A	Slope (0.85 to 1.15)	1.001419
205	205	1.0001	Intercept (± 3% F.S.)	-0.25805
358	358	1.0004		
768	769	0.9987		

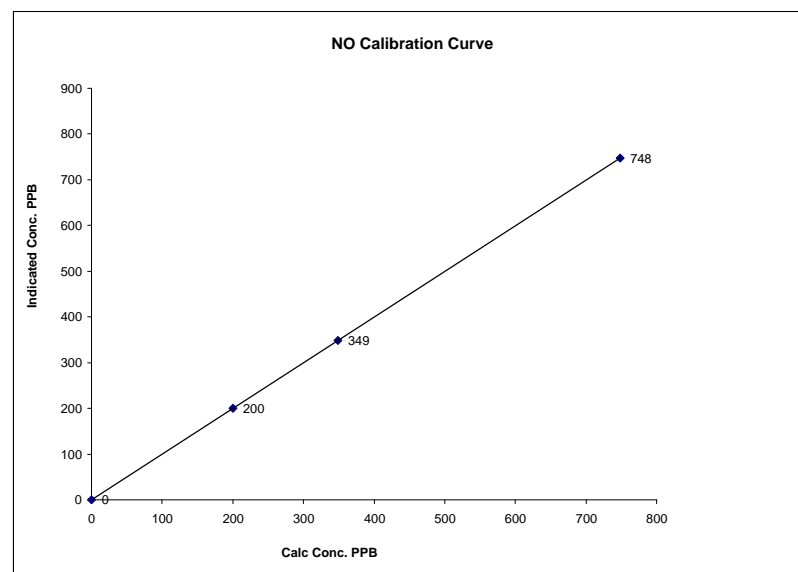


Notes:

NO Calibration Curve

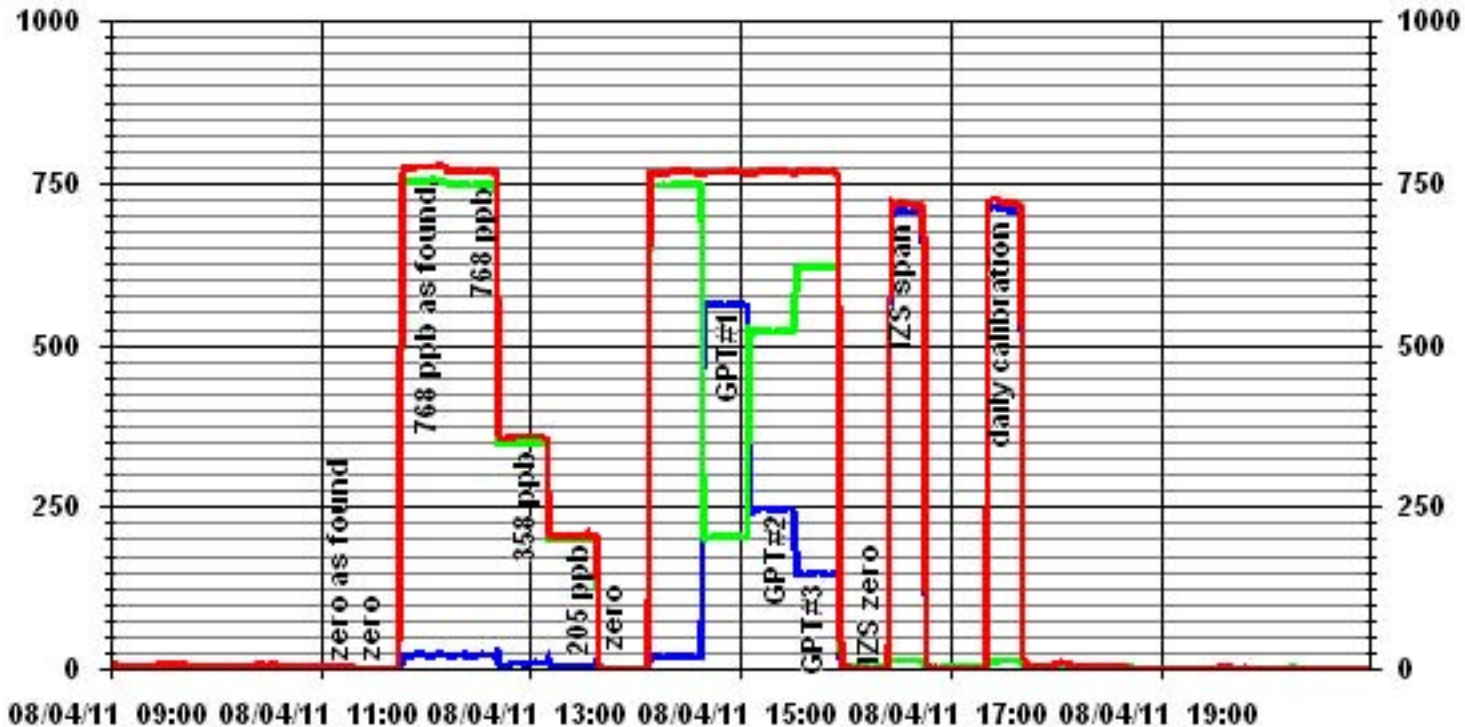
Calibration Date	August 4, 2011		
Company	LICA		
Plant / Location	Maskwa		
Start Time (MST)	10:55	End Time (MST)	16:49

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	1.000000
0	0	N/A	Slope (0.85 to 1.15)	0.998605
200	200	0.9994	Intercept (± 3% F.S.)	0.3003
349	349	1.0004		
748	748	1.0009		



Notes:

01 Minute Averages



— LICA30 NOX_ PPB

— LICA30 NO_ PPB

— LICA30 NO2_ PPB

Lakeland Industry & Community Association

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

Prepared By:



September 22, 2011

Lakeland Industry & Community Association

St. Lina

Ambient Air Monitoring

Table of Contents

	Page		Page
Introduction	3	Calibration Reports	99
Calibration Procedure	4	<ul style="list-style-type: none"> • Sulphur Dioxide • Hydrogen Sulphide • Total Hydrocarbons • Nitrogen Dioxide • Ozone • Particulate Matter 2.5 	100 103 106 109 114 117
Monthly Continuous Summary	5		
General Monthly Summary	6		
Continuous Monitoring	10		
<ul style="list-style-type: none"> • Monthly Summaries, Graphs & Wind Roses 	11		
<ul style="list-style-type: none"> • Air Quality Index • Sulphur Dioxide • Hydrogen Sulphide • Total Hydrocarbons • Ozone • Nitrogen Dioxide • Nitric Oxide • Oxides of Nitrogen • Particulate Matter 2.5 • Temperature • Barometric Pressure • Relative Humidity • Precipitation • Vector Wind Speed • Vector Wind Direction • Standard Deviation Wind Direction 	12 14 22 30 38 46 54 61 69 74 77 80 83 86 93 96		

Introduction

The following Ambient Air Monitoring report was prepared for:

Mr. Mike Bisaga

Lakeland Industry & Community Association

Box 8237

5107W – 50 Street

Bonnyville, Alberta

T9N 2J5

Monitoring Location: St. Lina

Data Period: August 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 – August 2011

LICA ST. LINA SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)
						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO2 (PPB)	172	48	0	0	0.06	2	VAR	VAR	VAR	VAR	0.5	13	99.9
H2S (PPB)	10	3	0	0	0.13	1	VAR	VAR	VAR	VAR	1.0	21	99.9
THC (PPM)	-	-	-	-	2.08	2.6	14	1	7.7	26(NNE)	2.3	14, 27	97.2
OZONE (PPB)	82	-	0	-	22.2	44	14	20	6.2	152(SSE)	30.3	13	99.9
NOx (PPB)	-	-	-	-	1.15	5	19	6, 7	13.7, 11.2	115(ESE), 125(SE)	2.0	14	99.9
NO (PPB)	-	-	-	-	0.18	3	19	6, 7	13.7, 11.2	115(ESE), 125(SE)	0.6	3	99.9
NO2 (PPB)	159	-	0	-	0.80	5	11	4, 5	14.1, 13.5	150(SSE), 153(SSE)	1.7	11	99.9
PM2.5 (ug/m3)	-	30	-	0	5.10	28.1	12	20	12	17(NNE)	9.0	14	98.9
TEMPERATURE (DEGREE C)	-	-	-	-	16.51	28.2	22	13	26.1	202(SSW)	21.8	22	99.9
BP (MILLIBAR)	-	-	-	-	931	941	26	VAR	VAR	VAR	938.3	26	99.9
RH (%)	-	-	-	-	66.76	91	VAR	VAR	VAR	VAR	85.5	7	99.9
PRECIPITATION (MM)	-	-	-	-	0.08	35.9	14	20	6.2	152(SSE)	38.5	14	99.6
VECTOR WS (KPH)	-	-	-	-	9.40	26.1	23	13	-	266(W)	13.4	23	99.9
VECTOR WD (DEGREES)	-	-	-	-	120(ESE)	-	-	-	-	-	-	-	99.9

VAR-VARIOUS

General Monthly Summary

Equipment Operation

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

AQM STATION – LICA – St. Lina

Sulphur Dioxide (PPB)

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

The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started on August 11th. One hourly and six hourly maximum data were invalidated due to power failures this month. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started. One hourly and six hourly maximum data were invalidated due to power failures this month. Data was corrected using daily zero information.

Total HydroCarbon (PPM)

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

The monthly calibration was performed on August 10th. The inlet filter was changed before the monthly calibration was started. The analyzer flamed out from August 3rd, hour 23 to August 4th, hour 7, and from August 29, hour 20 to August 30, hour 6 due to power failures. 20 hours of data were invalidated. One hourly and six hourly maximum data were invalidated due to power failures this month. 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. One hourly and six hourly maximum data were invalidated due to power failures this month. Furthermore, three hourly maximum data were invalidated because the readings were recorded higher than normal (above 100ppb in an hour). After reviewing minute data, these high readings were likely due to the electronic spikes of the analyzer. 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. During the routine monthly calibration, it was noticed that the sample flow dropped over past few month. Performed as found points check; the results were OK. It was found that there was a flow restriction in the 1/8" tubing going from the rear bulkhead of the analyzer to the sample/cal valve. Removed tubing, cut restricted section out, reconnected tubing, and then allowed the analyzer time to stabilize. A post repair calibration was performed on August 10th. According to the daily zero/span check, the issue did not affect data quality. One hourly and six hourly maximum data were invalidated due to power failures this month. 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 August 11th. Following the audit, the main, bypass and water-knock-off filters were all changed. A leak check was performed, the temperature, pressure, and flows were all calibrated then a second flow audit was conducted on August 11th. Cross-checked the flows using Bios DC-2 flow meter, S/N: 1193; both flows were good. 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. Seven hours of data were invalidated as the data were above -3 ug/m3. One hourly data was invalidated due to a power failure on August 29th.

General Monthly Summary

AQM STATION – LICA – St. Lina

Temperature (Degree C)

Analyzer make / model – Met One 060

No operational issue was observed during the month. One hourly data was invalidated due to a power failure on August 29th.

Barometric Pressure (Millibar)

Analyzer make / model - Met One 092

No operational issue was observed during this month. One hourly data was invalidated due to a power failure on August 29th.

Relative Humidity (%)

Analyzer make / model - Met One 083

No operational issue was observed during this month. One hourly data was invalidated due to a power failure on August 29th.

Precipitation (MM)

Analyzer make / model - Met One 387

No operational issue was observed during this month. One hourly data was invalidated due to a power failure on August 29th. The tipping bucket was checked before the maintenance was started on August 11th the result was good. The unit was assembled in order to clean the funnel and screens and to make sure the unit is level. The unit was assembled and re-checked the operation; the result was good.

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. One hourly and six hourly maximum data were invalidated due to power failures this month.

General Monthly Summary

AQM STATION – LICA – St. Lina

Datalogger

System make / model - ESC 8832, S/N: AO717

Software make/version - ESC v 5.51a

The station is connected to a modem to allow for daily polling of the station.

Trailer

No issue was observed this month. The manifold was cleaned on August 11th. The Bard filter for the air conditioner was replaced on August 11th.

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. All hours of AQI values recorded in August 2011 were within the Good range. The highest hourly concentration of Ozone was 44 ppb and an AQI value of 22, on August 14th, hour of 20. The highest hourly concentration of PM2.5 was 28.1 ug/m3 and an AQI value of 23, on August 12th, hour of 20.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

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

STATUS FLAG CODES

NA - NOT APPLICABLE

V - VARIOUS

AQI CLASS	OZONE (O ₃)					PARTICULATE MATTER 2.5 (PM _{2.5})					NITROGEN DIOXIDE (NO ₂)					SULPHUR DIOXIDE (SO ₂)					FREQUENCY	
	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
GOOD (1-25)	652	87.6%	22	20	14	37	5.0%	23	20	12	0	0.0%	-	-	-	0	0.0%	-	-	-	689	92.6%
OVERALL	519	87.6%	-	-	-	167	5.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	744	100.0%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55	7.4%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

AUGUST 2011

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

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

STATUS FLAG CODES

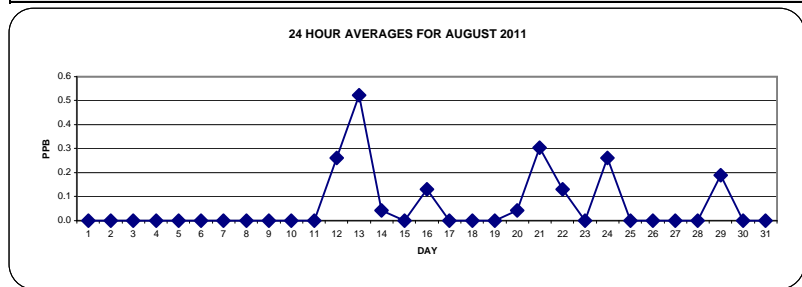
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

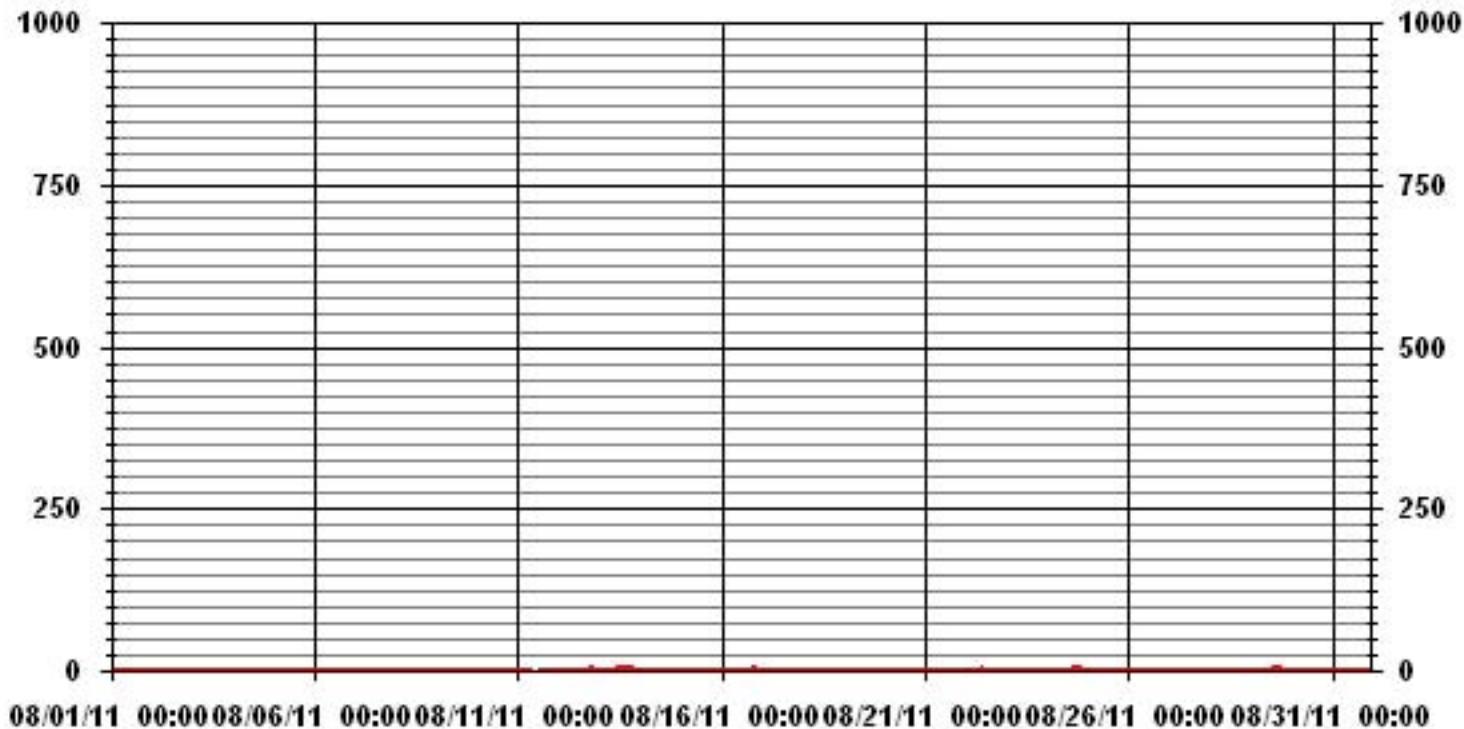
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	40					
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.5	PPB			ON DAY(S)	13
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:		743	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	0.26		MONTHLY AVERAGE:		0.06	PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2011

SULPHUR DIOXIDE MAX instantaneous maximum in ppt

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

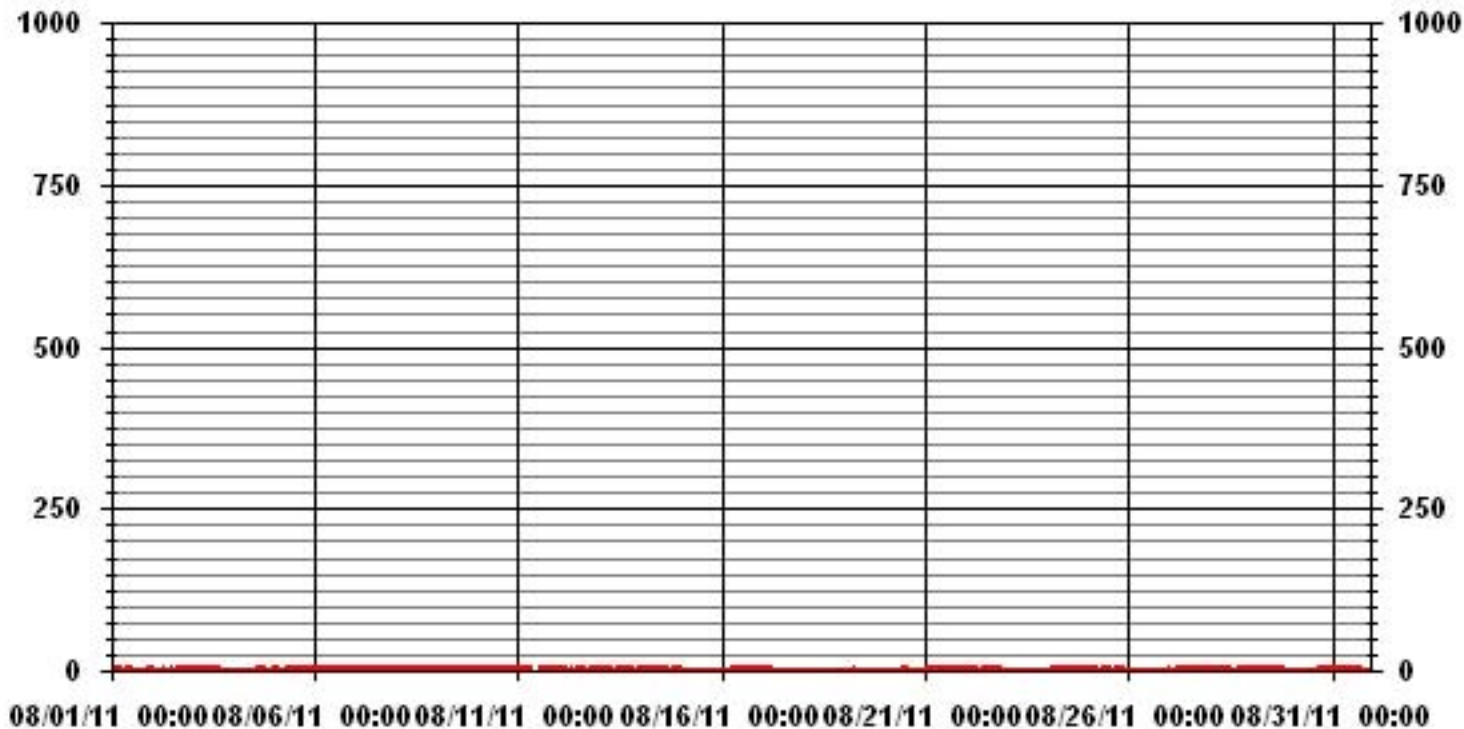
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	486					
MAXIMUM INSTANTANEOUS VALUE:	4	PPB	@ HOUR(S)	11	ON DAY(S)	21
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	738	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	0.56					

01 Hour Averages



— LICA31 SO2MAX PPB

LICA31
SO2_ / WDR Joint Frequency Distribution (Percent)

August 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	4.82	5.39	4.82	7.65	11.34	12.05	4.11	5.10	5.39	5.53	6.52	5.67	7.37	6.09	3.82	4.25	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	4.82	5.39	4.82	7.65	11.34	12.05	4.11	5.10	5.39	5.53	6.52	5.67	7.37	6.09	3.82	4.25	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	34	38	34	54	80	85	29	36	38	39	46	40	52	43	27	30	705
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	34	38	34	54	80	85	29	36	38	39	46	40	52	43	27	30	

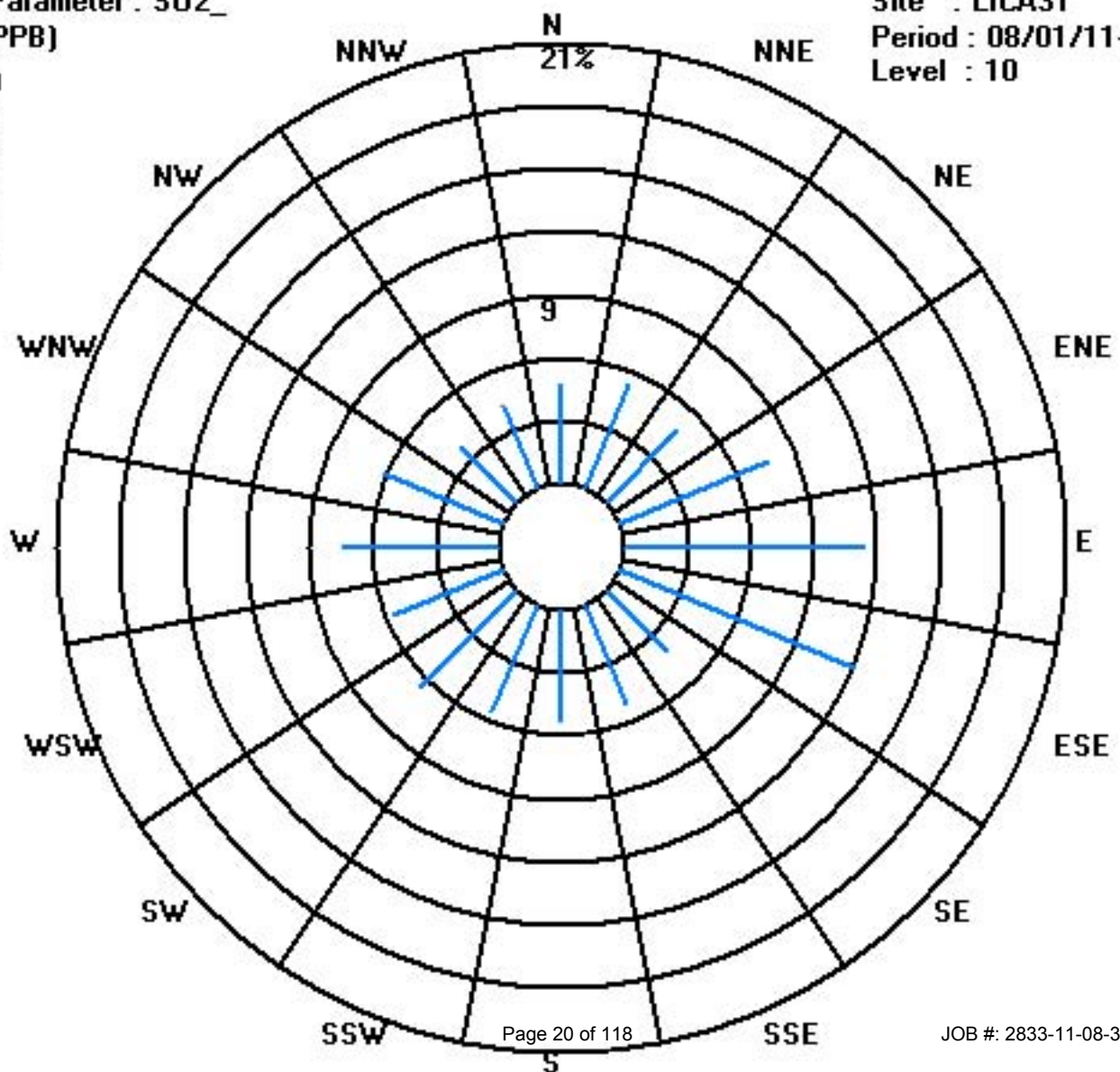
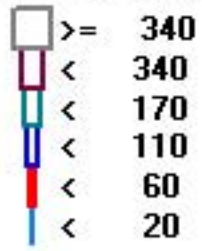
Calm : .00 %

Total # Operational Hours : 705

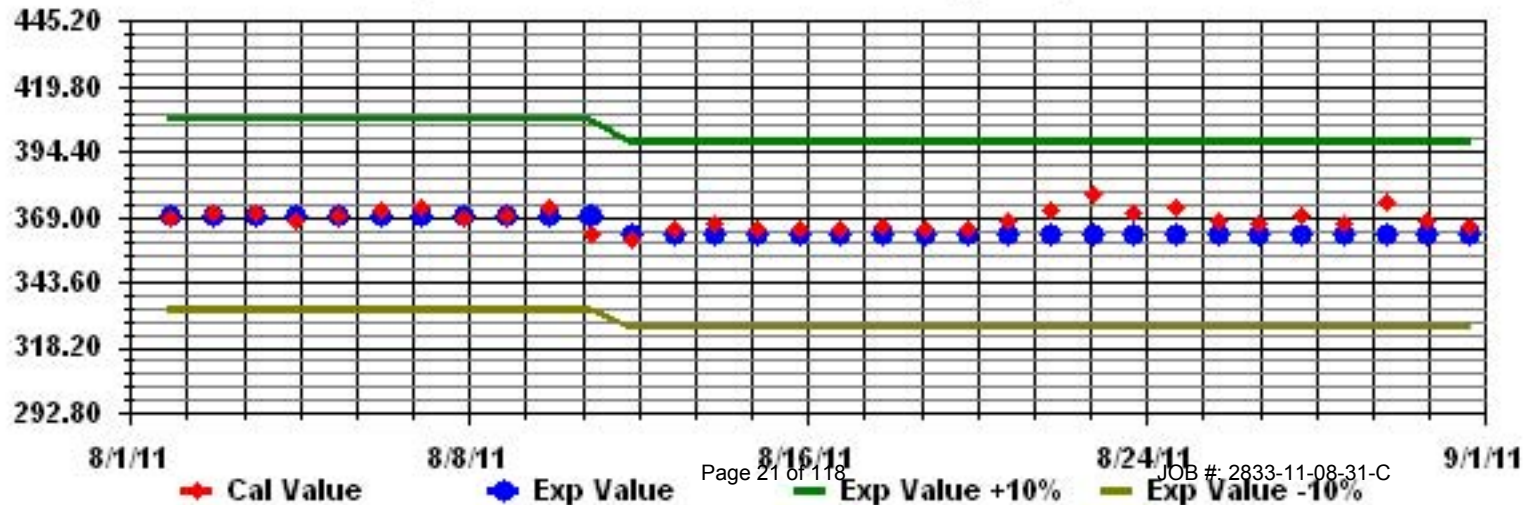
Class Limits (PPB)

Period : 08/01/11-08/31/11

Level : 10



Calibration Graph for Site: LICA31 Parameter: S02_ Sequence: S02 Phase: SPAll



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2011

HYDROGEN SULPHIDE (H₂S) hourly averages in ppb

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

STATUS FLAG CODES

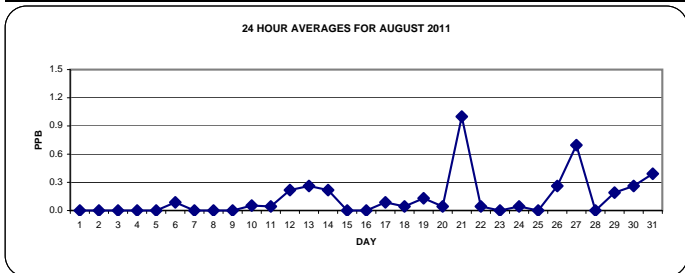
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

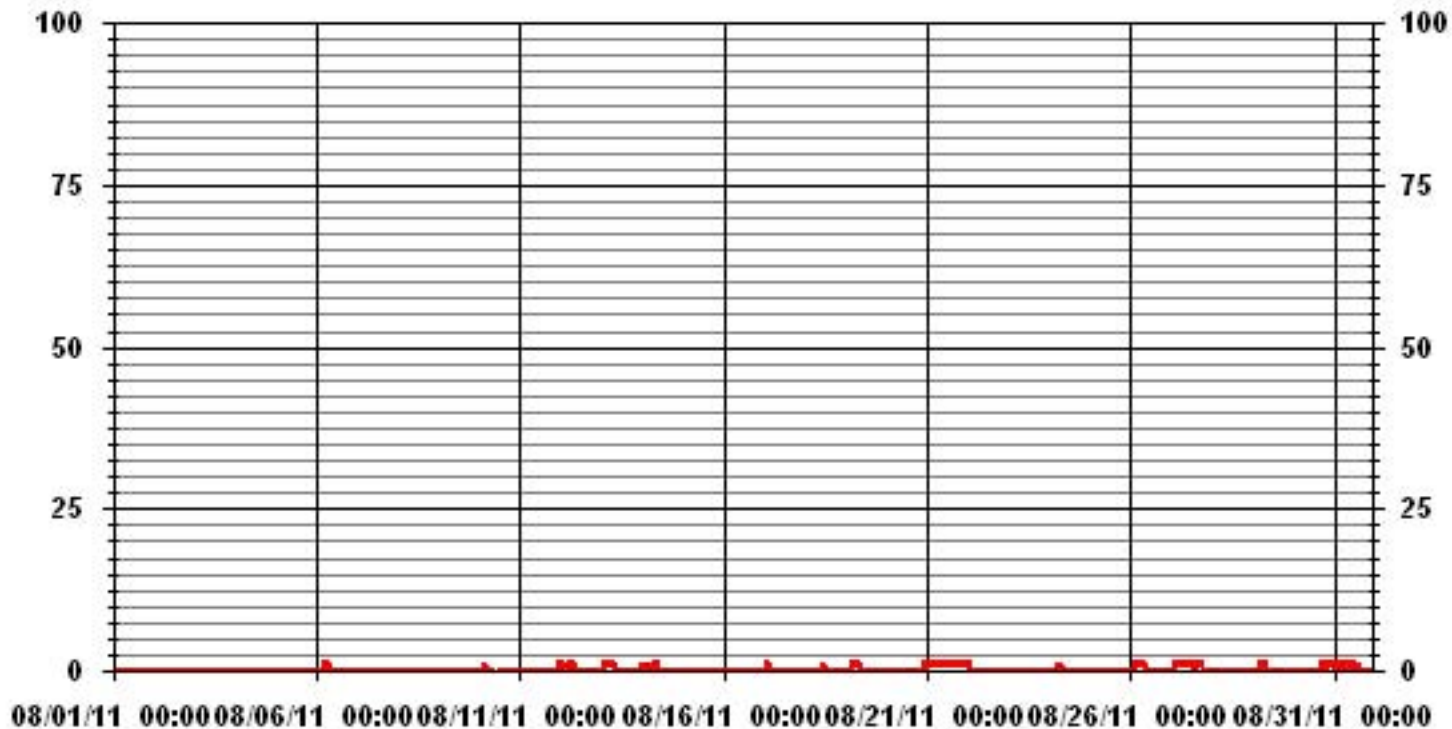
ALBERTA ENVIRONMENT: 1-HR 10 PPB 24-HR 3 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	93
MAXIMUM 1-HR AVERAGE:	1 PPB @ HOUR(S) VAR ON DAY(S) VAR
MAXIMUM 24-HR AVERAGE:	1.0 PPB VAR ON DAY(S) VAR-VARIOUS 21
IZS CALIBRATION TIME:	31 HRS OPERATIONAL TIME: 743 HRS
MONTHLY CALIBRATION TIME:	7 HRS AMD OPERATION UPTIME: 99.9 %
STANDARD DEVIATION:	0.34 MONTHLY AVERAGE: 0.13 PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2011

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

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

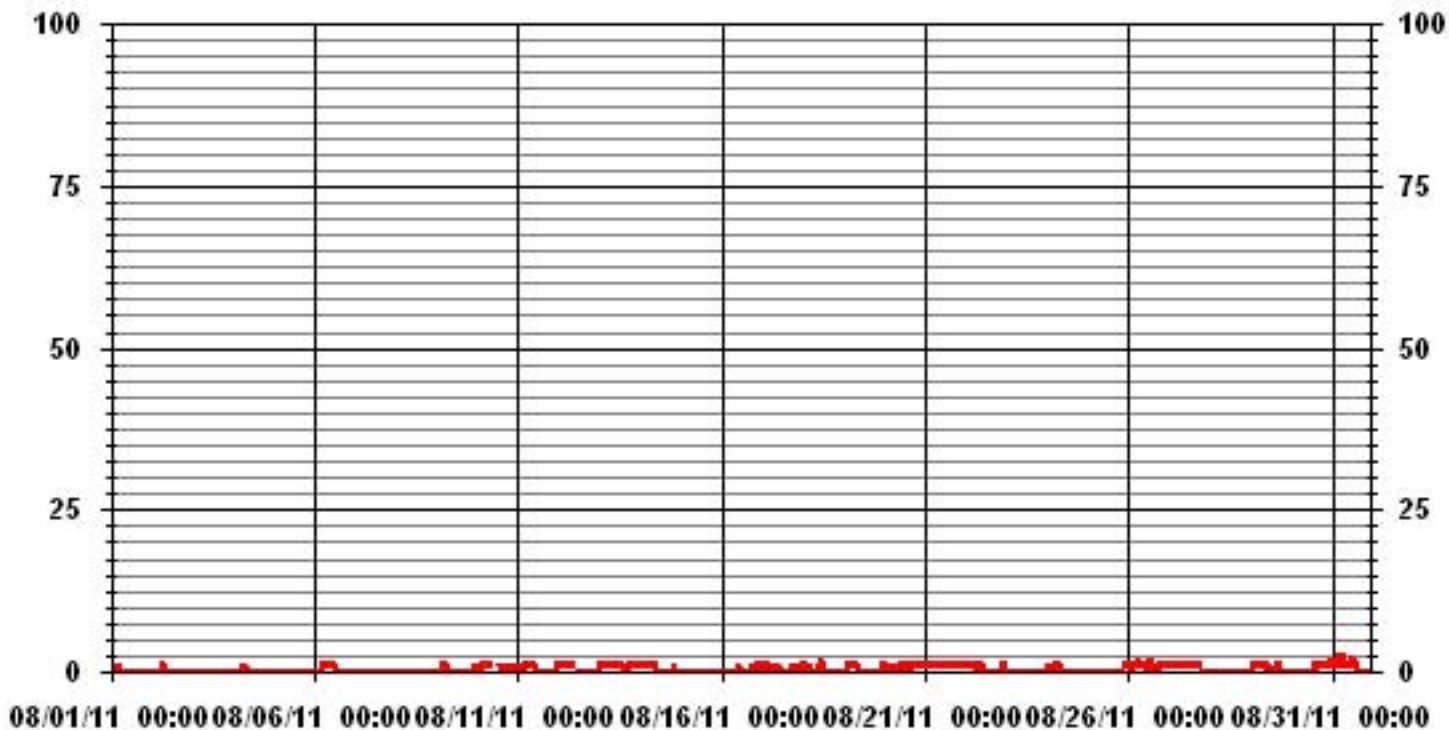
STATUS FLAG CODES

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:	220					
MAXIMUM INSTANTANEOUS VALUE:	3	PPB	@ HOUR(S)	4, 6	ON DAY(S)	31
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	738	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	0.51					

01 Hour Averages



LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

August 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	4.68	5.53	4.68	7.37	11.20	12.05	4.11	5.53	5.39	5.67	6.52	5.67	7.37	6.09	3.82	4.25	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	4.68	5.53	4.68	7.37	11.20	12.05	4.11	5.53	5.39	5.67	6.52	5.67	7.37	6.09	3.82	4.25	

Calm : .00 %

Total # Operational Hours : 705

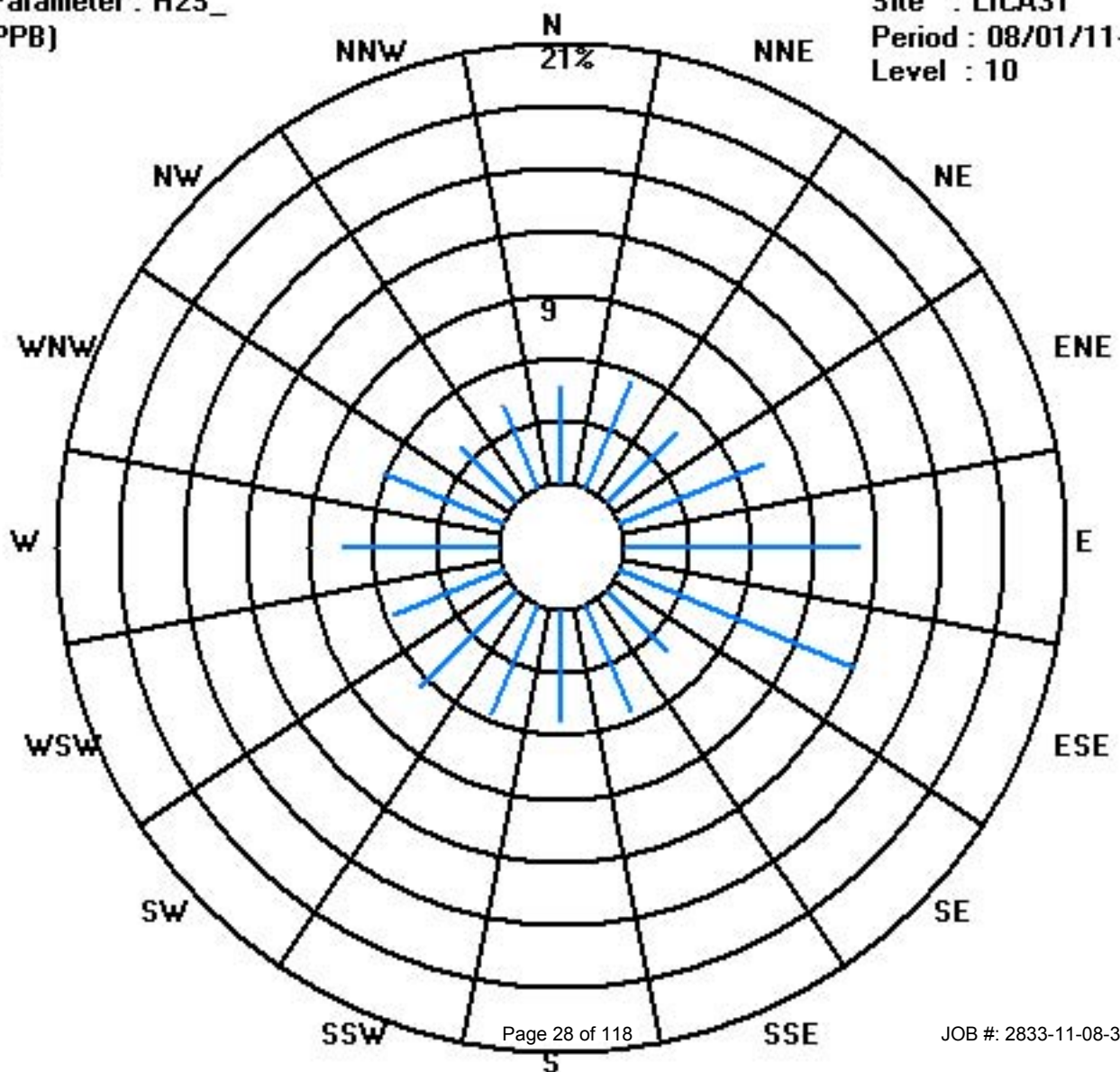
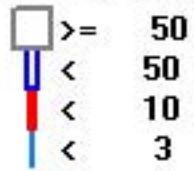
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	33	39	33	52	79	85	29	39	38	40	46	40	52	43	27	30	705
< 10																	
< 50																	
>= 50																	
Totals	33	39	33	52	79	85	29	39	38	40	46	40	52	43	27	30	

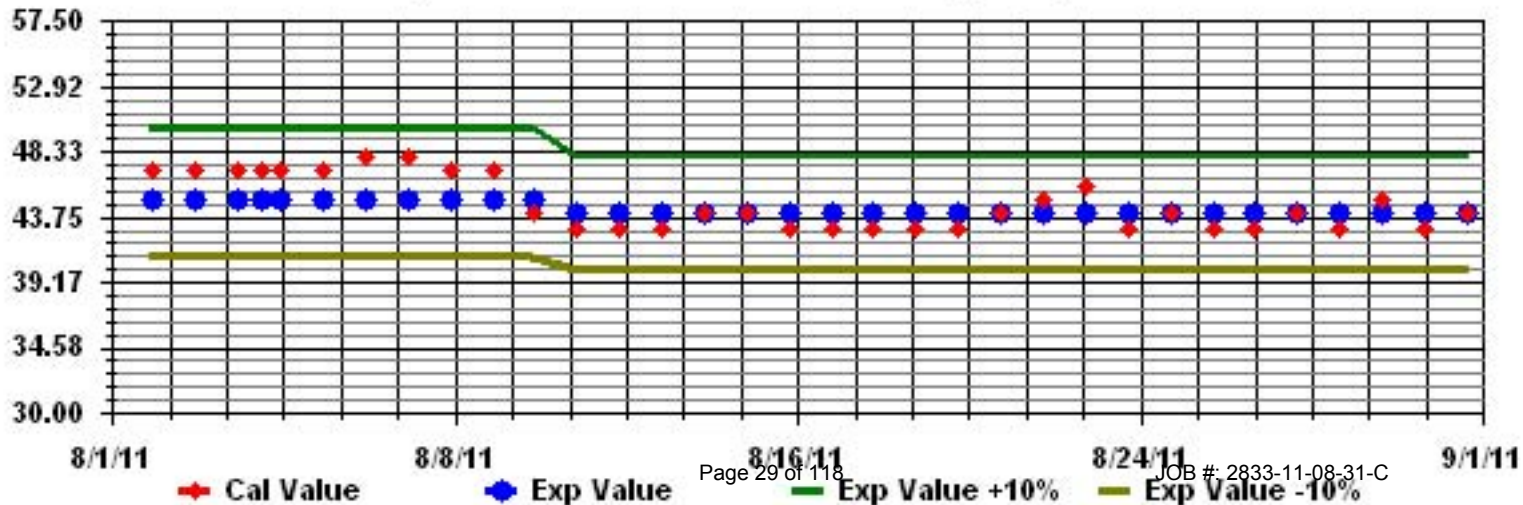
Calm : .00 %

Total # Operational Hours : 705

Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: H2S_ Sequence: H2S Phase: SPAll



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2011

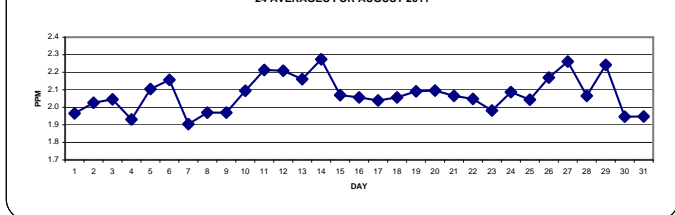
TOTAL HYDROCARBONS hourly averages in ppm

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

STATUS FLAG CODES

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

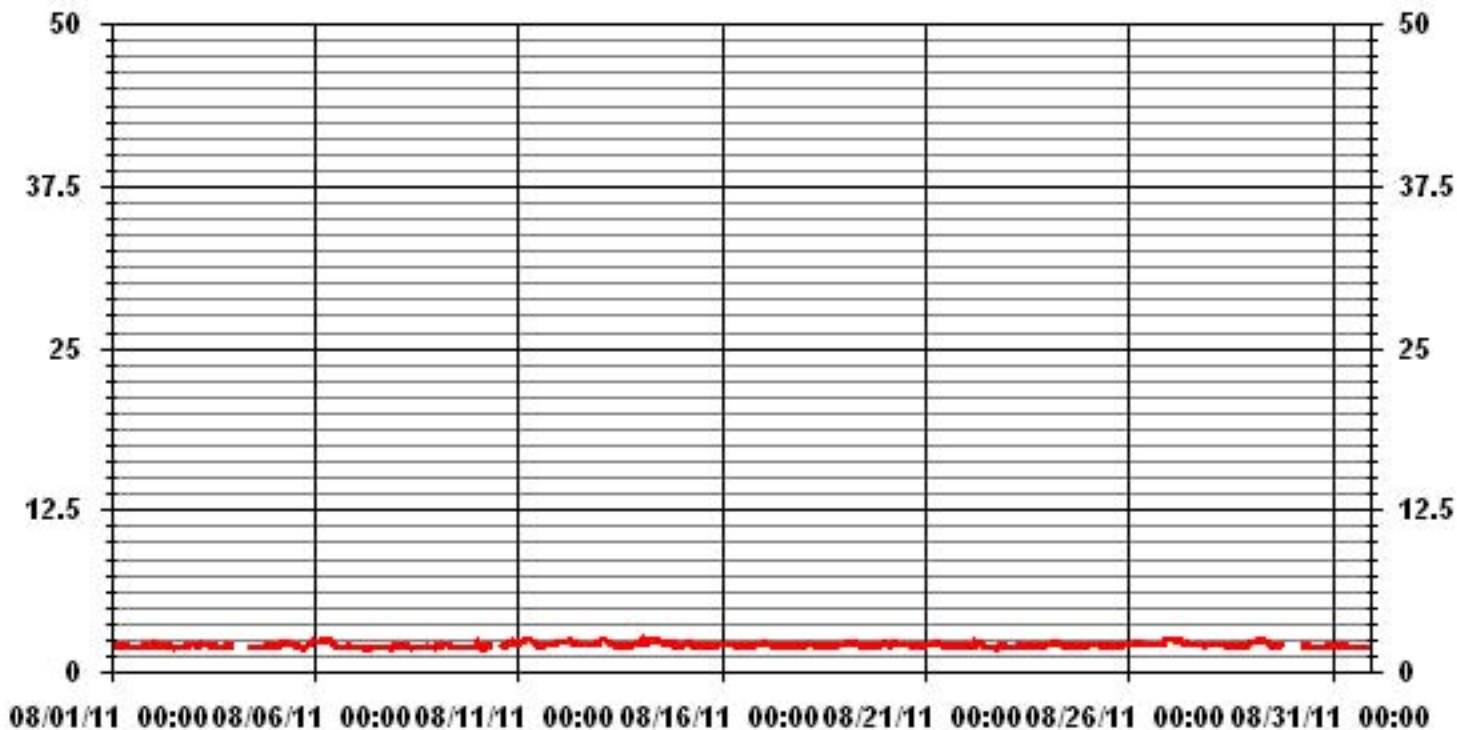
24 AVERAGES FOR AUGUST 2011



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684
MAXIMUM 1-HR AVERAGE:	2.6 PPM @ HOUR(S) 1 ON DAY(S) 14
MAXIMUM 24-HR AVERAGE:	2.3 PPM ON DAY(S) 14, 27
	VAR- VARIOUS
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION:	0.14
OPERATIONAL TIME:	723 HRS
AMD OPERATION UPTIME:	97.2 %
MONTHLY AVERAGE:	2.08 PPM

01 Hour Averages



— LICA31 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2011

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	2.2	2	P	2	2.1	2	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.2	2.0	23
2	2.5	3.4	3	2.1	2.1	2.2	2.2	2.2	2	2.4	2	2.1	2.1	2.2	2.2	2.1	2	2	2	2	2.1	2	2	2	2.1	3.4	2.2	24
3	2.1	2.2	2.2	2.3	2.3	2.3	3.2	2.1	2.6	2.2	2.4	2.2	2.2	2.2	2.1	2.2	2	2.1	2	2.3	2.3	2	3.1	2	3.2	2.3	23	
4	N	N	N	N	N	N	N	N	C	C	2.3	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4	2.1	2.5	2.1	2.5	2.1	16
5	2	2	2	2.1	2.2	2.7	2.4	2.4	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2.5	2.7	24
6	2.5	2.3	2.4	2.4	2.5	2.6	2.8	2.8	2.6	2.6	2.4	2.5	2.4	2	2.3	2.1	2.3	2.3	2.3	2.6	3.3	2.8	2.2	2.5	3.3	2.5	24	
7	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	2.6	2	2.3	2.1	2.3	2.3	2.2	2.2	2.3	2.5	2.3	2.4	2	2.6	2.1	23
8	2.3	2.2	2.4	3.1	2.8	2.6	2.3	2.9	2.1	2.1	2.6	2.3	2	1.9	1.9	2.3	2.4	2.1	2.6	3	2.4	2	2.3	2	3.1	2.4	24	
9	2	2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2	1.9	1.9	1.9	1.9	2	2	2	2	2	2	2	2	2	2	2	2.2	2.0	24
10	14.6	3	2.1	2.1	2.1	2	2	2	2.1	C	C	C	C	C	C	2.1	2.1	2.3	4	2.8	4.9	2.6	2.1	2.1	14.6	3.2	24	
11	2.1	2.2	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.5	2.3	23
12	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.2	23
13	2.4	2.5	2.5	2.5	2.5	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2	2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.5	24
14	2.4	2.7	2.7	2.3	2.3	2.5	2.5	2.6	2.6	2.6	2.6	2.4	2.4	2.5	2.5	2.3	2.3	2.3	2.3	2.6	2.4	2.2	2.2	2.2	2.3	2.2	2.7	24
15	2.4	2.2	3	2.9	2.6	2.6	3.5	2.5	2.5	2.7	2.3	2.3	2.1	2.3	2.2	2.2	2.5	2.3	2.5	2.1	2.1	2.1	2.4	2.2	3.5	2.4	24	
16	2.3	2.3	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.3	2.1	24
17	2.2	2.3	2.3	2.2	2.1	2.2	2.2	2.2	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2.6	2	2	2	2.1	2.6	24
18	2	2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2	2	2	2.2	2	2.2	2.2	2.2	2.2	2.3	2.4	2.1	2.1	2.1	2.1	2.1	2.4	2.1	24
19	2.1	2.2	2.2	2.4	2.2	2.2	2.3	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.4	2.2	24
20	2.2	2.2	2.2	2.2	2.2	2.6	2.6	2.6	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2	2.1	2.1	2.3	2.1	2.1	2.6	2.2	24
21	2.2	2.1	2.2	2.1	2.2	2.2	2.3	2.4	2.3	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2.4	2.1	24
22	2.1	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.4	2.4	2.1	2	2	2	2	1.9	2	2	2	2	2.1	2.2	2	2.1	2.1	2.4	2.1	24
23	2.2	2	1.9	2	2	1.9	2	2	2	2	2	2	2.1	2	2.2	2	2	2.4	2	2	2	2	2.1	2.1	2.1	2.4	2.0	23
24	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.1	2.1	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.2	2.2	2.1	2.3	2.1	24
25	2.1	2.6	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.6	2.1	24
26	2.1	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.5	2.2	24
27	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.4	2.3	2.2	2.7	2.3	2.7	2.3	24
28	2.6	2.6	2.4	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	2.2	2.1	2.2	2.2	2.1	2.6	2.2	24
29	2.4	2.4	2.3	2.3	2.4	2.5	2.5	2.5	2.4	2.3	2.2	2.1	2.1	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.3	20
30	N	N	N	N	N	N	N	N	C	C	2	2	2	2	2	1.9	2	2	2	2	2	2	2	2	2	2.5	2.0	17
31	2	2	2	2	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.9	1.9	1.9	2	2.0	24
HOURLY MAX	15	3	3	3	3	3	4	3	3	3	3	3	3	3	2	2	3	2	4	3	5	3	3	3				
HOURLY AVG	2.7	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.2				

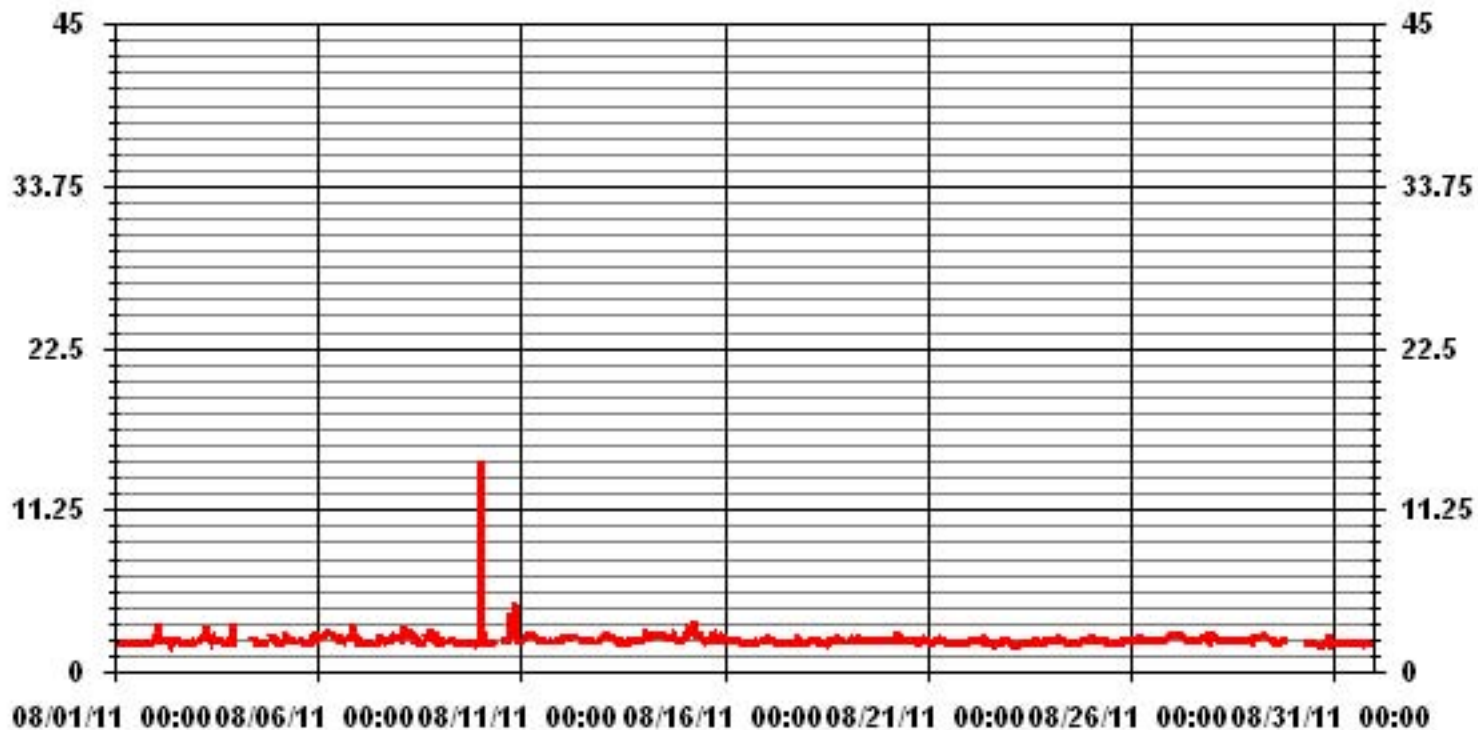
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	678					
MAXIMUM INSTANTANEOUS VALUE:	14.6	PPM	@ HOUR(S)	0	ON DAY(S)	10
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	0.54					

01 Hour Averages



LICA31
 THC / WDR Joint Frequency Distribution (Percent)

August 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	4.82	5.55	4.82	7.45	11.54	12.42	4.23	5.70	5.55	5.70	6.43	5.70	6.57	5.70	3.36	4.38	100.00
< 10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.82	5.55	4.82	7.45	11.54	12.42	4.23	5.70	5.55	5.70	6.43	5.70	6.57	5.70	3.36	4.38	

Calm : .00 %

Total # Operational Hours : 684

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	33	38	33	51	79	85	29	39	38	39	44	39	45	39	23	30	684
< 10.0																	
< 50.0																	
>= 50.0																	
Totals	33	38	33	51	79	85	29	39	38	39	44	39	45	39	23	30	

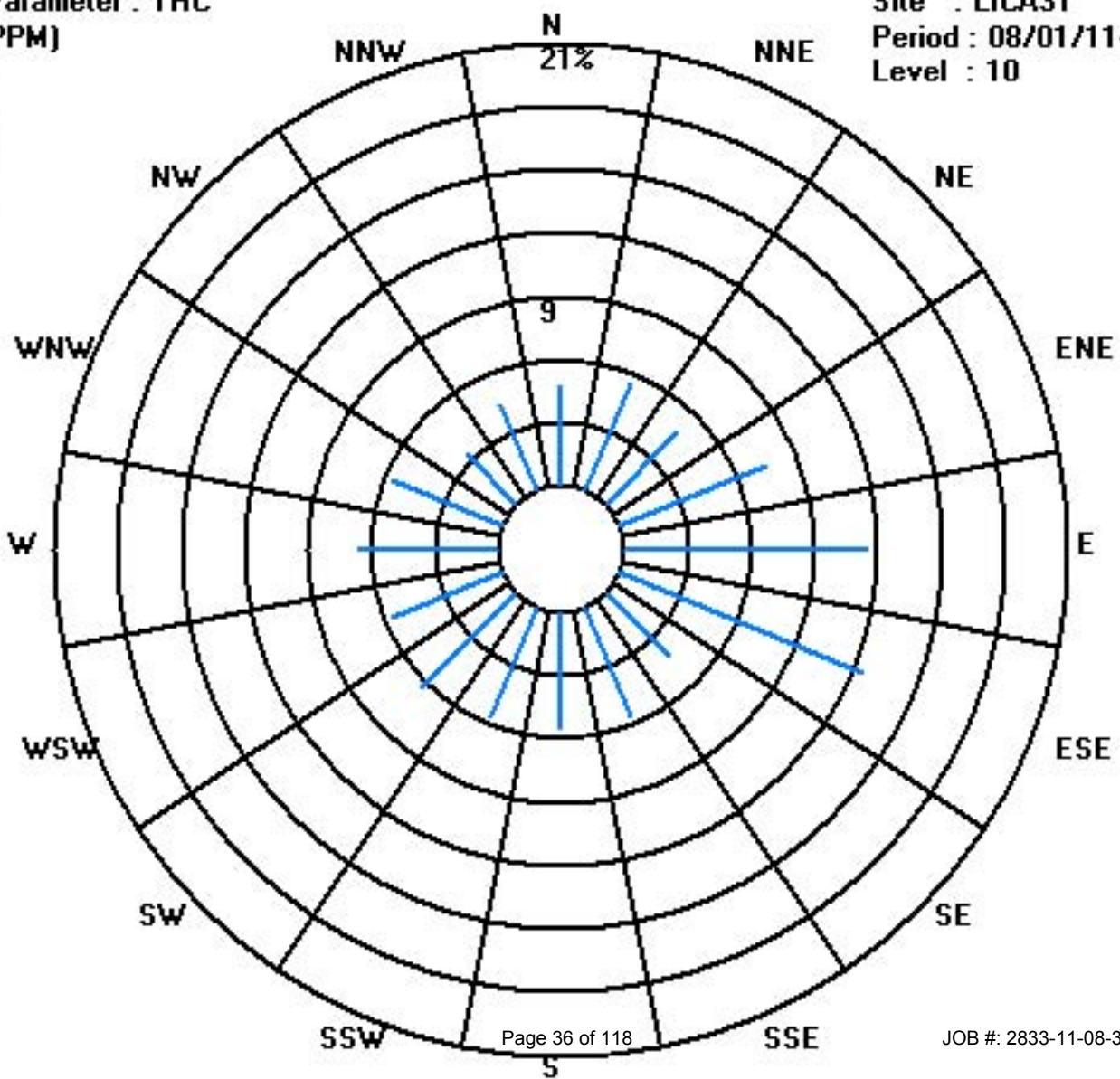
Calm : .00 %

Total # Operational Hours : 684

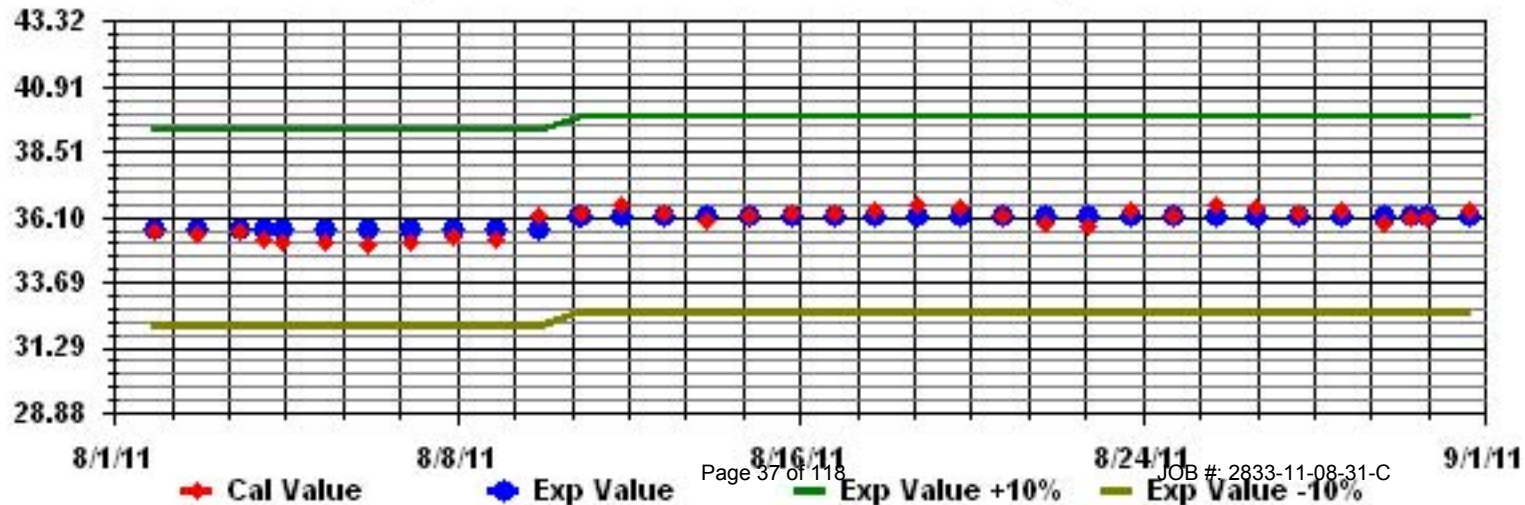
Class Limits (PPM)

Period : 08/01/11-08/31/11

Level : 10



Calibration Graph for Site: LICA31 Parameter: THC Sequence: THC Phase: SPAll



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2011

OZONE (O₃) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.
DAY	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.	
1		20	17	14	13	11	13	13	16	18	20	21	21	21	22	22	22	22	22	21	17	15	15	IZS	16	22	17.9	24
2		16	16	16	14	16	14	11	13	16	17	19	20	21	22	23	24	25	24	23	19	17	IZS	21	20	25	18.6	24
3		21	17	15	16	23	14	14	16	15	18	23	23	25	27	26	23	24	26	27	23	IZS	18	18	17	27	20.4	24
4		15	13	11	10	7	12	8	14	19	23	25	25	26	26	30	30	29	31	31	IZS	22	20	24	27	31	20.8	24
5		23	21	20	18	16	15	18	21	28	32	32	35	36	36	37	38	38	36	IZS	32	31	30	24	21	38	27.7	24
6		18	19	18	17	13	12	12	11	10	14	15	16	22	20	21	23	27	IZS	29	28	27	25	21	18	29	19.0	24
7		19	15	15	13	14	17	18	17	19	18	16	15	16	18	22	21	IZS	20	21	20	20	20	18	18	22	17.8	24
8		17	16	15	14	12	11	11	12	14	16	17	21	22	25	26	IZS	26	25	23	23	24	17	18	16	26	18.3	24
9		15	13	12	12	11	10	12	16	18	27	34	38	37	38	IZS	39	38	37	34	39	41	43	39	34	43	27.7	24
10		37	38	37	25	28	30	31	31	31	35	34	31	32	IZS	32	30	28	24	20	22	20	18	17	16	38	28.1	24
11		17	18	17	15	14	14	13	14	C	C	C	C	C	C	29	29	28	29	28	27	26	28	25	23	29	21.9	24
12		18	17	18	17	16	13	10	14	18	25	29	IZS	30	30	32	32	32	33	35	33	31	28	26	27	35	24.5	24
13		25	22	21	20	21	21	20	21	23	26	IZS	33	37	39	41	42	42	41	41	40	34	33	28	25	42	30.3	24
14		19	13	12	13	11	9	9	11	13	IZS	24	28	30	30	32	32	30	25	23	23	44	40	34	28	44	23.2	24
15		27	25	23	18	14	12	12	14	IZS	15	16	17	19	19	20	20	18	17	16	13	12	16	17	16	27	17.2	24
16		16	15	14	13	11	9	9	IZS	15	17	19	20	22	22	23	23	24	23	21	18	19	19	17	17	24	17.7	24
17		17	10	12	14	18	19	IZS	18	19	20	20	20	19	19	20	20	20	20	22	25	23	23	22	21	25	19.2	24
18		19	18	17	15	15	IZS	14	15	17	18	18	17	17	16	16	16	17	17	16	14	11	12	11	10	19	15.5	24
19		9	9	9	7	IZS	5	5	7	11	16	16	17	19	19	19	18	16	17	18	18	18	17	8	19	13.8	24	
20		8	10	12	IZS	11	13	20	14	11	14	22	24	28	31	32	31	35	28	21	21	21	20	20	35	20.3	24	
21		19	22	IZS	22	20	19	18	17	22	28	32	38	37	39	40	34	30	28	25	24	23	24	24	40	26.5	24	
22		22	IZS	16	18	20	13	18	15	16	21	26	23	27	29	28	28	24	22	24	23	21	20	20	18	29	21.4	24
23		IZS	32	30	22	24	23	21	19	18	22	25	26	25	25	26	27	26	25	24	22	21	20	20	IZS	32	23.8	24
24		17	11	12	11	13	12	13	18	22	24	28	32	36	37	38	41	39	39	36	35	39	38	IZS	30	41	27.0	24
25		28	27	18	22	21	22	21	24	26	29	32	32	32	31	30	29	27	26	24	21	21	IZS	20	18	32	25.3	24
26		17	18	19	14	14	9	8	10	14	19	21	24	23	24	25	25	27	26	25	23	IZS	23	23	23	27	19.7	24
27		22	21	19	18	17	17	16	16	18	21	22	25	29	34	36	37	36	34	34	IZS	29	36	35	32	37	26.3	24
28		30	25	23	23	24	24	24	22	22	26	30	31	32	32	33	31	30	30	IZS	24	26	27	28	28	33	27.2	24
29		25	24	25	24	24	24	25	25	28	31	34	36	38	39	40	41	38	IZS	34	28	P	C	26	24	41	30.1	23
30		24	21	22	22	23	23	18	17	17	17	21	24	27	26	29	29	IZS	28	26	26	26	25	21	19	29	23.1	24
31		18	20	19	17	16	14	13	11	13	15	19	20	21	22	21	IZS	22	21	20	20	19	20	18	17	22	18.1	24
HOURLY MAX		37	38	37	25	28	30	31	31	31	35	34	38	38	39	41	42	42	41	41	40	44	43	39	34			
HOURLY AVG		19.9	18.8	17.7	16.6	16.6	15.4	15.2	16.3	18.3	21.5	23.8	25.2	26.9	27.5	28.3	28.8	28.3	26.7	25.6	24.2	24.3	24.2	22.5	21.0			

STATUS FLAG CODES

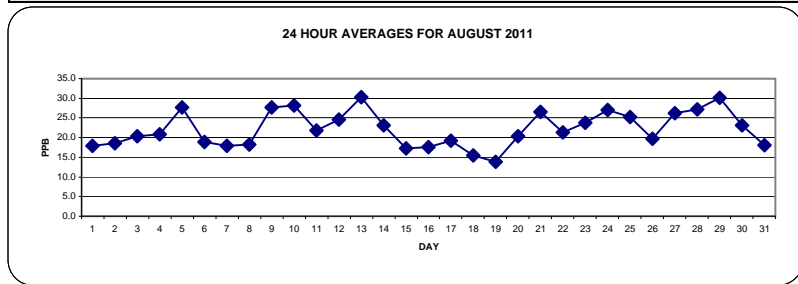
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

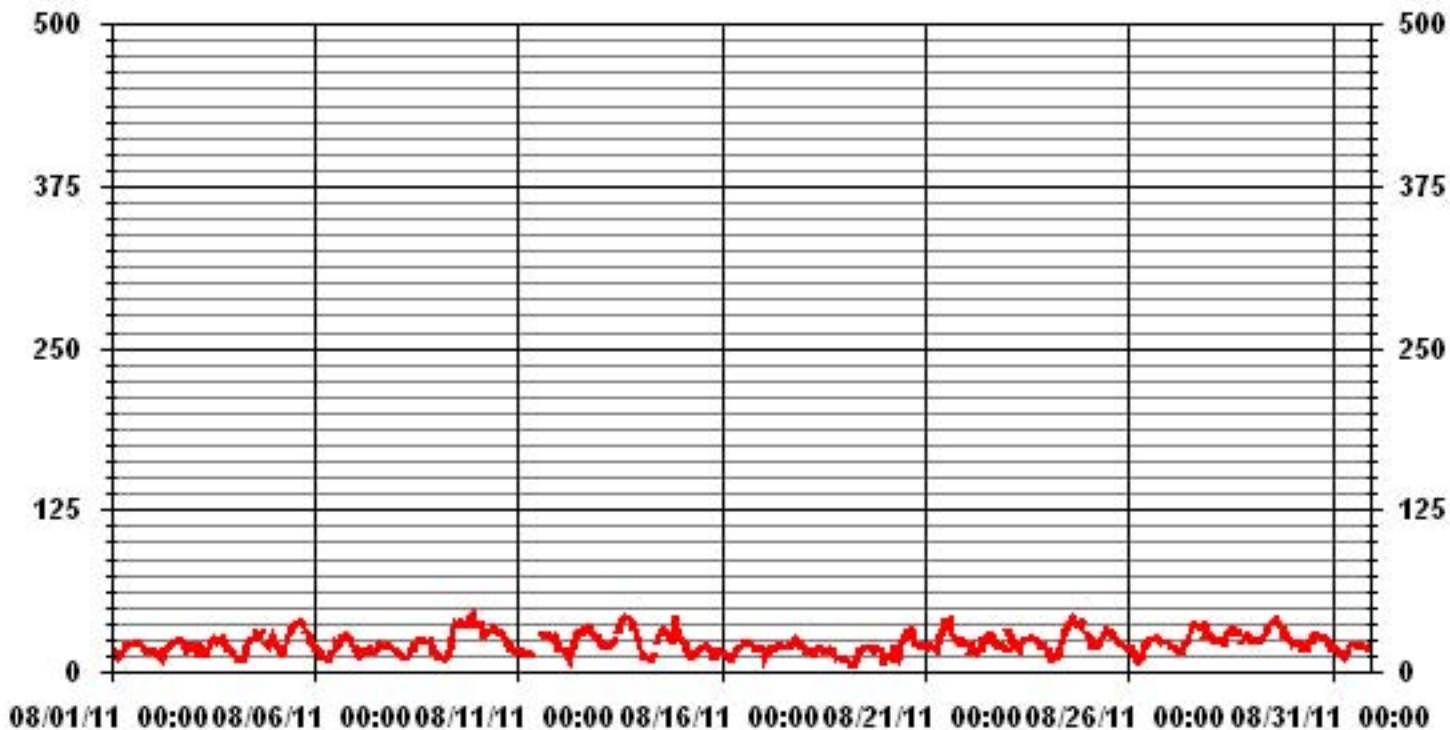
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	705				
MAXIMUM 1-HR AVERAGE:	44	PPB	@ HOUR(S)	20	ON DAY(S) 14
MAXIMUM 24-HR AVERAGE:	30.3	PPB			ON DAY(S) 13
					VAR-VARIOUS
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME	99.9	%
STANDARD DEVIATION	7.64		MONTHLY AVERAGE	22.2	PPB



01 Hour Averages



— LICA31_03_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	23	19	P	16	16	14	14	17	20	20	22	21	22	23	23	22	23	23	22	19	16	17	IZS	17	23	19.5	23	
2	18	17	17	16	17	17	15	15	17	18	20	21	23	23	24	25	25	25	25	22	19	IZS	22	22	25	20.1	24	
3	22	20	17	21	26	24	16	18	17	21	24	25	28	28	28	25	25	31	31	25	IZS	19	20	P	31	23.2	23	
4	17	14	12	12	9	14	10	18	23	25	26	27	27	29	31	32	31	33	32	IZS	23	24	27	27	33	22.7	24	
5	26	23	21	19	18	17	19	25	31	35	33	37	37	38	39	39	39	38	IZS	33	33	32	26	23	39	29.6	24	
6	19	20	19	19	15	13	13	13	11	20	20	19	26	22	N	27	30	IZS	31	30	28	27	22	21	31	21.1	23	
7	21	18	17	15	17	19	19	18	20	20	17	16	18	21	22	23	IZS	22	22	21	22	21	19	P	23	19.5	23	
8	18	17	16	15	13	12	12	13	16	17	19	22	24	26	27	IZS	28	27	25	24	26	22	20	17	28	19.8	24	
9	16	15	13	13	12	12	15	17	21	30	42	40	39	40	IZS	40	40	39	37	44	43	46	44	36	46	30.2	24	
10	40	41	44	28	30	32	34	33	35	38	39	33	33	IZS	34	32	30	27	23	23	22	20	18	18	44	30.7	24	
11	19	19	18	18	15	15	14	16	C	C	C	C	C	31	33	30	30	30	30	28	27	29	26	25	33	23.5	24	
12	19	18	19	18	17	15	12	16	22	P	31	IZS	31	33	33	34	34	35	37	36	32	29	27	27	37	26.1	23	
13	26	24	21	21	21	22	22	22	26	28	IZS	38	38	40	42	45	44	43	43	42	39	35	33	27	45	32.3	24	
14	23	16	12	14	13	10	11	13	15	IZS	26	30	31	32	34	34	32	27	26	33	52	P	43	31	52	25.4	23	
15	29	27	24	21	16	13	14	14	IZS	16	17	19	20	21	20	20	19	17	15	15	17	19	17	29	17	29	18.7	24
16	17	16	15	14	13	10	10	IZS	17	19	20	22	23	23	24	25	25	24	23	20	20	N	19	18	25	19.0	23	
17	20	11	14	17	19	20	IZS	19	20	21	21	21	21	19	20	20	21	21	24	26	25	24	24	22	26	20.4	24	
18	21	18	18	16	16	IZS	15	16	19	19	19	18	18	17	18	19	18	18	18	15	13	13	12	11	21	16.7	24	
19	10	10	10	8	IZS	8	7	9	13	19	17	19	20	20	20	19	19	19	20	21	21	20	20	10	21	15.7	24	
20	9	12	29	IZS	19	24	24	22	12	18	23	27	30	34	34	34	37	33	24	22	22	22	21	21	37	24.0	24	
21	21	23	IZS	24	22	20	19	18	26	30	36	41	40	41	41	39	32	30	27	26	24	25	25	25	41	28.5	24	
22	23	IZS	21	22	24	17	N	17	19	26	28	24	28	31	30	31	28	25	27	26	24	24	22	22	31	24.5	23	
23	IZS	36	37	27	27	26	23	21	19	25	26	26	26	27	28	27	26	25	23	22	21	21	IZS	37	25.7	24		
24	20	14	14	14	17	13	15	22	23	26	31	35	38	38	41	43	41	41	40	38	42	40	IZS	32	43	29.5	24	
25	31	31	31	25	25	24	23	27	27	34	34	33	34	33	31	31	29	27	25	23	21	IZS	20	20	34	27.8	24	
26	19	20	21	17	20	20	13	18	17	20	24	24	25	25	26	26	28	28	26	24	IZS	24	23	24	28	22.3	24	
27	23	21	20	18	18	17	17	21	22	23	27	32	32	37	39	40	39	36	37	IZS	35	39	39	36	40	28.4	24	
28	35	28	24	23	25	24	25	24	24	30	32	32	33	33	34	32	31	31	IZS	26	28	28	29	29	35	28.7	24	
29	28	24	25	25	25	26	26	26	31	34	36	37	40	41	42	44	41	IZS	39	P	C	41	29	25	44	32.6	23	
30	25	24	24	26	26	25	22	19	23	21	25	29	30	29	35	32	IZS	31	30	29	29	27	28	20	35	26.5	24	
31	21	21	21	20	19	17	16	14	15	20	21	23	23	26	24	IZS	24	26	22	23	21	23	22	22	26	21.0	24	
HOURLY MAX	40	41	44	28	30	32	34	33	35	38	42	41	40	41	42	45	44	43	43	44	52	46	44	36				
HOURLY AVG	22.0	20.6	20.5	18.7	19.0	18.0	17.1	18.6	20.7	24.0	25.9	27.1	28.6	29.3	30.1	30.8	30.1	28.8	27.9	26.3	26.6	26.3	24.8	23.0				

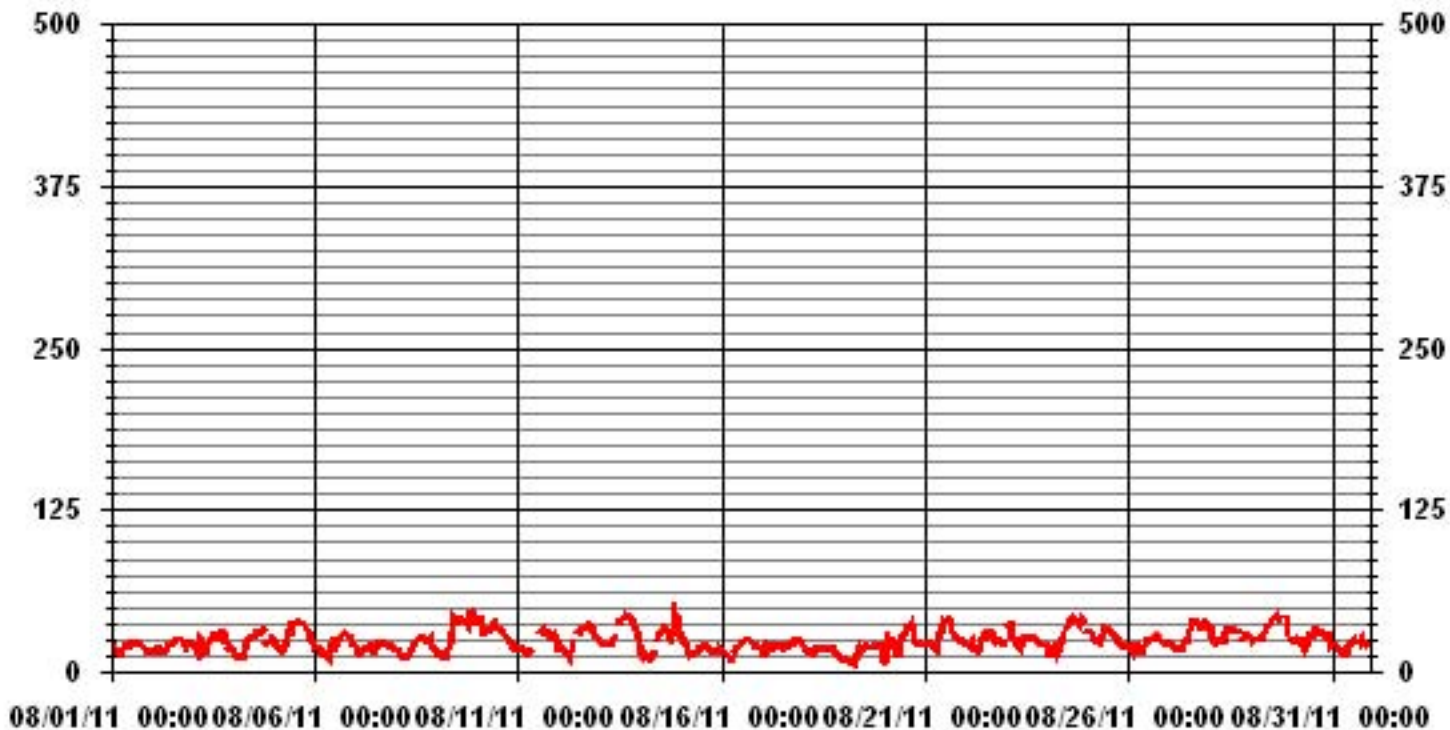
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	697				
MAXIMUM INSTANTANEOUS VALUE:	52	PPB	@ HOUR(S)	20	ON DAY(S) 14
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	735	HRS
MONTHLY CALIBRATION TIME:	7	HRS			
STANDARD DEVIATION	7.92				

01 Hour Averages



— LICA31 O3MAX PPB

LICA31
 O3_ / WDR Joint Frequency Distribution (Percent)

August 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	4.81	5.38	4.81	7.64	11.33	12.03	4.10	5.09	5.38	5.52	6.51	5.66	7.36	6.09	3.82	4.39	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.81	5.38	4.81	7.64	11.33	12.03	4.10	5.09	5.38	5.52	6.51	5.66	7.36	6.09	3.82	4.39	

Calm : .00 %

Total # Operational Hours : 706

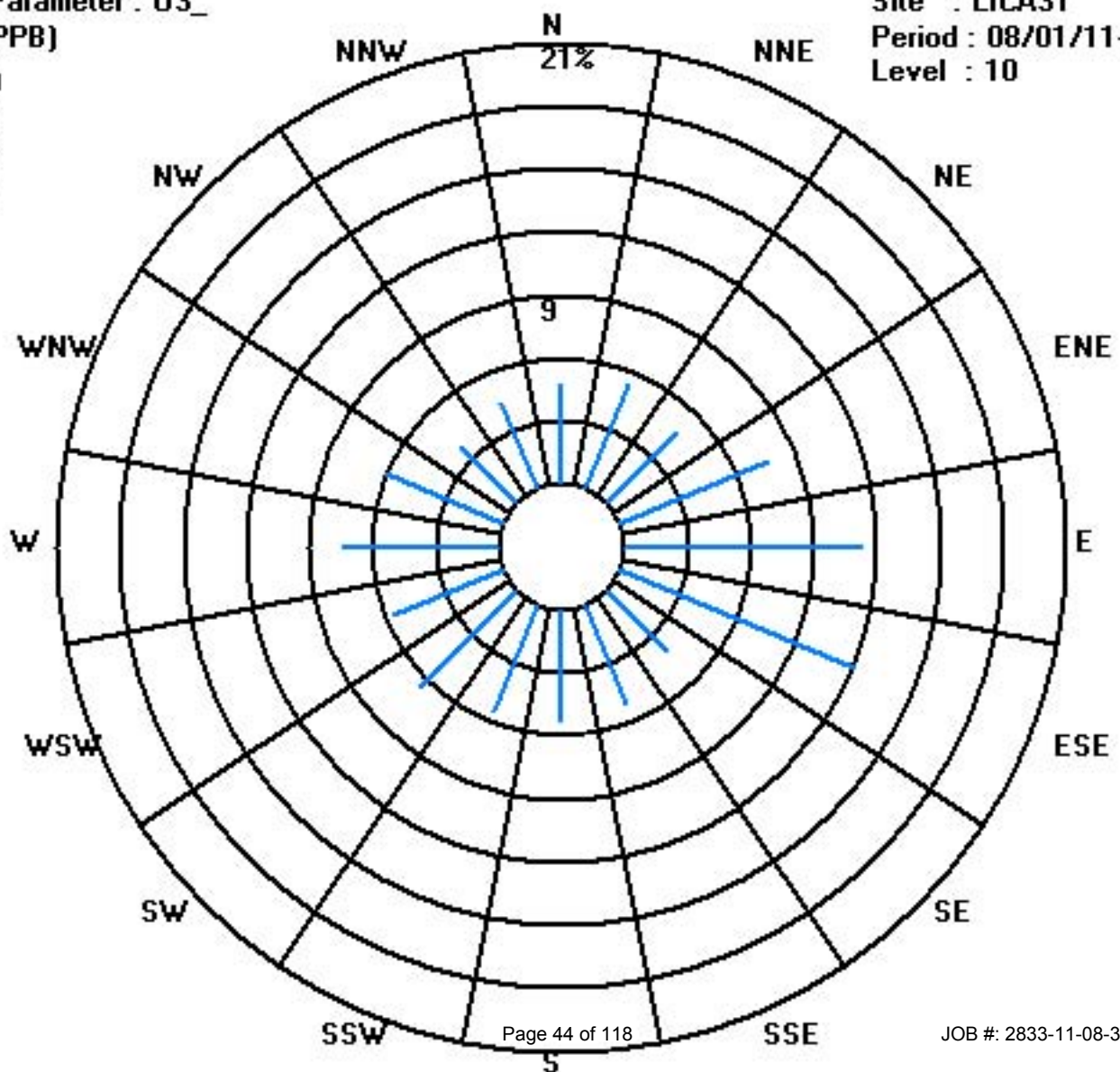
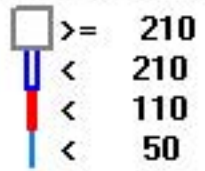
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	34	38	34	54	80	85	29	36	38	39	46	40	52	43	27	31	706
< 110																	
< 210																	
>= 210																	
Totals	34	38	34	54	80	85	29	36	38	39	46	40	52	43	27	31	

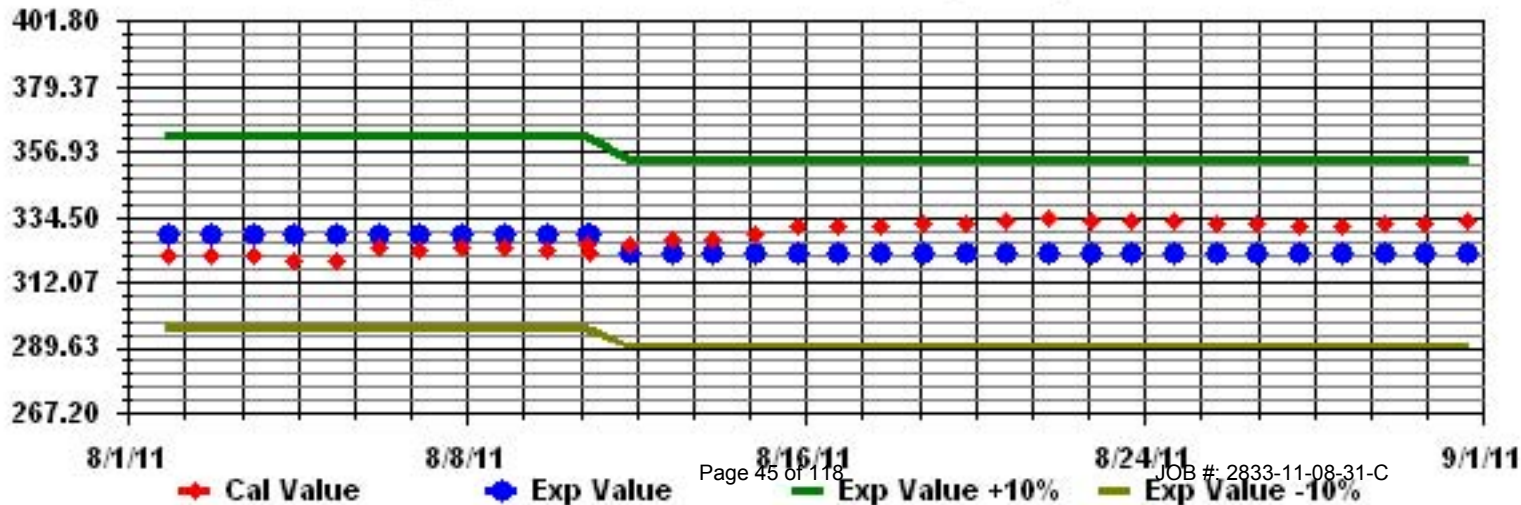
Calm : .00 %

Total # Operational Hours : 706

Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: 03_ Sequence: 03 Phase: SPAN



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	MAX.	AVG.	RDGS.	
DAY																												
1	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	IZS	1	1	1	0.5	24	
2	1	1	1	1	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1	2	2	IZS	2	2	2	2	1.0	24
3	3	2	3	3	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	3	1.5	24	
4	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	0	0	1	1	1	IZS	1	1	1	1	0.8	24	
5	1	2	2	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	2	2	2	1.3	24	
6	2	1	1	2	3	3	2	2	1	2	1	2	2	1	1	1	0	IZS	0	0	0	1	0	1	3	1.3	24	
7	1	1	2	3	2	1	0	0	1	1	0	1	0	0	1	0	IZS	0	0	0	1	1	1	1	3	0.8	24	
8	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	IZS	0	0	0	0	1	1	2	2	2	0.7	24	
9	2	1	1	2	2	2	2	1	1	1	1	1	1	1	IZS	0	1	1	1	2	1	1	2	1	2	1.3	24	
10	1	1	1	1	1	1	1	1	C	C	C	C	C	C	C	C	C	C	0	1	1	2	1	1	2	1.0	24	
11	1	2	4	4	5	5	4	2	2	2	2	2	IZS	0	0	0	0	0	0	0	1	0	1	1	5	1.7	24	
12	3	2	1	1	2	1	1	2	3	3	1	IZS	1	1	0	0	0	0	1	1	1	1	1	1	3	1.3	24	
13	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	
14	3	3	3	1	1	2	2	2	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.4	24	
15	1	1	1	1	1	1	0	0	IZS	0	1	0	0	1	0	0	0	0	0	0	1	1	1	1	1	0.5	24	
16	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1.2	24	
17	2	3	2	2	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	3	0.6	24	
18	1	1	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0.2	24	
19	1	1	1	1	IZS	1	2	2	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2	2	0.6	24	
20	2	1	1	IZS	0	0	0	0	1	0	0	1	1	1	1	1	1	0	0	0	1	0	1	1	2	0.6	24	
21	1	1	IZS	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	2	2	1.0	24	
22	1	IZS	2	2	2	2	1	1	2	2	1	1	1	0	0	1	0	0	0	1	2	2	1	2	1	1.1	24	
23	IZS	0	0	1	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	1	2	1	1	1	2	2	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	IZS	0	2	0.9	24	
25	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	IZS	0	0	1	1	0.3	24	
26	0	0	0	1	1	2	2	1	1	0	0	0	0	0	0	0	0	0	0	1	IZS	1	1	2	2	0.6	24	
27	2	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	IZS	1	1	1	1	2	0.9	24	
28	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	0.1	24	
29	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	IZS	1	1	P	C	1	1	1	0.8	23	
30	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	0.1	24	
31	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	1	0.0	24	
HOURLY MAX	3	3	4	4	5	5	4	2	3	3	2	2	2	1	1	1	1	1	1	2	2	2	2	2				
HOURLY AVG	1.2	1.2	1.2	1.3	1.1	1.2	1.1	0.9	0.9	0.8	0.5	0.5	0.5	0.4	0.4	0.3	0.5	0.4	0.5	0.6	0.8	0.8	1.0	1.1				

STATUS FLAG CODES

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

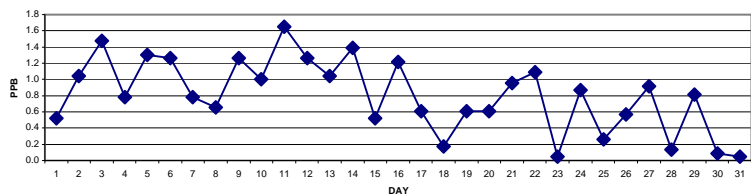
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 159 PPB

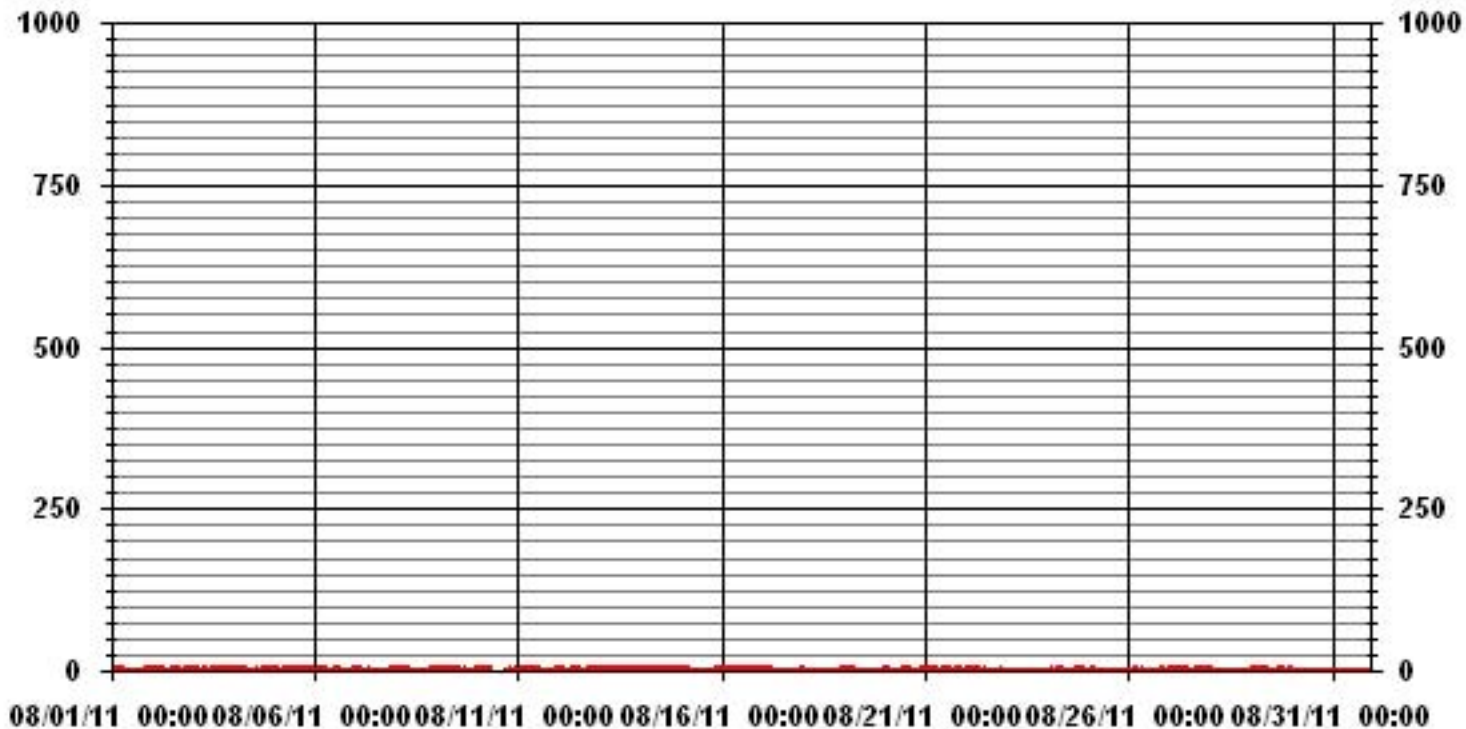
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	444				
MAXIMUM 1-HR AVERAGE:	5	PPB	@ HOUR(S)	4, 5	ON DAY(S) 11
MAXIMUM 24-HR AVERAGE:	1.7	PPB			ON DAY(S) 11
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	11	HRS	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	0.77		MONTHLY AVERAGE:	0.80	PPB

24 HOUR AVERAGES FOR AUGUST 2011



01 Hour Averages



— LICA31 NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	1	1	P	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1	1	3	3	IZS	2	3	1.4	23		
2	2	2	2	2	2	2	2	2	1	2	1	1	28	2	2	11	1	7	2	13	3	IZS	3	3	28	4.2	24	
3	4	3	4	4	2	3	3	3	3	3	2	2	2	2	10	1	1	1	2	2	IZS	2	2	P	10	2.8	23	
4	2	2	2	2	3	2	3	2	2	2	2	2	1	2	1	1	1	2	2	IZS	2	2	2	2	3	1.9	24	
5	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	1	1	IZS	2	2	2	3	2	3	2.0	24	
6	3	2	2	3	5	5	2	2	2	2	2	3	3	3	2	2	1	1	IZS	2	1	3	2	1	1	5	2.3	24
7	2	2	3	4	4	2	1	1	1	1	1	1	1	1	1	1	1	IZS	2	1	1	2	1	2	P	4	1.6	23
8	2	2	2	1	2	2	2	2	2	2	2	1	2	1	2	IZS	1	1	3	1	13	2	4	3	13	2.4	24	
9	3	3	2	3	3	3	3	2	2	2	2	2	2	2	IZS	1	3	2	3	5	2	2	3	2	5	2.5	24	
10	2	2	2	2	2	2	2	3	C	C	C	C	C	C	C	C	C	C	C	3	3	3	3	3	3	2.5	24	
11	3	4	6	6	7	7	6	5	13	4	4	3	IZS	1	1	1	1	1	1	1	1	1	1	2	4	13	3.6	24
12	4	3	2	2	2	3	3	3	4	P	2	IZS	2	2	2	1	2	2	2	2	2	2	2	2	4	2.3	23	
13	2	2	2	2	2	2	1	2	1	2	IZS	1	1	2	2	2	2	1	1	2	3	2	2	3	3	1.8	24	
14	4	4	4	2	2	3	3	3	2	IZS	2	1	2	1	1	1	2	2	2	2	2	P	2	1	4	2.2	23	
15	2	2	1	2	1	1	1	1	IZS	1	2	7	5	2	1	1	1	1	2	1	2	1	1	1	7	1.7	24	
16	1	1	1	1	1	9	1	IZS	2	2	6	2	2	2	2	2	2	2	2	4	2	3	3	3	9	2.4	24	
17	3	3	3	3	2	2	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.4	24	
18	1	1	1	1	1	IZS	1	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13	1.5	24	
19	1	2	2	2	IZS	17	4	3	3	5	1	1	1	1	1	1	1	1	2	2	2	2	3	17	2.6	24		
20	2	2	1	IZS	1	1	1	2	1	1	1	2	1	2	3	2	2	2	1	1	2	1	2	1	3	1.5	24	
21	2	2	IZS	2	2	2	2	2	1	1	1	2	2	2	2	2	1	1	1	2	2	2	2	2	2	1.7	24	
22	2	IZS	3	3	3	4	2	2	12	3	2	1	1	1	1	2	5	2	1	1	3	3	3	2	12	2.7	24	
23	IZS	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	1.0	24
24	3	3	2	2	2	3	3	2	2	2	1	1	1	1	1	1	2	2	4	2	2	2	IZS	1	4	2.0	24	
25	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	1	1	2	1	IZS	1	1	2	1.3	24		
26	1	1	1	2	4	3	4	3	2	2	2	1	3	1	1	1	1	1	1	2	IZS	2	2	2	4	1.9	24	
27	3	2	2	2	2	2	3	2	1	1	1	2	1	1	1	2	2	2	3	IZS	2	2	2	2	3	1.9	24	
28	2	1	2	1	1	1	1	1	1	1	1	1	5	1	1	1	1	2	IZS	1	1	1	1	1	5	1.3	24	
29	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2	IZS	3	2	P	C	2	2	3	1.7	23		
30	2	1	1	1	1	2	2	1	1	1	1	1	2	2	1	1	IZS	0	2	1	2	1	1	1	2	1.3	24	
31	1	1	1	1	1	1	10	2	1	1	1	1	1	1	1	IZS	0	0	0	1	1	1	1	1	10	1.3	24	
HOURLY MAX	4	4	6	6	7	17	10	13	13	5	6	7	28	3	10	11	5	7	4	13	13	3	4	4				
HOURLY AVG	2.2	2.0	2.1	2.2	2.2	3.1	2.5	2.4	2.3	1.8	1.7	1.6	2.7	1.5	1.7	1.6	1.5	1.6	1.7	2.1	2.4	1.8	2.0	1.9				

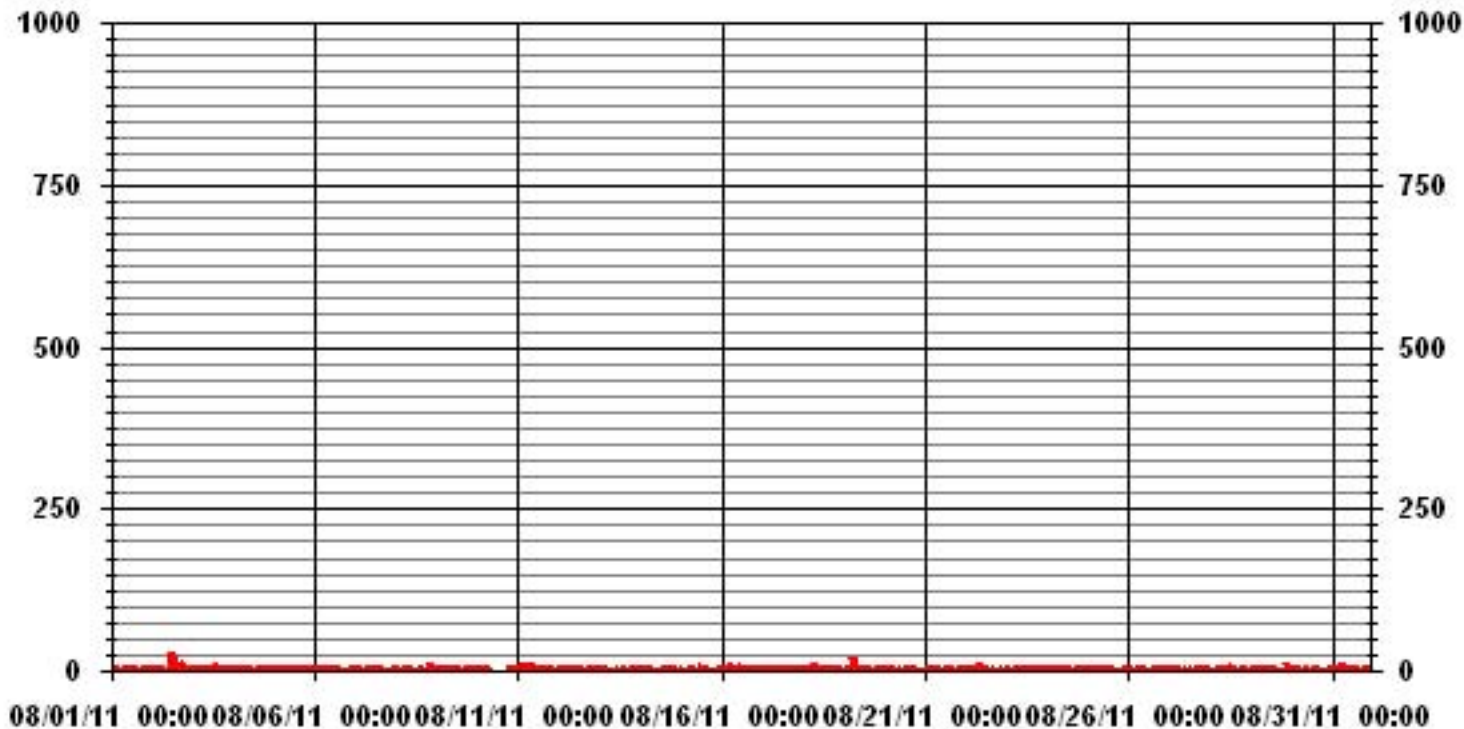
STATUS FLAG CODES

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:	691
MAXIMUM INSTANTANEOUS VALUE:	28 PPB @ HOUR(S) 12 ON DAY(S) 2
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	12 HRS
STANDARD DEVIATION	1.87
OPERATIONAL TIME:	738 HRS

01 Hour Averages



— LICA31 IIO2MAX PPB

LICA31
 NO2_ / WDR Joint Frequency Distribution (Percent)

August 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	4.70	5.41	4.70	7.40	11.25	12.10	4.13	5.55	4.98	5.55	6.55	5.69	7.40	6.26	3.84	4.41	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.70	5.41	4.70	7.40	11.25	12.10	4.13	5.55	4.98	5.55	6.55	5.69	7.40	6.26	3.84	4.41	

Calm : .00 %

Total # Operational Hours : 702

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	33	38	33	52	79	85	29	39	35	39	46	40	52	44	27	31	702
< 110																	
< 210																	
>= 210																	
Totals	33	38	33	52	79	85	29	39	35	39	46	40	52	44	27	31	

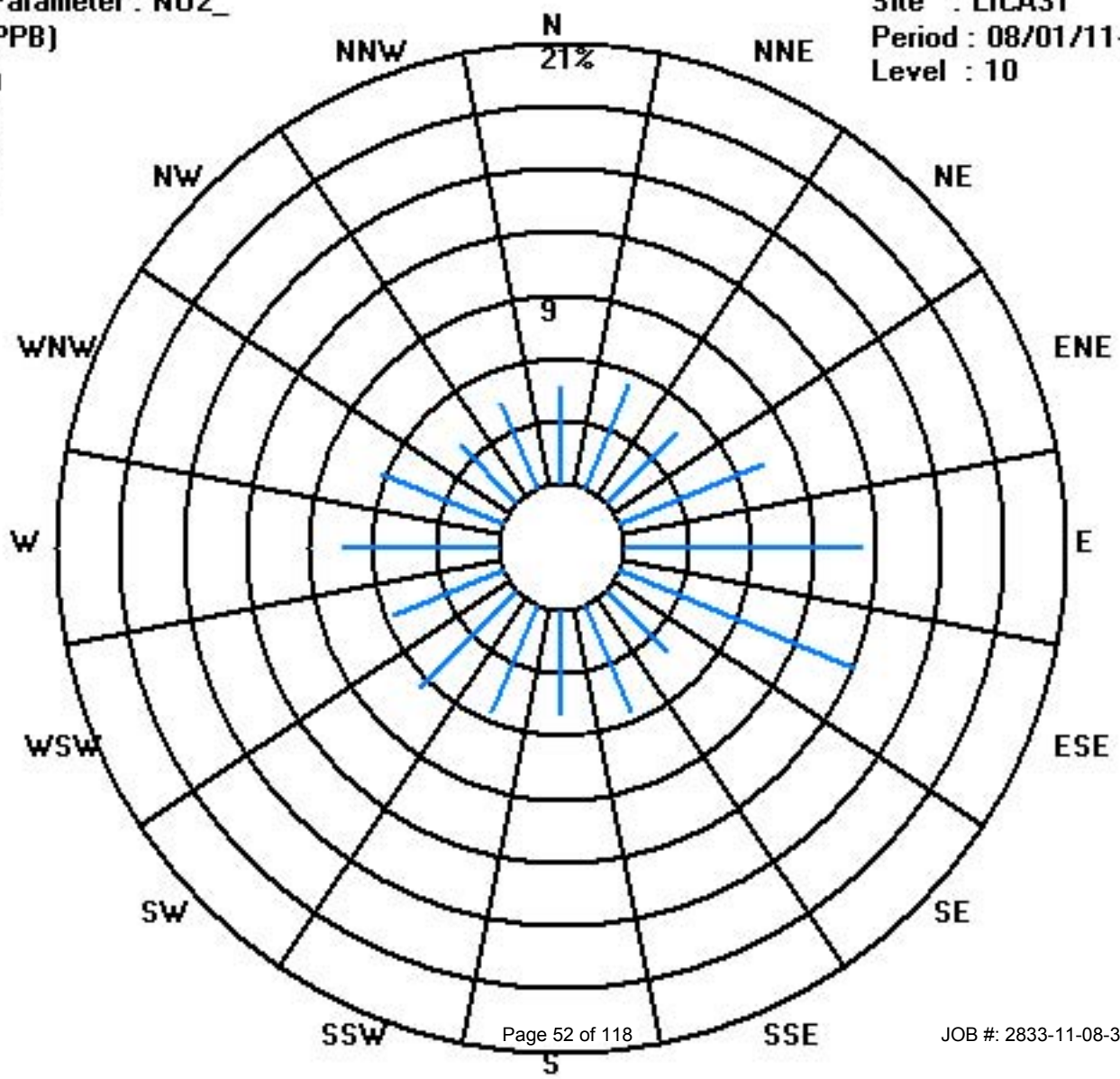
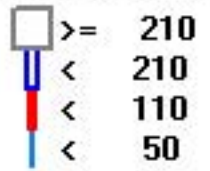
Calm : .00 %

Total # Operational Hours : 702

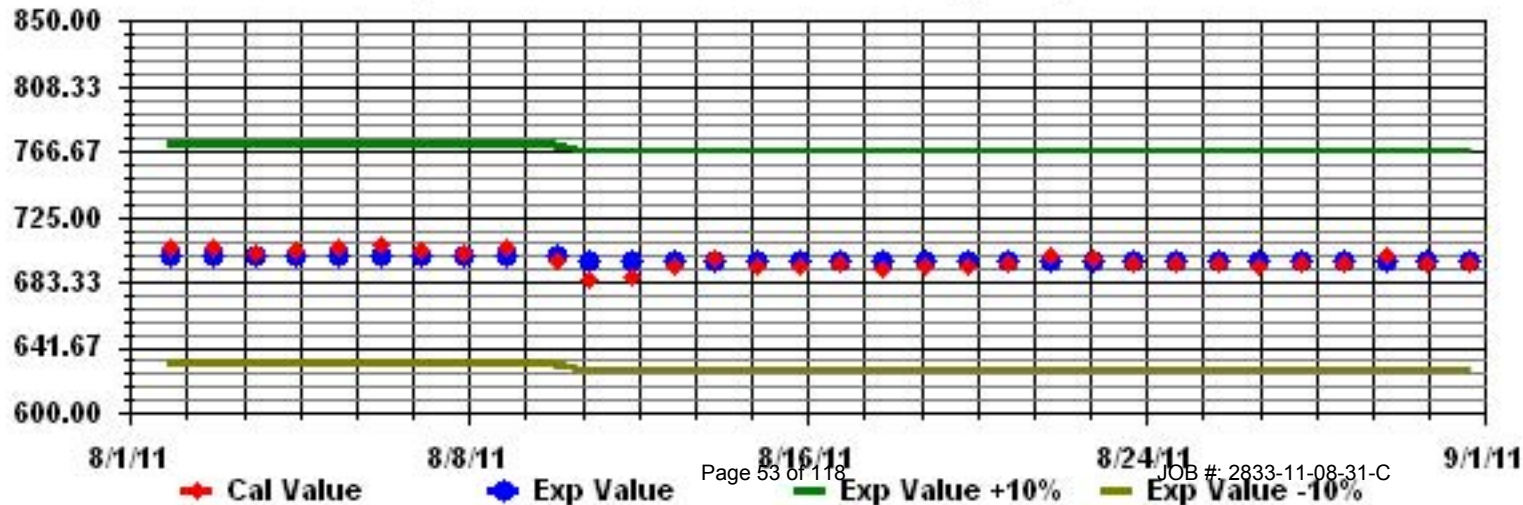
Class Limits (PPB)

Period : 08/01/11-08/31/11

Level : 10



Calibration Graph for Site: LICA31 Parameter: NO2_ Sequence: NO2 Phase: SPAN



Nitric Oxide

LAKELAND INDUSTRY & COMMUNICATY ASSOCIATION - ST. LINA

AUGUST 2011

NITRIC OXIDE hourly averages in ppb

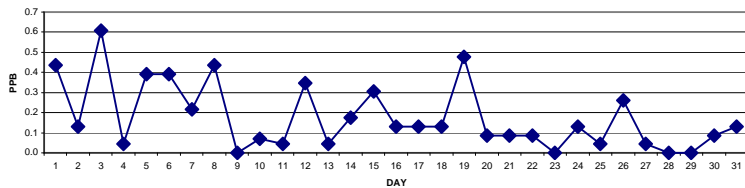
MST

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

STATUS FLAG CODES

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

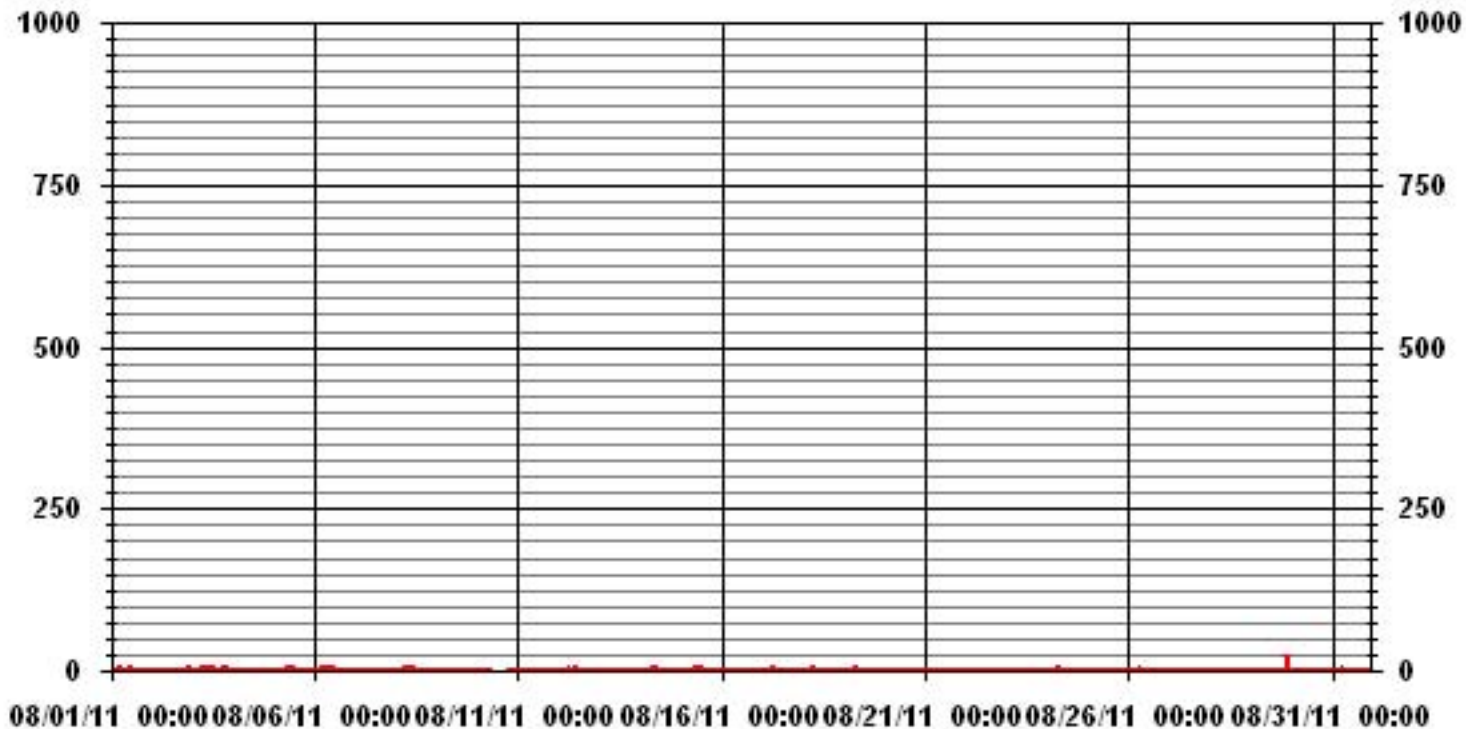
24 HOUR AVERAGES FOR AUGUST 2011



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	115					
MAXIMUM 1-HR AVERAGE:	3	PPB	@ HOUR(S)	6, 7	ON DAY(S)	19
MAXIMUM 24-HR AVERAGE:	0.6	PPB			ON DAY(S)	3
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	11	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	0.43		MONTHLY AVERAGE:	0.18	PPB	

01 Hour Averages



— LICA31 NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	3	1	P	1	1	1	2	1	1	1	2	1	1	1	1	1	3	1	1	1	1	IZS	2	3	3	1.3	23	
2	0	0	0	0	0	0	3	2	1	2	1	1	1	1	2	0	2	0	33	1	IZS	4	1	33	2.4	24		
3	1	1	1	1	1	1	2	5	3	3	2	2	2	18	1	1	1	1	1	IZS	3	0	P	18	2.4	23		
4	0	0	0	0	1	0	5	1	1	1	0	0	0	2	0	0	0	0	0	IZS	3	1	1	1	5	0.7	24	
5	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	IZS	3	1	1	1	1	1	3	1.2	24	
6	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	IZS	2	0	2	1	0	0	2	1.0	24	
7	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	IZS	3	1	1	1	1	1	P	3	0.5	23	
8	1	1	1	1	1	1	2	3	2	4	3	1	3	1	1	IZS	3	1	2	0	27	1	0	0	27	2.6	24	
9	0	0	0	0	1	2	1	1	2	1	0	0	0	0	IZS	3	1	0	0	0	0	0	0	0	0	3	0.5	24
10	0	0	0	0	0	0	0	1	C	C	C	C	C	C	C	C	C	C	C	C	0	0	0	0	0	1	0.1	24
11	0	0	0	0	0	1	1	0	3	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	3	0.7	24	
12	1	1	1	1	1	1	4	3	4	P	1	IZS	2	2	1	1	1	2	1	1	1	1	1	1	4	1.5	23	
13	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
14	1	1	1	1	1	1	1	2	2	IZS	2	1	1	1	1	1	1	1	1	1	1	1	P	1	1	2	1.1	23
15	1	1	1	1	1	1	2	2	IZS	3	4	21	11	3	1	1	2	1	2	1	3	1	1	1	21	2.9	24	
16	0	1	1	1	1	25	1	IZS	2	1	7	1	1	1	1	1	1	1	1	3	1	1	1	1	25	2.4	24	
17	0	1	1	1	1	2	IZS	2	2	2	2	1	1	2	1	2	1	1	1	1	1	1	1	1	2	1.2	24	
18	1	1	1	1	1	IZS	2	24	1	2	1	2	1	1	3	1	1	2	1	1	2	1	1	1	24	2.3	24	
19	1	1	1	1	IZS	47	5	5	3	17	1	2	1	1	1	1	1	3	3	2	2	1	1	47	4.4	24		
20	1	1	1	IZS	2	1	1	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
21	1	1	IZS	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
22	1	IZS	1	1	1	3	1	1	17	2	2	1	1	1	1	1	5	1	1	1	2	1	1	1	17	2.1	24	
23	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	
24	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	1.1	24	
25	1	1	1	1	1	1	2	1	1	1	0	1	1	1	1	1	2	2	3	1	IZS	1	1	3	1.2	24		
26	1	1	1	1	1	4	6	5	3	1	2	1	2	1	1	1	1	1	1	1	IZS	2	1	1	6	1.7	24	
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	0	1	1.0	24	
28	1	1	1	1	1	1	1	1	1	1	1	1	12	1	1	1	1	1	IZS	1	1	1	1	1	12	1.5	24	
29	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	P	C	1	1	1	1.0	23	
30	1	1	1	1	1	2	3	1	1	1	1	1	1	2	2	1	IZS	2	2	1	1	1	1	1	3	1.3	24	
31	1	1	1	1	1	1	15	5	2	1	1	1	2	1	1	IZS	2	1	1	1	1	1	1	1	15	1.9	24	
HOURLY MAX	3	1	1	2	2	47	15	24	17	17	7	21	12	3	18	3	5	3	3	33	27	3	4	2				
HOURLY AVG	0.8	0.8	0.8	0.8	0.9	3.5	2.3	2.6	2.1	2.0	1.4	1.7	1.9	1.2	1.7	1.1	1.2	1.3	1.1	2.2	2.1	1.1	0.9	0.9				

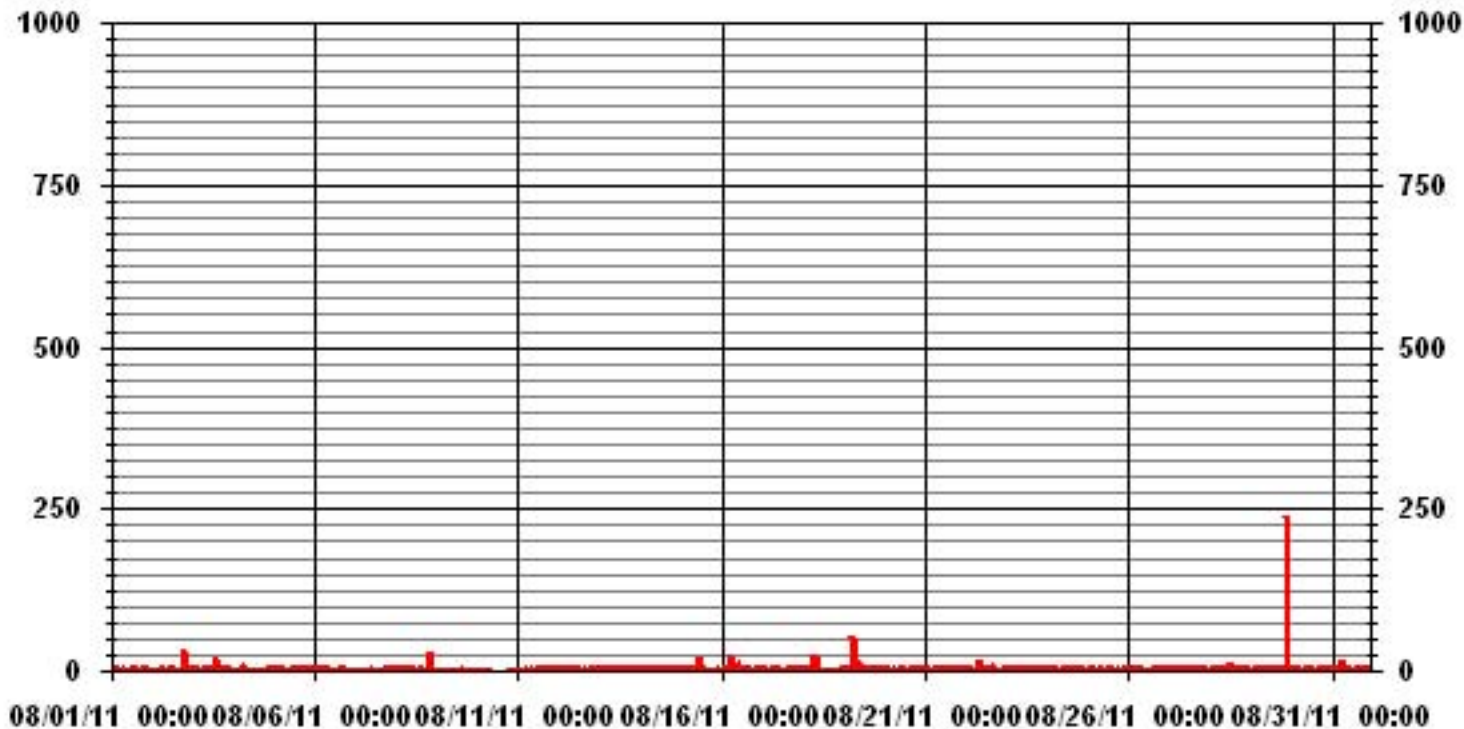
STATUS FLAG CODES

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:	613				
MAXIMUM INSTANTANEOUS VALUE:	47	PPB	@ HOUR(S)	5	ON DAY(S) 19
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	738	HRS
MONTHLY CALIBRATION TIME:	12	HRS			
STANDARD DEVIATION	3.14				

01 Hour Averages



LICA31
 NO_ / WDR Joint Frequency Distribution (Percent)

August 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	4.70	5.41	4.70	7.40	11.25	12.10	4.13	5.55	4.98	5.55	6.55	5.69	7.40	6.26	3.84	4.41	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.70	5.41	4.70	7.40	11.25	12.10	4.13	5.55	4.98	5.55	6.55	5.69	7.40	6.26	3.84	4.41	

Calm : .00 %

Total # Operational Hours : 702

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	33	38	33	52	79	85	29	39	35	39	46	40	52	44	27	31	702
< 110																	
< 210																	
>= 210																	
Totals	33	38	33	52	79	85	29	39	35	39	46	40	52	44	27	31	

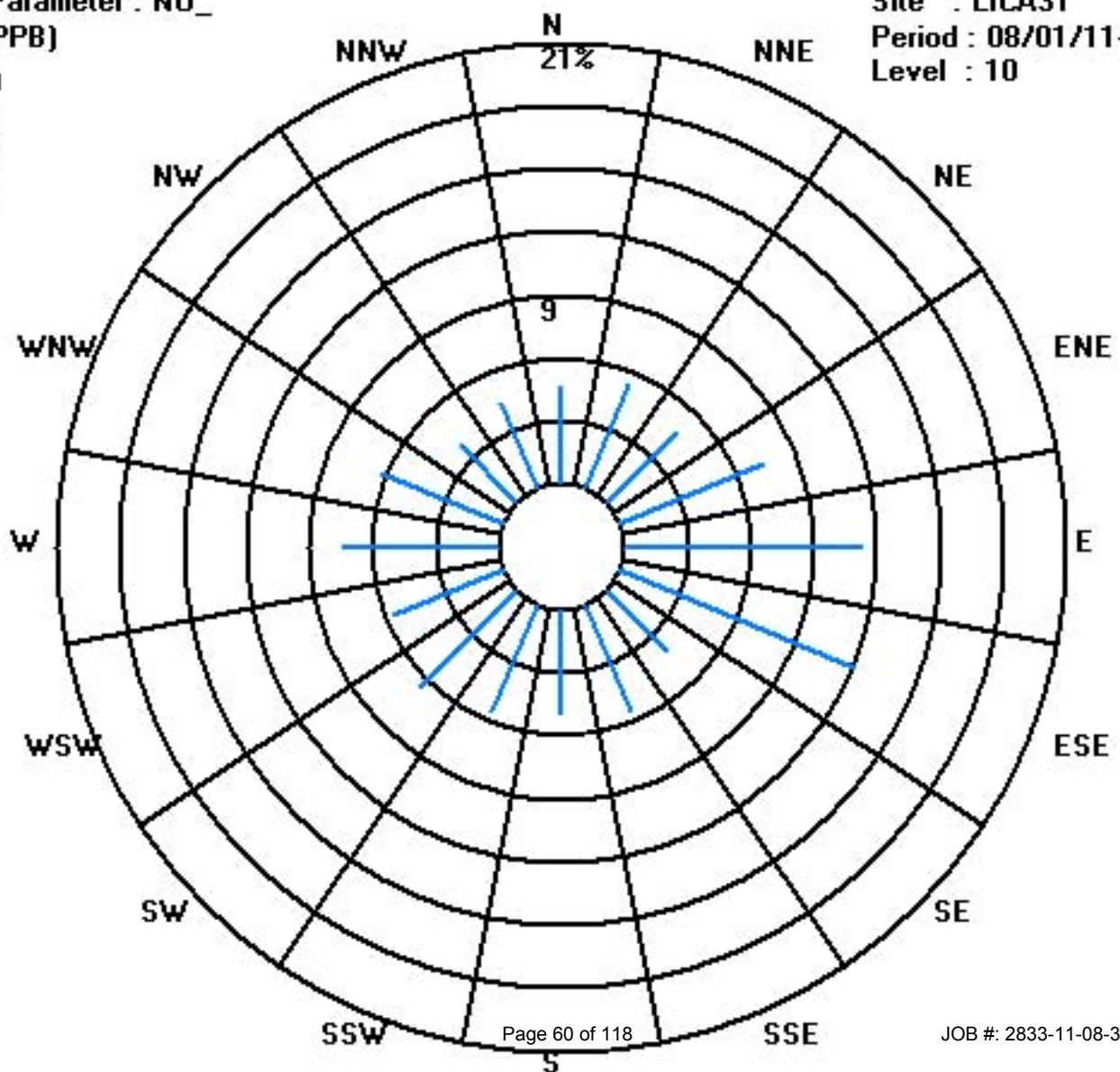
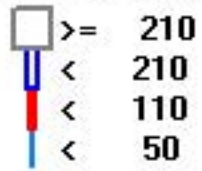
Calm : .00 %

Total # Operational Hours : 702

Class Limits (PPB)

Period : 08/01/11-08/31/11

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2011

OXIDES OF NITROGEN hourly averages in ppb

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
DAY																													
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	1	1	IZS	2	2	0.9	24		
2	2	2	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	3	2	IZS	3	3	3	1.5	24		
3	3	3	4	3	1	2	3	2	3	3	2	2	1	1	1	1	1	1	1	1	1	IZS	2	2	1	4	1.9	24	
4	1	1	1	1	2	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	1	1	1	2	1.2	24
5	2	2	2	2	2	3	2	2	2	2	1	1	1	1	1	1	1	1	1	IZS	1	1	2	2	2	3	1.6	24	
6	2	2	2	2	3	3	2	2	2	2	2	2	2	2	1	1	0	IZS	1	0	1	1	1	1	1	3	1.6	24	
7	1	1	2	3	3	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	1	1	1	1	1	1	3	1.3	24	
8	1	1	1	1	1	2	2	2	1	1	1	1	1	0	0	IZS	2	1	1	1	2	1	2	2	2	2	1.2	24	
9	2	2	1	2	2	3	3	2	2	1	1	1	1	1	1	IZS	2	2	1	1	2	1	1	2	2	3	1.7	24	
10	2	2	1	2	1	2	1	2	C	C	C	C	C	C	C	C	C	C	0	0	1	0	0	0	2	1.0	24		
11	0	1	3	3	4	4	4	2	2	1	1	1	IZS	0	0	0	0	0	0	0	0	0	1	1	4	1.2	24		
12	2	2	1	1	1	2	2	3	4	3	1	IZS	1	1	1	0	1	1	1	1	1	1	1	1	1	4	1.4	24	
13	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1.0	24	
14	3	3	3	1	1	2	2	3	2	IZS	3	2	2	2	2	2	2	2	2	2	2	1	2	2	1	3	2.0	24	
15	2	2	2	1	2	2	2	2	IZS	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	2	1.1	24	
16	0	0	0	1	1	1	1	IZS	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	0.4	24	
17	0	1	1	1	0	0	IZS	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0.3	24		
18	0	0	0	0	0	IZS	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	2	2	1.0	24	
19	2	2	2	2	IZS	3	5	5	3	1	0	0	0	0	0	0	0	0	1	0	1	0	0	2	5	1.3	24		
20	1	1	1	IZS	1	0	0	1	1	1	0	1	1	1	1	1	1	0	0	0	1	0	0	1	1	0.7	24		
21	1	1	IZS	2	1	1	1	1	1	0	0	1	1	1	1	0	1	1	1	1	1	1	1	2	2	1.0	24		
22	1	IZS	2	2	2	2	1	1	2	2	1	0	1	0	0	0	1	0	0	0	1	2	2	1	2	1.0	24		
23	IZS	0	0	1	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	1	2	1	1	1	2	2	2	1	1	1	0	1	0	0	0	1	1	2	1	1	1	IZS	1	2	1.0	24		
25	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	IZS	2	1	2	0.5	24	
26	1	1	1	2	2	3	4	4	3	2	1	1	1	1	1	1	1	1	1	2	IZS	2	3	3	4	1.8	24		
27	3	2	2	2	2	2	3	2	2	2	2	2	1	1	1	2	2	2	IZS	2	2	2	2	2	3	1.9	24		
28	2	1	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	IZS	1	1	1	1	1	2	1.1	24		
29	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	IZS	2	1	P	C	1	1	2	1.6	23			
30	1	1	0	0	0	0	1	0	1	0	0	0	0	1	0	0	IZS	1	1	1	1	1	1	1	1	0.5	24		
31	1	1	1	1	1	1	3	2	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	3	0.8	24		
HOURLY MAX	3	3	4	3	4	4	5	5	4	3	3	2	2	2	2	2	2	2	2	3	2	2	3	3					
HOURLY AVG	1.4	1.4	1.4	1.5	1.4	1.6	1.8	1.8	1.6	1.1	0.9	0.9	0.9	0.8	0.7	0.6	0.8	0.8	0.8	0.9	1.0	1.0	1.3	1.3					

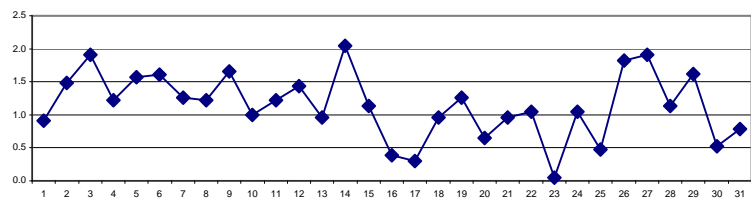
STATUS FLAG CODES

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

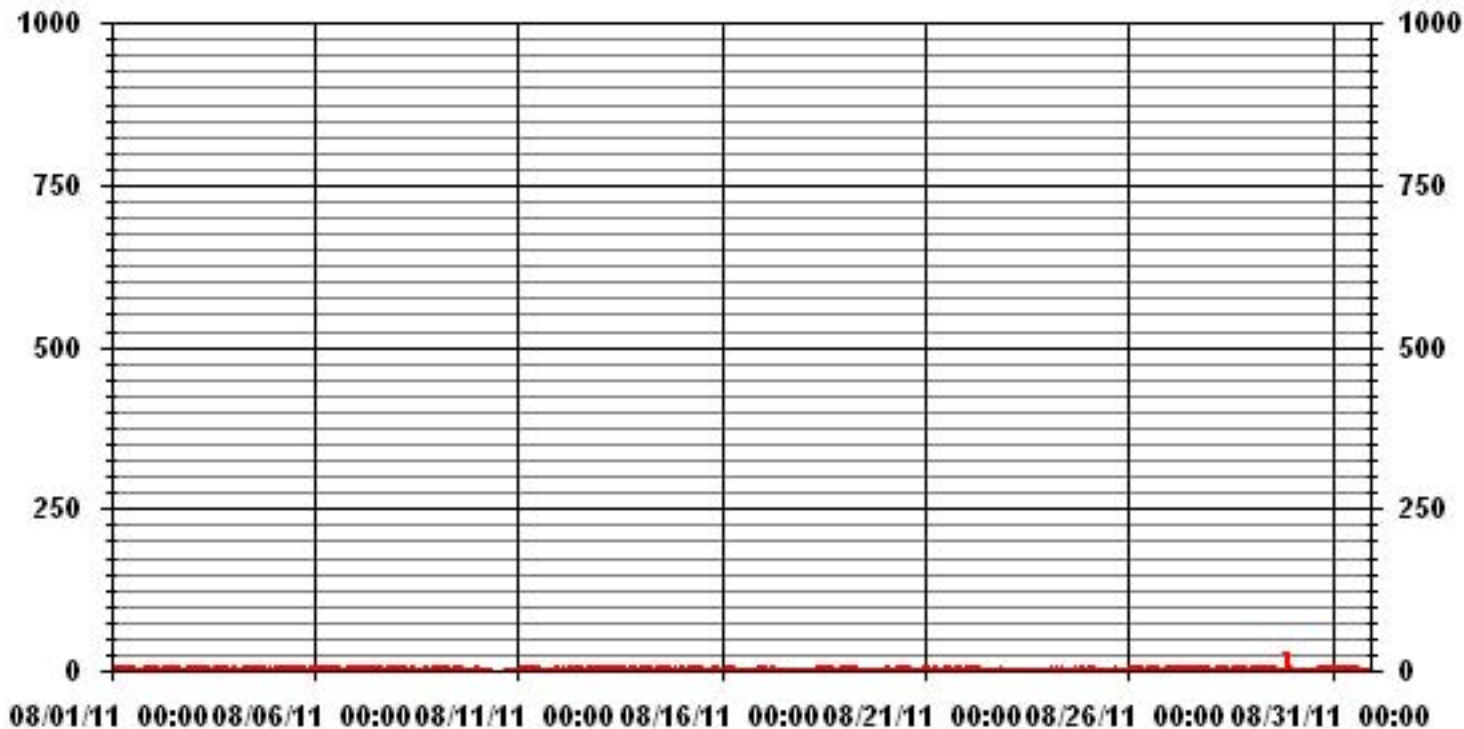
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	552					
MAXIMUM 1-HR AVERAGE:	5	PPB	@ HOUR(S)	6.7	ON DAY(S)	19
MAXIMUM 24-HR AVERAGE:	2.0	PPB			ON DAY(S)	14
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	11	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	0.86		MONTHLY AVERAGE:	1.15	PPB	

24 HOUR AVERAGES FOR AUGUST 2011



01 Hour Averages



— LICA31 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2011

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	2	2	P	2	2	2	2	2	2	2	2	2	1	1	1	1	1	3	1	2	3	4	IZS	4	4	4	2.0	23
2	3	2	2	2	2	2	6	3	2	4	2	3	30	3	2	13	2	8	2	42	4	IZS	5	4	42	6.4	24	
3	4	4	5	4	2	3	3	7	5	6	3	3	3	3	24	2	1	1	2	3	IZS	3	2	P	24	4.2	23	
4	2	2	2	2	4	3	8	3	3	2	2	2	2	3	2	2	2	2	3	IZS	3	2	2	2	8	2.6	24	
5	2	3	2	3	3	3	3	3	3	2	2	2	2	2	1	1	2	IZS	3	2	2	3	3	3	3	2.3	24	
6	3	2	2	3	6	6	3	3	3	3	3	3	3	3	2	2	1	IZS	3	1	5	3	1	2	6	2.9	24	
7	1	2	3	4	4	3	1	2	2	2	2	2	1	2	2	2	IZS	3	2	1	2	2	2	P	4	2.1	23	
8	2	2	2	2	2	2	3	3	3	4	4	2	4	1	2	IZS	5	2	5	2	39	3	4	3	39	4.4	24	
9	3	2	2	3	4	6	4	3	4	2	2	2	2	2	IZS	4	4	2	4	5	2	2	3	2	6	3.0	24	
10	2	2	2	2	2	3	2	4	C	C	C	C	C	C	C	C	C	C	C	2	2	1	1	1	4	2.0	14	
11	1	2	3	4	4	5	5	3	14	2	2	1	IZS	1	1	1	1	1	1	1	1	1	1	4	14	2.6	24	
12	4	3	2	2	2	3	6	6	7	P	2	IZS	3	4	1	2	2	4	3	2	2	2	2	2	7	3.0	23	
13	2	2	2	2	2	2	2	2	2	2	2	IZS	2	1	1	2	2	1	1	1	2	2	2	3	3	1.8	24	
14	3	4	4	2	2	3	3	4	3	IZS	3	2	2	3	2	2	2	2	3	3	2	P	2	2	4	2.6	23	
15	3	2	2	2	2	2	4	3	IZS	4	5	23	15	4	1	1	2	2	3	1	4	1	1	1	23	3.8	24	
16	1	1	1	1	2	30	2	IZS	2	1	7	1	1	1	1	1	1	1	1	6	2	3	1	1	30	3.0	24	
17	1	2	2	2	1	2	IZS	2	2	2	1	1	3	1	2	1	1	1	1	1	1	1	1	1	3	1.4	24	
18	1	1	1	1	1	IZS	4	36	2	3	2	3	2	2	5	1	1	3	2	2	4	2	3	2	36	3.7	24	
19	3	2	3	2	IZS	60	8	7	4	21	1	2	1	1	1	1	1	3	4	3	3	2	3	60	6.0	24		
20	2	2	2	IZS	2	1	1	3	1	1	1	1	2	2	4	3	2	1	1	2	1	1	1	1	4	1.7	24	
21	1	1	IZS	3	2	2	2	2	1	1	1	2	2	2	2	2	1	1	1	2	2	2	2	2	3	1.7	24	
22	2	IZS	3	3	3	6	2	2	28	4	4	1	1	1	1	3	10	2	1	0	4	3	2	2	28	3.8	24	
23	IZS	1	1	1	1	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	1.1	24	
24	2	3	2	2	2	3	4	3	2	2	2	1	1	1	1	1	2	2	5	2	2	2	IZS	2	5	2.1	24	
25	1	2	1	1	1	3	2	1	1	1	1	1	1	2	1	1	2	2	3	3	1	IZS	2	2	3	1.6	24	
26	2	2	2	3	5	8	9	8	5	4	4	2	5	2	2	2	2	3	2	2	IZS	3	3	3	9	3.6	24	
27	3	3	3	3	3	3	4	3	3	3	3	3	2	2	2	2	3	3	3	IZS	3	3	3	3	4	2.9	24	
28	3	2	3	2	2	2	2	2	2	2	2	16	2	2	2	2	2	3	IZS	2	2	2	2	16	2.7	24		
29	3	3	3	3	3	3	3	3	3	2	3	2	2	2	2	2	3	IZS	3	1	P	C	2	2	3	2.5	22	
30	2	1	1	1	1	3	3	2	2	1	1	2	3	3	2	1	IZS	2	4	2	3	2	1	2	4	2.0	24	
31	2	2	2	2	2	3	24	7	3	2	2	3	3	3	2	IZS	1	0	0	0	2	1	1	1	24	3.0	24	
HOURLY MAX	4	4	5	4	6	60	24	36	28	21	7	23	30	4	24	13	10	8	5	42	39	4	5	4				
HOURLY AVG	2.2	2.1	2.2	2.3	2.5	6.0	4.2	4.4	4.0	3.1	2.4	2.7	4.0	2.0	2.6	2.1	2.1	2.1	2.3	3.4	3.8	2.1	2.0	2.2				

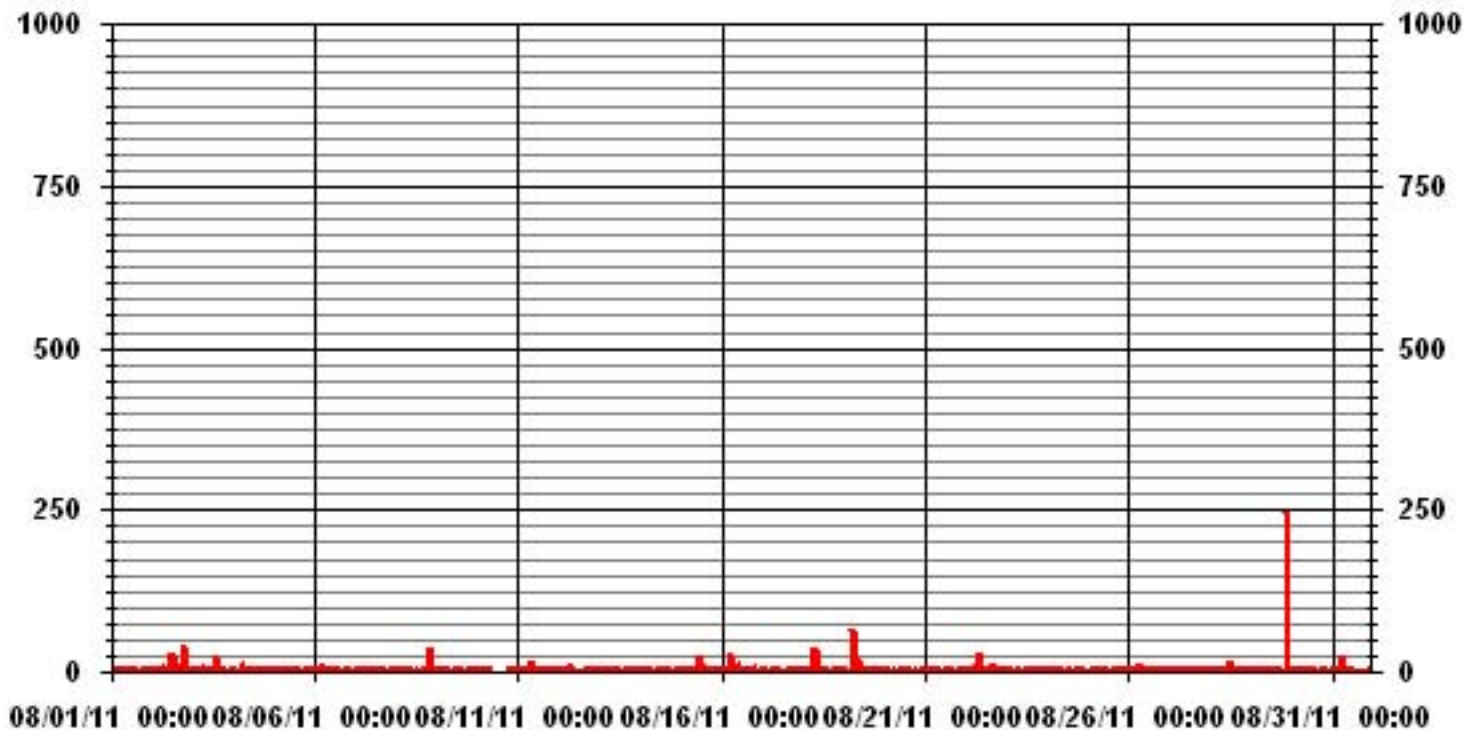
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	691
MAXIMUM INSTANTANEOUS VALUE:	60 PPB @ HOUR(S) 5 ON DAY(S) 19
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	12 HRS
STANDARD DEVIATION:	4.29
OPERATIONAL TIME:	727 HRS

01 Hour Averages



LICA31
 NOX_ / WDR Joint Frequency Distribution (Percent)

August 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	4.70	5.41	4.70	7.40	11.25	12.10	4.13	5.55	4.98	5.55	6.55	5.69	7.40	6.26	3.84	4.41	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.70	5.41	4.70	7.40	11.25	12.10	4.13	5.55	4.98	5.55	6.55	5.69	7.40	6.26	3.84	4.41	

Calm : .00 %

Total # Operational Hours : 702

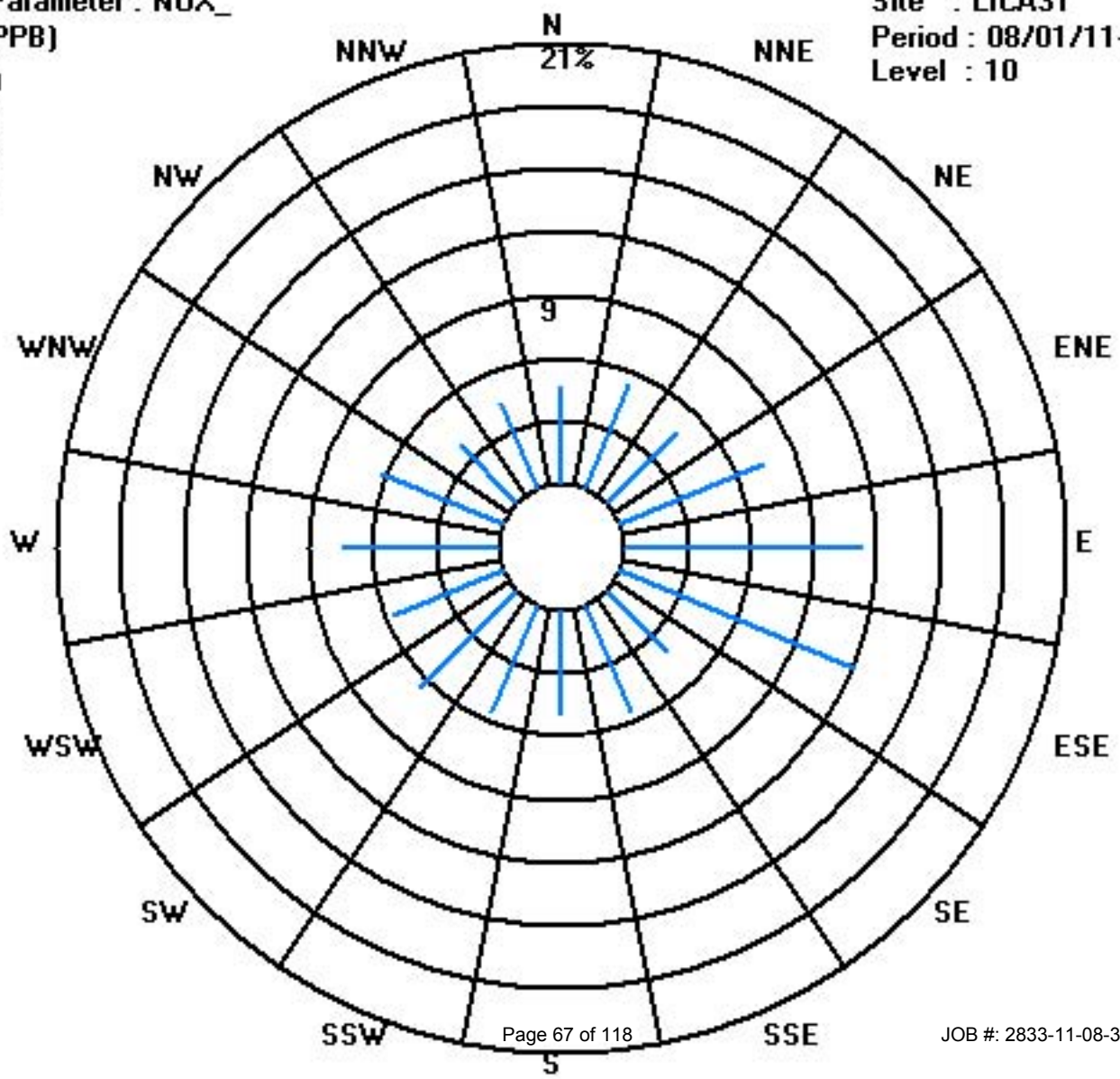
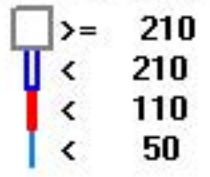
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	33	38	33	52	79	85	29	39	35	39	46	40	52	44	27	31	702
< 110																	
< 210																	
>= 210																	
Totals	33	38	33	52	79	85	29	39	35	39	46	40	52	44	27	31	

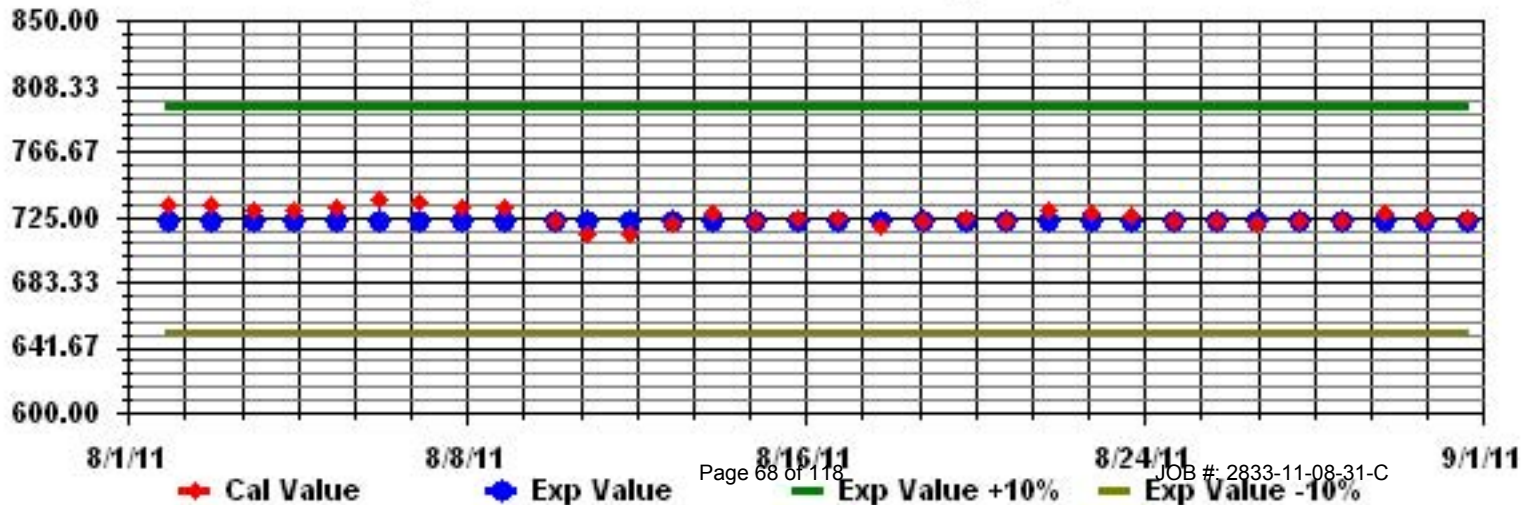
Calm : .00 %

Total # Operational Hours : 702

Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: NOX_ Sequence: NO2 Phase: SPAN



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2011

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY MAX.	24-HOUR AVG.	RDGS.		
DAY																															
1		1.1	0	0	2	5.4	3.9	2.5	2.6	2.6	3.1	1.6	0.9	2.4	1.4	2.4	0.8	2.1	3.1	2.1	2.1	3.9	4.7	3.3	2.3	5.4	2.3	24			
2		2.5	2.3	1.1	4.4	3.3	2.1	3.8	4.2	6	1	2.4	0.4	2.8	4.3	2.5	3.4	2.3	3.4	5	4	5.1	6	4.8	6.0	3.4	24				
3		6.3	4.8	6.5	6.4	3.5	7	5.8	5.6	4.7	5.3	7.3	2.1	11.6	7.9	3.2	2.6	2.4	6.4	4.2	0.8	2.6	4	3.8	0.4	11.6	4.8	24			
4		0.2	2.6	2.8	2.6	3.6	4.2	3	3.2	1.9	3.5	3.5	1.5	3.7	0.8	4.3	4.3	3.5	2.6	6.3	3.9	1.4	9.6	4.3	6.7	9.6	3.5	24			
5		5.6	5.5	4.1	4.7	5.2	6	4.6	5.3	7.7	5.3	5.3	3.3	5.6	1.2	10.6	7.1	6	5.5	5.5	5.7	11.3	15.4	7.6	9.3	15.4	6.4	24			
6		6	4.6	7	4.8	9.2	9.8	7.5	8.3	8.1	3.1	3.6	4.4	1.9	2.3	1.2	3.6	10.1	10.4	8.1	N	1.1	3.6	5.2	3.4	10.4	5.5	23			
7		4.5	3.5	2.5	3	4.9	3.2	2.4	2.6	1.7	0.3	3	1.1	4.3	4.1	4.2	2.1	4.1	4.3	2.8	5.4	7.4	5.8	8.3	0	8.3	3.6	24			
8		3.1	10.4	9.4	6.8	7	5.9	9.1	6.6	9.4	5.5	5.1	5.4	6.5	0	3.2	2.2	3.8	3.5	2.2	4.7	3.4	0.4	2.8	7.4	10.4	5.2	24			
9		7	6.1	6.4	6.2	7.8	5.6	7.1	10.8	12.3	12.4	6.9	8.8	3.3	17.4	6.7	6.9	6.3	6.3	5.8	6.3	11.9	4.5	8.6	5.4	17.4	7.8	24			
10		6.2	8	5.3	8.6	7.9	4.5	5.8	8.8	9.8	6.5	8.4	6.8	7.1	6.3	7.6	6.6	11	7.6	10.9	7	4.6	8.8	11	6.7	11.0	7.6	24			
11		5.7	6.6	8.4	8.7	11.4	9.4	11.4	9.6	10.4	C	C	C	9	15.1	4	7.7	7.4	6.1	3.8	5.8	11.1	12.3	1.3	4	15.1	8.1	24			
12		6.8	8.3	5.8	6.1	8.6	9.5	6.3	9.5	13.2	0	4.5	7.1	10.6	N	0	10.3	10.1	6.1	11.6	16.3	28.1	9.9	8.7	8.4	28.1	8.9	23			
13		7.1	10.1	10.6	9.2	6.9	8.3	9.9	10	8	6.5	5.8	3.6	8.2	14	21.9	8.7	7.1	8.3	8.6	9.1	0	11.1	10.7	8.4	21.9	8.8	24			
14		5.4	8.6	7.9	8.7	9	8.5	12.3	9.1	10.6	4.5	7.1	6.6	16	8.1	16	23.1	10	9.6	13.5	8.6	1.1	0	3.1	8.6	23.1	9.0	24			
15		4.9	4.7	6.1	2	2.6	2.6	2.2	1.3	4.1	4.2	0	0	3.2	3.6	2.1	0	0	2.2	4.9	3.4	3.3	1.9	2.5	0.6	6.1	2.6	24			
16		2.9	3.3	2.8	4.3	5.4	1.3	0	3.3	2.6	3.6	2	4.1	0.1	0	3.8	1.9	5.7	1.3	0.1	6.1	4.4	5.2	7.1	6.3	7.1	3.2	24			
17		5.6	4.4	3.1	1.4	3.4	2.3	2.4	2.9	4.5	4.4	1.8	5.9	0	2.1	3	3.8	N	0.8	3.5	3.9	3.3	3.9	1.9	2.4	5.9	3.1	23			
18		3.8	6	5	4.3	2.7	0	6.4	3.2	2.9	6.3	2.9	1.8	1.4	3.2	4	2.1	2.5	3.5	3.1	2	1.1	1.5	2.8	3.2	6.4	3.2	24			
19		3.8	2.9	3.8	7	3.2	6.2	5	9	2.6	4.6	4.9	4.8	2.7	3.2	6.1	3.3	4.5	2.6	2.9	1.5	3.4	3.4	1.5	2.4	9.0	4.0	24			
20		4.2	5.3	4.1	7	4.8	5.5	4.5	1.9	3.3	3	1.2	4.6	6.3	2.7	6.5	5.1	0	6.4	3.9	0.4	0	4.3	3	4.6	7.0	3.9	24			
21		4.5	5.7	6.4	6	7.3	5.3	4.7	4.4	5.7	7.3	3.3	5.7	4.3	8.6	7.9	6.5	5.9	8.1	7.9	13.5	12.3	N	N	3.9	13.5	6.6	22			
22		9.9	7.8	7.8	6.8	7	9.4	5.1	3.9	6.3	6.5	4.3	7.8	4.6	8.4	7.4	3.2	2	N	1.8	9.4	8.3	10.3	5	3.6	10.3	6.4	23			
23		5.9	5.4	3.3	3	4.4	5.7	4.2	2.8	5.7	0.9	0	2.5	4.2	3.3	3.5	2.3	3.5	4.3	2.8	1.3	2.5	2.3	3.1	6.5	6.5	3.5	24			
24		4	2.4	4	4.8	3.5	6.1	3.1	1.1	1.4	2	5.8	3.2	5.3	5.8	5.8	5.1	8.5	5.5	6.9	2.7	8.9	8.4	7.7	6.8	8.9	5.0	24			
25		3.1	2.4	2.6	5.4	1.7	3.3	5.7	7.7	4.1	2.9	0	2.1	2.7	3.1	1.8	1.3	1.9	0	0.4	2.4	4.5	3.6	6.1	8	8.0	3.2	24			
26		6.8	4.9	2.4	4.9	5.2	3.4	1.8	2.3	5	3.7	2.9	1.7	3.2	3.4	4.8	3.6	2.9	2.2	5.8	2.1	4	5	6.9	7.1	7.1	4.0	24			
27		7.4	9.8	9.8	7.4	6.8	6.7	5.7	6	2.9	1.3	3.1	7.5	5.2	5.7	5.8	8.2	6.7	4.7	11.6	16.3	6.8	5.4	7.6	5.2	16.3	6.8	24			
28		6.7	7	6.3	9.1	6.7	6.4	7.6	2	5.5	9.1	5.3	2.1	3.9	5.1	3.5	1.7	2.9	2.8	4.5	2.3	2.6	3	5.9	6.8	9.1	5.0	24			
29		5.2	5.7	6.2	5.2	5.8	6.5	4.3	4.5	6.1	3.3	5.4	5.9	5.4	7.8	7.8	9.3	10.7	0	N	6.4	P	0	2.5	4.5	10.7	5.4	22			
30		6.4	5.2	4.2	4.1	2	3.3	2.6	6.6	4.9	4.9	6.3	6	4.4	4.3	0.6	3.2	5.1	3.6	2.2	2.4	3.4	2.3	4.3	4	6.6	4.0	24			
31		5.6	4.3	3.2	9.4	12.3	5.1	0	0.6	4.4	6	4.1	3.7	5.8	5.1	3.8	2.3	1.5	0.2	4.4	3.5	5.4	6.6	2.6	0.4	12.3	4.2	24			
HOURLY MAX		10	10	11	9	12	10	12	11	13	12	8	9	16	17	22	23	11	10	14	16	28	15	11	9						
HOURLY AVG		5.1	5.4	5.1	5.6	5.8	5.4	5.1	5.2	5.8	4.4	3.9	4.0	5.0	5.3	5.4	4.9	5.0	4.4	5.2	5.3	5.5	5.4	5.2	4.9						

STATUS FLAG CODES

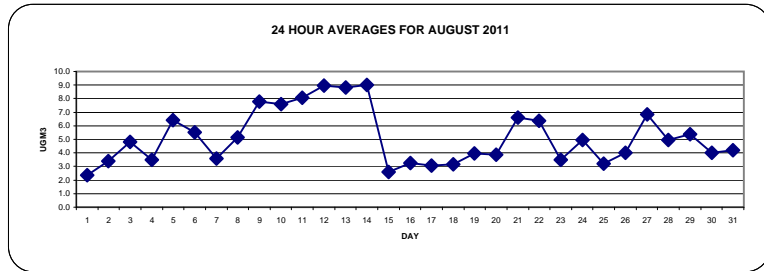
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

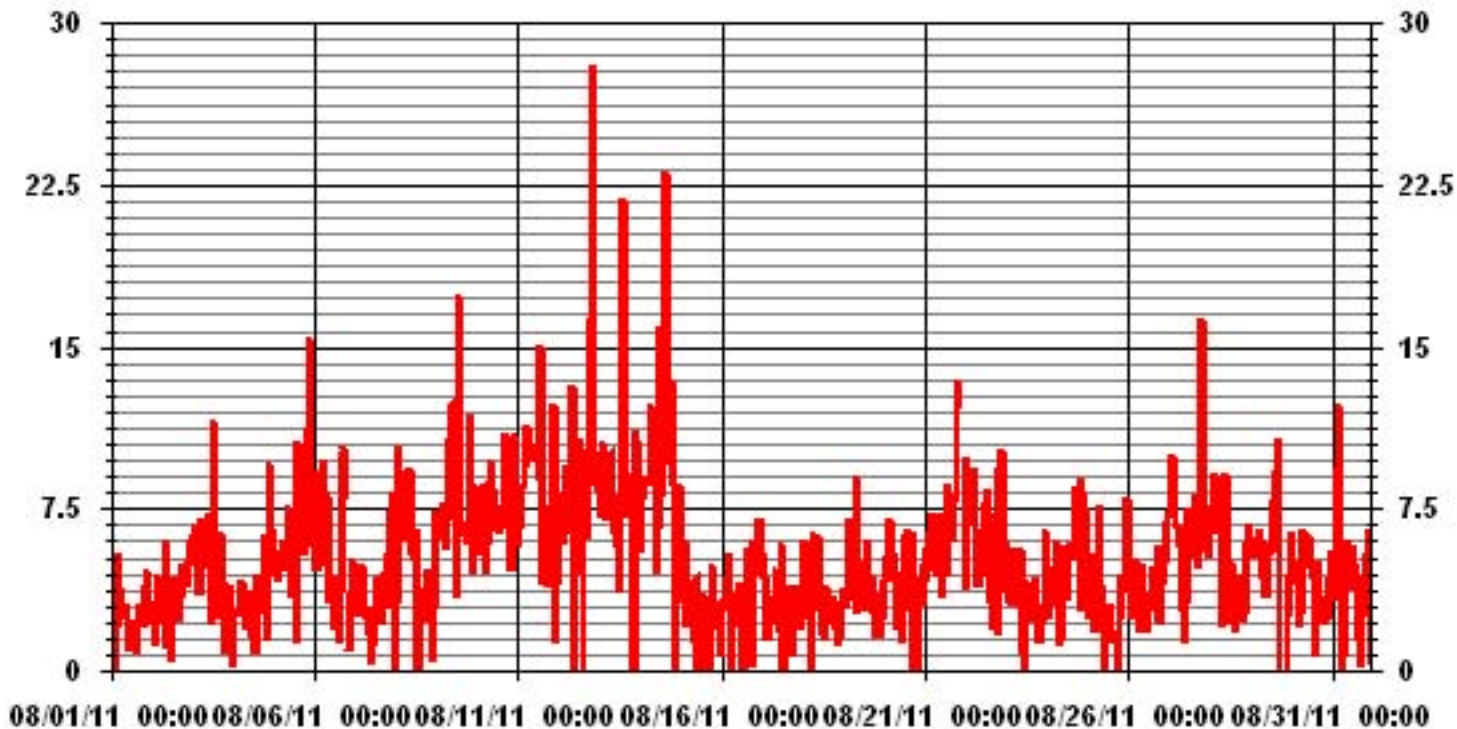
ALBERTA ENVIRONMENT: 1-HR - ug/m³ 24-HR 30 ug/m³

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-					
NUMBER OF 24-HR EXCEEDENCES:	0	PROPOSED CANADA WIDE GUIDELINE				
NUMBER OF NON-ZERO READINGS:	709					
MAXIMUM 1-HR AVERAGE:	28.1	UG/M ³	@ HOUR(S)	20	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	9.0	UG/M ³			ON DAY(S)	14
IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	736	HRS	
MONTHLY CALIBRATION TIME:	3	HRS	AMD OPERATION UPTIME:	98.9	%	
STANDARD DEVIATION:	3.24		MONTHLY AVERAGE:	5.10	UG/M ³	



01 Hour Averages



— LICA31 PM2 UG/M3

LICA31
 PM2 / WDR Joint Frequency Distribution (Percent)

August 2011

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : PM2
 Units : UG/M3

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	4.50	5.59	4.91	7.63	11.18	12.27	4.09	5.18	5.18	5.59	6.41	5.72	7.63	5.86	3.81	4.36	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	4.50	5.59	4.91	7.63	11.18	12.27	4.09	5.18	5.18	5.59	6.41	5.72	7.63	5.86	3.81	4.36	

Calm : .00 %

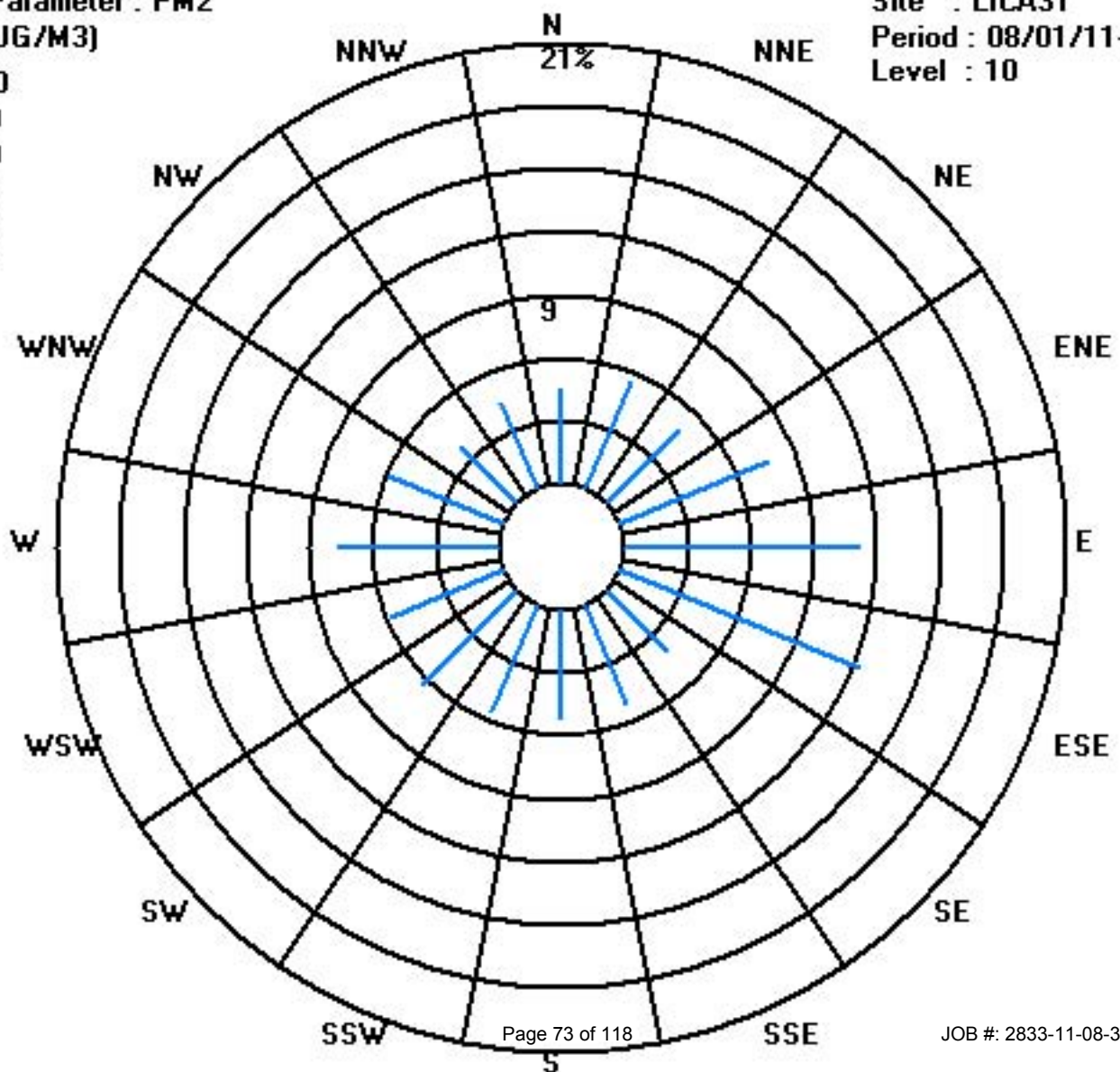
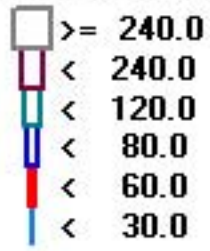
Total # Operational Hours : 733

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	33	41	36	56	82	90	30	38	38	41	47	42	56	43	28	32	733
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	33	41	36	56	82	90	30	38	38	41	47	42	56	43	28	32	

Calm : .00 %

Total # Operational Hours : 733



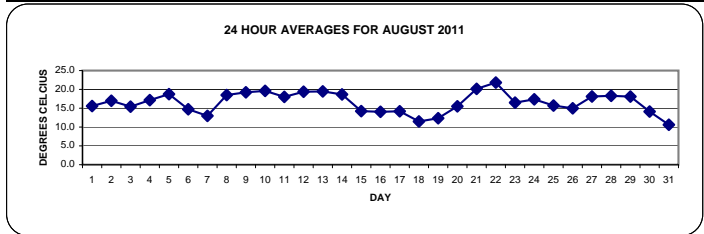
Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA
AUGUST 2011
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY	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	12.8	11.9	12	12.1	11.3	11.7	13.8	14.6	15.8	16.9	17.5	18.3	18.9	19.1	19.3	20	19.8	19.4	18.8	17.4	14.3	13.2	12.6	12.4	20.0	15.6	24	
2	2	12.7	12.7	12.8	11	11.2	11.3	14.2	16.6	17.2	17.7	19.7	20.8	21.2	21.9	22.2	22.3	21.9	21.3	20.3	18.2	16.6	15.7	14.3	13.9	22.3	17.0	24	
3	3	13.9	12.5	13.1	13.5	14.2	12.9	14.2	15	15.4	16.7	19.8	20.2	21.4	22.5	20.9	18.6	18.6	14.7	12.9	13.6	11.9	11	11.2	11.2	22.5	15.4	24	
4	4	11.2	10.8	10.5	9.8	8.5	10.3	13	15.7	18.2	20.8	21.5	22	21.5	23	23	23.3	23.2	22.6	21.2	18.6	17	15.3	15	15.6	23.3	17.2	24	
5	5	14.6	14.4	13.8	12.9	11.7	12.3	15.8	17.9	19.5	20.9	21.6	22.4	23	23.6	24	23.9	24	23.2	22.2	20.4	19	17.7	15.8	15.3	24.0	18.7	24	
6	6	14.5	14.1	13.4	13	12.4	12.9	14.2	13.4	13.4	14	14	14.5	13.8	14.5	16.7	18.9	19.4	18.8	17.8	16.2	14.3	13.8	13.1	12.2	19.4	14.7	24	
7	7	12	11.9	11.5	10.9	10.7	10.6	10.5	10.7	10.6	10.9	12.3	14	14.1	14.8	15.1	14.8	13.4	14.2	15.7	15	14.8	14.6	14.1	13.9	15.7	13.0	24	
8	8	13.6	13.1	12.7	12.3	12.3	12.7	14.2	16.2	18.2	20	22	23.1	23.1	23.8	24.2	24.3	24.4	23.5	22.3	20.6	18.7	16.7	16.5	15.5	24.4	18.5	24	
9	9	14.8	13.9	12.9	12.5	12.3	12.8	16.5	19.3	21.6	23.2	23.6	23.5	24.4	25.2	25.7	25.7	25.2	24.3	22.7	18.9	16.3	15.7	15.5	14.8	25.7	19.2	24	
10	10	15.7	14.9	15	13.9	14	14.6	17.5	18.9	21.4	23	24.3	24.9	24.8	25.7	24.1	23.1	21.9	20.6	19.6	18.4	17.6	16.5	15.3	25.7	19.6	24		
11	11	14.4	13.7	13	12.2	11.7	11.9	14.7	16.8	19.1	20.5	21.6	22.3	22.8	23	23.1	22.9	22	21.7	20.5	18.8	17.2	17	16.1	15.2	23.1	18.0	24	
12	12	14.4	13.6	13.3	13.2	13	12.8	16.1	19.3	21.6	22.5	23.4	23.7	24.2	24.2	25	24.8	24.5	23.3	22	20	18.3	17.7	17.3	16.8	25.0	19.4	24	
13	13	16	15	14.5	14	13.8	14	15.4	16.7	17.9	19.6	21.7	23.2	24.4	25.2	25.3	25.8	26	25.1	22.9	20.9	18.6	17.7	17.1	16.4	26.0	19.5	24	
14	14	15.5	15	14.4	14.1	13.5	13.3	15.3	15.4	17.3	20	21.5	23.7	24.5	24.6	26.6	26.7	24	21.2	19.9	19.5	14.3	15.8	16.4	15.4	26.7	18.7	24	
15	15	14.2	13.6	13.3	13.4	12.7	12.3	13.8	15.3	15.1	16	16.8	17.1	18.1	17.6	17.9	16	14.4	13.9	13.5	13.2	11.5	11.2	10.7	9.8	18.1	14.2	24	
16	16	9.3	9	8.6	8.5	7.6	7.4	10.2	12.9	14.5	15.6	16.8	17.8	18.1	19.1	19.4	19	19.4	18.6	17.3	15.4	13.7	13.3	12.9	12.8	19.4	14.1	24	
17	17	12.7	10.9	10.8	11.1	11.1	11	12.6	14.6	15.2	16.4	17.2	18.1	17.9	17.2	17.8	17.8	17.5	16.3	15.1	13.8	12.8	11.9	10.8	9.9	18.1	14.2	24	
18	18	9.2	8.7	8.7	8.2	7.5	7.3	9.3	11.1	13	14.7	15	15	12.7	12.6	14.6	14.3	14	14.4	14.8	11.9	10.3	10	9.4	9	15.0	11.5	24	
19	19	8.1	7.5	6.8	5.5	4.9	5.1	9.2	11.6	13.7	15.7	15.6	17.3	18	17.7	17.5	18.5	18.3	14.3	13.5	12.3	11.9	11.5	11.6	10	18.5	12.3	24	
20	20	10.2	10.4	10.9	11.5	10.5	10.4	11.2	11.9	12.8	14.5	17.2	18.1	19.1	20	21	20.7	21.2	20.8	19.4	17.8	16.8	15.7	15.1	14.8	21.2	15.5	24	
21	21	13.8	13.4	13.2	13.3	13.4	13.5	14.8	15.5	18.7	21.1	22.4	23.7	24.9	25.8	26.7	26.7	27.5	25.7	24	22.8	21.3	21.1	20.5	19.7	27.5	20.1	24	
22	22	18.6	17.6	16	16.3	16.9	15.3	19.4	21.5	22.9	24.5	25.5	26.8	27.1	28.2	27.6	27.8	25.1	25.2	23.5	21.7	20.2	20	18.8	16.9	28.2	21.8	24	
23	23	17.3	15.7	16.1	14.8	14	13.7	13.8	14	14.5	17.6	18.8	19.2	19.9	20.3	20.7	20.2	20.1	19.2	17.9	15.5	14.2	13.5	12.8	11.8	20.7	16.5	24	
24	24	10.9	9.3	9.2	8.8	9.7	8.9	10.6	13.2	15.1	18	20	21.3	22.8	24.6	26.2	25.7	25.4	24.8	22.9	19.5	18	17.3	17.4	17	26.2	17.4	24	
25	25	16.7	16.2	15.2	15.6	14.8	13.4	13	14.6	15.7	16.9	17.6	18	18.6	18.7	18.9	19.2	18.7	17.5	16.4	14.1	12.4	12.2	11.8	10.6	19.2	15.7	24	
26	26	9.3	9.9	10.3	8	8.4	7.5	10	12.8	15.6	17.7	18.7	18.8	18.3	19.6	20.8	20.6	20.8	19.3	18.3	16.2	15.3	14.7	14.4	14.2	20.8	15.0	24	
27	27	13.5	13.1	12.6	12.3	11.6	11.5	12.9	14.4	17.1	18.7	19.1	20.9	23.7	25.5	25.3	25.7	24.4	23.4	22.2	20.8	18.4	16.9	16.4	14.5	25.7	18.1	24	
28	28	13.8	13.7	13.5	13	12.8	12.5	14.1	16.6	18.8	21.2	22.2	22.7	23.1	23.4	23.8	23.9	24	22.9	20.7	17.7	16.5	16	16.4	15.9	24.0	18.3	24	
29	29	14.9	13.9	13.7	13.3	13	13	14.5	15.7	18.1	20.1	21.4	22.5	24.1	25.1	25.4	26.4	24.5	20.8	18.3	16.8	P	14.3	13.6	12.8	26.4	18.1	23	
30	30	12.3	11.7	12.1	12.1	11.9	12.2	12.1	14.7	15.7	15.7	16.9	17.8	17.5	17.8	18.1	18.7	18.4	15.3	13.8	12.2	11.7	11.3	9.9	8.9	18.7	14.1	24	
31	31	8	8.1	7.6	6.7	6.2	6.1	7	8.2	9.5	11.3	13.2	14	14	14.4	14.8	15.2	15.7	14.3	13	10.8	10.1	9.5	8.7	8.2	15.7	10.6	24	
HOURLY MAX		18.6	17.6	16.1	16.3	16.9	15.3	19.4	21.5	22.9	24.5	25.5	26.8	27.1	28.2	27.6	27.8	27.5	25.7	24.0	22.8	21.3	21.1	20.5	19.7				
HOURLY AVG		13.2	12.6	12.3	11.9	11.5	11.5	13.4	15.0	16.6	18.1	19.3	20.2	20.6	21.2	21.7	21.7	21.3	20.1	18.9	17.1	15.5	14.8	14.3	13.6				

STATUS FLAG CODES

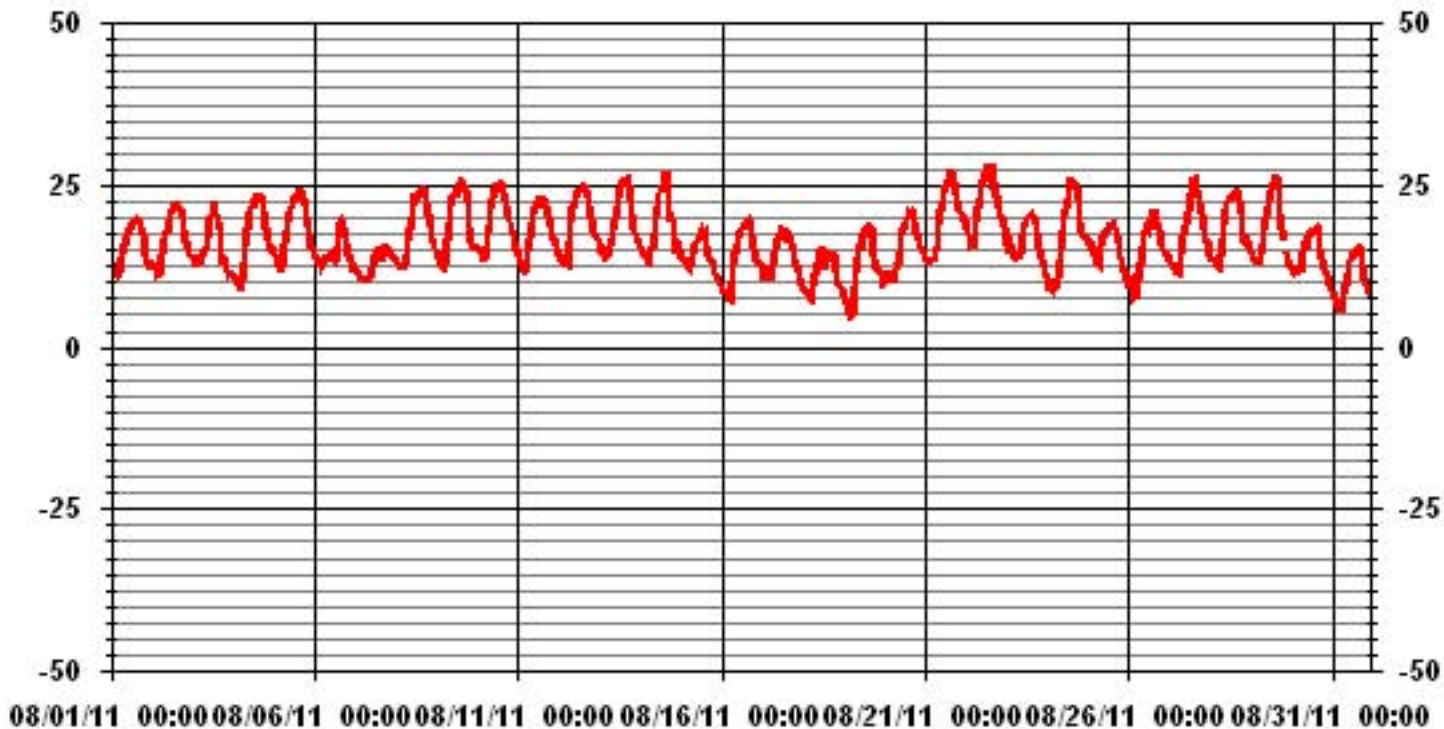
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	4.9 °C	@ HOUR(S)	4	ON DAY(S)	19
MAXIMUM 1-HR AVERAGE:	28.2 °C	@ HOUR(S)	13	ON DAY(S)	22
MAXIMUM 24-HR AVERAGE:	21.8 °C			ON DAY(S)	22
CALIBRATION TIME:	0	HRS		OPERATIONAL TIME:	743 HRS
				AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	4.74			MONTHLY AVERAGE:	16.51 °C

01 Hour Averages



Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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		
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		927	927	927	927	928	928	929	930	931	931	931	932	932	933	933	933	933	933	933	933	932	931	931	931	931	933	930.6	24
2		932	932	932	932	931	931	932	933	933	933	934	934	934	934	934	933	933	933	933	932	932	931	930	930	929	934	932.2	24
3		930	929	930	930	930	930	930	931	931	931	932	932	933	933	933	932	932	932	932	931	931	931	931	931	932	933	931.2	24
4		932	932	932	932	932	933	933	934	935	936	937	937	937	937	937	937	937	937	937	937	935	934	934	933	933	937	934.7	24
5		933	933	933	932	932	932	933	934	935	935	935	935	935	935	935	935	935	935	934	933	932	932	931	931	935	933.5	24	
6		930	930	929	929	928	928	929	929	927	929	929	928	928	928	929	930	930	930	930	930	929	929	928	928	930	930	928.9	24
7		928	928	929	928	928	927	927	927	927	927	927	928	928	928	928	928	928	928	929	929	930	930	930	931	931	931	928.3	24
8		931	931	931	931	932	932	932	933	933	934	935	935	935	936	936	936	936	937	936	936	935	934	934	933	933	937	933.8	24
9		932	932	932	932	932	932	932	933	933	934	934	934	934	934	934	933	933	933	933	932	930	929	929	929	934	932.3	24	
10		929	928	928	928	928	928	929	929	930	930	931	931	932	932	931	931	931	931	931	931	931	930	930	930	932	930.1	24	
11		930	929	929	929	929	929	930	931	932	933	933	934	934	934	934	935	935	935	935	935	935	934	934	934	934	935	932.5	24
12		934	934	934	934	934	934	935	936	937	938	938	938	939	939	939	939	938	938	938	937	936	936	935	935	939	936.5	24	
13		934	934	933	933	933	933	933	933	932	932	933	933	933	933	933	933	933	933	933	931	930	930	929	928	934	932.3	24	
14		928	928	928	928	927	927	927	927	927	927	927	927	928	928	928	929	929	927	925	925	925	924	923	924	926	929	926.7	24
15		925	925	925	925	925	926	926	927	927	927	928	928	929	929	929	930	929	929	929	929	929	929	929	929	929	929	927.6	24
16		929	929	929	929	929	929	930	930	931	931	932	932	932	932	932	932	932	932	932	931	930	930	931	931	933	930.8	24	
17		931	931	930	931	931	931	931	931	932	932	932	932	932	932	932	932	932	931	930	930	930	930	929	929	932	931.0	24	
18		929	929	929	929	929	930	930	931	932	932	933	933	933	933	934	934	934	934	935	934	934	934	933	933	935	932.1	24	
19		934	933	933	933	933	932	933	934	934	935	935	935	935	935	935	935	935	935	934	934	934	934	934	934	935	934.1	24	
20		934	933	933	933	933	933	933	934	934	934	934	934	934	934	934	933	933	933	933	932	931	931	930	930	934	932.9	24	
21		930	929	929	929	928	928	928	927	927	928	928	927	927	927	927	927	926	925	925	924	924	924	924	924	930	926.9	24	
22		923	923	922	922	922	922	922	923	923	924	924	924	925	925	925	925	925	924	924	923	922	922	921	921	921	925	923.0	24
23		921	920	920	921	922	923	923	924	924	925	926	926	927	927	928	929	930	931	931	930	930	931	931	931	931	931	926.3	24
24		931	931	930	930	930	930	930	931	931	932	932	931	931	931	931	931	931	931	931	930	929	929	929	929	932	930.5	24	
25		929	929	929	930	931	931	931	932	933	933	934	934	934	934	935	935	936	936	936	935	935	936	936	937	937	933.4	24	
26		937	937	937	937	937	937	938	939	940	941	941	941	941	940	940	940	940	939	938	937	936	936	936	935	941	938.3	24	
27		935	935	935	934	934	933	933	934	934	935	935	935	935	935	936	936	935	935	934	934	934	934	934	934	936	934.5	24	
28		935	935	935	935	935	936	936	937	937	938	939	939	938	938	938	938	937	937	937	935	934	933	933	932	939	936.1	24	
29		932	931	931	930	930	929	929	928	928	928	928	927	926	926	926	926	925	925	925	924	P	925	925	925	932	927.3	23	
30		925	924	925	925	925	925	925	926	927	927	928	928	928	929	929	929	929	929	929	929	928	928	928	928	929	927.2	24	
31		928	928	929	928	928	929	930	930	931	931	931	932	932	932	932	932	933	933	933	933	932	932	932	931	933	930.9	24	
HOURLY MAX		937	937	937	937	937	937	938	939	940	941	941	941	941	940	940	940	940	939	938	937	936	936	936	937				
HOURLY AVG		930	930	930	930	930	930	930	931	931	932	932	932	932	932	932	933	932	932	932	931	931	931	930	930				

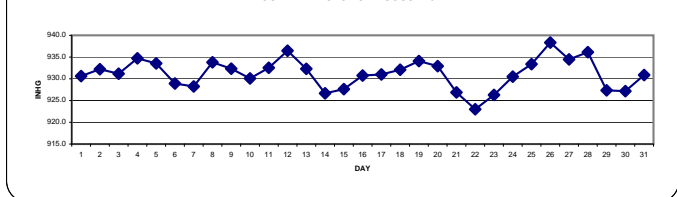
STATUS FLAG CODES

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

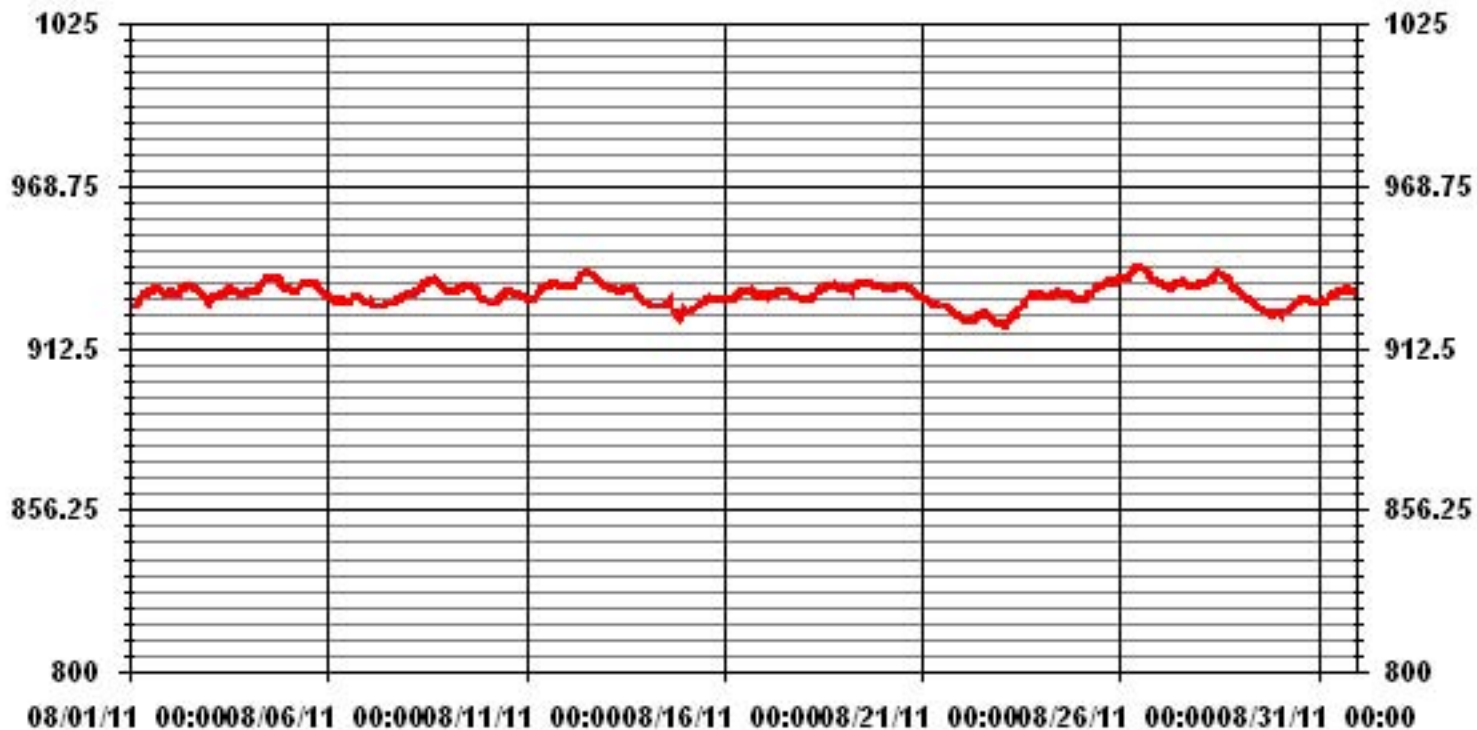
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	941 MB	@ HOUR(S)	VAR	ON DAY(S)	26
MAXIMUM 24-HR AVERAGE:	938.3 MB			ON DAY(S)	26
VAR-VARIOUS					
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	743 HRS		
		AMD OPERATION UPTIME:	99.9 %		
STANDARD DEVIATION:	3.78	MONTHLY AVERAGE:	931 MB		

24 HOUR AVERAGES FOR AUGUST 2011



01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2011

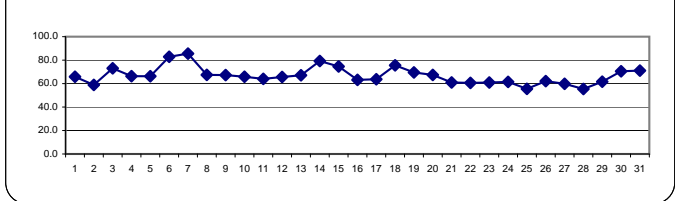
RELATIVE HUMIDITY hourly averages (%)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		86	88	89	90	89	87	79	71	65	58	51	48	45	44	45	44	46	51	61	71	74	77	76	76	90	65.8	24	
2		75	72	70	78	70	70	64	60	57	55	48	45	41	40	41	40	42	45	48	62	68	71	75	76	78	58.9	24	
3		74	81	79	77	69	80	78	74	76	71	62	64	56	47	50	60	61	74	85	82	87	89	89	88	89	73.0	24	
4		89	91	91	91	91	91	78	71	64	56	50	48	50	44	45	44	46	48	52	66	72	75	72	67	91	66.3	24	
5		74	77	78	82	86	84	73	68	62	56	57	54	53	53	51	52	52	52	56	64	68	73	82	84	86	66.3	24	
6		86	84	86	86	90	89	84	89	90	90	90	89	89	90	83	76	67	65	67	72	78	81	83	85	90	82.9	24	
7		83	86	87	90	91	91	90	89	88	89	87	81	79	76	75	76	86	85	81	87	89	89	89	89	91	85.5	24	
8		90	90	90	91	91	90	84	80	75	68	61	53	50	44	40	38	38	43	51	55	60	77	77	82	91	67.4	24	
9		85	88	90	91	91	91	77	69	66	59	55	55	52	49	46	46	48	51	58	63	69	69	71	75	91	67.3	24	
10		71	75	74	83	82	80	69	66	62	58	53	53	54	52	45	50	56	62	68	68	74	79	73	73	83	65.8	24	
11		74	75	77	81	84	84	78	74	69	65	62	56	48	44	46	46	51	50	54	58	63	60	68	70	84	64.0	24	
12		74	79	81	83	86	87	77	69	65	61	60	55	52	51	48	48	48	51	57	65	68	69	71	70	87	65.6	24	
13		72	77	78	79	78	75	70	68	67	64	60	57	53	52	52	50	50	54	59	67	77	80	84	87	87	67.1	24	
14		90	91	91	91	91	91	85	87	84	76	73	67	66	66	61	60	67	77	82	84	85	74	78	85	91	79.3	24	
15		88	90	91	91	89	89	82	75	75	71	68	66	59	58	54	59	64	68	69	74	80	75	76	79	91	74.6	24	
16		81	81	82	82	84	84	75	65	59	56	52	47	45	42	41	43	44	47	56	65	68	70	74	73	84	63.2	24	
17		72	84	81	76	69	65	63	58	56	53	50	48	50	55	52	52	54	59	64	66	69	73	78	82	84	63.7	24	
18		85	86	85	86	86	85	78	74	69	64	61	61	74	69	66	67	67	63	67	81	85	84	85	86	86	75.6	24	
19		88	87	88	89	90	90	79	74	69	59	59	53	49	50	50	48	50	67	68	68	65	71	71	86	90	69.5	24	
20		84	81	79	75	81	80	71	76	78	73	57	54	53	54	53	56	51	54	60	65	68	70	71	73	84	67.4	24	
21		79	80	79	78	79	78	74	72	62	53	49	45	44	44	44	45	45	48	55	59	63	61	62	65	80	61.0	24	
22		69	75	83	82	73	84	62	61	60	56	49	47	46	37	37	40	50	51	49	57	64	68	72	82	84	60.6	24	
23		71	77	74	83	84	87	86	80	75	55	47	43	42	39	38	38	38	41	46	57	62	65	65	69	87	60.9	24	
24		73	84	83	85	78	78	71	65	59	53	48	47	45	42	41	41	45	46	54	66	69	69	67	66	85	61.5	24	
25		67	70	82	76	72	67	69	59	53	46	39	39	37	34	35	34	36	41	49	58	64	66	67	73	82	55.5	24	
26		78	75	72	84	81	85	75	69	63	57	53	47	50	48	43	45	43	50	55	61	62	63	66	66	85	62.1	24	
27		69	71	73	74	75	74	69	66	60	56	57	54	45	39	39	41	46	52	55	62	67	62	61	69	75	59.8	24	
28		73	74	74	72	70	70	64	60	58	49	43	44	40	39	36	36	37	41	48	63	62	60	57	60	74	55.4	24	
29		65	69	69	70	70	69	65	63	57	51	48	48	43	42	42	39	50	61	67	73	P	82	86	88	88	61.6	23	
30		90	91	91	89	87	86	85	75	71	70	62	57	54	53	47	46	45	56	63	69	70	73	80	82	91	70.5	24	
31		84	81	82	84	87	88	86	85	81	72	62	58	57	56	56	54	52	55	61	67	71	73	76	78	88	71.1	24	
HOURLY MAX		90	91	91	91	91	91	90	89	90	90	90	89	89	90	83	76	86	85	85	87	89	89	89	89	89			
HOURLY AVG		78.7	81.0	81.6	82.9	82.1	82.2	75.5	71.4	67.6	61.9	57.2	54.3	52.3	50.1	48.5	48.9	50.7	54.9	59.8	66.6	70.6	72.4	74.3	76.9				

STATUS FLAG CODES

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

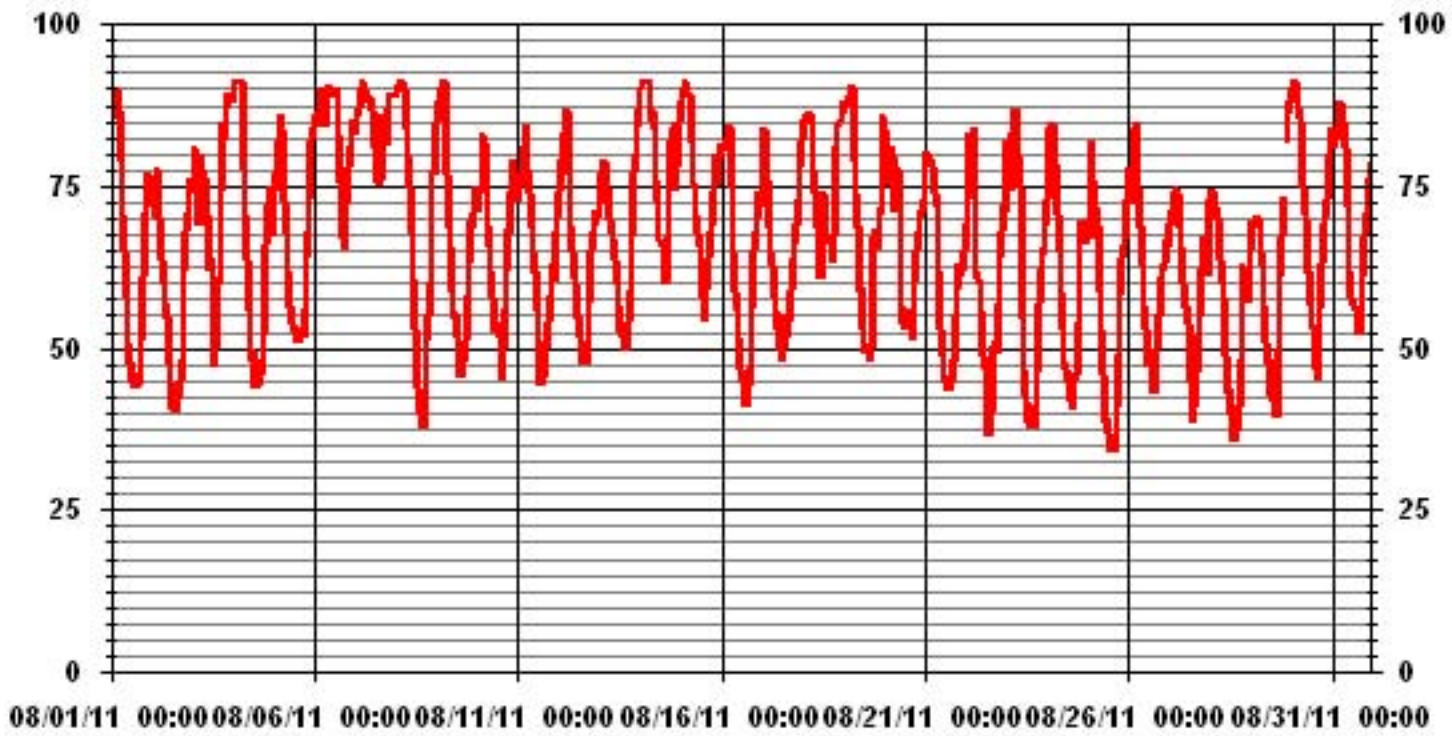
24 HOUR AVERAGES FOR AUGUST 2011



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	91	%	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	85.5	%			ON DAY(S)	7
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	743	HRS	
STANDARD DEVIATION:	15.07		AMD OPERATION UPTIME:	99.9	%	
			MONTHLY AVERAGE:	66.76	%	

01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	23:00	DAILY	DAILY	
HOURLY START	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	TOTAL	RDGS.	
DAY																													
1		0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	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	0.1	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.6	1.1	0	0	0	0	0	0	1.1	1.9	24
4		0	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	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	1.4	0.2	3.6	0.3	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	3.6	6.9	24
7		0	0	0.3	1.3	2.6	1.6	0.5	0.6	0.5	0.8	0.1	0	0	0	0	0	0.1	0	0	1.3	0.1	0	0	0	2.6	9.8	24	
8		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	0.1	0.1	24
9		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	0.1	0.1	24
10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
11		0	0	0	0	0	0	0	0	0	0	0	0	M	M	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	22
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	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0	35.9	0	0.3	1.9	35.9	38.5	24	
15		0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5	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	0.4	0	0	0	0.2	0	0.7	0	0	0	0	0	0	0.7	1.3	24
19		0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0.2	0.3	24
20		0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.3	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	0.1	0.1	0.1	0.2	24
23		0	0.5	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.6	24
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
25		0.2	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4	24
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	23
30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
31		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
HOURLY MAX		0.5	0.5	0.3	1.3	2.6	1.6	0.5	1.4	0.5	3.6	0.3	1.4	0.4	0.0	0.1	0.0	0.2	0.6	1.1	1.3	35.9	0.0	0.3	1.9				

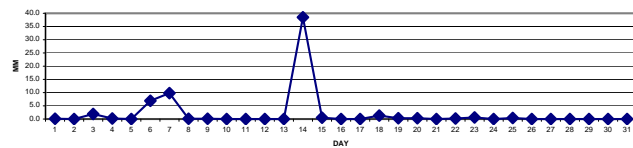
STATUS FLAG CODES

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

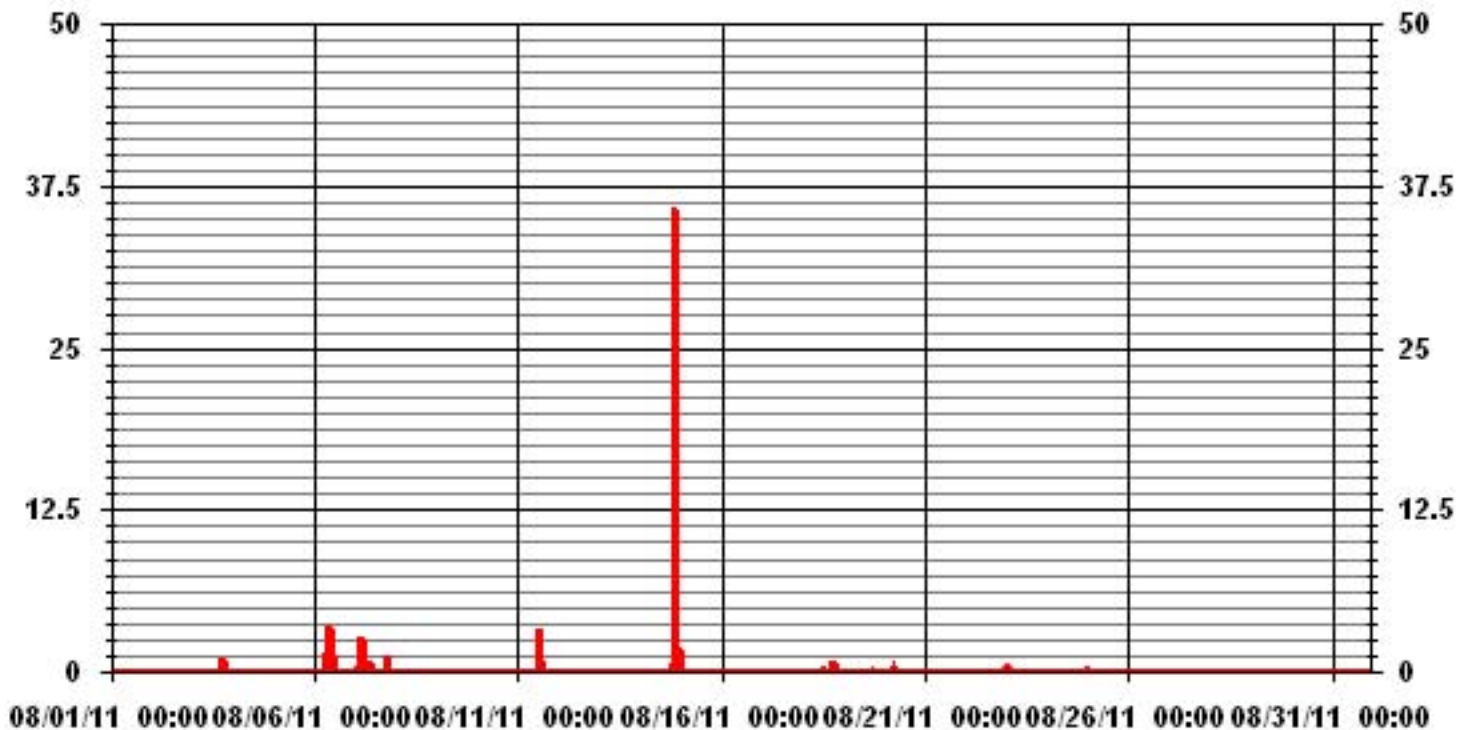
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	35.9	MM	HOUR(S)	20	ON DAY(S)	14
MAXIMUM DAILY TOTAL	38.5	MM			ON DAY(S)	14
MONTHLY TOTAL	61.2	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	741	HRS	
STANDARD DEVIATION:	1.34		AMD OPERATION UPTIME:	99.6	%	
			MONTHLY AVERAGE:	0.08	MM	

DAILY TOTALS FOR AUGUST 2011



01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 2011

WIND SPEED hourly averages (km/hr)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	1	3.4	8.7	10	9	7.9	9.5	9.8	11.5	11.3	16	5.7	7.4	12	10.8	5.3	6.7	6.1	3.8	7.1	10.9	12.5	12	12	8.9	16	3.3	24
2	2	9.2	9.8	11.1	11.8	9.7	12	12.5	10.1	6.2	7.2	5.7	5.4	3.9	5.4	5.1	6.8	6.6	7.6	7.9	13.8	15.4	13.7	12.7	14	15.4	8.6	24
3	3	11.4	12.3	10.4	11.1	7.4	11.7	13.3	13.3	11.6	9.4	10	10.8	10.5	8.1	10.1	9.1	10.8	5.6	10.6	12.7	10.6	10	10.5	8.3	13.3	9.5	24
4	4	8.6	8.6	7.9	5.4	5.7	6.2	4.5	5.6	5.4	0.8	1.3	5.3	7.7	10.8	10.5	10.6	11.3	11.4	6.1	2	5.8	6.3	7.4	8.1	11.4	1.9	24
5	5	9	8.3	8.6	7.2	7.2	7.7	6.8	8.1	7.5	4.6	11.3	9.5	9.3	8.5	8.2	7.8	13.3	13.2	14.1	15.1	14.3	13	8.5	9.1	15.1	4.6	24
6	6	10.7	9	9.3	9.4	8.2	5.6	6	4	10.7	5	2.7	3.7	11.1	3.4	1.7	3.6	10.6	12.3	12.7	8.9	12.6	12.3	12.5	9.7	12.7	5.4	24
7	7	8.7	8.4	8.1	6.9	6.1	7.1	8.5	6.9	10.9	10.2	11.8	13.5	11.4	12.7	7.5	9.7	8.7	11.9	11.8	10.9	11.7	10.7	8.7	11.1	13.5	1.9	24
8	8	11.9	10.2	9.2	9	10.1	10.8	10.9	8.7	8.8	9.2	5.3	10.8	10	8.6	3.5	13.3	5.9	5.1	3.6	5.3	4.1	13.8	14.7	13.8	14.7	3.4	24
9	9	16.1	15.1	13.5	14.1	14.2	15	14.5	14	8.2	7.3	7.8	12.2	9.1	10.2	11.1	11.5	11.6	11.6	13.4	7.5	10.8	12.7	7.8	14.2	16.1	7.1	24
10	10	9.7	13	11.9	14.4	8.2	14.9	10.7	8.3	11	12.9	12.1	8.1	6.3	6.3	11.9	10.6	10.7	13	15.9	14.4	14.5	13.6	8.9	9.4	15.9	6.6	24
11	11	10.4	12.4	14.7	13.9	14.1	13.5	13.8	13.6	12.9	10.9	5.8	12.6	9.7	6.8	3.2	3.2	7	4.2	3.8	5.1	6.7	6.7	7.9	8.6	14.7	7.1	24
12	12	8.7	7.5	7.6	5.7	5.8	5.7	5.7	5.5	6.5	8.8	8.3	4.3	10.5	11.7	11.5	11.8	10.5	10.8	13.5	12.7	12	12.5	12.6	10.5	13.5	3.2	24
13	13	9.2	9.5	9.5	8.7	8.4	8.7	8.7	6.9	5.5	7.3	11	7.3	6.3	10.3	11.4	9.1	2.1	3.5	16.5	4.6	5.2	5.7	6.2	6.1	16.5	6.6	24
14	14	6.6	7.7	8.5	8	10.2	6.7	6	5.3	12.8	11.5	10.4	8.7	3.6	5.8	9.6	11.6	12.1	12.6	7.7	9.9	6.2	16.7	13.7	15.9	16.7	3.4	24
15	15	7.4	8.6	14.4	13.4	13.9	13.5	13.3	13.1	12.9	12.8	11.5	12.8	13.6	13.6	14.3	15.4	13.5	13.6	11	5.3	9.2	9.7	10.2	9.9	15.4	11.3	24
16	16	9.1	8.5	9.8	10.6	8.9	10.8	12.5	9.4	14.6	17.1	17.4	18.4	4.4	4.2	2.8	1.3	2.9	6.4	10.7	12.2	11.3	10.2	11.7	12.8	18.4	3.4	24
17	17	13.4	14.1	12.3	9.1	6.5	8.8	9.2	7	4.6	4.7	3.4	3.8	5.2	6.4	6.9	5.6	7	8.5	9.2	10.7	9.4	9	8.2	6.5	14.1	7.4	24
18	18	10.9	8.5	6.9	6.2	7.3	6	7.6	7.3	7.5	7.2	6.7	5.6	6.7	8.3	10.4	8.6	12.4	11.5	10.4	12.3	10.5	11.6	10.7	10.1	12.4	8.3	24
19	19	9.9	8.6	9.6	12.2	12.4	14	13.7	11.2	6.4	4.8	5.9	4.5	4.1	9.1	8.4	4.4	8.6	8.3	4.7	6.4	4.7	3.5	3.3	5.3	14	5	24
20	20	4.8	5.4	5.3	5.6	3.2	3.2	5.5	4.1	4.6	6	5.9	8.5	9	8.9	8.1	11.6	5.8	10.3	14.6	3.5	5.6	6.7	8.9	9.1	14.6	3.9	24
21	21	9.9	10.5	10.8	10.5	10.9	9	10.2	11.7	12.1	1.6	1.9	1	1.4	5.2	7.1	8.9	11.7	9.9	12	10.5	10.3	11.2	12.3	13.4	13.4	0.5	24
22	22	15	14.5	13.2	16	7.7	7.1	6.6	7.1	7.2	8	7.4	11.7	4.9	4.5	2.8	11.1	5.1	9.5	5	3.7	6.1	4.8	4.7	9.8	16	3.3	24
23	23	7.9	10.9	10.4	11.2	11.8	8.7	10.9	12.7	13.6	17.1	19.5	24.7	23.6	26.1	21.6	20.3	19.4	17.3	13.7	7	7.6	6.6	9	8.2	26.1	13.4	24
24	24	8	7	6.9	8	11.4	10.3	9.8	8	5.8	5.7	5.5	0.6	4.2	7.4	12.9	10.8	8.1	5.7	3.8	6	7.1	6.8	6.8	5.7	12.9	4.9	24
25	25	3.2	4.7	5.8	7.7	9.2	8.7	8.1	11.6	11.3	13.4	15.8	15.6	8.6	6.4	2.7	7.7	9.8	7.6	10.6	11.8	12.7	11.7	11.8	10.3	15.8	4.7	24
26	26	11.2	11.1	11.9	12.4	14.1	14	13.5	13.3	13.3	11.7	7.5	7.4	8.6	4	10.7	9.5	7.2	8.1	8.3	7.5	9.6	8.4	9.7	10.5	14.1	7.3	24
27	27	9.9	10.5	9.5	9.2	9.5	9.6	8.1	8.7	8.3	7.1	5.4	11.2	6.4	6.6	11.5	13.2	14.7	17.1	17.4	16.3	9.2	3.2	13.5	10.4	17.4	2.2	24
28	28	14.8	13.5	14.5	13.4	15	13	11.8	6.9	13.4	12.4	8.1	14.2	12.1	11.2	10.5	12.2	12.6	14.5	3	6.5	8.5	9	9.5	9.5	15	5.8	24
29	29	10.6	11.7	11	3.6	8.1	8.5	7.8	7.4	6.9	7.5	6.4	9.2	7.6	6.7	6.4	7.3	9.6	9.8	9.9	7.5	P	9.2	5.9	7.3	11.7	1.5	23
30	30	7.8	6.3	8.3	8.7	7.8	8.5	9.8	8.9	9.9	6	9.5	9.6	7.5	7.1	4.4	7.2	6.4	11.1	12.7	12.4	12.3	11.8	10.6	10.5	12.7	3.5	24
31	31	9.8	9.3	8.3	8.9	10.9	10.5	11.4	9.7	7.7	11.6	5.3	9.5	11.1	11.8	12.5	11.4	12.7	12.9	13	14.6	14.6	14.3	9	9.5	14.6	3.9	24
HOURLY MAX		16.1	15.1	14.7	16.0	15.0	15.0	14.5	14.0	14.6	17.1	19.5	24.7	23.6	26.1	21.6	20.3	19.4	17.3	17.4	16.3	15.4	16.7	14.7	15.9			
HOURLY AVG		9.6	9.8	10.0	9.7	9.4	9.7	9.7	9.0	9.3	8.9	8.1	9.3	8.4	8.6	8.5	9.4	9.5	10.0	10.2	9.3	9.7	9.9	9.7	9.9			

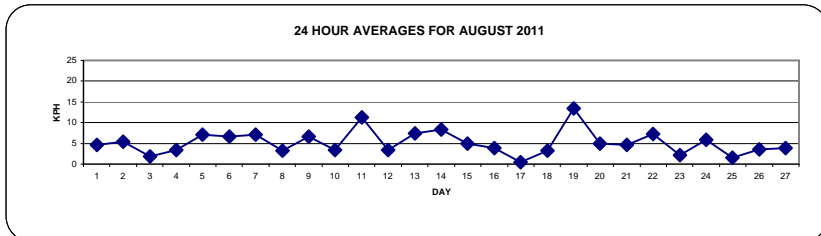
STATUS FLAG CODES

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

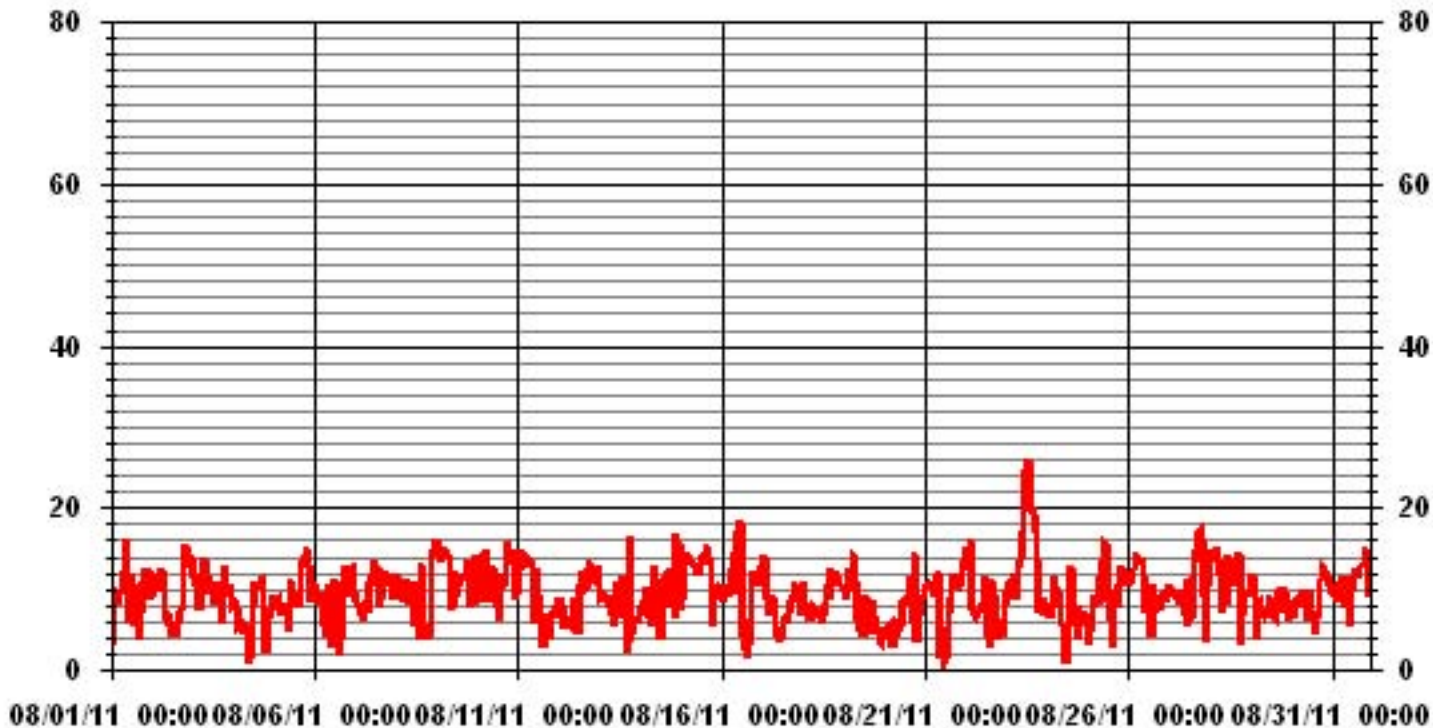
LAST CALIBRATION: June 17, 2010

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	26.1	KPH	@ HOUR(S)	13	ON DAY(S)	23
MAXIMUM 24-HR AVERAGE:	13.4	KPH			ON DAY(S)	23
CALMS (≤ 0 KPH)	0.27	%	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME	99.9	%	
STANDARD DEVIATION	3.50		MONTHLY AVERAGE	9.40	KPH	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

AUGUST 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	16.2	P	16.9	14	21.6	20.4	24.5	26.3	35	41.6	30.4	39.6	38.5	32.4	32.2	27.4	29.3	19.7	16.4	18.4	17.7	19.5	15.4	41.6	
2		16.6	17.3	19.7	16.2	15.8	16.6	21.2	18.9	16.2	18.4	20.1	20.1	26.9	26	25.7	27.8	22.8	20.1	17.5	19	19.9	19.9	16.7	18.8	27.8	
3		16.9	17.3	19.1	24.1	21.9	20	19.5	23.8	19.9	19.7	22.1	21	21	20	31.1	19.3	27.1	36.5	26	17.9	19.1	16.9	18	P	36.5	
4		16.2	15.3	14.4	16.2	9.6	10.7	9.2	10.1	13.6	22.1	22.3	23.8	24.7	26.9	27.6	25.8	28.5	22.7	22.3	10.7	8.8	14.9	13.6	14.9	28.5	
5		15.3	18.6	19.3	13.8	16	15.4	15.3	19	18.2	23.2	24.7	22.7	21.2	27.2	24	26.2	21.6	20.6	19.5	19	19.5	21.5	21.9	19.5	27.2	
6		21	17.7	16.4	16.9	17.3	18	19.3	18.8	26.9	44.4	8.5	17.8	20.6	13.1	9.4	19.9	27.8	26.5	24.1	24.8	18.4	19.3	21.7	18	44.4	
7		16	18.2	18.6	15.6	15.3	18.8	19	20.8	20.6	22.6	21.7	26.7	24.9	35.7	32.2	34.6	36.8	28.5	28.7	26.7	29.6	20.1	22.1	P	36.8	
8		26.7	21.4	21.2	19.9	21.2	21.1	20.8	20.4	17.7	22.3	22.5	29.3	31.5	28.5	26	22.5	16	12.7	8.1	8.5	17.6	20	19.3	17.3	31.5	
9		19	19.5	18.6	17.5	17.7	19.3	17.9	20.6	20.4	19.9	22.1	25.7	27.1	25.6	24.7	29.8	25.8	20.8	20.8	36.4	19.5	19	20.6	21	36.4	
10		20.1	19.7	27.2	20.8	21.4	22.3	18.2	15.1	19.9	22.3	25.4	26	26.5	29.3	28.2	24.7	27.8	20.4	20.6	18.6	19.5	18.8	26.5	26.5	29.3	
11		18.4	19.5	20.8	18.4	18.8	19.1	20.1	21	23.7	21.9	21.4	24.1	24.1	23.4	23	19	15.2	10.5	7.7	8.3	9	9.2	10.5	12.5	24.1	
12		19.7	12.3	12.3	8.8	9	8.8	9.2	10.8	14.9	P	23	26.9	33.7	26	30.9	22.5	31.3	29.6	22.3	17.9	16.4	18.2	19.3	17.5	33.7	
13		23.2	17.7	17.3	23.2	16.9	24.5	27.4	33.1	37.9	36.3	25.2	32.6	36.8	29.1	23.4	22.7	19.7	23	19.5	19.1	9.6	10.3	13.6	11.2	37.9	
14		13.1	20.6	19.9	22.1	23.2	19.3	18.4	22.5	20.8	20.4	19.9	20.6	19.9	15.6	24.9	25.4	22.1	25.4	27.8	34.4	47.3	P	43.8	41.4	47.3	
15		37.4	21.9	31.7	26.7	31.3	22.8	24.9	23.8	23.4	22.4	24.7	29.6	28	30.4	32.6	37	28.7	21.7	19.9	17.3	19.3	18.2	24.7	19.1	37.4	
16		18.7	16.9	16.4	19.3	19.3	17.8	19.8	21.9	32.4	31.1	36.8	47.7	39.6	26.9	30.9	22.8	24.5	20.8	18.2	16	15.1	16.9	17.7	18.2	47.7	
17		19.5	19.5	17.3	17.5	16	17.3	17.5	18.8	20.8	19.7	20.1	21.7	18.2	21.6	22.5	21	18.8	19	20.6	19.8	18	21.4	16.2	16	22.5	
18		17.3	15.7	16.2	17.7	17.7	16.6	17.1	19.1	22.6	19.5	27.6	31.3	35.5	43.6	27.6	28.5	29.8	18.6	19.5	18.4	17.3	18.2	16.7	16	43.6	
19		16	13.6	14.2	19.3	18.4	18.9	18.8	64.1	17.7	19.3	20.1	21	21.5	23.8	19.7	20.8	18.6	36.8	11	14.7	12.1	7.7	8.3	8.8	64.1	
20		8.5	9.9	22.1	12.9	8.5	9.2	9.2	11	13.4	26.7	22.3	30.4	30.9	25.2	20.4	18.6	18.7	20.3	19.9	8.3	10.7	22.5	21	30.9	30.9	
21		21.9	23.6	23.8	24.3	25.4	23.4	25.8	28.5	31.9	35.5	40.5	48.1	40.3	34.6	34.1	34.8	26.7	26	19.7	19.5	20.1	17.7	17.7	17.3	48.1	
22		18.2	17.3	17.5	20.4	19.5	14.9	8.8	13.4	17.9	16.6	24	24.5	25.6	23.8	23	23.5	9.2	21.9	21.4	13.4	13.4	9.2	41.8	43.5	43.5	
23		23.8	24.1	28.2	27.3	24.9	23.8	28.5	31.5	35.2	50.1	51	62.8	66.7	57.4	54.2	51.2	54.2	44.9	36.3	20.8	13.6	11.4	13.1	11.2	66.7	
24		12	12.7	11.8	16.9	18.2	16.9	17.7	28.2	33.3	34.4	39.2	41.8	44	41.8	27.1	30.6	21.4	12.7	15.6	11.8	13.8	22.1	23.2	11.4	44	
25		9.8	9	22.6	22.5	25.4	28.5	19.9	28.2	26.7	32.4	34.8	46.8	33.9	35.4	27.3	30.2	29.8	25	19.5	18.8	17.5	18.6	18.4	18.2	46.8	
26		16.7	17.5	16.6	15.1	16.9	16.9	16.6	20.4	20.6	20.4	22.7	28	27.3	24.9	22.8	22.8	23.2	26	19.9	13.6	19	14.7	17.8	25.2	28	
27		16.6	20.1	16.4	22.1	17.3	21.5	16	22.8	24.1	19.1	17.1	24.5	26.1	23.4	26.7	22.5	21.6	20.4	20.6	18.6	24.1	19.9	25.6	18.8	26.7	
28		21.9	21	23	21.5	22.6	21.7	20.8	20.6	20.6	21.7	23	24.7	26.9	29.3	30	24.7	21.4	21.9	11.2	9	10.3	12.7	18.2	17.7	30	
29		19.7	25.4	24.7	17.7	24.9	16.4	23.8	28.2	34.6	40.1	44.9	39.8	44.6	40.5	40	34.1	37.2	43.8	32.2	35	P	25.8	12.9	16.6	44.9	
30		15.4	13.3	16.4	15.5	14.4	19	21.7	20.8	24.9	21.2	23.4	28.2	21.7	18.8	21.5	22.1	18.6	25.2	18.4	17.3	17.3	16.9	18.2	16.4	28.2	
31		16.6	15.8	16.2	17.3	19.3	18.2	17.7	16.4	20.8	36.8	34.2	32	31.8	22.8	23.4	21.9	21.9	22.5	19.1	19.5	21	21	21	18.4	36.8	
PEAK		37.4	25.4	31.7	27.3	31.3	28.5	28.5	64.1	37.9	50.1	51.0	62.8	66.7	57.4	54.2	51.2	54.2	44.9	36.3	36.4	47.3	25.8	43.8	43.5		

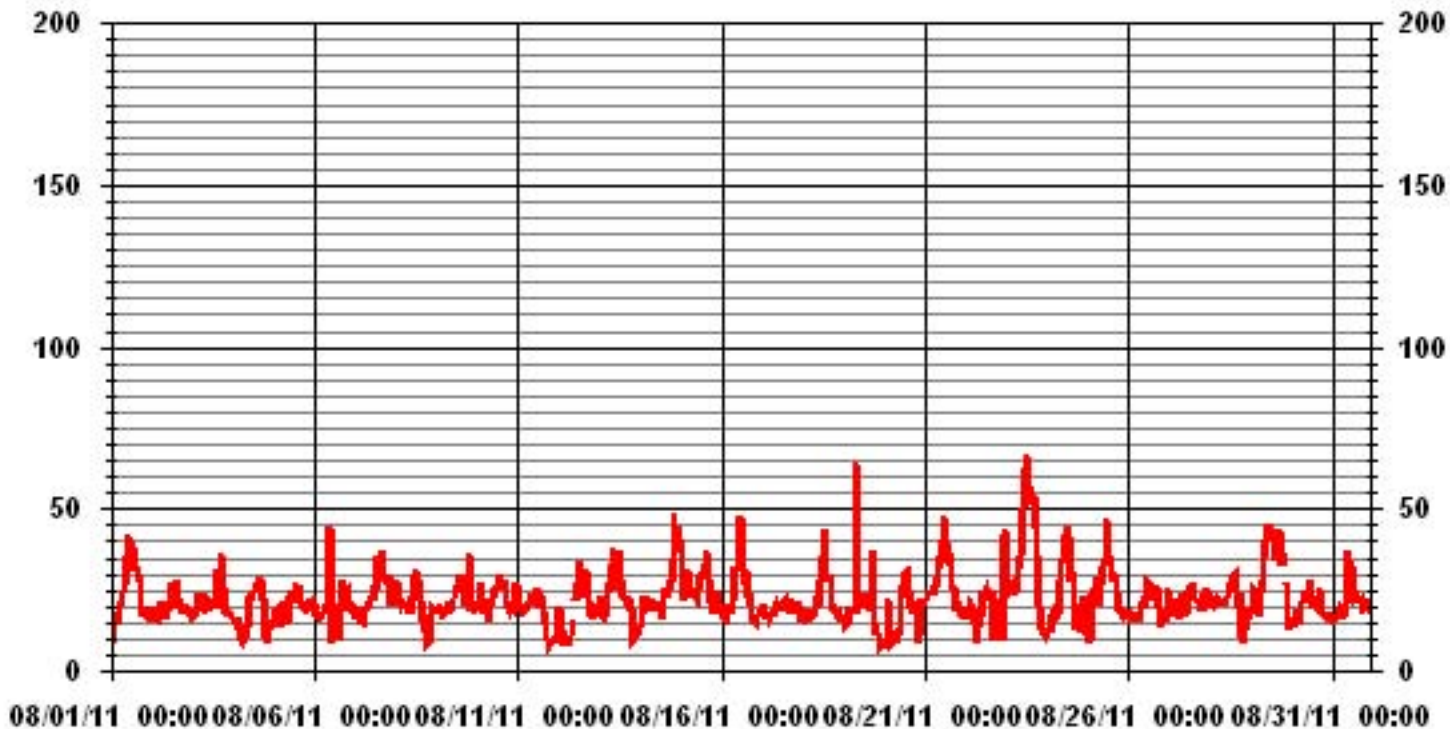
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	66.7	KPH	@ HOUR(S)	12
			ON DAY(S)	23

01 Hour Averages



LICA31
WSP / WDR Joint Frequency Distribution (Percent)

August 2011

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
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	.67	.67	.80	1.21	1.74	.94	.80	.94	.53	1.74	.94	1.07	.94	1.61	1.21	.80	16.68
< 12.0	2.69	3.90	3.63	5.11	7.94	5.92	3.23	3.23	4.17	1.88	2.96	2.96	4.30	3.49	2.28	2.69	60.43
< 20.0	1.21	.94	.53	1.07	1.48	5.24	.00	1.07	.53	2.01	2.55	1.48	1.74	.80	.26	.94	21.93
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.53	.00	.00	.00	.67
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.57	5.51	4.97	7.40	11.17	12.11	4.03	5.24	5.24	5.65	6.46	5.65	7.53	5.92	3.76	4.44	

Calm : .26 %

Total # Operational Hours : 743

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	5	5	6	9	13	7	6	7	4	13	7	8	7	12	9	6	124
< 12.0	20	29	27	38	59	44	24	24	31	14	22	22	32	26	17	20	449
< 20.0	9	7	4	8	11	39		8	4	15	19	11	13	6	2	7	163
< 29.0												1	4				5
< 39.0																	
>= 39.0																	
Totals	34	41	37	55	83	90	30	39	39	42	48	42	56	44	28	33	

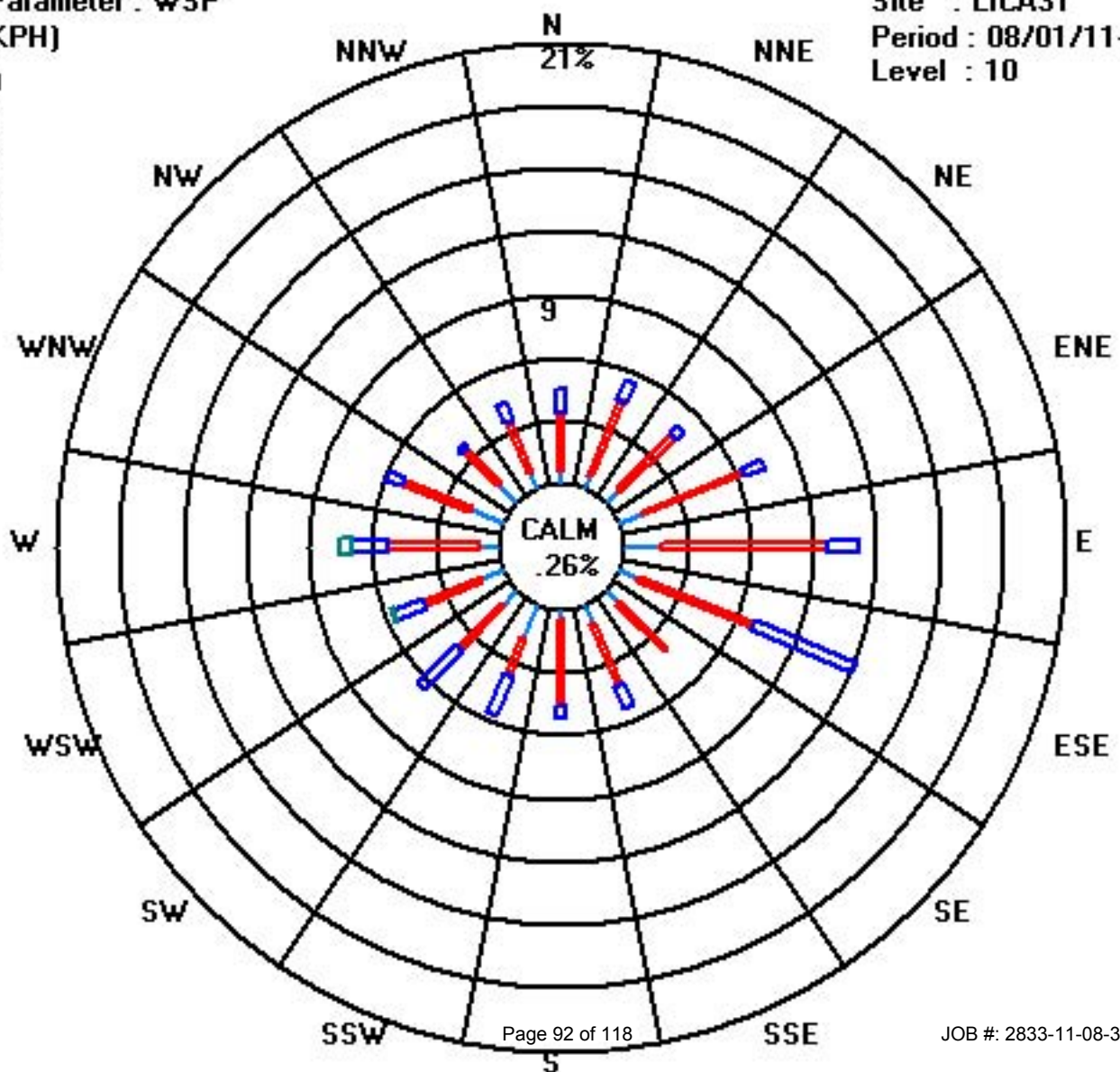
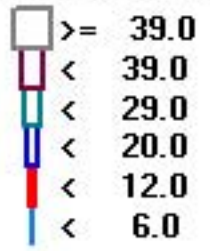
Calm : .26 %

Total # Operational Hours : 743

Class Limits (KPH)

Period : 08/01/11-08/31/11

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

AUGUST 2011

WIND DIRECTION hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG			
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	57	315	298	302	260	276	273	292	288	264	239	217	225	232	230	223	219	192	110	110	115	121	120	110	237	SW	24		
2	80	61	54	88	84	98	107	116	115	94	152	115	99	127	132	156	150	138	106	105	108	115	108	108	106	ESE	24		
3	100	114	110	77	10	112	107	116	98	80	70	69	83	101	73	94	48	43	119	90	109	112	93	91	92	E	24		
4	281	279	292	283	235	259	233	244	298	77	309	246	133	123	123	117	124	119	134	64	95	52	93	123	148	SE	24		
5	172	178	184	190	58	94	113	106	134	132	23	72	125	226	224	27	30	19	20	27	35	45	100	107	75	ENE	24		
6	80	74	71	71	63	64	277	358	65	193	156	237	256	242	270	87	49	53	59	53	74	71	68	93	67	ENE	24		
7	98	111	134	120	108	91	113	239	257	257	240	262	265	270	13	23	51	54	41	34	53	56	47	306	36	NE	24		
8	305	300	304	303	299	301	301	302	291	302	5	46	41	35	18	199	303	295	300	291	273	107	106	106	324	NW	24		
9	108	108	113	111	107	108	107	108	120	224	219	240	229	123	121	128	127	121	102	322	279	258	205	119	130	SE	24		
10	127	77	104	113	151	119	104	112	88	71	67	48	1	21	202	188	182	191	186	199	204	205	179	163	141	SE	24		
11	154	148	147	151	150	153	157	156	159	154	198	295	277	159	85	77	103	102	115	129	126	148	165	170	154	SSE	24		
12	171	176	180	192	205	210	222	225	220	223	211	274	329	330	322	316	324	338	357	6	17	22	30	19	322	NW	24		
13	18	10	13	17	21	19	19	16	35	7	347	359	327	331	350	348	197	312	279	354	19	30	18	27	359	N	24		
14	28	26	25	8	51	34	56	74	282	274	271	270	294	65	304	295	295	297	332	63	152	99	240	246	321	NW	24		
15	244	224	228	222	231	219	219	212	221	213	224	236	239	232	241	235	221	213	212	259	256	271	278	278	232	SW	24		
16	278	281	271	269	254	247	244	266	262	265	270	265	239	245	266	43	88	110	102	107	106	83	83	83	252	WSW	24		
17	90	106	106	93	88	82	96	90	68	93	80	88	108	141	79	81	92	125	127	84	103	149	135	113	102	E	24		
18	97	92	83	95	91	87	80	67	54	58	58	77	40	41	46	62	52	70	93	95	97	91	97	97	77	ENE	24		
19	102	109	110	117	116	112	115	125	131	149	113	105	99	59	70	97	74	22	321	284	293	331	233	209	104	ESE	24		
20	208	193	279	316	293	8	93	171	156	158	69	30	159	184	131	111	118	93	94	184	164	147	157	165	136	SE	24		
21	179	169	170	174	175	173	164	164	178	147	140	198	304	325	337	339	347	353	1	359	2	355	355	351	352	N	24		
22	348	340	343	335	287	244	248	238	239	244	291	70	157	202	330	336	303	191	191	141	217	194	241	15	297	WNW	24		
23	228	193	290	216	214	266	281	272	268	255	261	266	265	266	259	254	252	247	242	254	268	258	261	245	256	WSW	24		
24	243	213	199	333	354	1	354	347	328	332	316	356	270	299	309	257	315	289	317	357	9	13	17	15	324	NW	24		
25	356	36	294	343	313	327	313	308	296	290	281	279	291	5	342	26	25	46	68	68	84	69	64	82	353	N	24		
26	97	83	81	107	98	108	103	107	111	112	139	193	135	327	0	357	176	180	166	139	137	140	159	166	118	ESE	24		
27	173	174	182	180	175	179	184	185	203	205	184	240	167	214	347	342	357	355	359	7	1	222	223	201	228	SW	24		
28	212	212	216	222	220	224	222	269	332	329	298	315	282	270	255	224	200	191	38	79	103	106	127	149	230	SW	24		
29	166	171	174	28	14	23	22	29	44	66	88	78	89	79	59	343	297	242	224	236	P	327	312	326	36	NE	23		
30	302	276	278	267	264	295	307	314	312	331	63	63	76	93	88	92	88	55	82	82	76	80	75	85	43	NE	24		
31	95	88	78	71	65	70	94	112	77	40	43	209	205	217	212	209	212	217	203	206	211	215	264	294	176	S	24		
HOURLY AVG	356	340	343	343	354	327	354	358	332	332	347	359	329	331	350	357	357	355	359	359	293	355	355	351					

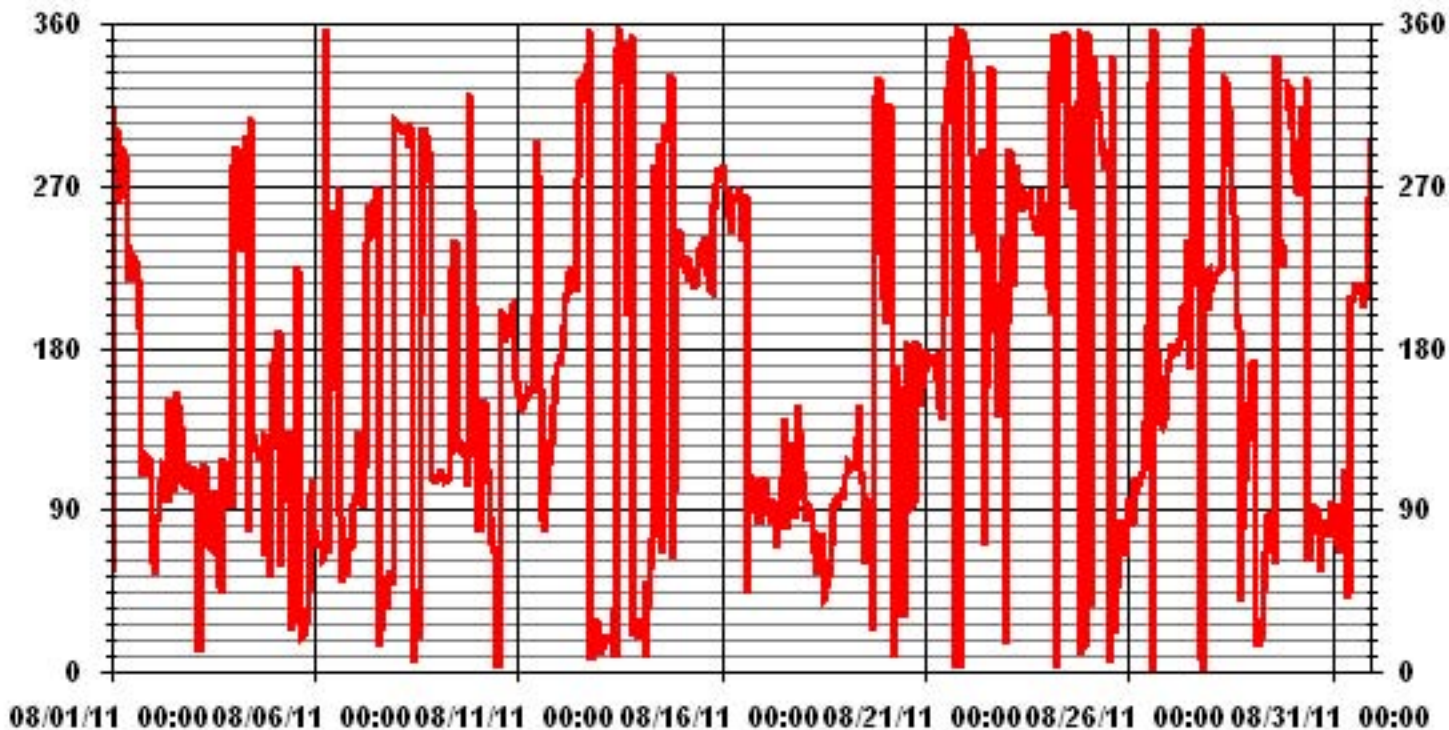
STATUS FLAG CODES

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

LAST CALIBRATION:	June 17, 2010
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	743	HRS
STANDARD DEVIATION	98.71		AMD OPERATION UPTIME	99.9	%
			MONTHLY AVERAGE	120	DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

AUGUST 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	29	11	14	13	13	14	16	17	17	18	64	54	36	44	72	58	60	65	26	6	6	7	10	10
2	16	13	14	8	12	7	16	12	30	28	44	51	62	55	56	46	45	27	21	5	16	25	4	3
3	6	3	6	19	62	34	20	25	10	20	23	30	36	36	32	14	35	58	29	6	6	6	9	7
4	12	11	13	18	6	9	9	17	21	79	52	47	59	27	32	27	32	38	37	30	16	29	12	10
5	11	10	10	15	16	11	16	17	19	40	26	32	23	42	34	42	18	17	9	6	8	34	36	12
6	13	11	11	11	11	41	38	24	16	29	32	28	11	34	52	50	26	26	17	57	8	10	13	10
7	17	17	20	19	30	27	17	18	12	13	12	16	16	33	49	38	28	20	24	25	19	19	26	15
8	15	15	14	15	15	14	14	17	19	19	35	46	51	60	68	20	22	18	14	6	25	3	2	3
9	5	4	3	3	3	3	3	10	37	20	27	17	30	33	22	25	25	22	27	37	9	8	46	25
10	55	31	15	23	55	25	8	12	12	18	24	50	67	73	24	27	27	12	4	5	8	9	20	20
11	16	12	11	6	5	4	10	29	34	48	47	25	56	63	51	52	20	20	13	6	5	7	4	6
12	7	6	9	7	7	8	9	16	20	21	29	34	30	28	25	25	31	25	13	5	5	6	9	11
13	14	11	10	12	14	15	21	37	45	40	26	47	57	33	31	46	54	53	2	22	10	10	15	10
14	11	12	13	15	14	25	29	39	12	15	17	25	29	24	40	24	16	24	45	44	43	39	37	28
15	54	44	24	26	19	16	24	26	29	21	42	38	38	31	35	26	33	29	48	11	8	11	13	13
16	12	13	10	10	10	5	7	16	15	16	19	26	73	74	81	90	74	35	11	4	4	10	7	6
17	7	5	4	13	30	21	14	37	60	53	65	65	46	32	36	45	38	19	25	14	15	17	14	22
18	8	17	27	29	21	29	23	30	38	40	44	52	46	41	30	37	26	15	15	5	6	6	5	7
19	7	9	7	6	6	5	11	14	28	51	41	65	57	26	31	56	30	49	15	12	12	14	15	9
20	9	15	33	16	15	32	9	19	16	15	39	43	23	36	49	34	41	18	7	15	5	8	8	9
21	9	9	10	9	10	9	11	12	15	65	87	89	81	56	44	37	24	23	10	8	9	7	5	5
22	3	3	5	4	18	7	6	11	15	15	28	35	40	66	42	49	12	45	30	10	9	8	40	41
23	21	16	53	22	21	51	57	52	49	36	34	29	30	26	27	25	25	27	45	40	9	11	6	5
24	7	6	9	19	7	9	12	26	45	53	55	81	72	58	30	47	65	15	23	12	11	11	15	12
25	30	20	26	17	16	15	14	15	17	21	20	22	63	62	84	49	37	37	17	12	7	10	10	9
26	7	8	10	2	4	5	3	18	24	41	61	61	58	64	34	46	28	17	11	11	10	10	10	10
27	9	7	9	10	8	9	12	15	21	21	21	51	59	38	22	19	11	3	3	2	23	26	17	14
28	20	13	27	41	29	40	48	63	33	39	61	29	26	37	48	38	26	27	16	5	3	5	8	8
29	10	9	9	15	15	14	20	27	36	43	54	42	50	50	54	50	24	33	27	25	P	18	16	15
30	15	13	12	8	9	13	14	18	20	22	30	32	36	34	50	39	47	26	9	7	6	9	11	9
31	8	12	19	18	14	15	9	10	24	28	57	34	29	26	27	29	22	24	13	12	27	31	22	12

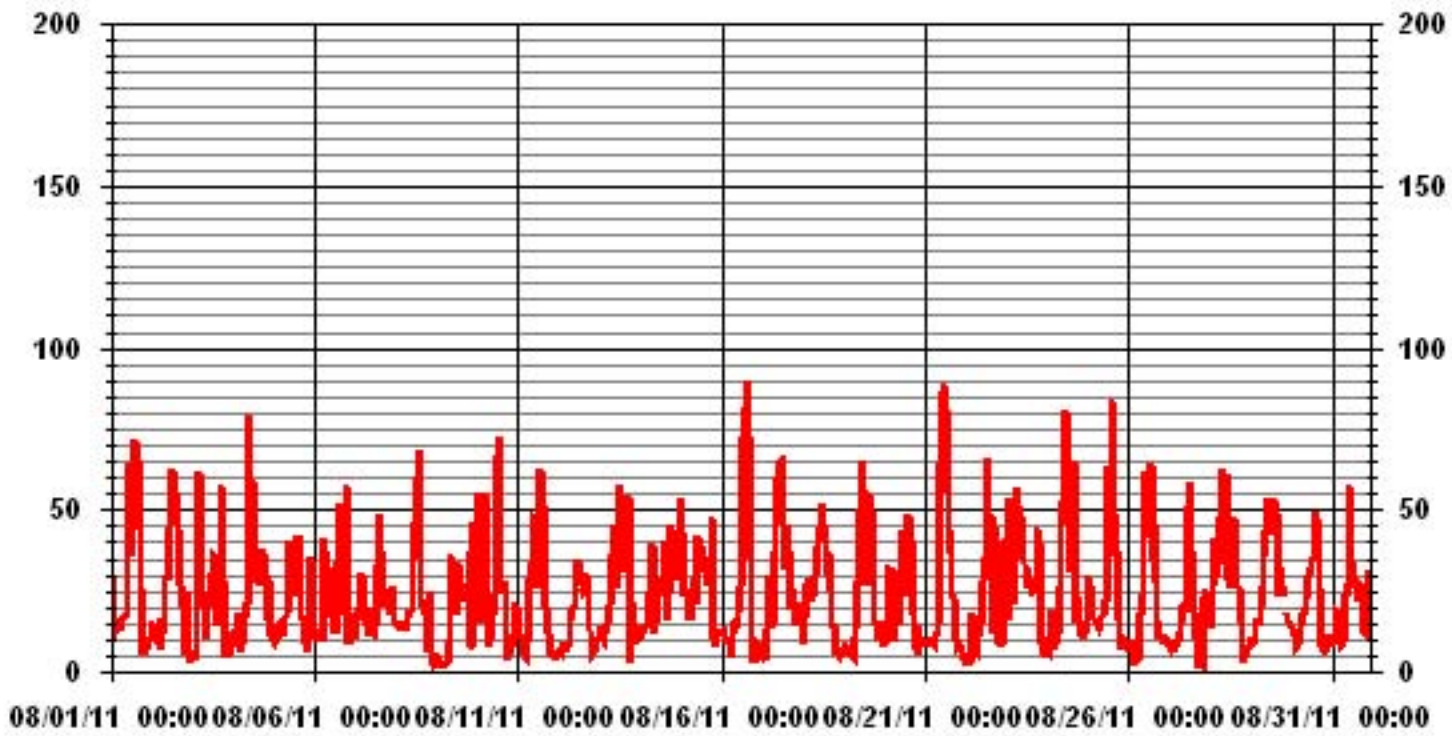
STATUS FLAG CODES

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

LAST CALIBRATION: June 17, 2010

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 743 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO2 Calibration Report
Station Information

Calibration Date	August 11, 2011	Previous Calibration	July 6, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	8:20	End Time (MST)	13:33
Reason:	Monthly Calibration		
Barometric Pressure	931.8 mBar	Station Temperature	24 Deg C
Cal Gas	49 ppm	Gas Cyl. #	LL103822
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	February 4, 2013
		Chart Rec. Output	0 - 1 Volts

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	468	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 1000		
Sample Flow / Box Temp	535 ccm, 31.3 Deg C	529 ccm, 27.5 Deg C	27.5 Deg C
HVPS / Lamp Setting	529, 2378	-517, 853	
PMT / RxCell Temp	7.8 Deg C, 50 Deg C	7.8 Deg C, 44.7 Deg C	
Converter / IZS Temp	NA Deg C, 40 Deg C	NA Deg C, 40.0 Deg C	
Offset / Slope	67.6, 1.121	31.8, 0.956	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	2	N/A
4996	0	0	0	N/A
4922	76.5	750	761	0.9854
4922	76.5	750	750	1.0000
4959	35.7	350	346	1.0122
4979	15.3	150	150	1.0000
4998	0	0	0	N/A
Sum of Least Squares				0.9905
New Correction Factor				1.0000

Before Calibration

After Calibration

Auto Zero	2.4	0.7
Auto Span	373.0	362.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9854
Percent Change:	1.5%

Notes: N/A : Not applicable

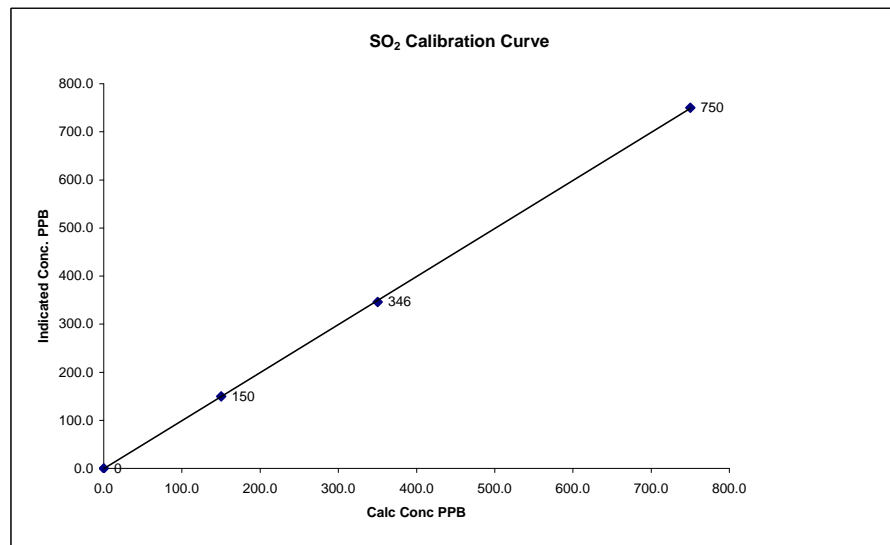
During the zero phase of the dialy cal, the power chord was accidentally disconnected, allowed analyzer to stabilize then re-san the daily cal.

Calibration Performed by: Shea Beaton

SO2 Calibration Curve

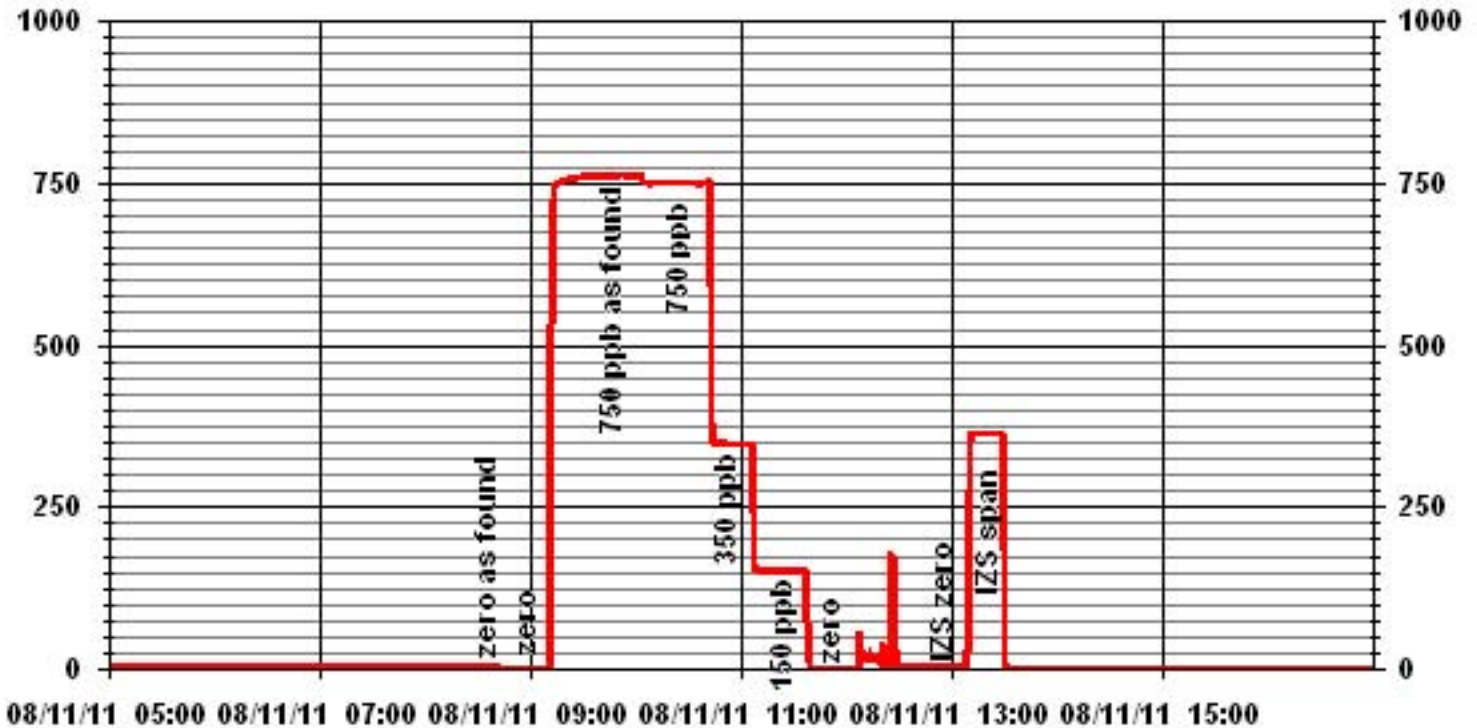
Calibration Date	August 11, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST. LINA
Start Time (MST)	8:20
End Time (MST)	13:33

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	n/a		0.999958
150	150	1.0007		0.999657
350	346	1.0122		
750	750	1.0000		-0.959782



Notes:

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	August 10, 2011	Previous Calibration	July 5, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST.LINA		
Start Time (MST)	8:41	End Time (MST)	12:38
Reason:	Monthly Calibration		
Barometric Pressure	930 mmHg	Station Temperature	23 Deg C
Cal Gas	10.2 ppm	Gas Cyl. #	bim000804
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	February 2, 2012
		Chart Rec. Output	0 - 1 Volts

Equipment Information

Analyzer Make / Model:	API 101E	S/N :	510	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	829	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	A0717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	829		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 100 ppb	OK	OK
Sample Flow / Box Temp	552 ccm	548 ccm	OK
HVPS / Lamp Setting	518	2436	518
PMT / RxCell Temp	8.4 Deg C	50 Deg C	8.4 Deg C
Converter / IZS Temp	315.5 Deg C	45 Deg C	315 Deg C
Offset / Slope	63.6	1.051	67.3

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
3997	0	0	2	NA
4995	0	0	0	1.0000
4958	39.2	80	86	0.9304
4958	39.2	80	81	0.9878
4980	19.6	40	40	1.0000
4985	11.2	23	23	1.0000
4995	0	0	0	NA
Sum of Least Squares				0.9904
New Correction Factor				0.9878

Before Calibration		After Calibration	
Auto Zero	2.2		0.4
Auto Span	47.4		43.7
Sample Lines Connected			YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9304
Percent Change:	7.5%

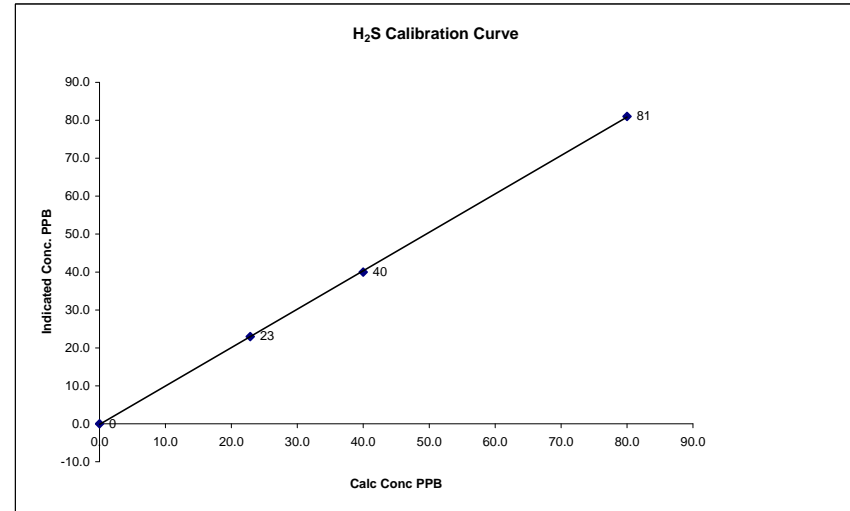
Notes: **NA : Not Applicable**

Calibration Performed by: Shea Beaton

H₂S Calibration Curve

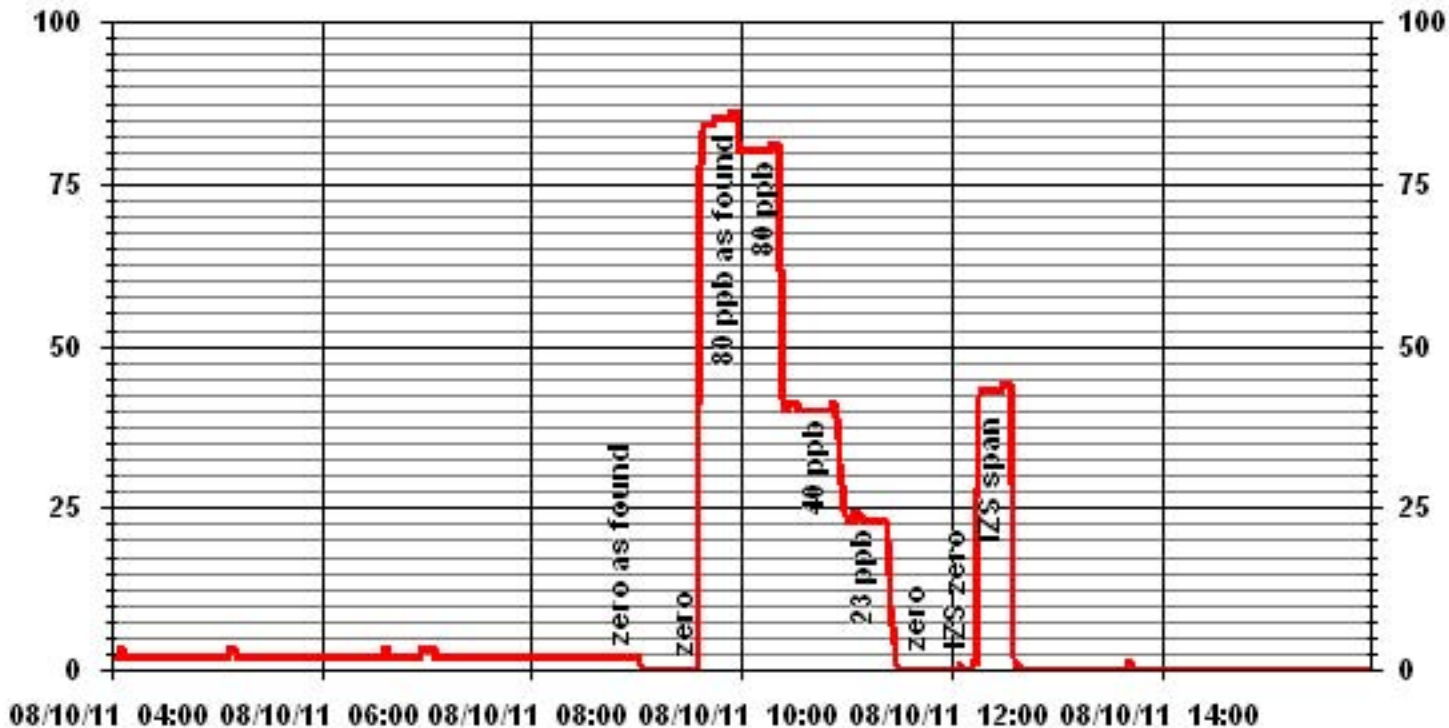
Calibration Date	August 10, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST.LINA
Start Time (MST)	8:41
End Time (MST)	12:38

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	
0	0		Intercept		0.999956
23	23	0.9941			1.012292
40	40	0.9997			-0.155373
80	81	0.9878			



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	August 10, 2011	Previous Calibration	July 5, 2011
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	ST. LINA		
Start Time (MST)	9:24	End Time (MST)	14:22
Reason:	Monthly Calibration		
Barometric Pressure:	930 mmHg	Station Temperature:	23 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	CH4 593 PPM	C3H8 205 PPM	
	TOTAL CH4 1156.8 PPM	Gas Cyl. # -	Cal Gas Expiry Date: June 7, 2014
DAS make & Model:	ESC 8832	S/N :	AO 717
Chart Recorder:	NA	S/N:	NA
Output Voltage Range:	0 - 10 VDC	Chart Speed:	NA mm/hr

Analyzer Information

Make / Model	TECO 51C	S/N :	77021-384	Method	Flame Ionization
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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
2000	0.0	0.0	0.1	NA
2000	70.0	39.1	38.5	1.0160
2000	0.0	0.0	0.0	1.0000
2000	70.0	39.1	39.3	0.9953
2000	35.0	19.9	19.6	1.0150
2000	20.0	11.5	11.3	1.0135
2000	0.0	0.0	0.0	NA
New Correction Factor:				0.9953

Percent Change

Previous Calibration Correction Factor:	0.9911
Current Correction Factor Before Span Adjust:	1.0160
Percent Change:	-2.4%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.1	0.0
Auto Span	35.3	36.2
Sample Lines Connected		YES

Cylinder Pressures			
Span	400 psi	Hydrogen	950 psi
		Zero Air	31 psi

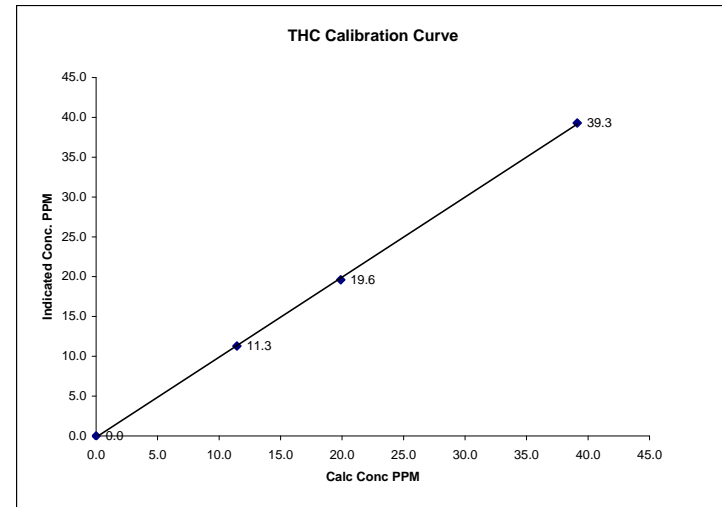
Notes: **NA : Not Applicable**
 daily cal accidentally aborted, restarted.

Calibration Performed by: Shea Beaton

THC Calibration Curve

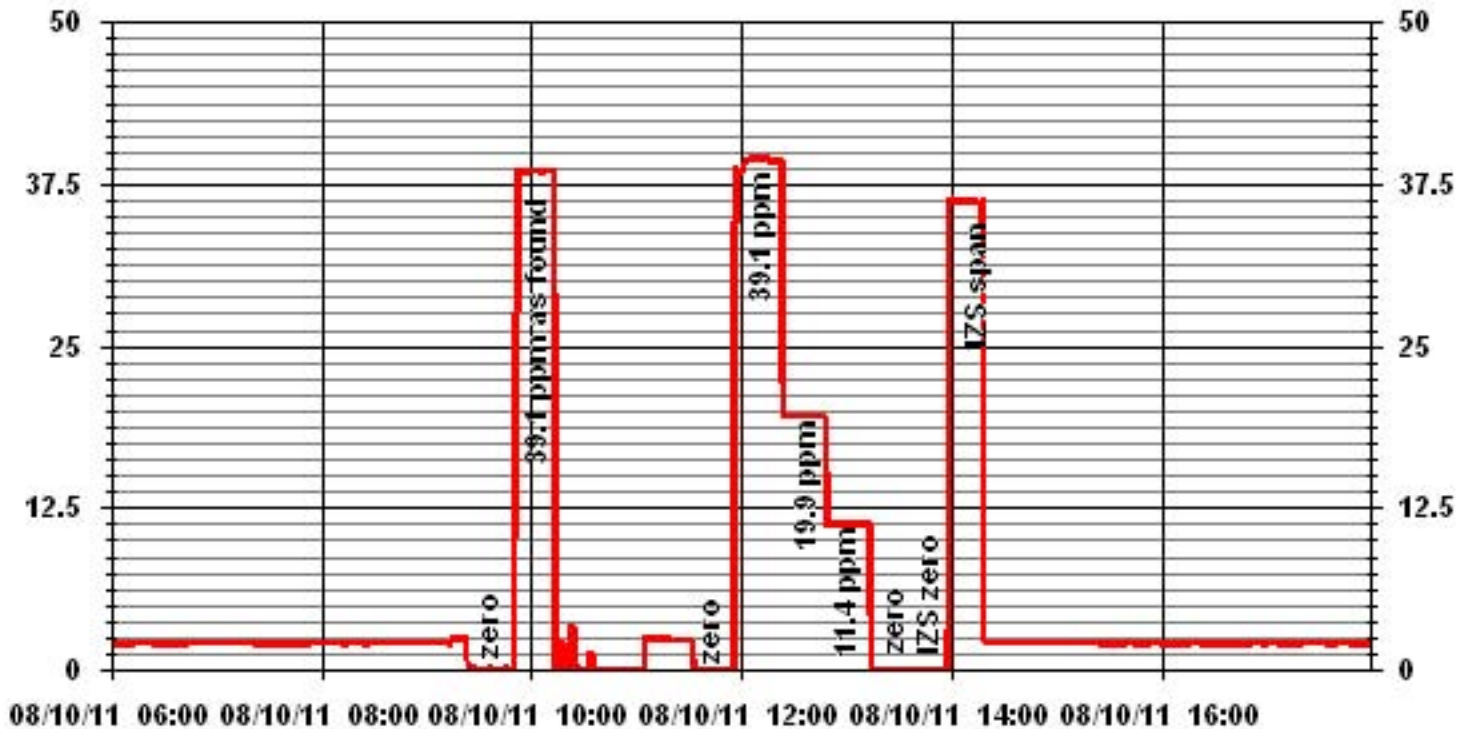
Calibration Date	August 10, 2011		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	9:24	End Time (MST)	14:22

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope (0.85 to 1.15)	Correlation Coefficient Intercept (±3% F.S.)
0.0	0.0	NA	0.999873	1.005151
11.5	11.3	1.0135		-0.15701
19.9	19.6	1.0150		
39.1	39.3	0.9953		



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	August 10, 2011	Previous Calibration	July 5, 2011
Company	LICA	Plant/Location	St. Lina
Start Time (MST)	8:41	End Time (MST)	10:05
Reason:	As Found Calibration		
Barometric Pressure	930 mmHg	Station Temperature	23 Deg C
Cal Gas Concentration	NOx 51.7 ppm	NO 50.4 ppm	Cal Gas Expiry date February 4, 2013
Cal Gas Cylinder #	LL103822	MFCF	1
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	NA Volts

Equipment Information

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

Analyzer Settings

Before Calibration		0 - 1000		After Calibration	
Concentration Range					
Sample Flow/Conv. Temp	361 ccm	314.1 Deg C	479 ccm	314 Deg C	
Ozone Flow / Vacuum	73 ccm	4.7 Hg-A	73 ccm	4.9 Hg-A	
HVPS / A ZERO	662 Volts	19.9 MV	662 Volts	20.1 MV	
Rx/ Temp / PMT Temp	50.0 Deg C	6.8 Deg C	50.0 Deg C	6.9 Deg C	
Box Temp / IZS Temp	30.3 Deg C	45.1 Deg C	31.9 Deg C	45 Deg C	
Offset	0.9 NOx	0.0 NO	0.9 NOx	0.0 NO	
Slope	1.132 NOx	1.097 NO	1.132 NOx	1.097 NO	
NO2 COEF / Conv Efficiency	NA NO2	1.005	NA NO2	1.000	

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	NA	0	0	NA	3	1	2	NA	NA
4922	74.2	NA	768	749	NA	783	752	25	0.9844	0.9967

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		
4922	74.2	NA	768	749	NA	783	752	25	NA	NA
No Adj Required										
4922	74.2	550	768	NA	495	794	282	512	0.9706	103.62%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 0.9844	NO= 0.9967	NO2= 0.9706
Average Converter Efficiency=						

Before Calibration		After Calibration	
Auto Zero	0.2 NOx -0.3 NO2	NA NOx	NA NO2
Auto Span	732 NOx 705 NO2	NA NOx	NA NO2
Sample Lines Connected YES			
Percent Change from Previous Calibration		NOx 1.6%	NO 0.3%
Notes		NO2 2.6%	

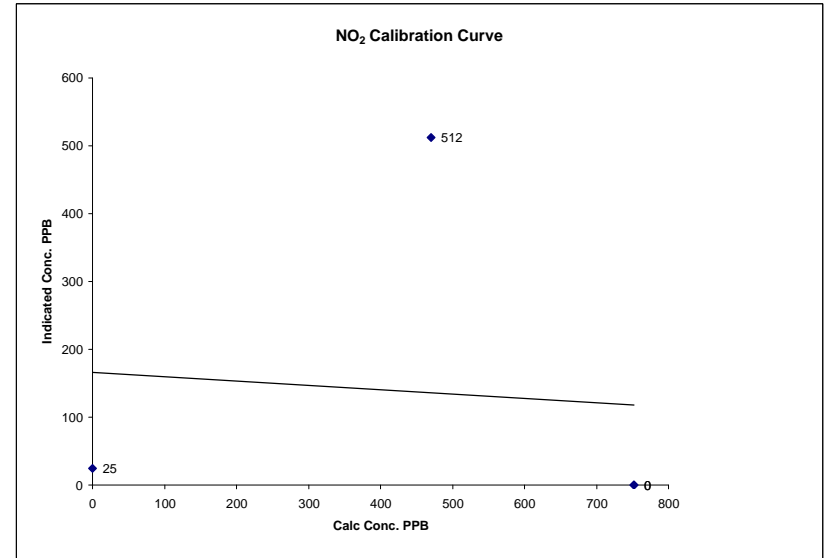
Notes: **NA : Not Applicable**
Additional GPT was done for O3 claibration. O3 set point 450, NO=351, NO2=421

Calibration Performed by: Shea Beaton

NO2 Calibration Curve

Calibration Date	August 10, 2011	Company	LICA
Plant / Location	St. Lina	Start Time (MST)	8:41
End Time (MST)	10:05		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.008245
0	25	N/A	Intercept	(± 3% F.S.)	#####
752	0	#DIV/0!			
752	0	#DIV/0!			
470	512	0.9180			



Notes:

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	August 10, 2011	Previous Calibration	July 5, 2011
Company	LICA	Plant/Location	St. Lina
Start Time (MST)	11:39	End Time (MST)	18:14
Reason:	Post Repair Calibration		
Barometric Pressure	930 mmHg	Station Temperature	23 Deg C
Cal Gas Concentration	NOx 51.7 ppm	NO 50.4 ppm	Cal Gas Expiry date February 4, 2013
Cal Gas Cylinder #	LL103822	MFCF	1
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	NA Volts

Equipment Information

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

Analyzer Settings

Before Calibration			After Calibration			
Concentration Range	0 - 1000			ppb		
Sample Flow/Conv. Temp	479 ccm	314 Deg C	483 ccm	314 Deg C		
Ozone Flow / Vacuum	73 ccm	4.9 Hg-A	73 ccm	4.9 Hg-A		
HVPS / A ZERO	662 Volts	20.1 MV	662 Volts	20.4 MV		
Rx/ Temp / PMT Temp	50.0 Deg C	6.9 Deg C	50.0 Deg C	6.9 Deg C		
Box Temp / IZS Temp	31.9 Deg C	45.0 Deg C	30.3 Deg C	45.2 Deg C		
Offset	0.9 NOx	0.0 NO	3.7 NOx	0.4 NO		
Slope	1.132 NOx	1.097 NO	1.118 NOx	1.085 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
4996	0.0	NA	0	0	NA	1	0	1	NA	NA
4922	74.2	NA	768	749	NA	766	749	17	1.0037	1.0000
4960	34.6	NA	358	349	NA	356	348	9	1.0089	1.0033
4979	16.8	NA	174	169	NA	172	170	3	1.0167	0.9970
4996	0.0	NA	0	0	NA	-1	1	-2	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4922	74.2	NA	768	749	NA	760	741	19	NA	NA
No Adj Required										
4922	74.2	550	768	NA	480	762	280	482	0.9979	100.43%
4922	74.2	300	768	NA	272	760	488	272	1.0037	100.00%
4922	74.2	120	768	NA	118	760	642	119	1.0000	101.01%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 1.003	NO= 1.000	NO2= 0.997
				NOx= 1.0037	NO= 1.0000	NO2= 0.9979
Average Converter Efficiency= 100.48%						

Before Calibration			After Calibration		
Auto Zero	0.2 NOx	-0.3 NO2	-1.4 NOx	-1.6 NO2	
Auto Span	732 NOx	705 NO2	723 NOx	697 NO2	
Sample Lines Connected			YES		
Percent Change from Previous Calibration			NOx -	NO -	NO2 -

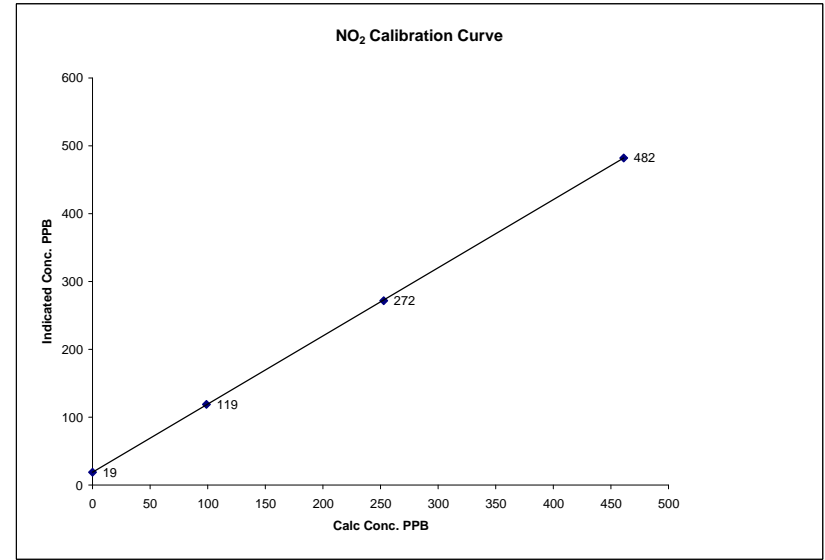
Notes: **NA : Not Applicable**
Additional GPT was done for O3 claibration. O3 set point 450, NO=360, NO2=399, NOx=760

Calibration Performed by: Shea Beaton

NO2 Calibration Curve

Calibration Date	August 10, 2011	Company	LICA
Plant / Location	St. Lina	Start Time (MST)	11:39
End Time (MST)	18:14		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999989
0	19	N/A	Intercept	(± 3% F.S.)	19.05971
99	119	0.8319			
253	272	0.9301			
461	482	0.9564			

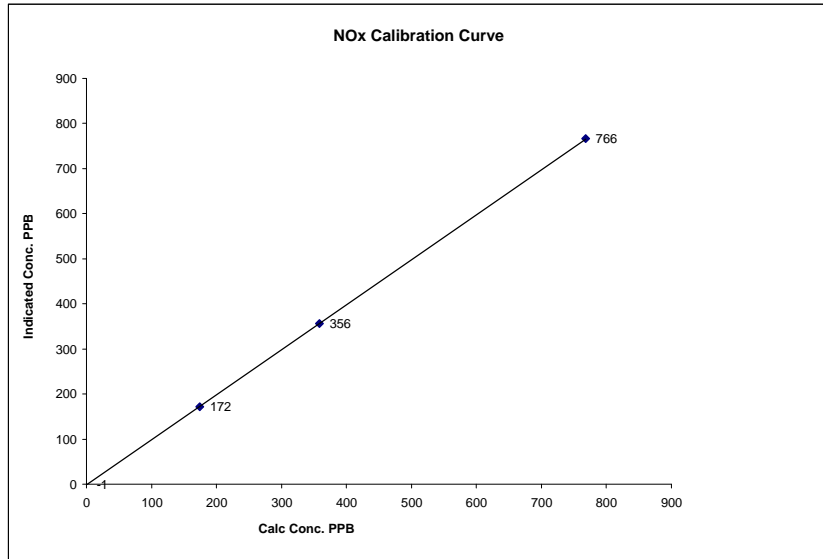


Notes:

NOx Calibration Curve

Calibration Date August 10, 2011
 Company LICA
 Plant / Location St. Lina
 Start Time (MST) 11:39 End Time (MST) 18:14

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999998
0	-1	N/A	Intercept	(± 3% F.S.)	-1.43772
174	172	1.0108			
358	356	1.0060			
768	766	1.0024			

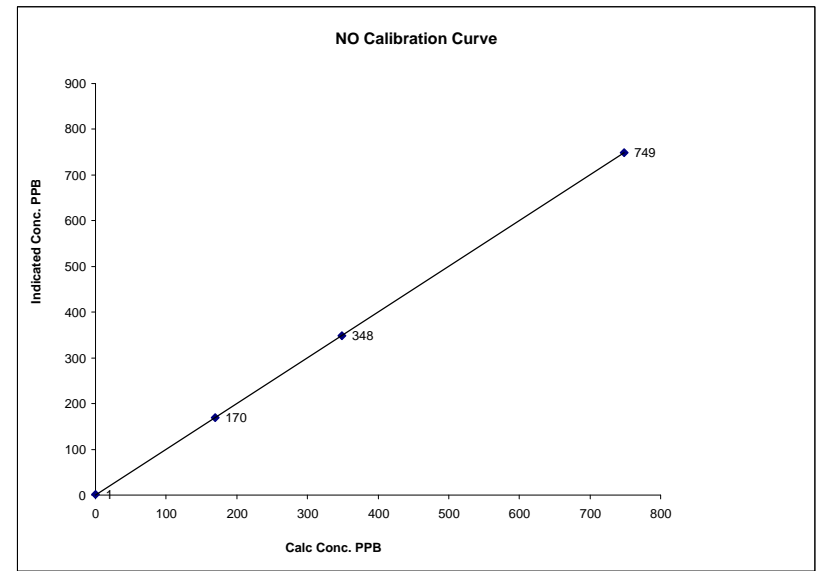


Notes:

NO Calibration Curve

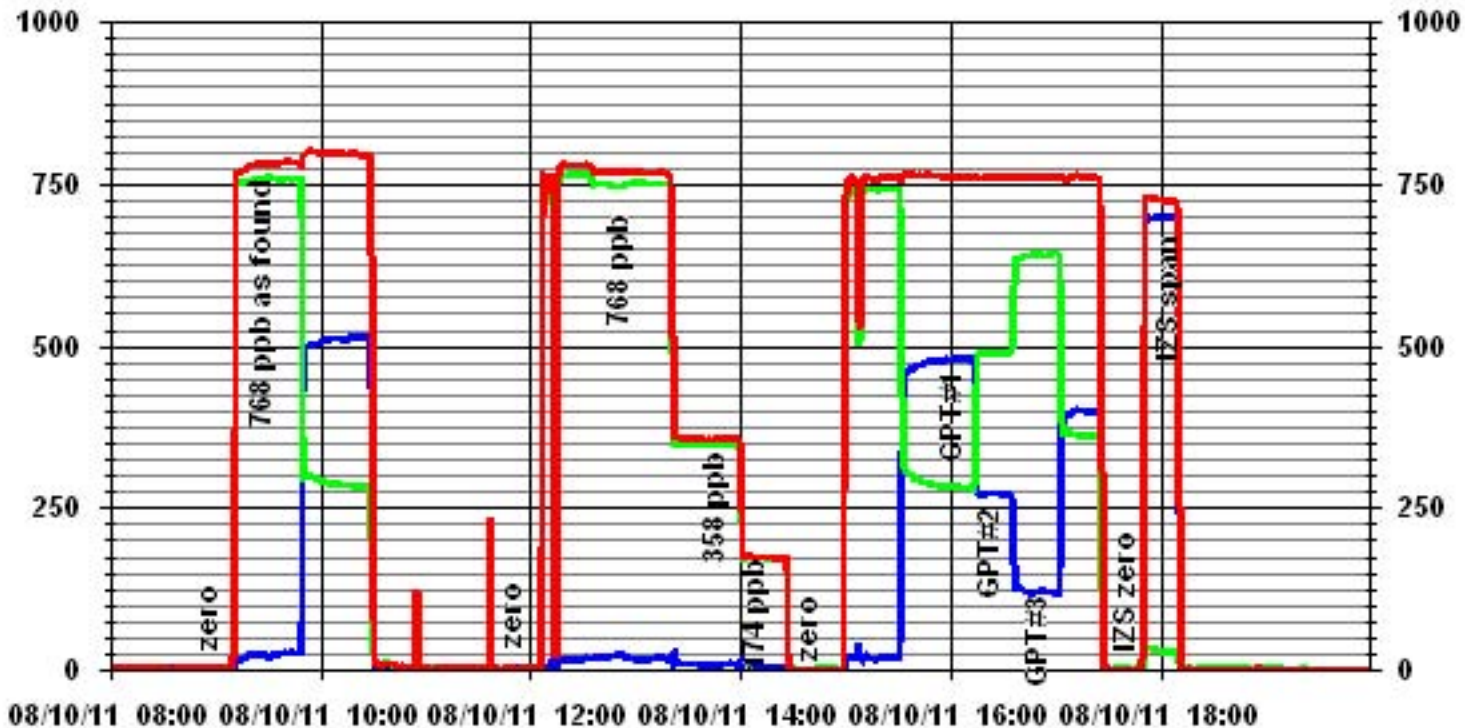
Calibration Date August 10, 2011
 Company LICA
 Plant / Location St. Lina
 Start Time (MST) 11:39 End Time (MST) 18:14

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999992
0	1	N/A	Intercept	(± 3% F.S.)	-2.5791
169	170	0.9970			
349	348	1.0033			
749	749	0.9993			



Notes:

01 Minute Averages



— LICA31 NOX_ PPB

— LICA31 NO_ PPB

— LICA31 NO2_ PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	August 11, 2011	Previous Calibration	July 6, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	8:20	End Time (MST)	13:33
Reason:	Monthly Calibration		
Barometric Pressure	931.8 mm Hg	Station Temperature	24 Deg C
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49C	S/N :	49C-54926-302	Method:	Fluorescent
Calibrator Make / Model:	Enviroics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO 717		

Analyzer Settings

	Before Calibration		After Calibration	
	0 - 500			
Concentration Range	ppb			
Cell A Flow / Cell B Flow	724 ccm	742 ccm	723 ccm	740 ccm
Pressure	702.7 mmHg		701.4 mmHg	
Bench Temp	55.6 Deg C		55.7 Deg C	
O3 Lamp / Box Temp	80 Deg C	31.5 Deg C	80 Deg C	31.8 Deg C
Offset / Slope	0.1	0.953	0.2	0.962

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	NA
	No Adj Needed			
4994	450	381	377	1.0106
4994	450	381	383	0.9948
4994	300	253	257	0.9844
4994	120	99	104	0.9519
4994	0	0	0	N/A
Sum of Least Squares				N/A
New Correction Factor				0.9948

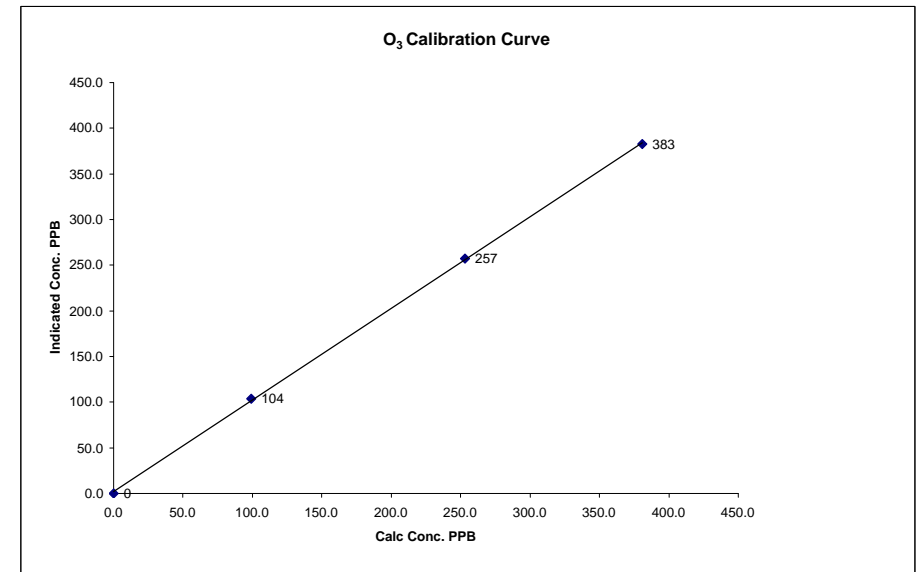
	Before Calibration	After Calibration
Auto Zero	1.0	0.7
Auto Span	323	322
Sample Lines Connected		YES
Percent Change from Previous Calibration		-1.3%

Calibration Performed by: Shea Beaton

O₃ Calibration Curve

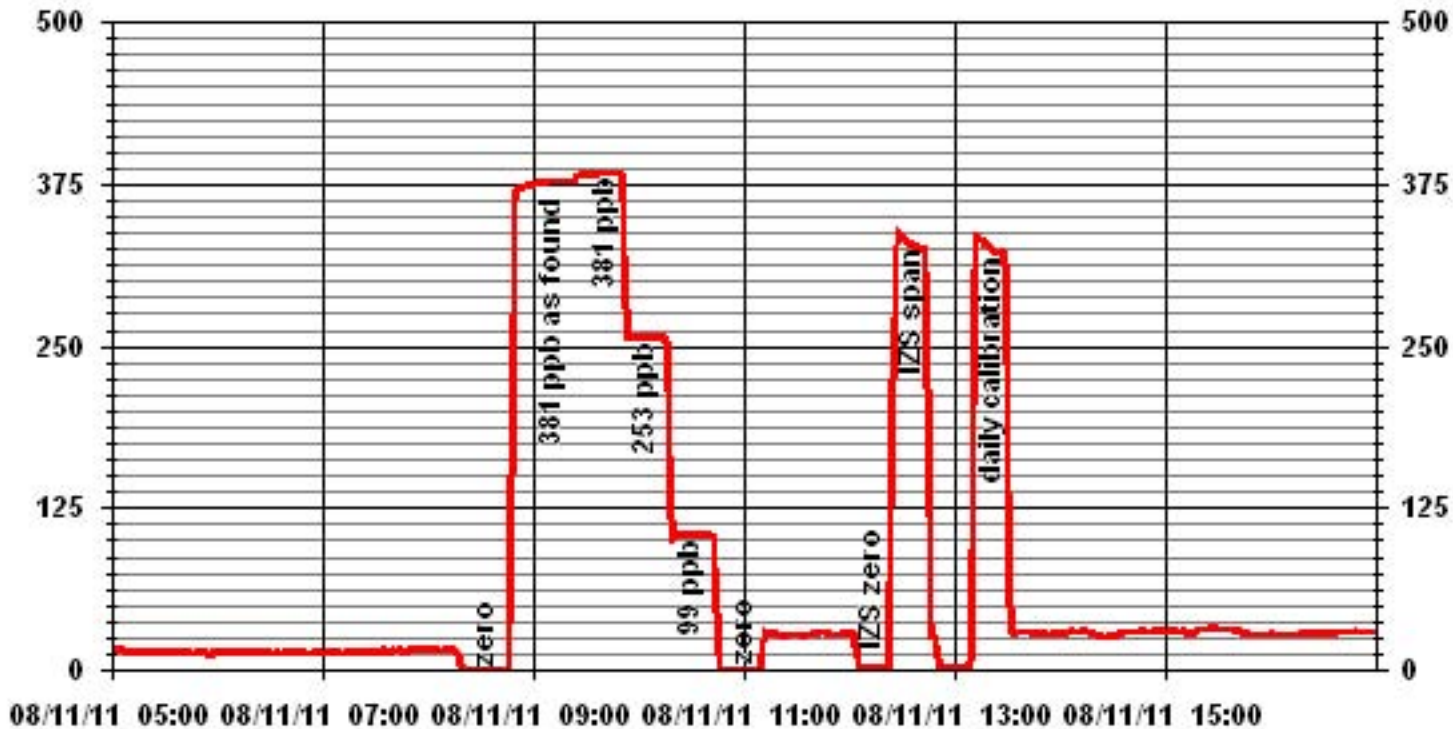
Calibration Date	August 11, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	8:20	End Time (MST)	13:33

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			0.999836
99	104	0.9519			1.002992
253	257	0.9844			
381	383	0.9948			2.201757



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOMÒ 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	<u>August 11, 2011</u>	Make/Model:	<u>Streamline FTS</u>
Station Name:	<u>Lica St. Lina (CASA # 31)</u>	Serial Number:	<u>LO 091099, Hi 091001</u>
Location:	<u>St. Lina Station</u>	Cell s/n:	<u>NA</u>
Operator:	<u>LICA</u>	Thermometer s:	<u>Station Temp. Sensor</u>

	<u>Sampler</u>		<u>Set-up and current Sampler readings</u>
Make/Model	<u>Thermo Scientific Series 1405F</u>	F-Main Set Pt (l/min)	<u>3.00</u>
Unit #	<u>NA</u>	F-Aux Set Pt (l/min)	<u>13.67</u>
Unit s/n	<u>1405A208301003</u>	Filter Load (%)	<u>24.0%</u>
Firmware Ver.	<u>1.52</u>	K _o Factor	<u>13125.0</u>
Parameter	<u>PM 2.5 (with FDMS)</u>	Temp (°C)	<u>19.4</u>
		Press (ATM)	<u>0.924</u>

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Audit

Status			
Noise <0.10ug	<u>0.004</u>	Warnings	<u>None</u>
Pump Vacuum <0.4atm	<u>0.32</u>	Pump Gauge (inHg)	<u>19</u>
Temperature/Pressure			
Measured Temp (± 2 °C)	<u>19.9</u>	D °C	<u>-0.5</u>
Measured Press (± 0.01atm)	<u>0.919</u>	DATM	<u>0.005</u>
Flow Audit			
Indicated Main Flow (l/min)	<u>3.00</u>	Main Flow Drift (±10.0%)	<u>2.08%</u>
Measured Main Flow (l/min)	<u>3.01</u>	Flow Adjusted to Measured?	<u>Yes</u>
Indicated Bypass Flow (l/min)	<u>13.67</u>	Bypass Flow Drift (±10.0%)	<u>0.96%</u>
Measured Bypass Flow (l/min)	<u>13.70</u>	Flow Adjusted to Measured?	<u>No</u>
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	<u>base=-0.02 Ref=0.02</u>	Flow Control = Active	
Aux (< 0.6 l/min)	<u>base=0.03 Ref=0.03</u>	Report Conditions = Actual	
K_o Factor			
Measured	<u>NA</u>		
K _o Difference (± 2.5%)	<u>NA</u>		

Start Time: 8:40 **Finish Time:** 11:20

Sample Inlet Cleaned: Yes **New Filters Installed:** Yes
New Filter Loading %: 18.0%

Comments: Following initial flow measurement the main, bypass and H2O knock-off filters were all replaced. Conducted leak check:good. Conducted temp, BP, and flow calcs. Re-audited flow: all good, then cross checked flows with Bios DC-2, S/N 1193. Xcheck mainflow 3.01 lpm, bypass 13.84 lpm.

Auditor/s: Shea Beaton

Lakeland Industry & Community Association

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

Ambient Air Monitoring Data Report

For

August 2011

Prepared By:



September 23, 2011

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

Table of Contents

	Page		Page
Introduction	3	Volatile Organics	89
Calibration Procedure	4	Polycyclic Aromatic Hydrocarbons	92
Monthly Continuous Summary	5	Calibration Reports	96
Volatile Organics Data Summary	6	• Sulphur Dioxide	97
Polycyclic Aromatic Hydrocarbons Data Summary	7	• Hydrogen Sulphide	100
General Monthly Summary	8	• Particulate Matter 2.5	104
Continuous Monitoring	12	• Nitrogen Dioxide	106
• Monthly Summaries, Graphs & Wind Roses	13	• Ozone	110
○ Air Quality Index	14	• Total Hydrocarbons	115
○ Sulphur Dioxide	16	Volatile Organics Laboratory Analysis	118
○ Hydrogen Sulphide	24	Polycyclic Aromatic Hydrocarbons Laboratory Analysis	195
○ Particulate Matter 2.5	32		
○ Nitrogen Dioxide	37		
○ Nitric Oxide	45		
○ Oxides of Nitrogen	52		
○ Ozone	60		
○ Total Hydrocarbons	68		
○ Vector Wind Speed	76		
○ Vector Wind Direction	83		
○ Standard Deviation Wind Direction	86		

Introduction

The following Ambient Air Monitoring report was prepared for:

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

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

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PORTABEL / DEVON WELLSITE 13-16-62-5 W4M SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)
						OBJECTIVES				EXCEEDENCES		MONTHLY AVERAGE	
PARAMETER	1-HR	24-HR	1-HR	24-HR	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY		
SO ₂ (PPB)	172	48	0	0	0.01	2	21	11	18.8	164(SSE)	0.3	30	98.1
H ₂ S (PPB)	10	3	0	0	0.12	7	12	6	2.7	120(ESE)	0.7	12	99.5
THC (PPM)	-	-	-	-	2.43	10.6	12	4	1	5(N)	3.9	12	99.6
NO ₂ (PPB)	159	-	0	-	2.34	11	11	0	3.9	6(N)	3.5	22	99.7
NO (PPB)	-	-	-	-	0.79	15	12	4	1	5(N)	2.7	12	99.7
NO _x (PPB)	-	-	-	-	3.17	19	12	4	1	5(N)	5.1	12	99.7
O ₃ (PPB)	82	-	0	-	16.87	42	9	13, 14	10.1, 11.3	224(WSW), 230(SW)	22.9	5	98.1
PM 2.5 (UG/M ³)	-	30	-	0	4.00	11.8	VAR	VAR	VAR	VAR	7.5	10	98.4
VECTOR WS (KPH)	-	-	-	-	7.94	31.7	23	14	-	289(WNW)	14.8	23	99.7
VECTOR WD (DEGREES)	-	-	-	-	261(W)	-	-	-	-	-	-	-	99.7

VAR-VARIOUS

Volatile Organics Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE

ontech Model 910A – August 1, 2011

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

Xontech Model 910A – August 7, 2011

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

Xontech Model 910A – August 13, 2011

Maximum reading (ug/m3)	Volatile Organic
NA	NA

Note: Sample result was not available when the monthly report is prepared. The result will be included in the following monthly report.

Xontech Model 910A – August 19, 2011

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

Xontech Model 910A – August 25, 2011

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

Xontech Model 910A – August 31, 2011

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

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

PUF cartridge – August 1, 2011

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

PUF cartridge – August 7, 2011

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

PUF cartridge – August 13, 2011

Maximum reading (ng/m3)	Semi-Volatile Organic
<5.757	3-Methylcholanthrene

PUF cartridge – August 19, 2011

Maximum reading (ng/m3)	Semi-Volatile Organic
<6.060	3-Methylcholanthrene

PUF cartridge – August 25, 2011

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

PUF cartridge – August 31, 2011

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

General Monthly Summary

Equipment Operation

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

AQM STATION – LICA – PORTABLE

Sulphur Dioxide (PPB)

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

No operational issue observed during this month. The inlet filter was replaced before the monthly calibration was performed. Hourly data on August 29th at hour 20 and 21 were invalidated due to a power failure. After the power failure, a circuit breaker for the SO₂ pump was tripped. Reset the circuit breaker and then ran daily calibration on August 30th. The zero air scrubber material was changed on August 30th. A total of 10 hours of data was invalidated. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

No operational issue observed during this month. It was noticed that the pump was getting noisy on August 9th. The pump was replaced following the as found points check on August 25th. The inlet filter was replaced before the monthly calibration was performed. Hourly data on August 29th at hour 20 and 21 were invalidated due to a power failure. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

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

No operational issue observed during this month. The inlet filter was replaced before the monthly calibration was performed. Hourly data on August 29th at hour 20 and 21 were invalidated due to a power failure. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Ozone (PPB)

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

No operational issues observed during the month. The inlet filter was replaced before the monthly calibration was started. Hourly data on August 29th at hour 20 and 21 were invalidated due to a power failure. After the power failure, a circuit breaker for the SO₂ pump was tripped. It was noticed that the ozone exhaust pump was shorted on August 30th. As a result, the pump was replaced, the circuit breaker was reset, and then a daily calibration check was run. A post-repair calibration was performed after the pump was replaced on August 30th. A total of 10 hours of data was invalidated. 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. Hourly data on August 29th at hour 20 and 21 were invalidated due to a power failure. One hour of the maximum reading was recorded above the full scale. It is likely the actual ambient concentration was greater than the reading we recorded. Data was corrected using daily zero information.

Particulate Matter 2.5 (ug/m³)

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

No operational issues observed during the month. A routine Teom audit was performed on August 25th. The Teom filter and FDMS filter were replaced on August 25th. Data was corrected using Alberta air quality guideline for PM_{2.5} 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. 10 hours of data were invalidated as they were below –3.0 ug/m³. Hourly data on August 29th at hour 20 and 21 were invalidated due to a power failure.

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. Hourly data on August 29th at hour 20 and 21 were invalidated due to a power failure.

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 Bard filter for the air conditioner was replaced on August 9th. The manifold was cleaned on August 24th.

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. All AQI values were within the Good range. The highest hourly concentration of Ozone was 42 ppb and an AQI value of 21, on August 9th, hour of 13 and 14. The highest hourly concentration of PM2.5 was 11.8 ug/m3 and an AQI value of 10 on August 11th at hour of 1.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Volatile Organics (VOCs)

The volatile organics were sampled from August 1st to August 31st. 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. Sample result for August 13th is not included in this monthly report because it is not available when the monthly report was preparing. The result for August 13th will be included in the following monthly report.

Polycyclic Aromatic Hydrocarbons (PAHs)

The PAHs scheduled to be sampled from August 1st to August 31st. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the PAHs in this report were reported as ng/m3.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -PORTABLESITE

AUGUST 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		8	7	5	4	4	4	4	6	7	10	11	11	11	-	11	11	10	10	10	8	5	5	5	5	11
2		4	4	3	3	3	3	4	6	7	8	9	10	-	11	11	11	11	11	10	8	6	6	5	5	11
3		6	7	5	4	4	4	4	6	7	9	9	-	13	12	14	13	12	11	9	10	11	8	7	6	14
4		4	4	4	4	4	3	4	6	10	12	-	15	15	14	13	13	11	14	13	11	6	6	5	4	15
5		7	5	6	4	11	8	8	12	17	-	19	19	19	19	18	18	18	17	16	10	8	8	8	6	19
6		6	6	5	6	8	8	6	7	-	10	9	12	15	12	10	6	8	13	12	12	10	8	6	5	15
7		4	4	4	4	5	7	6	-	7	7	7	7	6	6	8	9	10	8	7	7	9	8	8	7	10
8		6	5	5	4	6	4	-	6	7	9	11	12	12	13	12	13	13	13	12	10	8	6	5	4	13
9		5	3	3	2	1	-	3	7	9	12	16	16	17	21	21	19	18	17	16	18	16	10	9	6	21
10		6	4	7	8	-	4	4	9	13	17	19	20	18	17	15	14	15	13	10	9	8	5	7	5	20
11		9	10	5	-	9	5	6	7	11	12	13	14	14	15	15	16	15	16	14	7	7	4	6	7	16
12		2	3	-	1	3	4	2	6	10	13	14	15	16	15	15	15	15	15	13	11	7	6	6	5	16
13		6	-	7	5	4	6	7	9	11	14	15	16	17	19	19	20	20	20	18	12	7	6	9	5	20
14		03	NA	PM2	PM2	03	PM2	03	03	03	03	03	03	03	03	03	03	03	03	03	03	PM2	PM2	PM2	PM2	03
15		NA	03	PM2	PM2	PM2	PM2	PM2	PM2	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	NA	03
16		13	14	11	9	9	9	12	11	8	9	9	11	11	11	10	10	10	9	-	6	5	-	5	14	
17		03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	NA	03	03	NA	03	03
18		6	6	5	4	-	3	4	5	8	8	-	10	11	11	11	-	11	11	8	7	6	-	5	4	11
19		4	6	7	8	7	5	5	8	10	10	10	-	-	9	10	10	9	8	6	-	8	9	10	10	10
20		03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
21		8	6	5	5	5	5	5	6	8	9	10	9	9	9	8	8	8	8	8	-	4	3	3	-	10
22		2	2	2	2	3	3	3	4	5	6	8	9	10	10	10	9	8	-	4	3	2	2	2	2	10
23		03	03	03	PM2	PM2	03	03	03	03	03	03	03	03	03	03	03	03	03	03	NA	03	03	03	03	03
24		2	3	3	1	1	3	4	3	4	4	7	11	11	13	14	16	15	-	10	7	6	6	4	7	16
25		PM2	PM2	PM2	PM2	03	PM2	PM2	PM2	PM2	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
26		6	4	3	5	4	1	2	4	7	10	11	-	12	13	12	13	12	13	11	8	6	5	5	3	13
27		03	03	03	PM2	PM2	03	03	03	03	03	03	03	NA	03	03	03	03	03	03	03	03	03	03	03	03
28		4	4	6	10	6	7	8	9	9	11	-	14	15	17	18	19	17	12	10	8	15	12	12	11	19
29		PM2	PM2	PM2	PM2	PM2	PM2	PM2	PM2	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
30		9	7	5	4	4	5	5	6	9	-	16	16	17	18	18	17	17	16	14	11	5	4	4	4	18
31		03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
32		3	3	5	4	4	3	4	6	-	16	18	18	19	19	19	19	17	14	13	15	-	-	-	-	19
33		03	03	03	03	03	PM2	PM2	PM2	NA	03	03	03	03	03	03	03	03	03	03	03	NA	NA	NA	NA	03
34		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	03	03	03	03	03	03	03	03	03	03	03	03
35		5	5	4	6	6	5	-	5	7	8	9	11	-	11	11	11	11	11	10	8	3	5	5	5	11
36		PM2	03	PM2	03	03	03	NA	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
37	PEAK	13	14	14	10	11	9	12	12	17	17	19	20	19	21	21	20	20	20	18	18	16	12	18	11	
38		03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03

STATUS FLAG CODES

NA - NOT APPLICABLE

V - VARIOUS

AQI CLASS	OZONE (O ₃)					PARTICULATE MATTER 2.5 (PM _{2.5})					NITROGEN DIOXIDE (NO ₂)					SULPHUR DIOXIDE (SO ₂)					FREQUENCY	
	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
GOOD (1-25)	559	75.1%	21	13,14	9	116	15.6%	10	1	11	0	0.0%	-	-	-	0	0.0%	-	-	-	675	90.7%
OVERALL	559	75.1%	-	-	-	116	15.6%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	675	90.7%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	69	9.3%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 2011

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

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

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

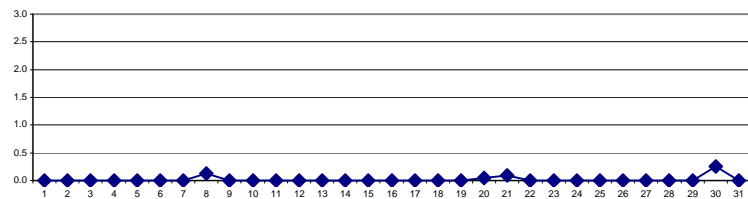
OBJECTIVE LIMIT:

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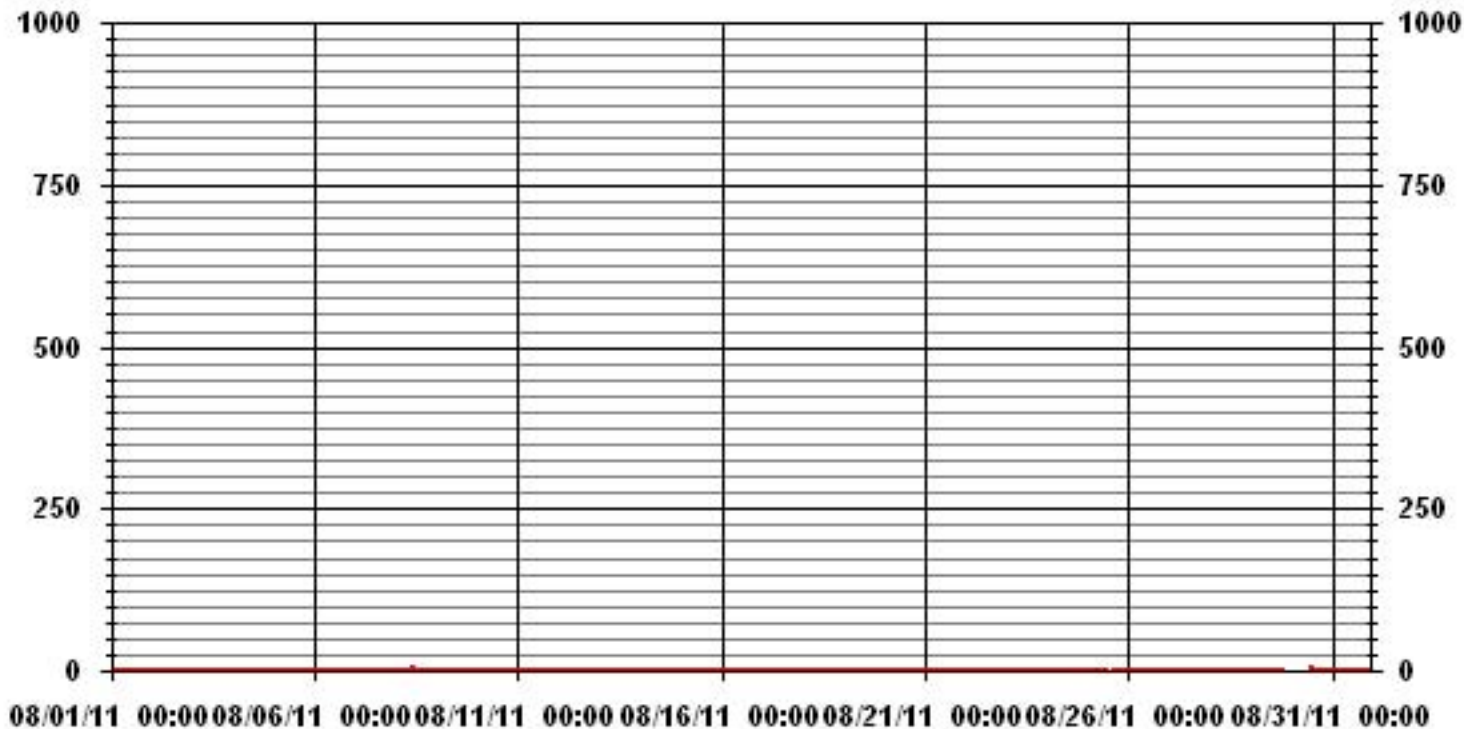
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	8					
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	11	ON DAY(S)	21
MAXIMUM 24-HR AVERAGE:	0.3	PPB			ON DAY(S)	30
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	730	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	98.1	%	
STANDARD DEVIATION:	0.13		MONTHLY AVERAGE:	0.01	PPB	

24 HOUR AVERAGES FOR AUGUST 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -PORTABLE SITE

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

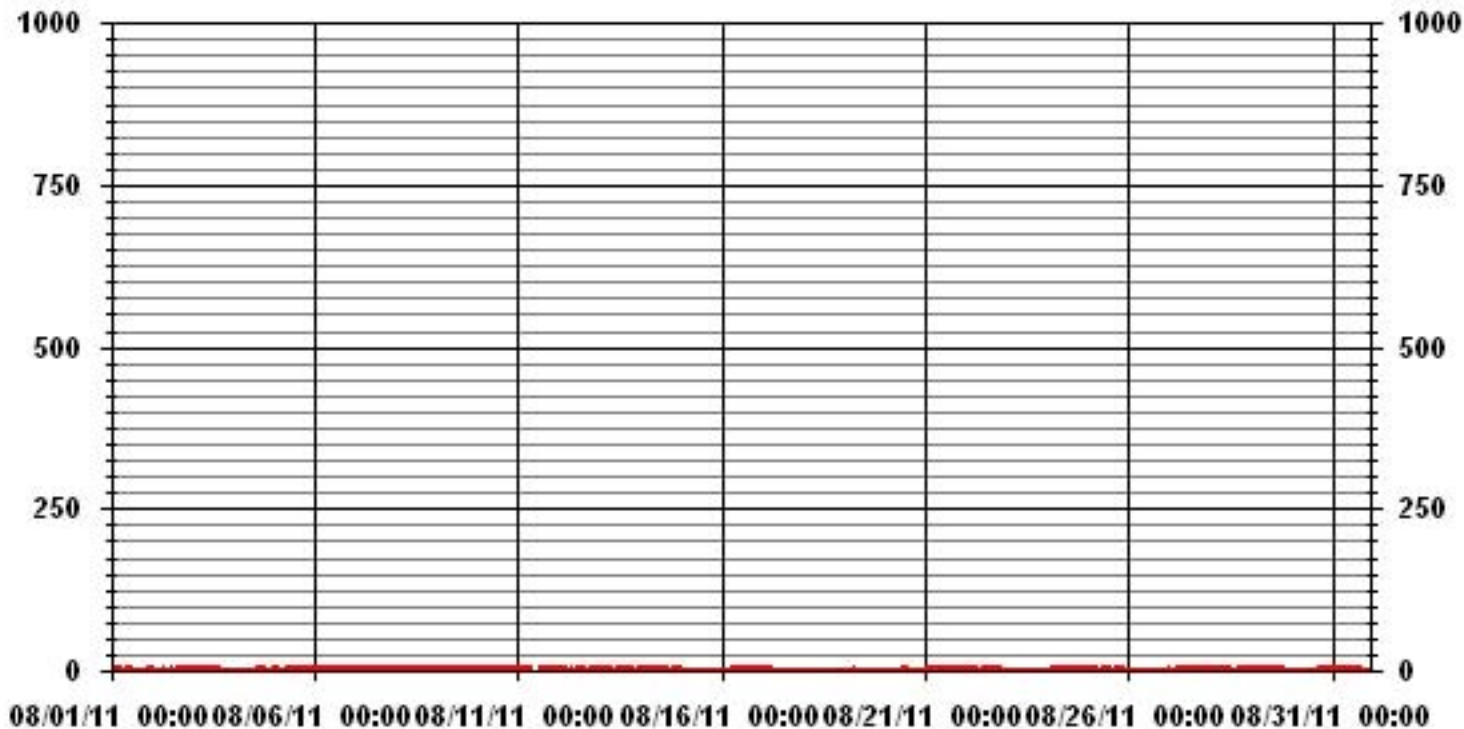
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	483
MAXIMUM INSTANTANEOUS VALUE:	4 PPB @ HOUR(S) 11 ON DAY(S) 21
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	9 HRS
STANDARD DEVIATION:	0.53
OPERATIONAL TIME:	730 HRS

01 Hour Averages



LICA33
 SO2_ / WDR Joint Frequency Distribution (Percent)

August 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	2.02	1.73	2.02	2.89	5.63	3.46	5.49	6.79	3.32	2.74	9.97	12.86	18.93	16.90	4.04	1.15	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.02	1.73	2.02	2.89	5.63	3.46	5.49	6.79	3.32	2.74	9.97	12.86	18.93	16.90	4.04	1.15	

Calm : .00 %

Total # Operational Hours : 692

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	14	12	14	20	39	24	38	47	23	19	69	89	131	117	28	8	692
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	14	12	14	20	39	24	38	47	23	19	69	89	131	117	28	8	

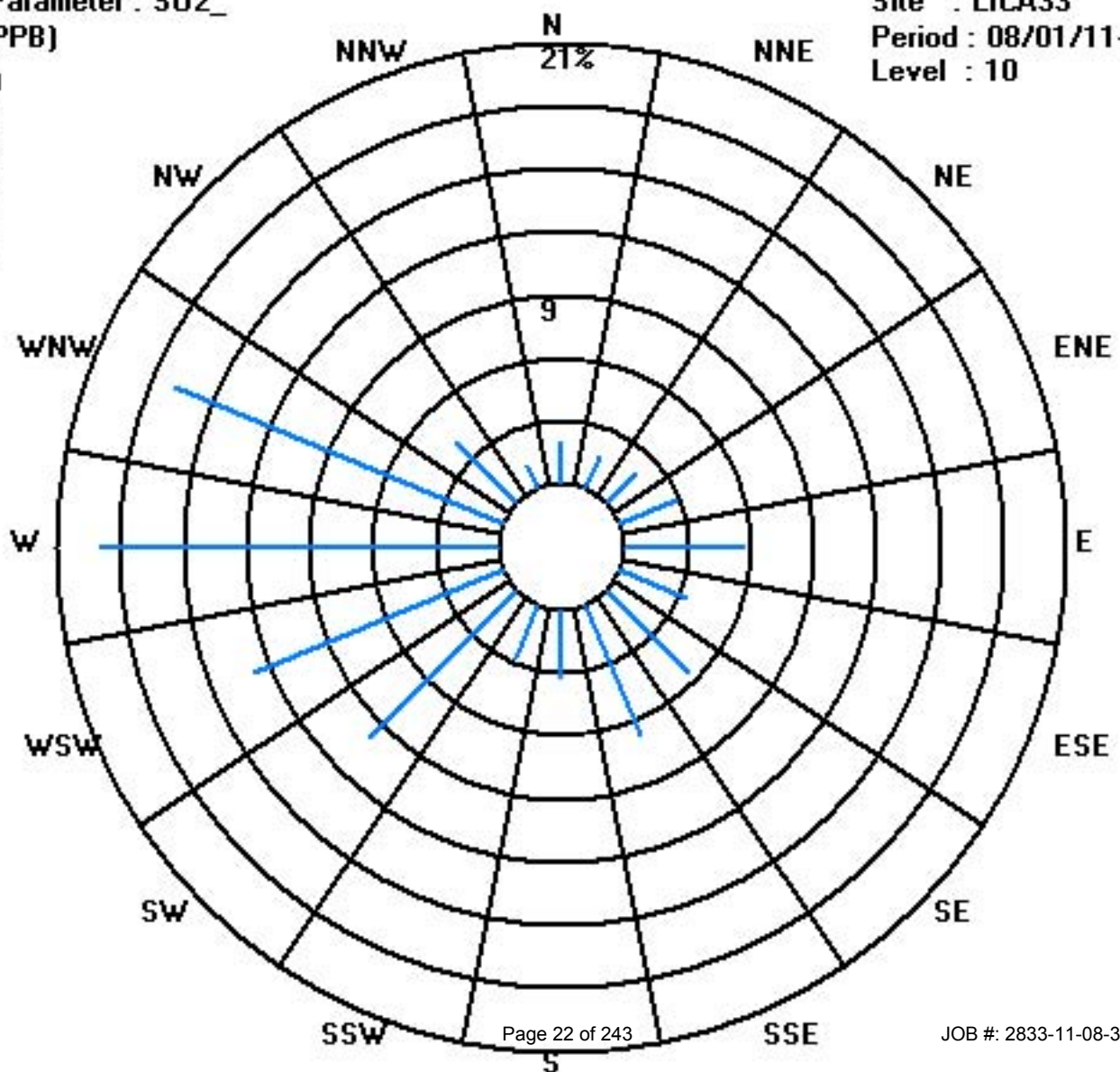
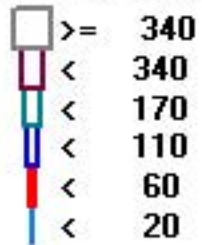
Calm : .00 %

Total # Operational Hours : 692

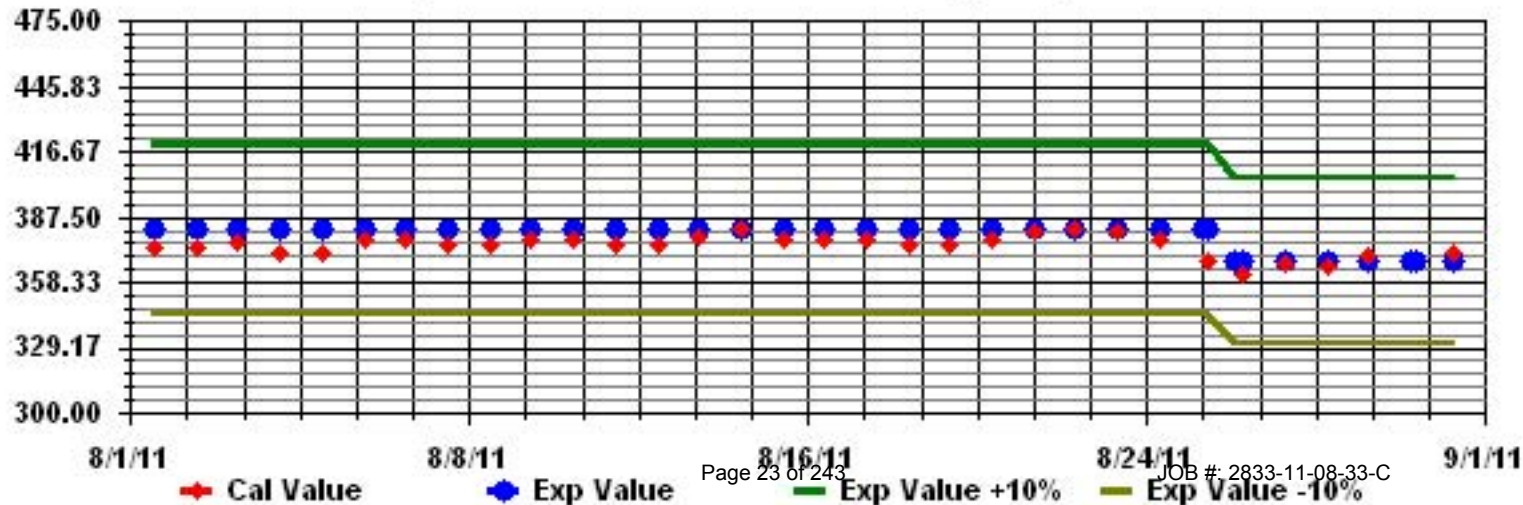
Class Limits (PPB)

Period : 08/01/11-08/31/11

Level : 10



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE

AUGUST 2011

HYDROGEN SULPHIDE (H₂S) hourly averages in ppb

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

STATUS FLAG CODES

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

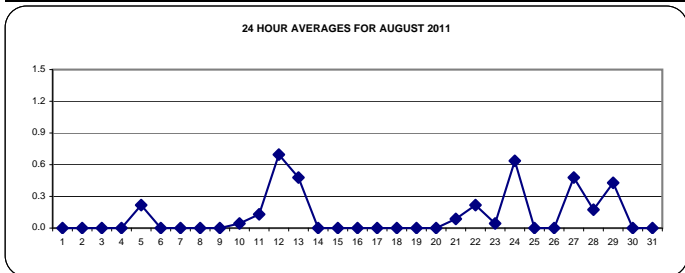
OBJECTIVE LIMIT:

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

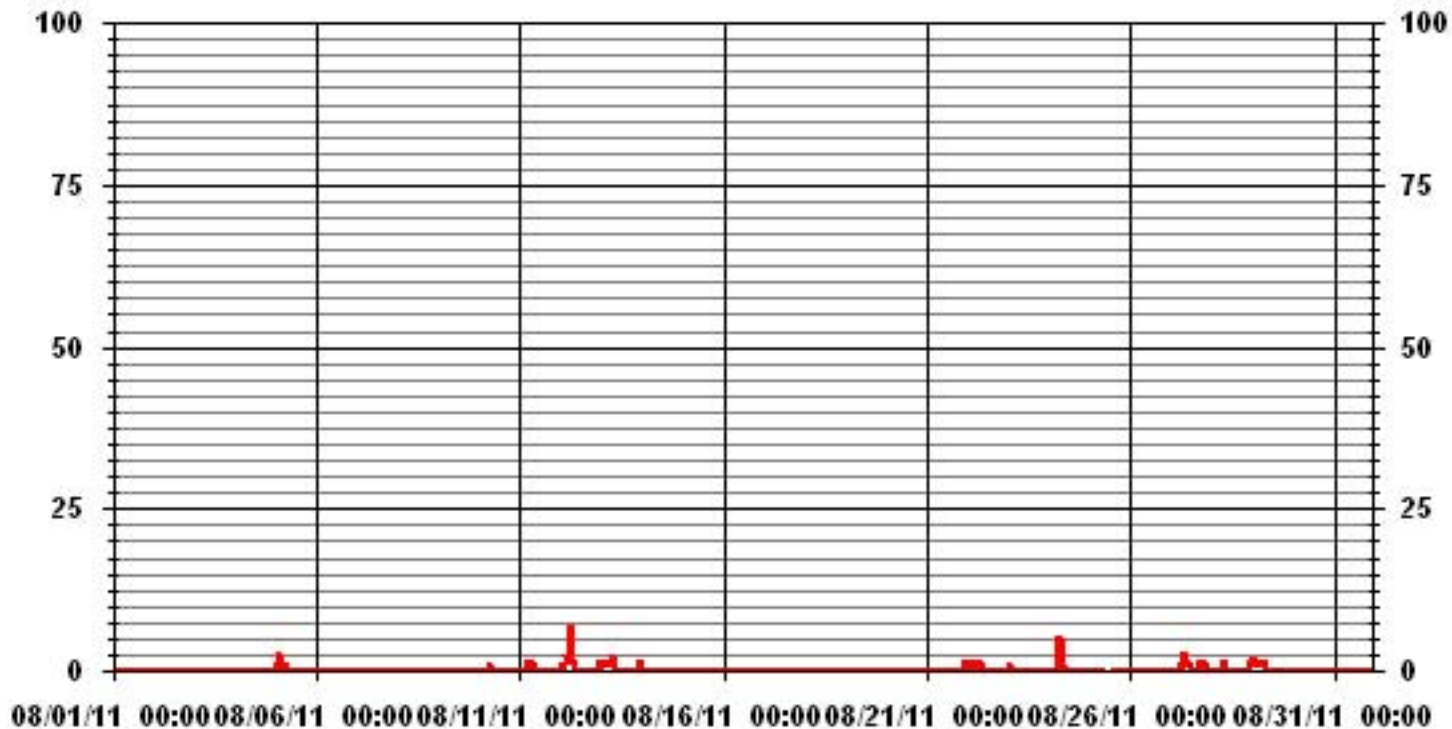
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF 24-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	55				
MAXIMUM 1-HR AVERAGE:	7	PPB	@ HOUR(S)	6	ON DAY(S) 12
MAXIMUM 24-HR AVERAGE:	0.7	PPB			ON DAY(S) 12
					VAR-VARIOUS
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	740	HRS
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	99.5	%
STANDARD DEVIATION:	0.51		MONTHLY AVERAGE:	0.12	PPB

24 HOUR AVERAGES FOR AUGUST 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 2011

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

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

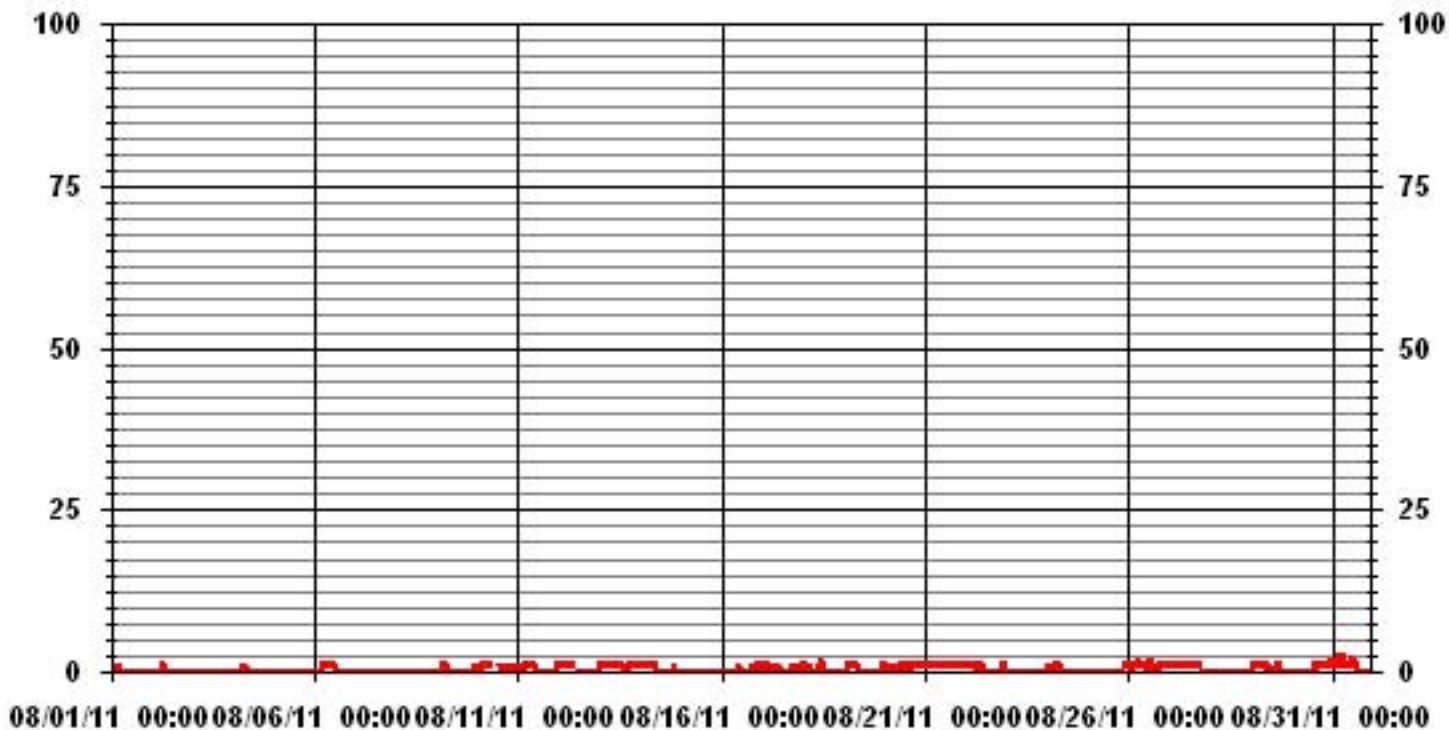
STATUS FLAG CODES

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:	191					
MAXIMUM INSTANTANEOUS VALUE:	13	PPB	@ HOUR(S)	6	ON DAY(S)	12
	VAR - VARIOUS					
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	740	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.96					

01 Hour Averages



— LICA31 H2S MAX PPB

LICA33
H2S_ / WDR Joint Frequency Distribution (Percent)

August 2011

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	1.98	1.70	1.98	2.84	5.39	2.98	5.39	6.67	3.12	2.55	10.08	12.92	18.60	17.47	4.26	1.13	99.14
< 10	.00	.00	.00	.00	.14	.42	.00	.00	.14	.14	.00	.00	.00	.00	.00	.00	.85
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.98	1.70	1.98	2.84	5.53	3.40	5.39	6.67	3.26	2.69	10.08	12.92	18.60	17.47	4.26	1.13	

Calm : .00 %

Total # Operational Hours : 704

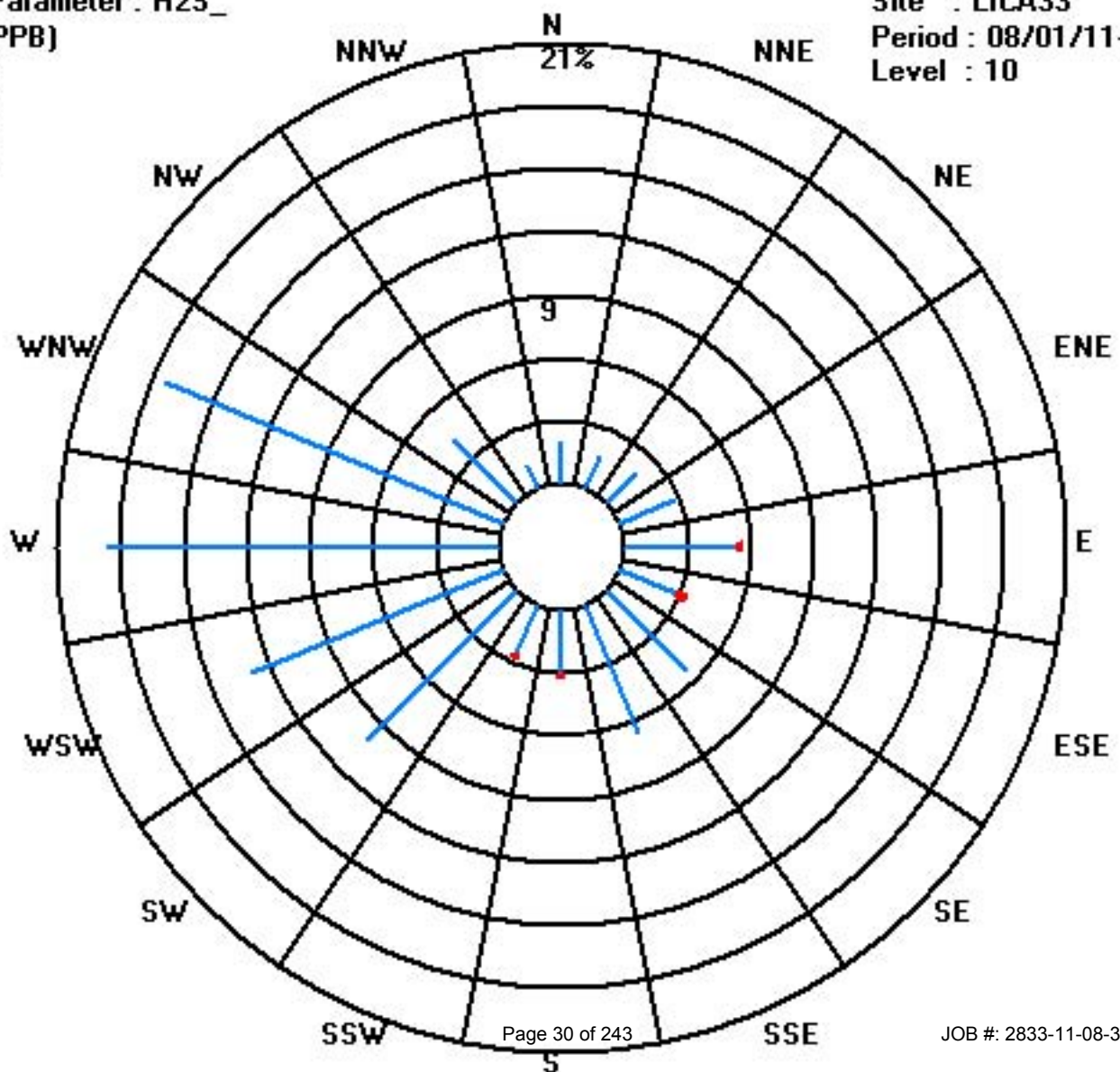
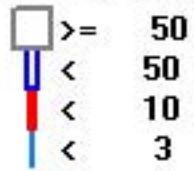
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	14	12	14	20	38	21	38	47	22	18	71	91	131	123	30	8	698
< 10					1	3			1	1							6
< 50																	
>= 50																	
Totals	14	12	14	20	39	24	38	47	23	19	71	91	131	123	30	8	

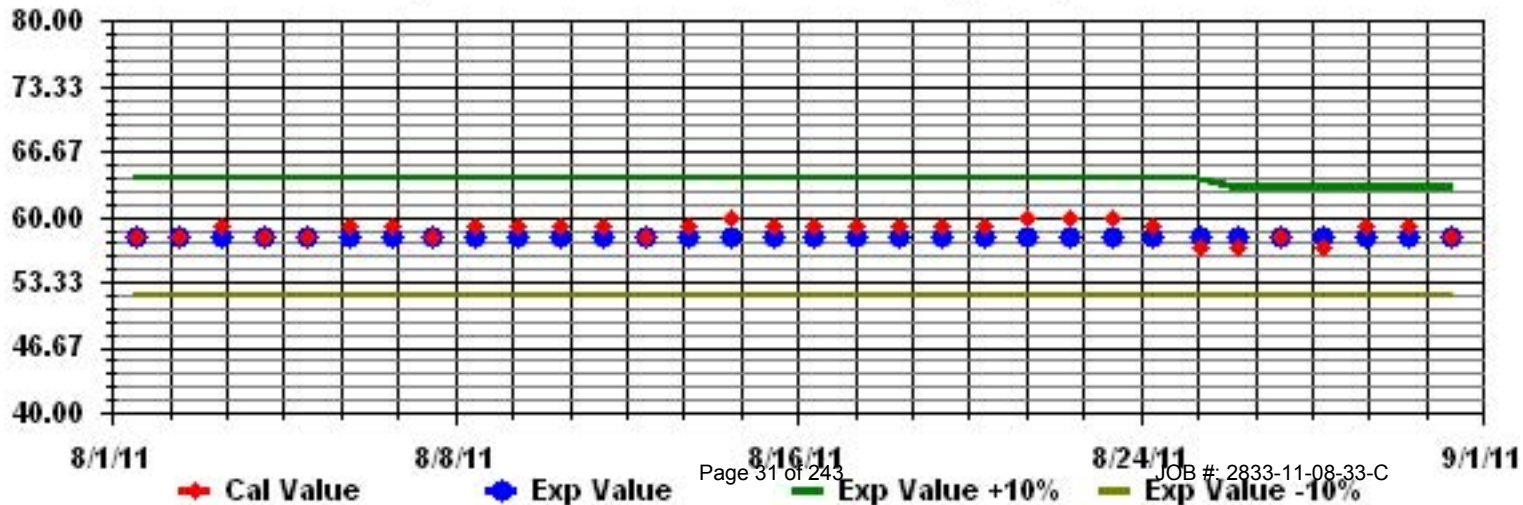
Calm : .00 %

Total # Operational Hours : 704

Class Limits (PPB)



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



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 2011

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	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		2.8	0	4.8	3.8	4.8	0.3	0.8	7.3	7.3	5.3	1.3	0	3.3	1.8	0	2.3	0	1.3	0	1.3	4.3	0.3	0	2.3	7.3	2.3	24		
2		4.3	3.8	1.3	1.3	2.3	2.8	4.3	0	4.3	0	3.8	0	0	3.8	3.8	1.8	0	0.3	0.8	4.3	3.8	1.8	4.3	4.3	4.3	2.2	24		
3		4.8	4.8	6.3	3.8	4.8	2.3	4.8	6.8	3.8	2.8	4.3	7.3	3.3	2.8	3.8	6.3	1.8	1.8	3.3	1.8	1.3	3.8	2.3	0.3	7.3	3.7	24		
4		1.8	0.8	2.3	2.8	0	0	3.8	1.3	1.3	4.3	0.8	2.8	3.3	8.8	1.3	2.8	4.8	4.8	3.8	6.3	1.3	2.3	4.8	2.3	8.8	2.9	24		
5		7.8	5.8	7.3	5.3	4.8	3.3	2.3	0.3	2.3	5.8	5.8	3.3	4.3	4.3	10.3	6.3	4.8	4.8	7.8	6.8	8.3	9.8	9.8	4.3	10.3	5.7	24		
6		1.8	6.3	0	4.3	9.3	9.8	5.3	5.8	2.3	3.3	8.8	3.3	6.3	3.8	9.3	5.8	6.3	4.3	2.3	3.8	0	4.3	0	2.3	9.8	4.5	24		
7		0	0.8	3.3	4.8	2.8	4.3	1.3	3.3	2.3	0.8	1.8	0	0	1.8	1.3	4.3	0.3	0	2.8	0	7.3	8.8	2.3	3.8	8.8	2.4	24		
8		2.8	5.3	1.8	4.3	6.8	2.8	3.3	5.8	7.8	3.8	6.8	2.3	3.8	10.3	1.3	4.8	0.3	7.3	1.8	6.8	7.3	6.3	4.8	3.8	10.3	4.7	24		
9		6.3	3.8	3.3	1.8	0.8	3.3	2.8	7.3	8.3	5.8	5.8	10.8	5.3	6.3	10.3	11.8	5.3	3.8	7.8	7.8	3.3	5.3	5.8	6.3	11.8	5.8	24		
10		6.8	4.8	8.8	9.3	8.8	3.8	5.3	11.3	6.8	6.8	6.8	10.3	5.3	7.3	10.3	3.8	7.8	7.8	11.3	8.3	8.8	5.3	8.8	6.3	11.3	7.5	24		
11		11.3	11.8	5.8	9.3	11.3	5.8	6.8	7.3	6.8	4.8	4.3	1.8	2.8	4.3	7.8	4.3	4.8	2.3	4.3	2.3	8.8	4.3	6.8	8.3	11.8	6.2	24		
12		1.8	3.3	6.3	1.3	3.3	4.3	2.3	7.3	8.3	4.8	9.3	6.3	10.3	11.8	5.3	10.8	7.3	5.3	11.8	8.3	8.8	6.8	6.3	5.8	11.8	6.6	24		
13		5.3	9.3	8.8	6.3	4.3	6.8	0	7.3	7.3	2.3	3.3	4.8	5.8	4.8	8.3	3.8	1.8	7.3	5.8	7.8	8.8	7.3	10.3	5.8	10.3	6.0	24		
14		6.8	3.3	9.8	8.8	4.8	4.8	11.8	8.8	7.3	3.8	3.8	5.3	6.8	3.3	2.8	7.3	7.8	6.8	5.8	8.3	6.8	0.8	7.3	3.8	11.8	6.1	24		
15		3.8	2.8	1.8	0.3	3.3	2.8	5.3	4.3	3.3	8.8	5.8	0	6.3	2.3	0.8	0	4.8	2.8	3.8	N	3.8	1.8	2.8	3.8	8.8	3.3	23		
16		4.8	1.8	1.3	1.8	N	0.3	2.3	0	1.3	2.8	N	0	1.3	4.8	2.3	N	0.3	4.8	0.8	3.3	3.3	4.8	6.3	0.8	6.3	2.3	21		
17		2.8	4.8	4.3	0	3.3	1.8	0	0	1.8	3.3	0	0	N	N	1.3	0.8	3.3	0.8	4.8	2.3	5.3	0.3	0	0.8	5.3	1.9	22		
18		3.8	3.8	1.3	2.3	1.8	0	3.8	0.3	4.8	3.8	2.8	0	4.8	0	1.8	0	2.8	1.9	0	4.3	2.3	0	2.8	N	4.8	2.1	23		
19		0.3	0	0	2.8	3.8	0	0.8	2.3	0.3	2.8	6.3	1.3	3.3	4.8	2.8	1.3	4.3	1.3	4.8	3.3	2.8	1.8	1.8	2.3	6.3	2.3	24		
20		2.8	3.3	3.8	1.3	0.3	3.3	4.3	3.8	4.3	0	5.3	0.3	2.3	0	4.3	3.8	6.3	3.3	3.8	4.3	4.8	6.8	4.8	7.8	7.8	3.5	24		
21		3.3	1.3	3.8	2.8	1.3	2.8	3.8	2.8	2.8	5.3	2.3	1.3	6.3	4.8	4.3	4.8	4.8	9.3	4.8	3.3	5.8	1.8	7.3	4.8	9.3	4.0	24		
22		9.3	7.8	5.3	5.8	5.8	7.3	4.8	5.3	6.3	6.8	6.8	5.3	7.8	2.3	1.3	2.3	6.3	6.3	5.3	2.3	4.8	2.8	6.8	6.8	9.3	5.5	24		
23		0.8	1.3	1.3	3.8	7.8	2.8	4.3	4.3	3.3	0.8	0.3	N	1.8	5.8	1.8	7.3	N	0	1.3	3.8	1.3	1.8	0.3	0	7.8	2.5	22		
24		0	4.3	0	3.3	4.3	2.3	0	3.3	6.3	4.3	2.3	5.3	1.8	8.8	6.3	9.3	4.8	5.3	6.3	6.8	5.8	3.3	3.3	6.8	9.3	4.3	24		
25		10.3	5.3	5.3	3.8	3.8	3.3	5.8	4.3	2.3	1.3	2.3	0.8	0	C	C	1.8	6.3	0	1.3	1.3	1.8	0	1.3	2.3	10.3	2.9	24		
26		0	2.3	2.3	6.3	5.3	0	0	3.8	0.8	3.3	1.8	3.3	0	1.3	4.8	0	1.3	5.8	3.3	3.3	5.3	3.3	2.3	1.8	6.3	2.6	24		
27		4.3	5.3	7.3	11.8	7.3	7.8	9.3	10.3	5.8	1.8	7.3	2.3	10.8	8.3	1.8	6.8	10.8	5.8	5.3	0.8	2.8	2.3	2.8	0.8	11.8	5.8	24		
28		7.3	2.8	3.8	0.3	3.3	3.3	3.3	3.3	3.8	3.8	2.8	0.3	7.8	3.3	4.3	0	5.8	3.8	3.3	1.8	4.3	1.8	0.8	4.3	7.8	3.3	24		
29		2.8	0.8	2.3	3.8	1.3	3.8	5.3	6.8	5.8	4.8	4.8	4.3	4.8	3.3	6.3	7.8	7.8	2.3	11.3	8.3	P	P	6.3	1	11.3	4.8	22		
30		7.9	6.7	2	3.8	4.8	2.8	2.2	2.9	5.3	0	0.9	3.8	1.8	0	0	4.4	1.7	1.9	0	5.7	4.3	6.6	3.7	0.4	7.9	3.1	24		
31		6.2	0.5	4.8	5.4	0.7	0	4.8	1.9	6.3	0.3	2.8	3.7	N	1.9	0	0.8	0	3.7	1.4	2.2	3.4	1.3	2.3	0.8	6.3	2.4	23		
HOURLY MAX		11	12	10	12	11	10	12	11	8	9	9	11	11	12	10	12	11	9	12	8	9	10	10	8					
HOURLY AVG		4.4	3.8	3.9	4.1	4.2	3.2	3.7	4.5	4.5	3.5	4.0	3.0	4.2	4.4	4.0	4.2	4.2	3.8	4.2	4.3	4.7	3.7	4.1	3.5					

STATUS FLAG CODES

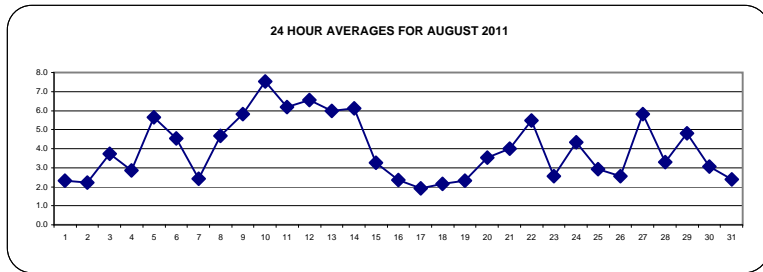
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

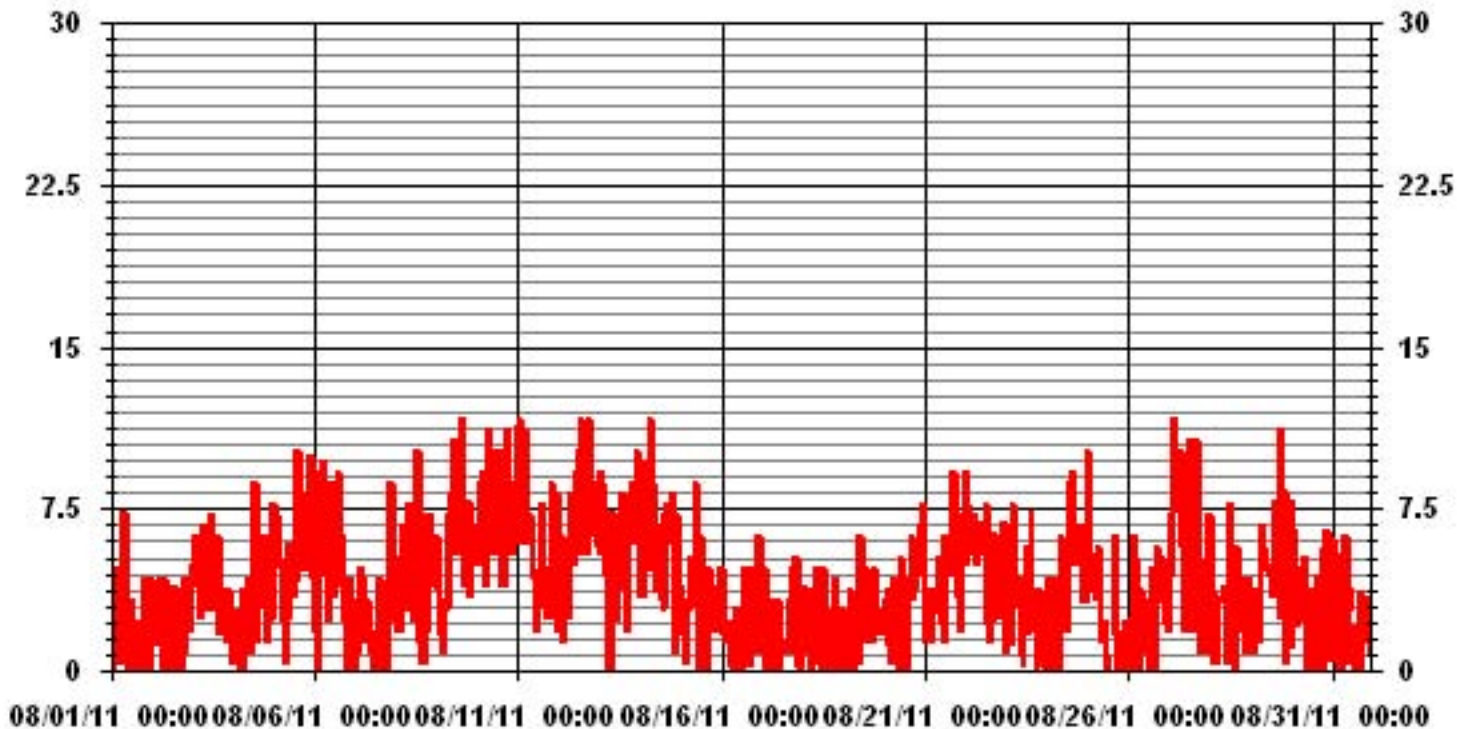
ALBERTA ENVIRONMENT:	1-HR	-	PPB	24-HR	30	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-				
NUMBER OF 24-HR EXCEEDENCES:	0	PROPOSED CANADA WIDE GUIDELINE			
NUMBER OF NON-ZERO READINGS:	665				
MAXIMUM 1-HR AVERAGE:	11.8	UG/M ³	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	7.5	UG/M ³			ON DAY(S)
IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	732	HRS
MONTHLY CALIBRATION TIME:	2	HRS	AMD OPERATION UPTIME:	98.4	%
STANDARD DEVIATION:	2.78		MONTHLY AVERAGE:	4.00	UG/M ³



01 Hour Averages



— LICA33 PM2 UG/M3

LICA33
 PM2 / WDR Joint Frequency Distribution (Percent)

August 2011

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	1.91	1.64	2.05	3.01	5.34	3.69	5.34	6.84	3.28	2.73	10.54	12.87	17.80	17.67	4.10	1.09	100.00
< 60.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 80.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.91	1.64	2.05	3.01	5.34	3.69	5.34	6.84	3.28	2.73	10.54	12.87	17.80	17.67	4.10	1.09	

Calm : .00 %

Total # Operational Hours : 730

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	14	12	15	22	39	27	39	50	24	20	77	94	130	129	30	8	730
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	14	12	15	22	39	27	39	50	24	20	77	94	130	129	30	8	

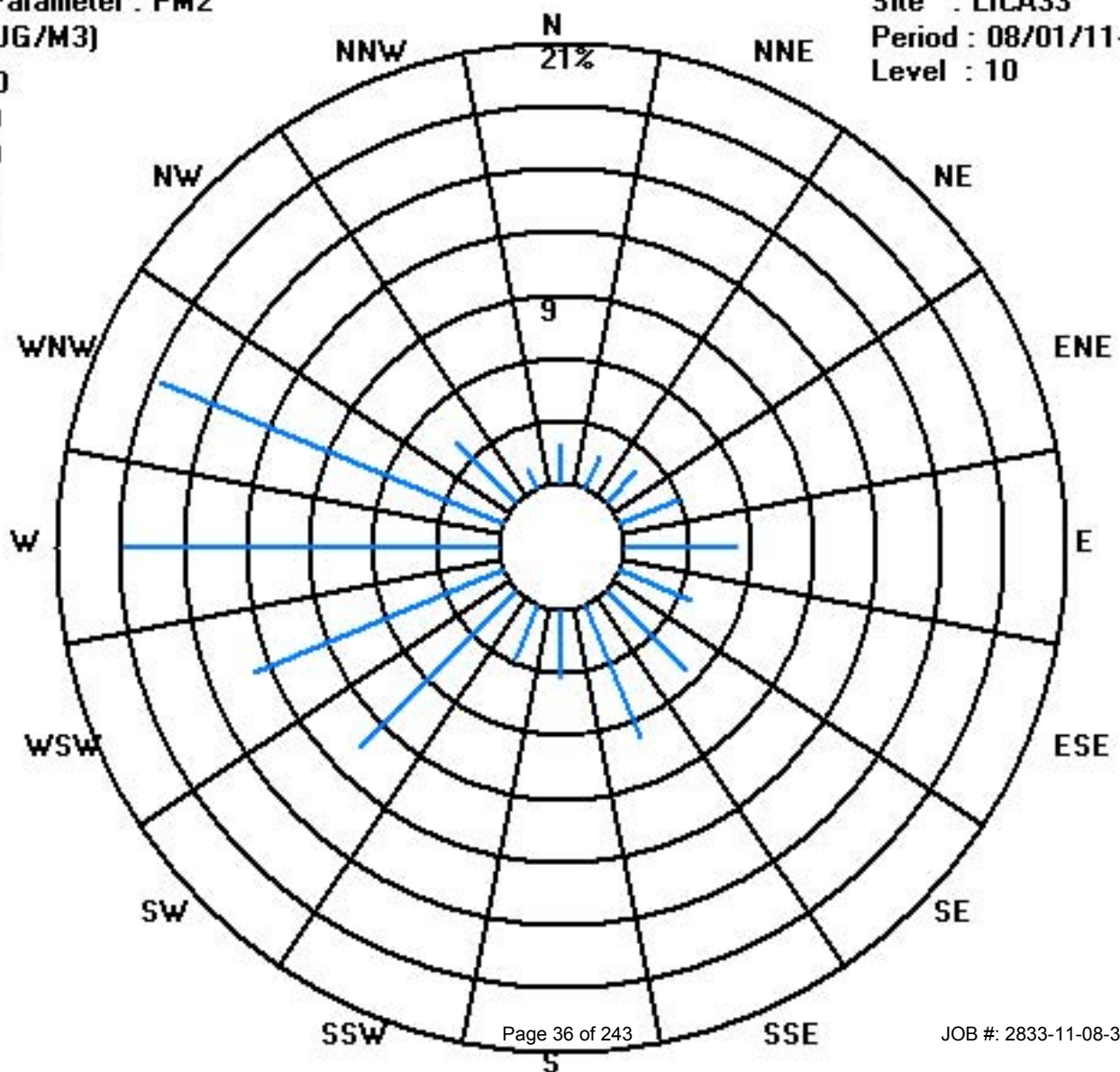
Calm : .00 %

Total # Operational Hours : 730

Class Limits (UG/M3)

Period : 08/01/11-08/31/11

Level : 10



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 2011

NITROGEN DIOXIDE hourly averages in ppb

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY																											
1	2	1	2	4	3	2	3	2	1	1	1	1	1	IZS	1	1	1	2	3	2	2	1	1	1	4	1.7	24
2	4	2	3	4	2	2	2	2	1	2	1	1	IZS	2	2	2	2	1	3	2	4	2	2	2	4	2.2	24
3	3	2	5	5	6	5	5	4	5	3	4	IZS	1	1	1	1	2	2	2	4	1	3	2	2	6	3.0	24
4	2	3	3	3	3	3	4	2	1	1	IZS	1	1	1	1	1	4	1	1	2	1	3	4	3	4	2.1	24
5	2	3	3	5	2	2	2	2	2	IZS	1	1	1	1	1	1	1	1	1	3	3	6	3	2	6	2.1	24
6	2	3	4	2	2	2	2	1	IZS	1	1	1	2	3	3	3	3	1	1	1	1	2	3	4	4	2.1	24
7	6	4	2	3	4	2	2	IZS	2	2	2	2	3	2	1	1	1	1	1	1	1	2	2	2	6	2.1	24
8	2	2	3	3	3	3	IZS	1	1	1	1	1	1	1	1	0	0	1	3	2	4	2	3	2	4	1.8	24
9	2	2	3	1	1	IZS	4	3	2	2	2	1	2	1	1	1	1	1	2	2	2	1	4	3	4	1.9	24
10	3	4	3	5	IZS	4	7	5	4	2	2	1	1	1	1	1	1	1	2	2	3	4	6	6	7	3.0	24
11	11	10	7	IZS	6	6	3	3	1	1	1	0	0	0	0	0	1	1	1	3	3	3	3	3	11	2.9	24
12	4	5	IZS	4	3	2	2	3	3	1	1	1	1	1	1	1	1	1	1	2	1	3	3	3	5	2.1	24
13	2	IZS	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	4	8	6	7	5	8	2.2	24
14	IZS	3	5	4	9	6	1	1	1	1	1	1	1	1	1	0	1	1	4	5	2	2	1	IZS	9	2.4	24
15	1	2	3	3	2	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	3	3	3	3	1.6	24
16	2	2	3	4	6	3	3	2	1	1	1	1	1	0	0	0	0	1	5	3	1	IZS	3	3	6	2.0	24
17	2	2	2	2	3	5	6	2	1	1	1	1	1	1	3	1	1	2	2	3	IZS	3	1	1	6	2.0	24
18	2	5	7	5	2	3	2	1	1	1	0	1	1	1	0	1	1	1	1	IZS	3	5	3	3	7	2.2	24
19	2	2	4	3	2	1	1	2	2	2	1	1	0	0	1	1	1	2	IZS	3	3	2	3	4	4	1.9	24
20	4	4	1	1	3	3	4	3	3	2	2	1	1	1	1	1	1	IZS	1	4	7	3	2	2	7	2.4	24
21	2	2	4	6	4	4	3	2	2	2	1	2	1	1	1	1	IZS	1	1	3	3	2	2	2	6	2.3	24
22	9	6	4	5	5	3	4	4	3	3	2	1	1	1	1	IZS	1	3	4	3	4	3	5	6	9	3.5	24
23	5	3	2	2	3	2	2	2	1	1	1	0	0	0	IZS	0	0	0	1	4	1	2	2	3	5	1.6	24
24	3	2	1	3	2	1	2	2	3	2	C	C	C	C	C	C	2	1	1	2	3	9	7	7	9	2.9	24
25	6	5	4	6	5	3	3	2	1	1	1	0	IZS	0	0	0	0	0	1	1	3	5	5	4	6	2.4	24
26	4	6	5	4	5	5	6	5	3	2	1	1	IZS	0	0	0	0	0	1	1	2	2	3	3	6	2.6	24
27	7	6	6	4	4	3	3	3	2	2	IZS	1	1	1	1	1	1	1	2	2	4	10	5	4	10	3.2	24
28	4	6	6	6	8	5	4	3	2	IZS	1	2	1	1	1	1	1	0	1	2	3	2	2	3	8	2.8	24
29	3	3	3	2	2	5	2	3	IZS	1	1	1	1	1	1	1	1	1	2	2	P	P	3	2	5	2.0	22
30	3	3	5	6	4	7	6	IZS	2	1	1	1	1	1	1	1	1	1	1	1	5	6	5	5	7	3.0	24
31	9	5	5	3	3	3	IZS	3	2	1	0	0	0	0	0	0	0	0	1	2	10	7	6	3	10	2.7	24
HOURLY MAX	11	10	7	6	9	7	7	5	5	3	4	2	3	3	3	3	4	3	5	5	10	10	7	7			
HOURLY AVG	3.8	3.6	3.7	3.6	3.6	3.3	3.2	2.4	1.9	1.5	1.2	1.0	1.0	0.9	1.0	0.8	1.1	1.1	1.7	2.4	3.1	3.6	3.4	3.2			

STATUS FLAG CODES

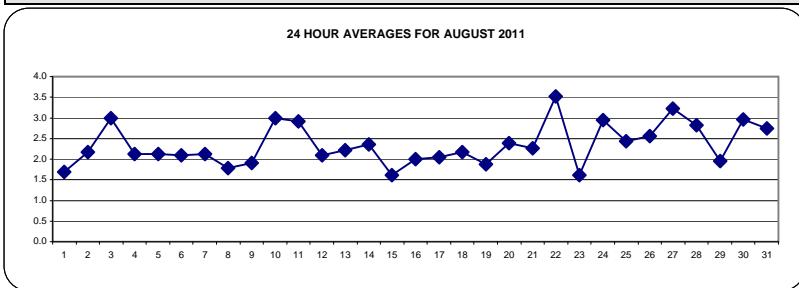
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

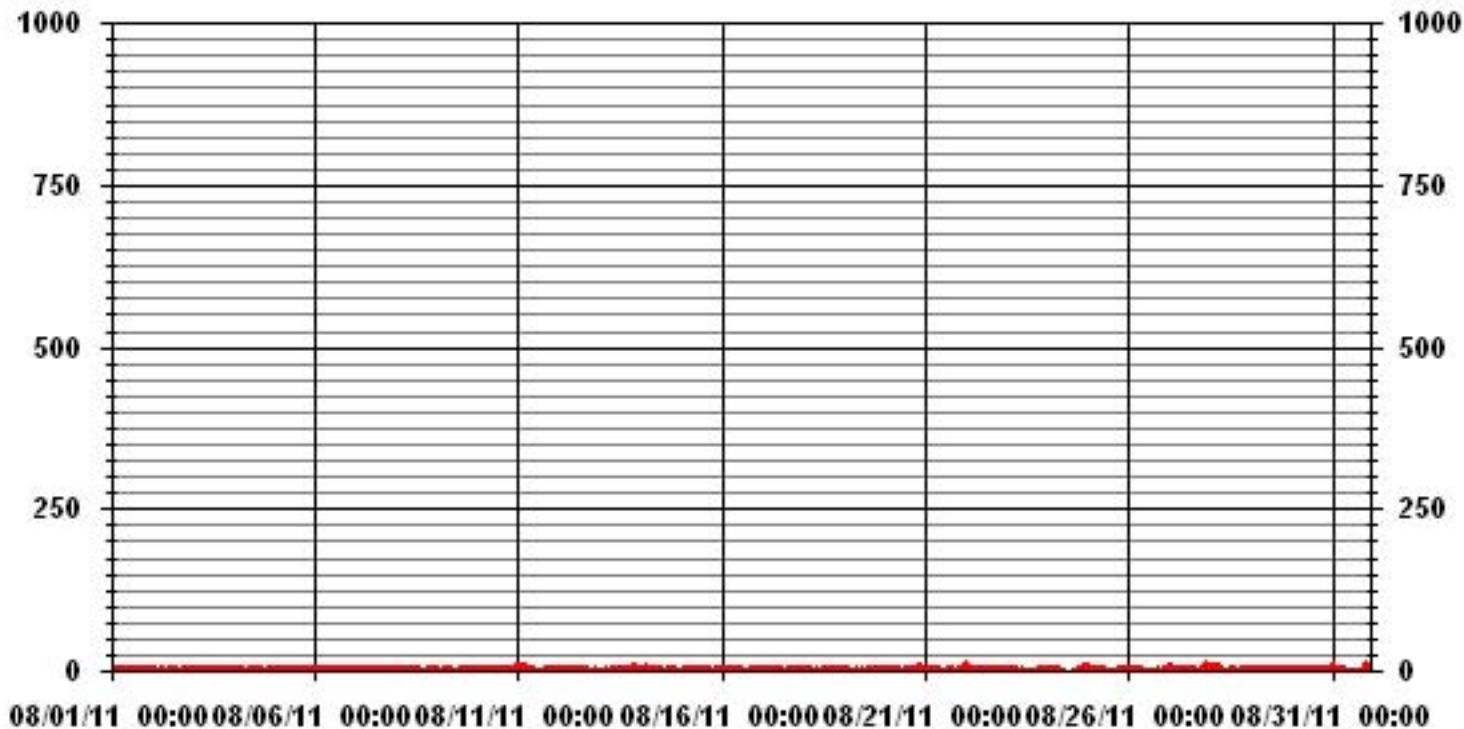
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	663					
MAXIMUM 1-HR AVERAGE:	11	PPB	@ HOUR(S)	0	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	3.5	PPB			ON DAY(S)	22
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	1.78		MONTHLY AVERAGE:	2.34	PPB	



01 Hour Averages



— LICA33 IIO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 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	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		5	2	3	5	5	4	5	5	2	2	3	2	2	IZS	2	4	2	4	5	8	4	2	2	2	8	3.5	24
2		13	7	7	6	4	3	4	3	3	3	3	12	IZS	3	3	3	4	4	7	5	6	5	3	3	13	5.0	24
3		5	4	7	7	12	7	7	6	9	7	6	IZS	2	1	2	2	5	4	6	9	3	7	4	4	12	5.5	24
4		5	6	5	5	5	4	8	5	3	2	IZS	1	2	25	3	11	15	2	1	2	3	6	4	4	25	5.5	24
5		3	4	4	7	3	3	4	5	3	IZS	1	1	1	1	1	1	1	3	5	5	8	7	2	8	3.2	24	
6		3	5	10	4	3	4	4	2	IZS	1	2	2	4	7	4	5	4	2	2	1	2	3	4	5	10	3.6	24
7		12	9	5	8	6	3	6	IZS	3	4	3	3	5	4	2	1	1	2	2	2	2	2	3	12	3.9	24	
8		3	3	4	4	4	4	IZS	2	2	2	1	1	1	2	2	1	1	1	13	4	8	3	4	3	13	3.2	24
9		3	5	6	3	2	IZS	6	4	3	3	3	2	4	13	7	2	3	2	5	4	4	4	16	7	16	4.8	24
10		5	6	4	18	IZS	7	9	8	5	4	2	2	2	1	2	3	2	2	3	3	5	6	8	9	18	5.0	24
11		16	14	10	IZS	11	10	7	8	2	1	1	1	1	1	1	1	1	5	6	4	4	4	4	16	5.0	24	
12		5	6	IZS	6	5	4	4	4	36	2	1	1	1	10	1	2	1	1	2	2	2	5	4	4	36	4.7	24
13		3	IZS	2	2	2	2	2	2	2	2	1	1	2	1	1	1	2	2	4	9	14	10	13	15	15	4.1	24
14		IZS	11	12	8	11	10	4	2	2	2	1	1	1	1	1	1	1	1	11	8	3	8	1	IZS	12	4.6	24
15		2	5	7	10	3	4	4	3	2	2	9	2	2	1	1	1	1	1	2	2	4	4	IZS	5	10	3.3	24
16		3	3	4	10	10	8	8	4	3	3	2	3	2	1	1	1	1	1	13	6	2	IZS	6	4	13	4.3	24
17		4	4	6	3	5	11	9	5	3	3	2	2	3	4	4	3	2	6	7	10	IZS	10	3	3	11	4.9	24
18		6	9	12	12	5	3	3	2	2	1	1	2	3	1	1	3	3	1	1	IZS	5	12	7	5	12	4.3	24
19		4	6	5	5	3	2	2	4	3	2	3	2	1	2	2	1	3	4	IZS	8	8	4	4	14	14	4.0	24
20		10	5	2	4	4	6	6	4	4	3	3	2	2	2	2	1	2	IZS	2	16	14	4	2	3	16	4.5	24
21		3	3	6	8	6	7	4	3	2	2	2	2	1	1	1	IZS	3	2	4	4	3	3	9	9	9	3.5	24
22		11	7	7	6	7	7	6	5	5	4	3	2	2	2	2	IZS	2	4	8	7	5	4	9	8	11	5.3	24
23		7	7	2	5	4	6	3	3	2	2	1	1	1	4	IZS	1	1	1	2	12	5	5	8	9	12	4.0	24
24		5	3	3	7	5	2	4	4	5	2	C	C	C	C	C	C	3	1	4	6	18	11	14	18	5.7	24	
25		9	10	6	12	10	4	4	3	5	1	2	1	IZS	4	1	1	1	1	1	2	7	10	9	8	12	4.9	24
26		6	8	8	6	7	7	8	9	6	2	2	IZS	1	1	1	1	1	1	1	3	3	3	4	5	9	4.1	24
27		10	8	8	6	6	5	4	4	3	3	IZS	2	2	2	1	2	2	2	2	3	9	24	8	7	24	5.3	24
28		5	10	14	9	11	7	5	4	3	IZS	2	5	3	3	3	2	2	1	2	4	4	3	4	4	14	4.8	24
29		3	4	3	3	4	7	4	4	IZS	2	1	1	1	1	1	1	2	2	3	4	P	P	7	4	7	3.0	22
30		4	4	11	11	7	10	12	IZS	3	1	9	2	6	2	1	2	3	4	1	2	15	10	9	12	15	6.1	24
31		17	15	11	4	4	5	IZS	9	7	1	1	1	1	1	1	1	1	1	8	15	10	8	4	17	5.5	24	
HOURLY MAX		17	15	14	18	12	11	12	9	36	7	9	12	6	25	7	11	15	6	13	16	15	24	16	15			
HOURLY AVG		6.3	6.4	6.5	6.8	5.8	5.5	5.4	4.3	4.6	2.4	2.5	2.1	2.1	3.5	1.9	2.1	2.4	2.2	3.9	5.4	5.9	6.8	5.9	6.1			

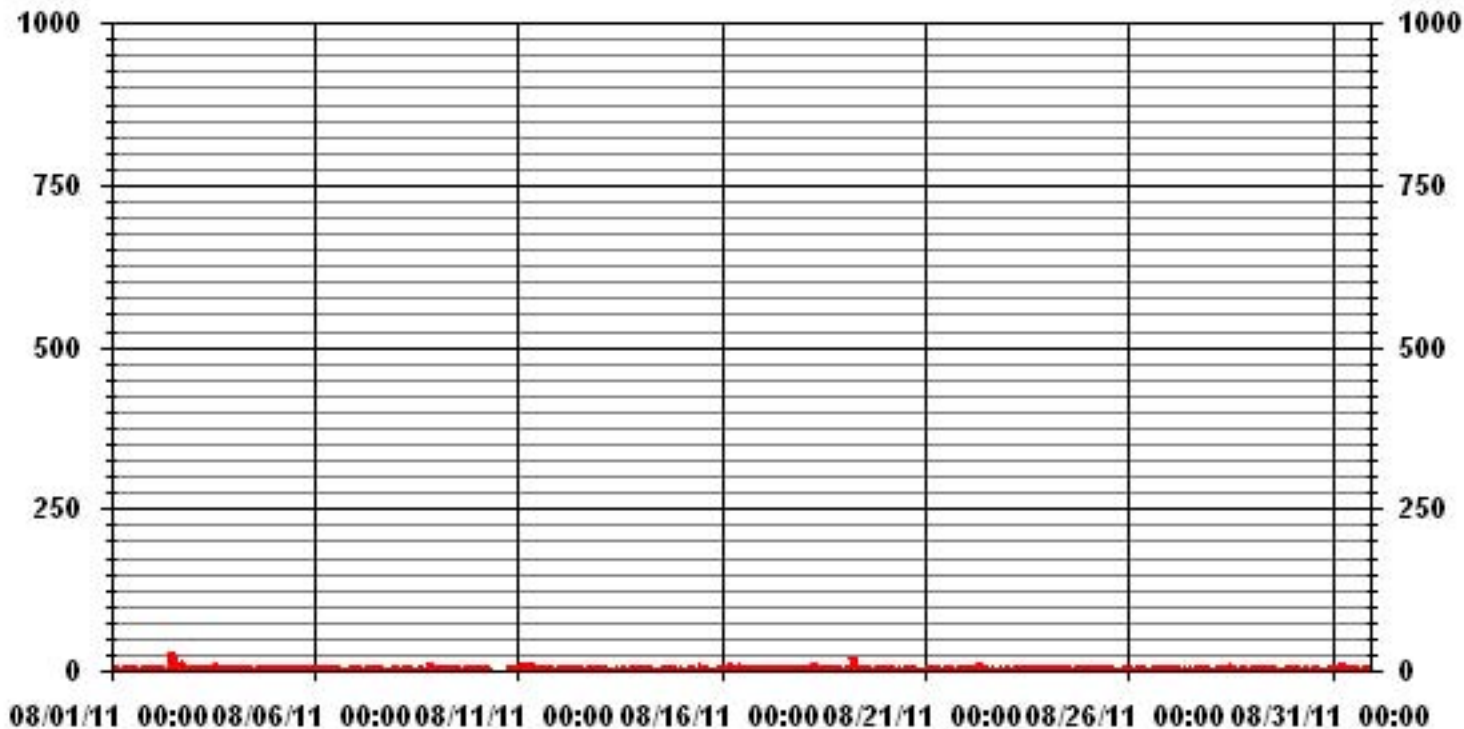
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704					
MAXIMUM INSTANTANEOUS VALUE:	36	PPB	@ HOUR(S)	8	ON DAY(S)	12
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION	3.67					

01 Hour Averages



— LICA31 IIO2MAX PPB

LICA33
 NO2_ / WDR Joint Frequency Distribution (Percent)

August 2011

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 Parameter : NO2_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	1.98	1.70	1.98	2.83	5.53	3.40	5.39	6.66	2.83	2.55	10.07	12.90	19.00	17.73	4.25	1.13	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.98	1.70	1.98	2.83	5.53	3.40	5.39	6.66	2.83	2.55	10.07	12.90	19.00	17.73	4.25	1.13	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	14	12	14	20	39	24	38	47	20	18	71	91	134	125	30	8	705
< 110																	
< 210																	
>= 210																	
Totals	14	12	14	20	39	24	38	47	20	18	71	91	134	125	30	8	

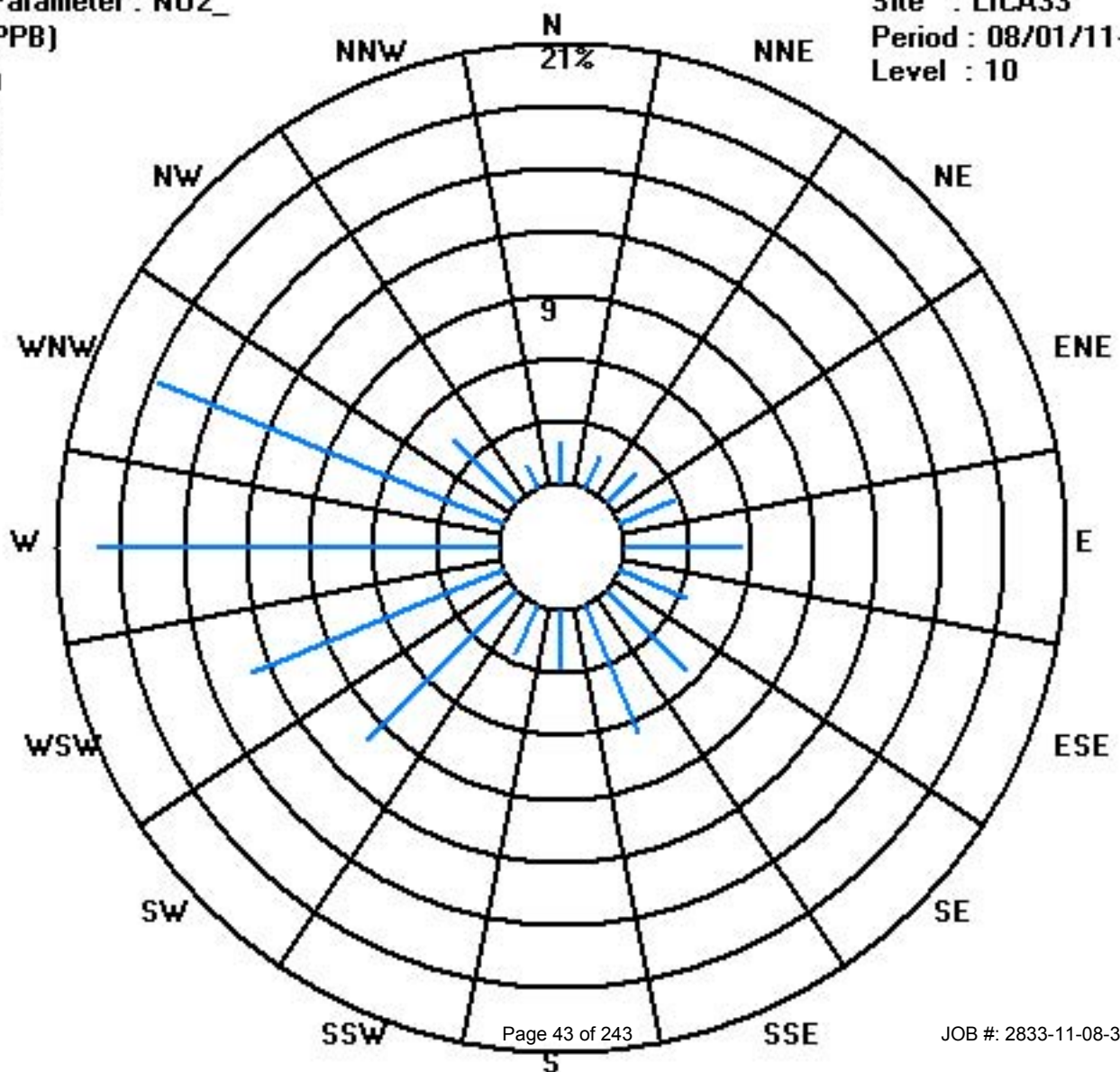
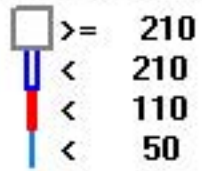
Calm : .00 %

Total # Operational Hours : 705

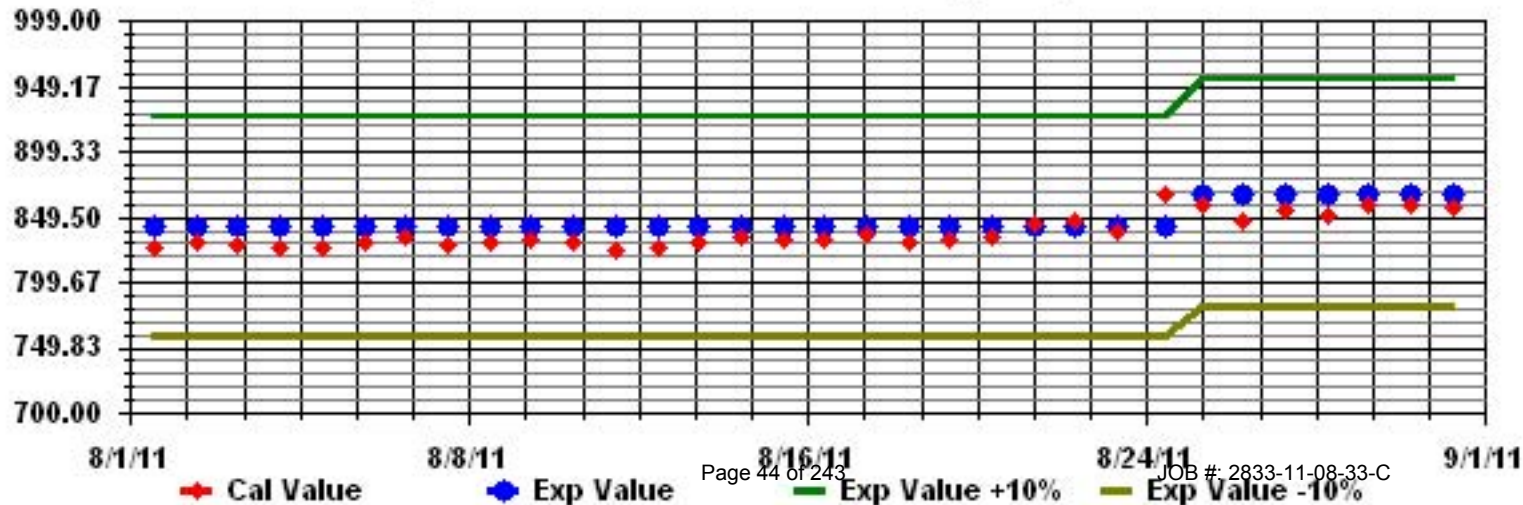
Class Limits (PPB)

Period : 08/01/11-08/31/11

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 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	2	1	0	0	0	0	0	IZS	1	1	1	1	1	1	0	0	0	0	2	0.4	24	
2	4	1	1	3	0	0	2	1	1	1	1	1	IZS	2	1	1	1	0	1	0	0	0	0	0	4	1.0	24	
3	0	0	0	0	2	0	1	1	2	1	1	IZS	1	0	0	0	0	0	0	1	0	0	0	0	2	0.4	24	
4	0	0	0	0	0	1	4	2	0	0	IZS	2	1	2	1	1	3	1	1	1	1	1	1	1	4	1.0	24	
5	1	1	1	1	1	1	1	1	1	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24	
6	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0.1	24	
7	3	1	0	1	2	0	0	IZS	2	3	2	2	3	2	1	1	1	1	1	1	1	1	1	1	3	1.3	24	
8	1	1	1	1	1	1	IZS	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.4	24	
9	0	0	0	0	0	IZS	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.3	24	
10	0	0	0	2	IZS	1	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.5	24	
11	2	1	1	IZS	2	9	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0.9	24	
12	4	9	IZS	12	15	13	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	2.7	24	
13	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	2	3	0.3	24
14	IZS	3	1	2	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0.7	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	IZS	2	2	0.1	24
16	1	1	1	4	7	3	4	3	2	2	1	2	1	1	1	1	1	1	3	1	1	IZS	2	1	7	2.0	24	
17	1	1	1	1	1	5	7	3	1	1	1	1	1	1	2	2	1	2	1	2	IZS	1	0	0	7	1.6	24	
18	0	1	7	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	3	7	2	2	7	1.1	24	
19	1	1	1	1	1	1	2	3	2	2	2	1	1	1	1	1	1	1	IZS	1	0	0	0	3	3	1.2	24	
20	3	1	0	0	1	8	9	2	4	1	1	0	0	0	0	0	0	IZS	0	0	0	0	0	0	9	1.3	24	
21	0	0	1	4	0	2	1	1	1	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	4	0.5	24	
22	1	0	0	0	1	1	4	3	2	1	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	4	0.6	24	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	1	0	1	0	0	1	0.1	24	
24	0	0	0	1	0	0	2	2	2	0	C	C	C	C	C	C	2	0	0	0	0	0	0	0	2	0.5	24	
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0.1	24	
26	0	0	2	0	0	2	5	6	2	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	6	0.7	24	
27	1	1	1	1	3	5	5	3	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.9	24	
28	0	0	0	0	1	0	1	2	1	IZS	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
29	0	0	0	0	0	2	1	2	IZS	1	0	0	0	0	0	0	0	0	0	0	0	P	P	0	0	2	0.3	22
30	0	0	0	1	0	2	2	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	0.4	24
31	6	4	4	0	0	0	IZS	6	3	1	1	1	1	1	1	1	1	1	1	1	1	8	1	1	1	8	2.0	24
HOURLY MAX	6	9	7	12	15	13	9	6	4	3	2	2	3	2	2	2	3	2	3	2	3	2	8	7	3	3		
HOURLY AVG	1.0	0.9	0.8	1.3	1.5	2.0	2.4	1.9	1.1	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.5	0.3	0.3	0.3	0.3	0.6	0.6	0.4	0.5			

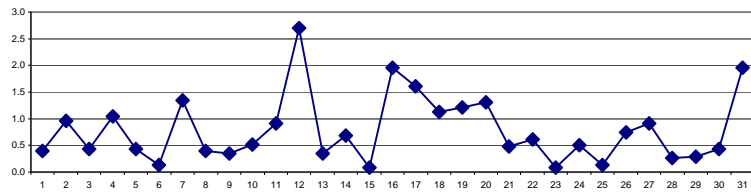
STATUS FLAG CODES

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

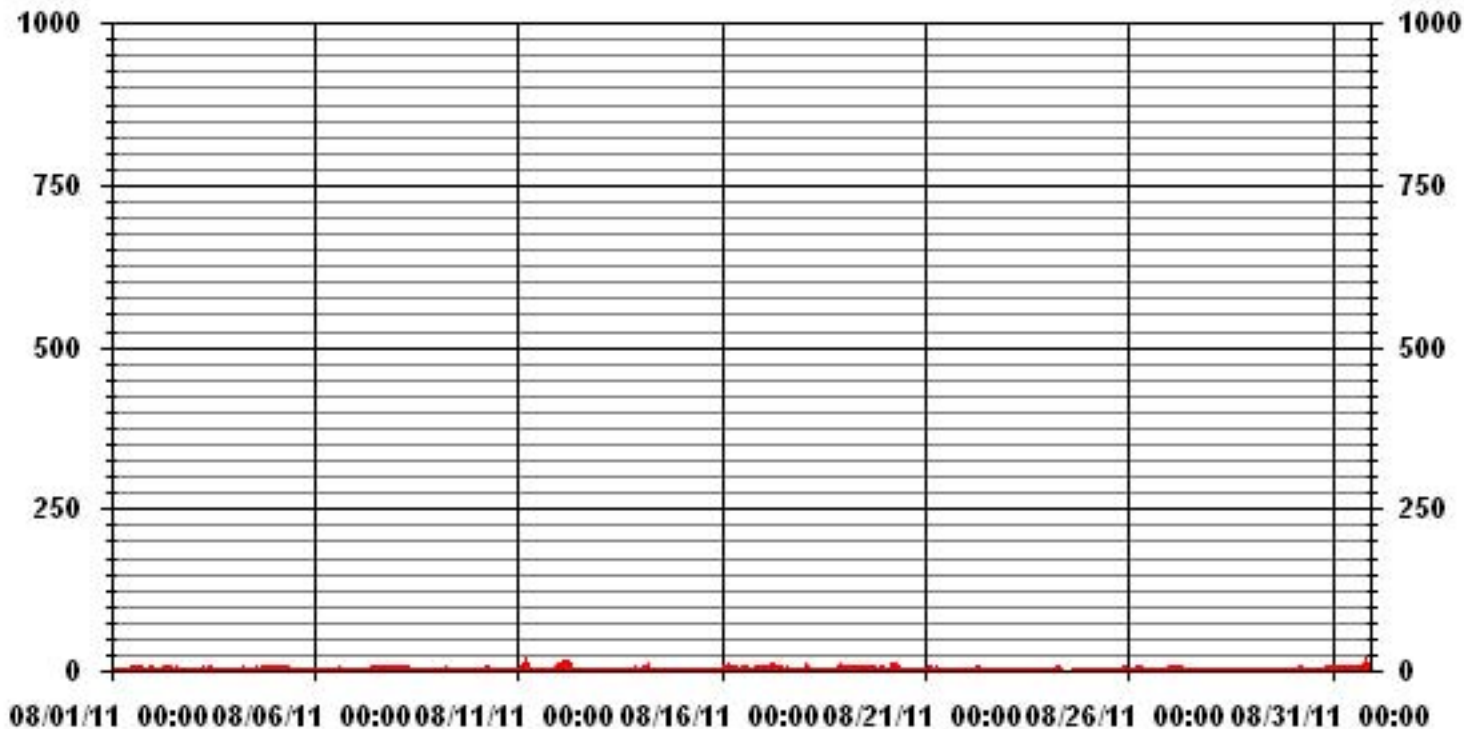
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	279					
MAXIMUM 1-HR AVERAGE:	15	PPB	@ HOUR(S)	4	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	2.7	PPB			ON DAY(S)	12
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	1.57		MONTHLY AVERAGE:	0.79	PPB	

24 HOUR AVERAGES FOR AUGUST 2011



01 Hour Averages



— LICA33 NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 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	0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	0	0	0	1	0	1	7	5	1	1	2	1	1	IZS	3	4	2	3	3	6	2	0	0	0	0	7	1.9	24
2	23	9	8	12	2	2	3	2	2	3	3	17	IZS	5	3	3	3	2	4	3	1	0	0	0	23	4.8	24	
3	2	0	3	3	15	2	4	4	8	5	3	IZS	2	1	1	1	2	2	3	3	0	1	2	0	15	2.9	24	
4	0	2	3	2	3	2	15	6	2	1	IZS	3	2	39	3	10	11	2	1	1	1	1	1	1	39	4.9	24	
5	1	1	1	3	1	1	2	3	2	IZS	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0.8	24	
6	0	0	2	0	0	1	1	1	IZS	2	1	1	1	1	1	2	3	0	0	0	0	0	0	0	3	0.7	24	
7	14	8	4	8	4	0	2	IZS	4	4	4	3	5	4	3	1	1	1	1	1	1	1	1	1	14	3.3	24	
8	1	1	1	1	1	2	IZS	2	2	1	1	0	0	0	2	0	0	1	6	1	2	1	4	0	6	1.3	24	
9	0	1	1	1	0	IZS	8	3	2	1	1	0	2	10	7	1	1	1	1	0	0	1	34	2	34	3.4	24	
10	1	0	0	30	IZS	3	8	6	2	1	0	0	0	0	0	1	0	0	0	0	1	0	1	2	30	2.4	24	
11	6	3	3	IZS	12	27	9	14	1	1	0	0	0	0	0	0	0	0	1	2	2	1	0	1	27	3.6	24	
12	24	24	IZS	16	27	27	7	5	14	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	27	6.3	24	
13	0	IZS	1	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	7	8	8	14	14	1.9	24	
14	IZS	13	5	7	12	10	2	1	1	0	0	0	0	0	0	0	0	0	2	1	0	1	0	IZS	13	2.5	24	
15	1	0	3	4	0	0	2	1	0	1	11	1	1	1	0	0	0	0	0	0	1	1	1	IZS	4	11	1.4	24
16	2	1	1	18	17	11	17	6	4	4	3	4	3	2	1	2	2	1	10	4	1	IZS	5	2	18	5.3	24	
17	1	1	4	2	3	14	11	6	3	3	3	3	4	4	4	3	3	5	5	7	IZS	8	1	0	14	4.3	24	
18	4	6	17	13	4	1	1	1	1	1	0	1	2	1	1	2	2	1	0	IZS	5	23	8	5	23	4.3	24	
19	3	3	2	1	1	2	4	8	5	3	4	3	2	2	2	1	1	3	IZS	5	5	1	0	37	37	4.3	24	
20	28	3	0	1	2	33	19	7	8	3	2	1	0	0	0	0	0	IZS	1	1	1	0	0	0	33	4.8	24	
21	0	0	4	12	1	12	5	1	1	1	0	0	0	0	0	0	IZS	2	1	1	0	0	0	4	12	2.0	24	
22	3	1	0	1	3	3	9	5	5	1	1	0	1	0	0	IZS	1	1	2	2	0	0	4	1	9	1.9	24	
23	0	1	0	1	0	3	0	2	1	1	0	0	1	9	IZS	1	1	1	0	6	2	3	7	1	9	1.8	24	
24	0	0	1	5	0	1	6	4	4	1	C	C	C	C	C	C	C	1	0	0	0	0	0	2	6	1.5	24	
25	1	1	0	11	4	0	0	1	12	0	0	0	IZS	2	1	0	0	0	0	1	1	6	4	8	12	2.3	24	
26	0	2	8	1	1	6	13	15	5	2	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	15	2.3	24	
27	6	2	2	5	7	12	7	4	2	1	IZS	1	1	0	0	0	0	0	0	0	0	2	0	0	12	2.3	24	
28	1	3	5	1	3	3	2	2	2	IZS	1	2	2	1	1	0	0	0	0	0	1	0	0	0	5	1.3	24	
29	0	0	0	0	0	6	2	3	IZS	1	1	0	0	0	0	0	0	0	0	0	P	P	2	1	6	0.8	22	
30	0	0	2	4	2	5	8	IZS	2	1	12	1	17	1	0	1	1	1	0	0	5	5	4	6	17	3.4	24	
31	23	21	9	0	0	2	IZS	16	18	2	3	1	1	1	1	2	1	1	5	17	4	1	1	23	5.7	24		
HOURLY MAX	28	24	17	30	27	33	19	16	18	5	12	17	17	39	7	10	11	5	10	7	17	23	34	37				
HOURLY AVG	4.8	3.6	3.0	5.5	4.2	6.4	6.0	4.7	4.0	1.6	2.1	1.6	1.8	2.9	1.2	1.2	1.2	1.0	1.4	1.7	1.9	2.3	2.9	3.1				

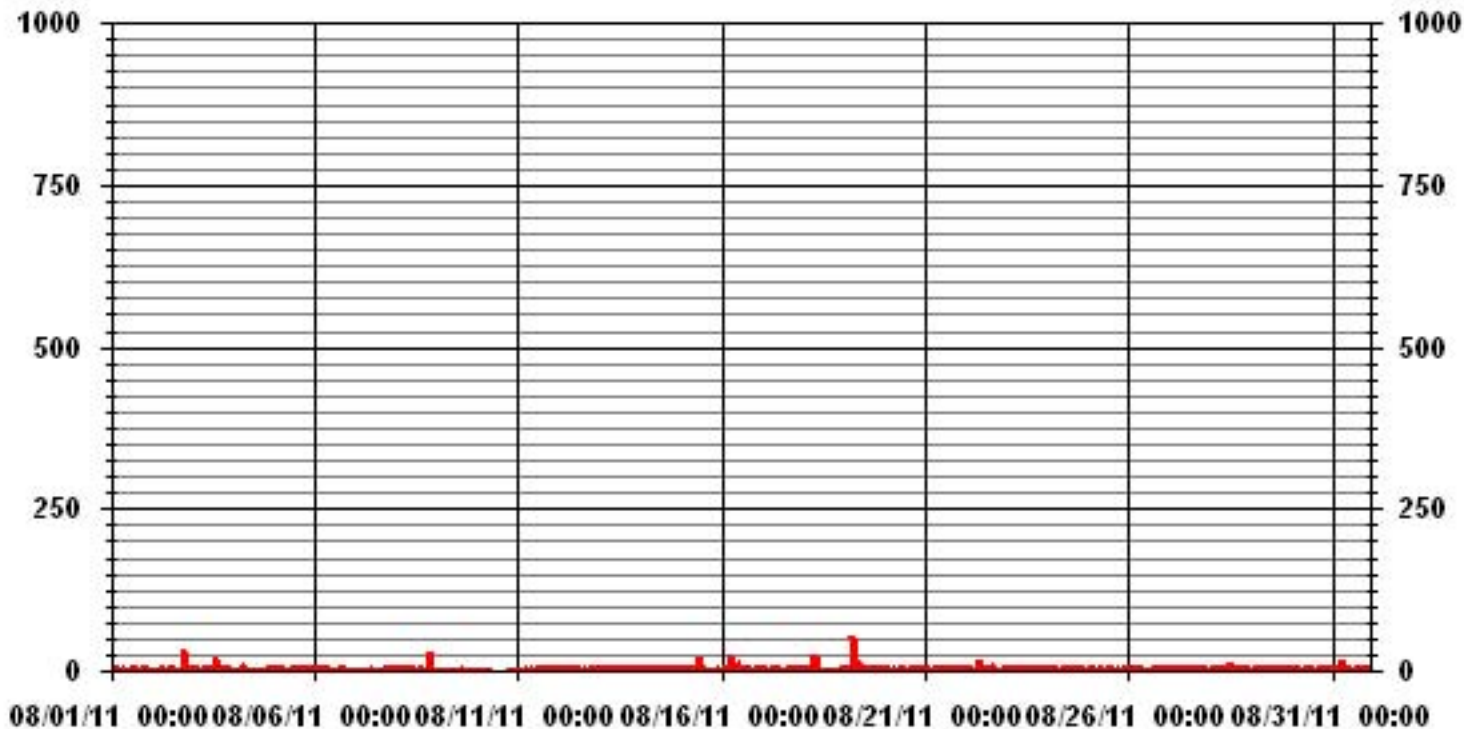
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	479					
MAXIMUM INSTANTANEOUS VALUE:	39	PPB	@ HOUR(S)	13	ON DAY(S)	4
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION	5.10					

01 Hour Averages



LICA33
 NO_ / WDR Joint Frequency Distribution (Percent)

August 2011

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	1.98	1.70	1.98	2.83	5.53	3.40	5.39	6.66	2.83	2.55	10.07	12.90	19.00	17.73	4.25	1.13	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.98	1.70	1.98	2.83	5.53	3.40	5.39	6.66	2.83	2.55	10.07	12.90	19.00	17.73	4.25	1.13	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	14	12	14	20	39	24	38	47	20	18	71	91	134	125	30	8	705
< 110																	
< 210																	
>= 210																	
Totals	14	12	14	20	39	24	38	47	20	18	71	91	134	125	30	8	

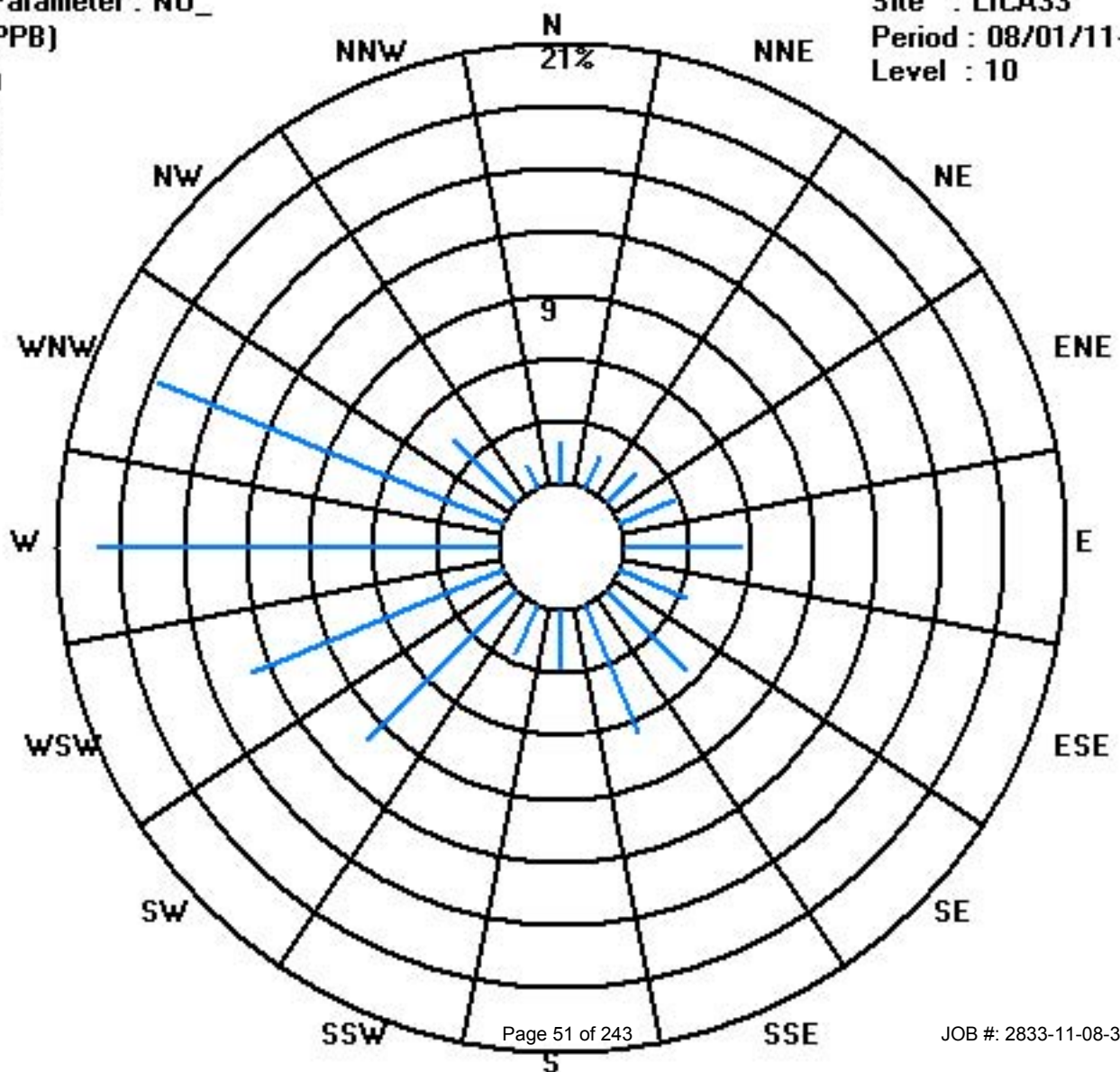
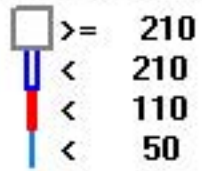
Calm : .00 %

Total # Operational Hours : 705

Class Limits (PPB)

Period : 08/01/11-08/31/11

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 2011

OXIDES OF NITROGEN hourly averages in ppb

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	2	0	1	3	3	2	5	3	1	0	1	0	0	IZS	3	3	3	3	4	4	3	2	2	1	5	2.1	24	
2	9	4	4	7	3	3	5	3	3	3	3	3	IZS	4	3	3	2	1	4	2	4	2	2	1	9	3.4	24	
3	2	1	4	5	7	5	5	5	7	3	5	IZS	1	0	0	1	2	1	2	4	0	2	1	2	7	2.8	24	
4	2	3	3	3	3	4	7	3	1	1	IZS	2	2	2	2	2	7	2	1	2	2	4	4	3	7	2.8	24	
5	3	3	3	6	3	3	3	3	2	IZS	2	1	1	1	1	1	1	1	1	3	3	6	3	2	6	2.4	24	
6	2	3	5	3	3	3	2	2	IZS	1	1	1	2	3	2	3	3	1	1	0	1	1	3	3	5	2.1	24	
7	8	5	2	4	5	1	2	IZS	4	4	3	3	5	4	2	1	1	1	2	2	2	2	2	3	8	3.0	24	
8	2	2	3	3	3	3	IZS	3	3	2	1	1	1	1	1	1	1	1	5	3	5	2	3	2	5	2.3	24	
9	2	3	4	2	2	IZS	9	5	3	3	2	1	2	2	2	1	2	1	3	3	2	2	6	4	9	2.9	24	
10	3	5	3	8	IZS	5	11	8	4	2	1	1	0	0	0	1	0	1	1	1	3	4	5	5	11	3.1	24	
11	14	10	7	IZS	9	15	7	6	2	1	1	1	1	1	1	1	1	1	2	4	3	4	3	3	15	4.3	24	
12	9	14	IZS	17	19	15	8	6	5	2	1	1	1	1	1	1	1	1	1	2	2	4	3	3	19	5.1	24	
13	3	IZS	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	4	8	7	10	7	10	2.1	24	
14	IZS	7	7	7	16	9	2	2	2	1	1	1	1	1	1	1	1	1	5	6	2	3	1	IZS	16	3.5	24	
15	2	3	4	4	2	3	3	3	2	1	2	1	1	1	1	1	1	1	2	2	3	3	IZS	4	4	2.2	24	
16	3	3	4	8	13	6	7	4	2	3	2	3	2	1	1	1	1	1	8	4	2	IZS	5	4	13	3.8	24	
17	2	2	3	2	4	9	13	5	2	2	2	2	2	2	5	3	2	3	3	5	IZS	5	2	1	13	3.5	24	
18	4	7	14	9	3	3	3	2	2	1	1	2	2	1	1	2	1	1	1	IZS	5	12	6	5	14	3.8	24	
19	3	3	5	4	2	2	3	5	4	4	3	2	1	1	2	1	2	2	IZS	4	4	3	4	7	7	3.1	24	
20	7	5	1	2	4	12	14	5	8	4	3	2	2	2	2	1	1	IZS	1	4	6	3	1	1	14	4.0	24	
21	1	2	5	10	4	6	4	3	2	1	1	0	0	0	0	0	IZS	2	2	3	4	3	3	3	10	2.6	24	
22	10	7	5	5	6	5	10	7	6	4	3	2	2	1	1	IZS	1	3	4	3	3	3	6	6	10	4.5	24	
23	4	3	1	2	3	2	2	1	1	1	0	0	0	0	IZS	1	1	1	1	6	2	4	4	4	4	6	1.9	24
24	4	2	1	5	3	2	5	5	6	2	C	C	C	C	C	C	4	1	1	2	3	9	7	6	9	3.8	24	
25	6	5	4	7	6	2	2	2	1	0	0	0	IZS	1	1	1	1	1	1	1	3	6	6	6	7	2.7	24	
26	4	6	8	5	6	8	12	12	5	3	1	IZS	0	0	0	0	0	0	0	1	1	2	2	2	12	3.4	24	
27	8	7	6	5	7	8	7	5	2	2	IZS	1	1	1	0	1	1	1	1	1	4	10	4	4	10	3.8	24	
28	4	6	6	6	8	5	4	4	3	IZS	2	3	2	2	2	1	1	1	1	2	3	2	3	4	8	3.3	24	
29	3	3	3	2	3	8	4	5	IZS	2	1	1	1	1	1	1	1	2	2	3	P	P	4	3	8	2.6	22	
30	3	3	5	8	5	9	9	IZS	2	1	0	0	0	0	0	1	1	1	0	0	6	6	5	6	9	3.1	24	
31	15	8	9	2	2	3	IZS	9	4	1	1	1	1	1	1	1	1	1	1	3	17	8	6	4	17	4.3	24	
HOURLY MAX	15	14	14	17	19	15	14	12	8	4	5	3	5	4	5	3	7	3	8	6	17	12	10	7				
HOURLY AVG	4.8	4.5	4.4	5.2	5.3	5.4	5.8	4.4	3.1	1.9	1.6	1.3	1.2	1.2	1.3	1.2	1.5	1.3	2.0	2.8	3.7	4.3	3.9	3.6				

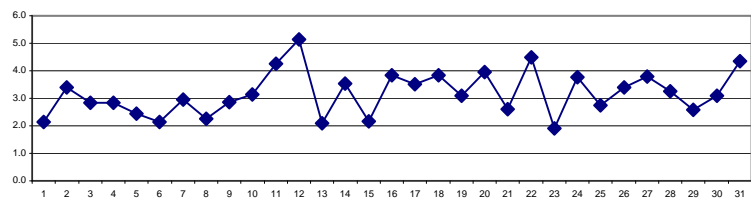
STATUS FLAG CODES

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

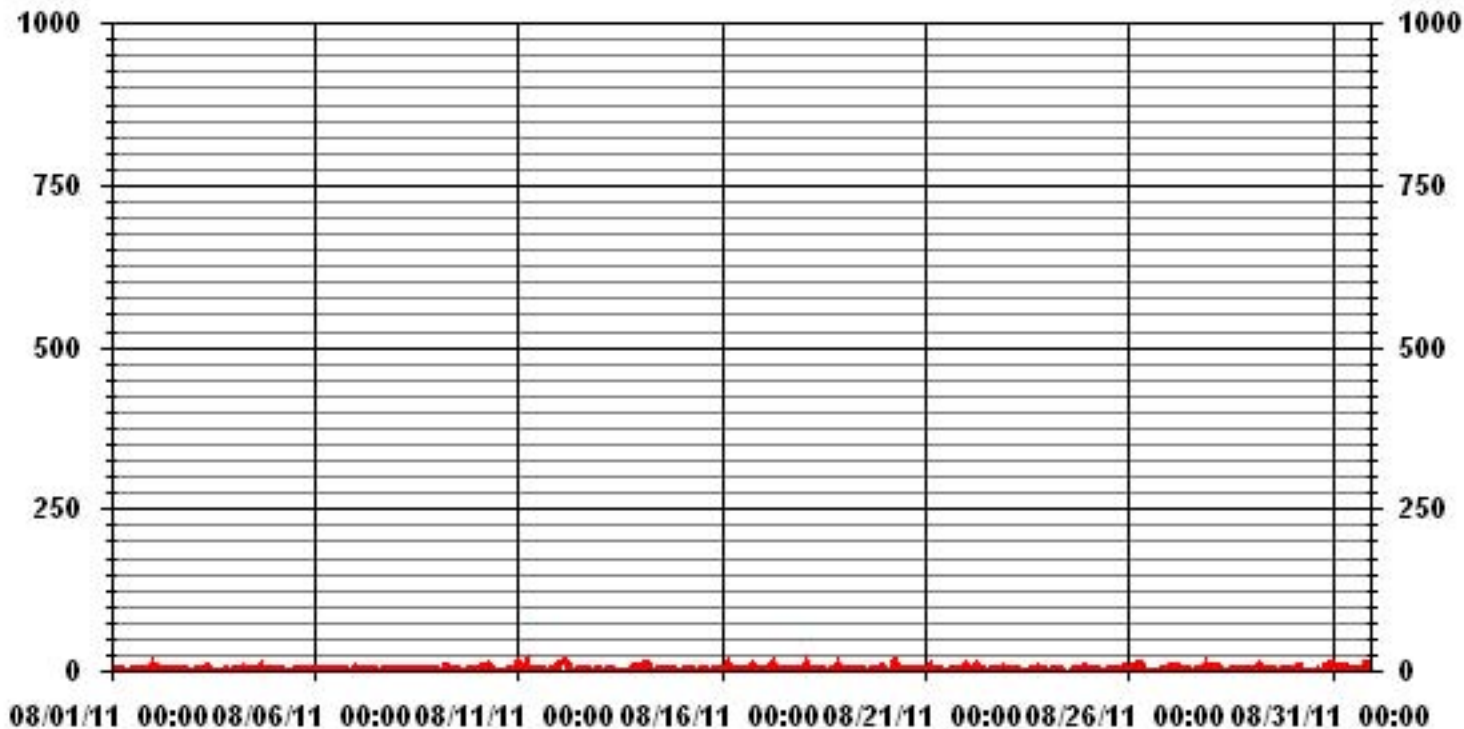
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	658					
MAXIMUM 1-HR AVERAGE:	19	PPB	@ HOUR(S)	4	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	5.1	PPB			ON DAY(S)	12
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	2.83		MONTHLY AVERAGE:	3.17	PPB	

24 HOUR AVERAGES FOR AUGUST 2011



01 Hour Averages



— LICA33 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 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	4	1	2	5	4	3	12	9	1	2	5	2	1	IZS	5	8	5	7	8	14	6	2	2	2	2	14	4.8	24
2	36	16	15	18	6	4	6	6	5	6	6	28	IZS	8	5	6	7	5	10	8	6	5	2	2	2	36	9.4	24
3	6	4	8	8	27	8	10	9	17	12	8	IZS	2	1	2	2	6	5	8	12	2	7	5	3	27	7.5	24	
4	5	7	7	6	7	5	23	10	3	1	IZS	4	4	59	5	19	25	4	2	3	3	6	5	4	59	9.4	24	
5	4	4	4	9	4	3	6	7	4	IZS	3	2	2	2	1	2	2	2	3	6	6	8	7	3	9	4.1	24	
6	3	5	12	4	3	6	6	3	IZS	2	2	2	4	7	5	6	7	2	1	1	1	2	3	4	12	4.0	24	
7	25	16	8	15	9	2	7	IZS	6	7	6	5	10	8	5	2	2	2	2	3	2	3	3	4	25	6.6	24	
8	3	3	4	4	4	4	IZS	4	3	3	2	2	2	2	5	1	1	2	19	4	10	4	9	3	19	4.3	24	
9	3	7	7	4	3	IZS	14	8	5	5	4	2	6	24	10	2	4	4	7	5	4	5	45	10	45	8.2	24	
10	6	6	4	43	IZS	8	17	13	7	4	2	1	1	1	1	3	1	1	3	2	5	5	8	11	43	6.7	24	
11	21	17	11	IZS	22	37	16	22	3	2	2	1	2	1	2	1	2	1	6	8	6	5	4	5	37	8.6	24	
12	30	30	IZS	21	32	31	11	8	50	3	2	2	2	11	2	2	2	2	2	3	3	5	4	4	50	11.4	24	
13	3	IZS	3	2	2	2	2	2	2	2	1	1	1	1	1	1	2	1	4	9	20	18	20	29	29	5.6	24	
14	IZS	22	17	15	24	19	6	4	3	2	2	1	2	2	2	2	2	1	12	9	4	9	2	IZS	24	7.4	24	
15	3	6	10	15	3	5	5	4	2	2	18	3	2	2	2	2	2	2	2	3	2	5	5	IZS	9	18	4.9	24
16	4	4	4	27	27	19	24	9	6	7	5	6	5	2	2	3	2	2	23	9	3	IZS	10	5	27	9.0	24	
17	4	4	9	4	8	25	20	11	5	5	5	4	6	7	7	4	4	11	11	17	IZS	18	3	3	25	8.5	24	
18	11	15	30	26	9	4	4	3	3	2	2	3	5	2	2	5	5	2	2	IZS	9	34	13	9	34	8.7	24	
19	5	7	7	6	3	3	5	12	7	5	6	3	2	4	3	1	4	5	IZS	13	13	5	5	45	45	7.3	24	
20	38	8	3	4	7	39	26	11	13	6	5	3	2	2	2	2	2	IZS	2	17	14	4	2	2	39	9.3	24	
21	2	2	9	20	6	17	8	3	3	2	2	2	1	1	1	1	IZS	6	3	4	5	3	3	13	20	5.1	24	
22	13	9	7	7	9	10	15	11	12	5	3	2	3	2	2	IZS	2	4	9	8	4	4	12	8	15	7.0	24	
23	6	6	2	5	3	8	3	4	1	1	1	1	1	12	IZS	2	1	2	2	19	7	9	15	10	19	5.3	24	
24	5	3	5	13	6	3	10	7	9	4	C	C	C	C	C	C	4	1	4	6	18	11	16	18	18	7.4	24	
25	8	10	5	23	14	3	4	4	15	2	2	0	IZS	6	2	1	1	2	2	2	8	17	13	17	23	7.0	24	
26	6	10	17	7	7	14	21	24	10	5	2	IZS	1	0	1	1	0	1	1	2	2	3	3	4	24	6.2	24	
27	15	9	9	10	12	15	10	6	4	3	IZS	2	2	1	1	1	2	1	2	2	9	26	7	7	26	6.8	24	
28	5	13	19	9	12	7	5	5	4	IZS	3	7	5	4	4	2	3	1	2	5	5	3	4	5	19	5.7	24	
29	4	4	3	3	4	13	5	7	IZS	3	2	2	2	2	2	2	3	4	4	P	P	9	5	13	4.0	22		
30	4	4	13	14	9	15	21	IZS	4	1	20	2	16	2	1	3	4	4	1	1	20	14	12	18	21	8.8	24	
31	40	35	20	3	3	7	IZS	24	22	2	3	2	1	1	1	1	2	2	2	11	32	13	8	4	40	10.4	24	
HOURLY MAX	40	35	30	43	32	39	26	24	50	12	20	28	16	59	10	19	25	11	23	19	32	34	45	45				
HOURLY AVG	10.7	9.6	9.1	11.7	9.6	11.3	11.1	8.6	7.9	3.7	4.4	3.4	3.3	6.1	2.9	3.0	3.6	3.0	5.2	6.9	7.6	9.0	8.3	8.8				

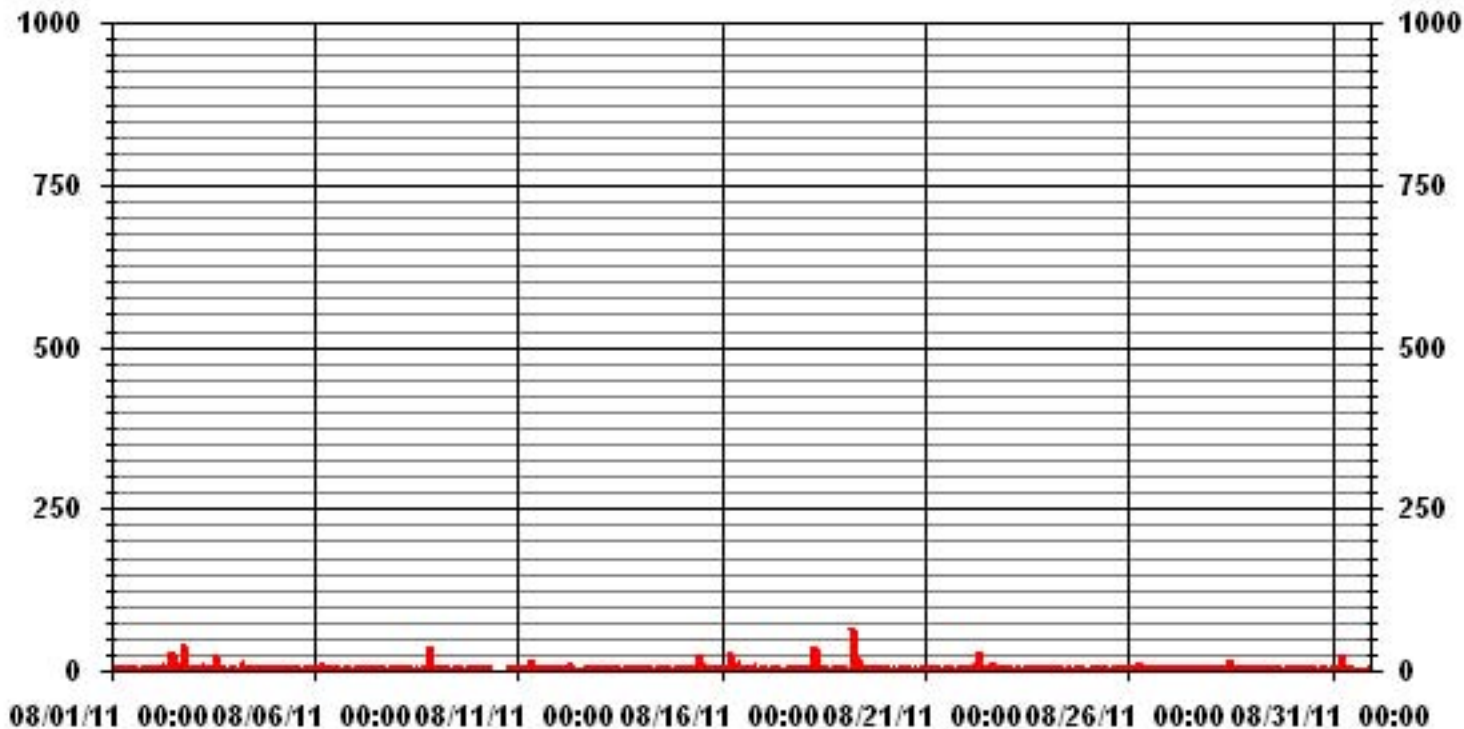
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	701					
MAXIMUM INSTANTANEOUS VALUE:	59	PPB	@ HOUR(S)	13	ON DAY(S)	4
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION	7.64					

01 Hour Averages



— LICA31 NOXMAX PPB

LICA33
 NOX_ / WDR Joint Frequency Distribution (Percent)

August 2011

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	1.98	1.70	1.98	2.83	5.53	3.40	5.39	6.66	2.83	2.55	10.07	12.90	19.00	17.73	4.25	1.13	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.98	1.70	1.98	2.83	5.53	3.40	5.39	6.66	2.83	2.55	10.07	12.90	19.00	17.73	4.25	1.13	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	14	12	14	20	39	24	38	47	20	18	71	91	134	125	30	8	705
< 110																	
< 210																	
>= 210																	
Totals	14	12	14	20	39	24	38	47	20	18	71	91	134	125	30	8	

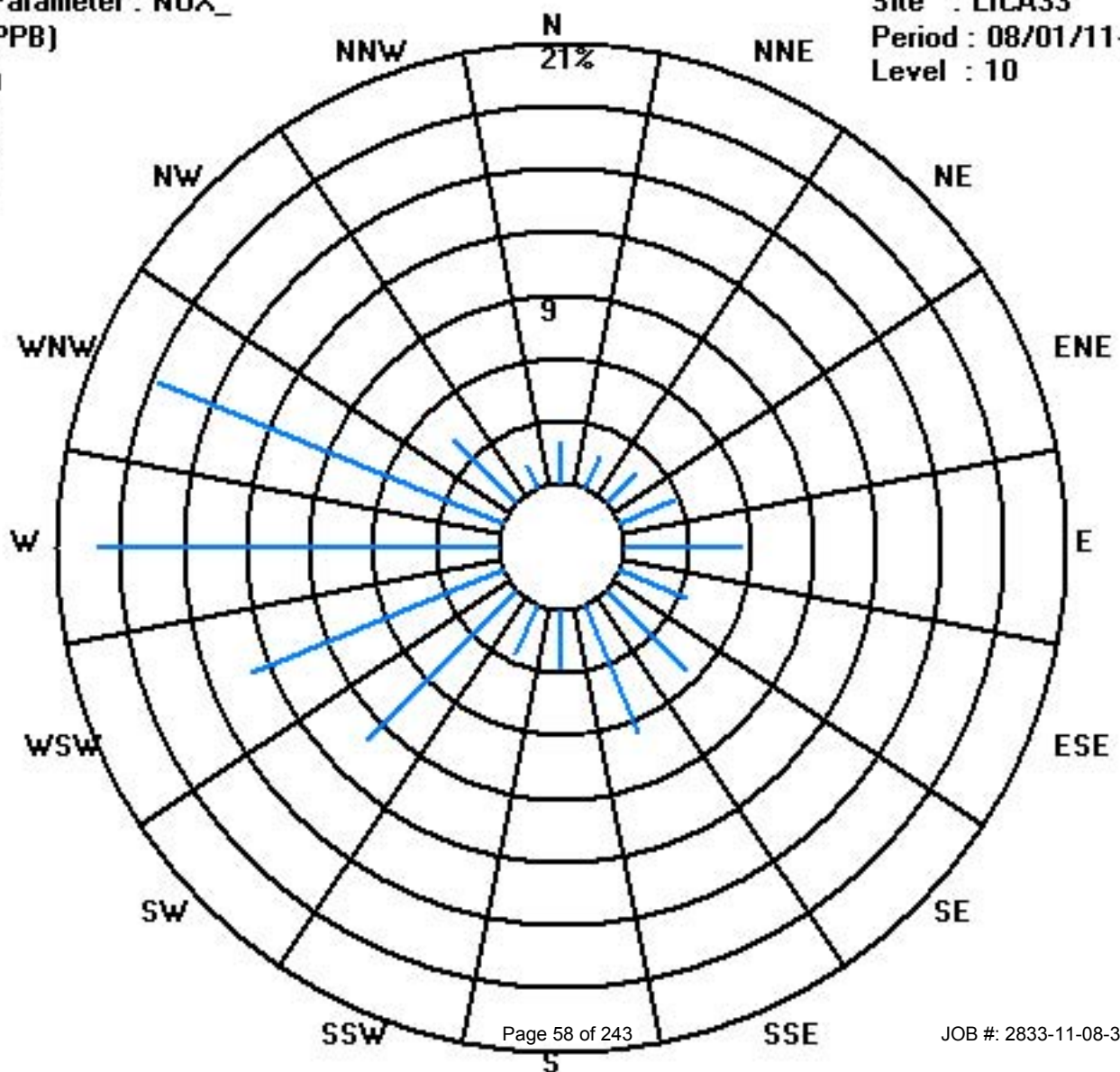
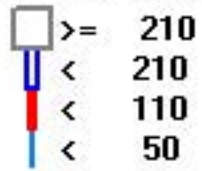
Calm : .00 %

Total # Operational Hours : 705

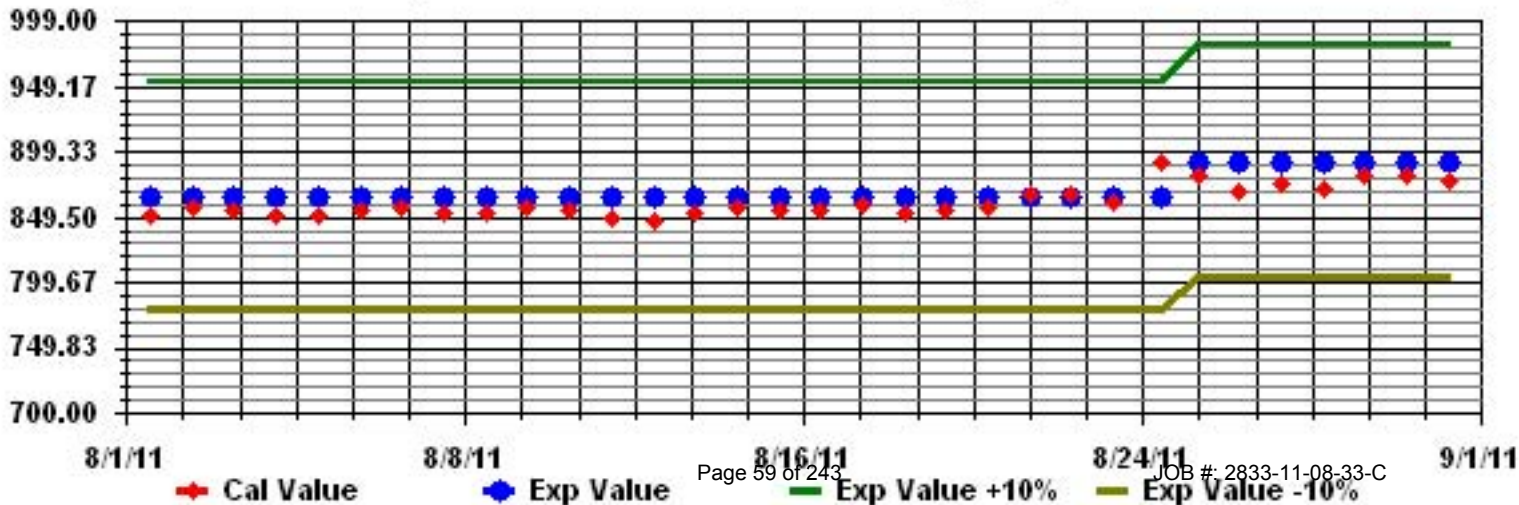
Class Limits (PPB)

Period : 08/01/11-08/31/11

Level : 10



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 2011

OZONE (O₃) hourly averages in ppb

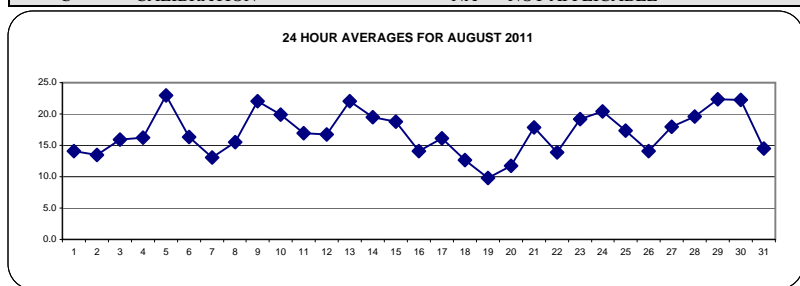
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	
1	1	15	13	10	7	6	7	8	10	14	19	21	21	21	IZS	21	21	20	19	19	15	10	10	9	9	21	14.1	24
2	2	7	7	6	6	6	6	8	12	14	16	18	19	IZS	21	21	22	22	22	19	16	12	11	9	9	22	13.4	24
3	3	11	13	9	7	8	8	7	9	13	17	18	IZS	25	24	27	26	24	21	18	19	21	15	14	11	27	15.9	24
4	4	7	7	7	7	7	5	7	11	20	24	IZS	30	29	27	26	25	21	27	25	22	12	11	10	7	30	16.3	24
5	5	5	7	6	7	21	16	16	24	34	IZS	37	37	37	37	36	36	35	34	32	20	15	11	12	12	37	22.9	24
6	6	12	11	9	11	11	11	12	13	IZS	19	17	24	29	23	19	11	16	25	24	23	19	15	11	10	29	16.3	24
7	7	8	8	8	8	9	13	12	IZS	13	13	14	13	11	12	16	18	19	15	13	14	17	16	14	19	13.0	24	
8	8	12	10	9	7	6	7	IZS	11	14	18	22	24	24	25	24	25	25	24	19	15	12	10	7	6	25	15.5	24
9	9	3	5	2	2	2	IZS	5	13	17	24	32	31	33	42	42	38	35	34	31	35	32	20	17	11	42	22.0	24
10	10	10	7	6	5	IZS	7	8	16	26	33	38	40	36	34	30	28	29	26	19	18	16	10	7	9	40	19.9	24
11	11	5	3	6	IZS	7	4	8	13	21	24	26	27	27	29	29	31	30	32	27	14	10	5	6	6	32	17.0	24
12	12	2	0	IZS	0	0	0	2	10	19	25	28	30	31	30	29	30	30	29	26	21	11	10	12	10	31	16.7	24
13	13	11	IZS	10	8	8	8	13	18	21	27	30	31	33	37	37	40	39	39	36	23	12	10	7	9	40	22.0	24
14	14	IZS	8	7	6	1	3	9	13	19	22	26	28	29	30	30	29	27	21	15	17	31	23	35	IZS	35	19.5	24
15	15	26	28	22	18	18	17	23	21	16	17	18	22	21	21	20	20	20	19	17	17	12	9	IZS	10	28	18.8	24
16	16	12	11	10	8	7	6	7	9	15	16	18	20	21	21	21	21	21	21	16	14	12	IZS	9	7	21	14.0	24
17	17	8	11	14	15	13	10	10	16	19	20	20	20	20	20	18	20	20	18	15	12	IZS	15	17	19	20	16.1	24
18	18	15	11	9	10	9	9	10	11	15	17	18	19	18	17	17	16	15	16	16	IZS	7	6	5	5	19	12.7	24
19	19	4	4	3	3	4	5	6	7	10	12	15	18	18	19	19	18	16	IZS	8	5	4	4	4	4	19	9.8	24
20	20	3	2	4	2	1	1	2	4	3	8	14	22	22	26	28	31	29	IZS	20	14	11	10	7	5	31	11.7	24
21	21	4	4	2	1	2	3	4	11	18	24	30	34	36	37	38	37	IZS	29	21	20	18	16	12	10	38	17.9	24
22	22	4	2	5	3	0	1	4	11	15	24	27	27	31	29	31	IZS	26	24	16	16	5	8	5	5	31	13.9	24
23	23	15	18	28	19	14	15	16	18	17	18	21	24	24	24	IZS	25	25	25	24	19	17	14	11	10	28	19.2	24
24	24	9	10	10	6	4	4	4	10	17	25	27	32	34	IZS	38	M	35	35	32	31	28	22	21	15	38	20.4	23
25	25	12	8	6	7	10	13	13	19	25	C	C	C	C	31	30	29	28	26	23	21	15	11	9	11	31	17.4	24
26	26	11	7	6	6	4	2	4	8	13	20	22	IZS	24	25	24	25	24	25	21	16	12	10	9	6	25	14.1	24
27	27	3	3	2	3	1	1	2	8	17	21	IZS	27	30	33	35	38	34	24	19	16	29	24	23	21	38	18.0	24
28	28	18	14	10	8	8	9	9	11	17	IZS	31	32	34	36	35	34	33	31	27	22	9	8	7	8	36	19.6	24
29	29	5	6	10	8	7	2	6	10	IZS	31	35	36	37	38	38	38	34	28	26	30	P	P	N	N	38	22.4	20
30	30	N	N	N	N	N	N	N	N	M	C	C	C	C	29	30	28	28	27	27	23	16	12	13	12	30	22.3	15
31	31	8	9	8	12	11	9	IZS	9	13	16	18	21	21	22	22	22	22	22	20	15	6	9	9	10	22	14.5	24
HOURLY MAX		26	28	28	19	21	17	23	24	34	33	38	40	37	42	42	40	39	39	36	35	32	24	35	21			
HOURLY AVG		9.1	8.5	8.4	7.2	7.1	7.0	8.4	12.3	17.0	20.4	23.7	26.3	27.0	27.6	27.7	27.0	26.1	25.1	22.1	18.9	14.9	12.2	11.5	9.7			

STATUS FLAG CODES

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

OBJECTIVE LIMIT:

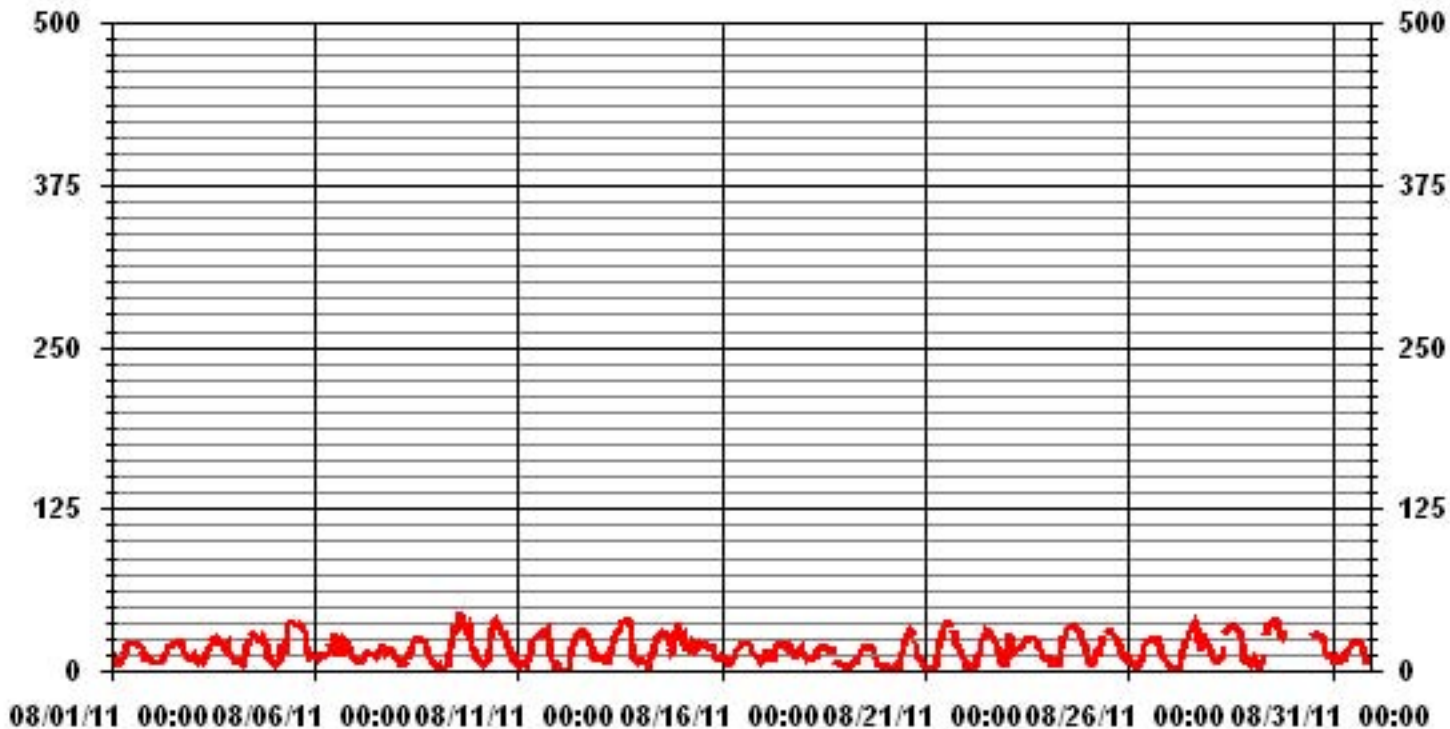
ALBERTA ENVIRONMENT: 1-HR 82 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	687					
MAXIMUM 1-HR AVERAGE:	42	PPB	@ HOUR(S)	13, 14	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	22.9	PPB			ON DAY(S)	5
					VAR-VARIOUS	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	730	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME	98.1	%	
STANDARD DEVIATION	9.74		MONTHLY AVERAGE	16.87	PPB	

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 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	15	13	9	8	9	10	12	16	22	23	23	22	IZS	22	22	22	21	21	19	12	12	11	11	23	16.3	24	
2	10	10	9	10	7	8	11	14	16	18	20	21	IZS	22	23	24	24	24	22	19	14	16	10	12	24	15.8	24	
3	14	14	12	11	12	10	10	13	17	18	22	IZS	28	25	28	28	27	25	24	24	23	19	17	14	28	18.9	24	
4	10	9	9	8	9	6	10	15	24	26	IZS	31	31	29	28	28	30	30	28	24	20	15	17	10	31	19.4	24	
5	6	9	7	20	27	23	21	30	38	IZS	40	40	38	39	37	38	37	37	36	28	18	15	14	13	40	26.6	24	
6	13	13	12	13	12	13	13	15	IZS	20	19	34	35	29	30	13	24	26	26	26	21	17	13	12	35	19.5	24	
7	10	12	10	10	11	14	13	IZS	14	15	16	15	13	14	18	21	22	17	15	17	19	18	19	17	22	15.2	24	
8	13	12	11	8	7	10	IZS	12	17	22	25	25	26	27	26	26	27	26	25	19	16	13	10	10	27	18.0	24	
9	8	9	4	4	4	IZS	9	16	20	29	35	35	39	45	44	40	38	36	41	41	44	31	24	21	45	26.8	24	
10	13	13	10	9	IZS	10	15	23	30	38	40	42	40	37	34	31	30	30	23	21	19	13	9	12	42	23.6	24	
11	13	7	10	IZS	13	10	12	18	23	26	27	29	30	31	32	32	33	32	32	20	15	10	13	11	33	20.7	24	
12	8	2	IZS	1	2	1	4	15	22	28	30	32	33	31	30	31	31	32	29	27	14	16	16	13	33	19.5	24	
13	12	IZS	11	11	10	12	16	21	24	30	32	33	37	39	40	42	42	43	40	31	22	17	12	13	43	25.7	24	
14	IZS	12	12	9	2	9	11	15	21	25	29	29	31	33	34	33	30	29	20	41	36	31	40	IZS	41	24.2	24	
15	29	30	29	22	20	21	28	26	18	19	21	23	23	22	22	21	22	20	19	19	16	12	IZS	13	30	21.5	24	
16	13	12	11	10	10	10	9	12	17	18	20	21	21	22	22	22	22	22	22	22	17	13	IZS	13	9	22	16.0	24
17	8	15	15	16	15	15	14	19	21	21	21	21	21	21	21	21	21	21	17	17	IZS	19	20	20	21	18.3	24	
18	18	16	14	15	11	10	10	13	17	18	19	20	20	18	18	17	17	17	17	IZS	10	10	9	7	20	14.8	24	
19	6	6	4	4	5	6	9	9	11	13	18	19	20	21	21	20	20	IZS	12	7	6	5	7	21	11.7	24		
20	5	5	5	4	3	3	5	6	6	10	22	24	24	27	31	33	32	IZS	24	21	15	12	9	7	33	14.5	24	
21	6	6	4	4	4	5	6	15	21	27	32	37	39	38	39	39	IZS	33	25	24	20	18	16	15	39	20.6	24	
22	8	5	7	8	3	3	6	15	20	29	29	29	34	31	33	IZS	30	27	23	19	10	12	9	13	34	17.5	24	
23	18	28	35	26	16	18	18	19	18	21	24	25	25	IZS	25	25	26	26	24	19	18	15	12	35	22.0	24		
24	11	12	12	9	7	5	6	14	24	27	30	36	36	IZS	39	M	37	39	35	33	31	26	26	24	39	23.6	23	
25	17	12	9	9	13	16	16	24	28	C	C	C	C	32	32	30	29	27	25	23	20	16	12	14	32	20.2	24	
26	14	9	9	9	15	4	5	11	18	22	23	IZS	25	26	26	27	27	28	24	20	14	13	12	8	28	16.9	24	
27	7	5	3	5	1	1	5	14	19	25	IZS	30	32	35	39	39	38	29	25	21	33	31	34	24	39	21.5	24	
28	22	17	16	10	10	11	11	14	21	IZS	33	34	36	37	37	35	35	33	29	28	15	14	14	11	37	22.7	24	
29	7	10	13	14	10	5	8	13	IZS	34	36	38	39	41	40	39	37	30	31	34	P	P	N	N	41	25.2	20	
30	N	N	N	N	N	N	N	N	M	C	C	C	C	C	32	30	30	29	28	27	22	18	17	17	32	25.0	15	
31	14	13	14	14	12	11	IZS	12	15	18	21	21	22	23	23	23	23	23	22	19	12	12	10	10	23	16.8	24	
HOURLY MAX	29	30	35	26	27	23	28	30	38	38	40	42	40	45	44	42	42	43	41	41	44	31	40	24				
HOURLY AVG	12.1	11.7	11.4	10.4	9.6	9.6	11.1	15.7	19.9	22.9	26.2	28.4	29.2	29.2	30.0	28.7	28.7	27.8	25.8	23.8	19.0	16.6	15.4	13.1				

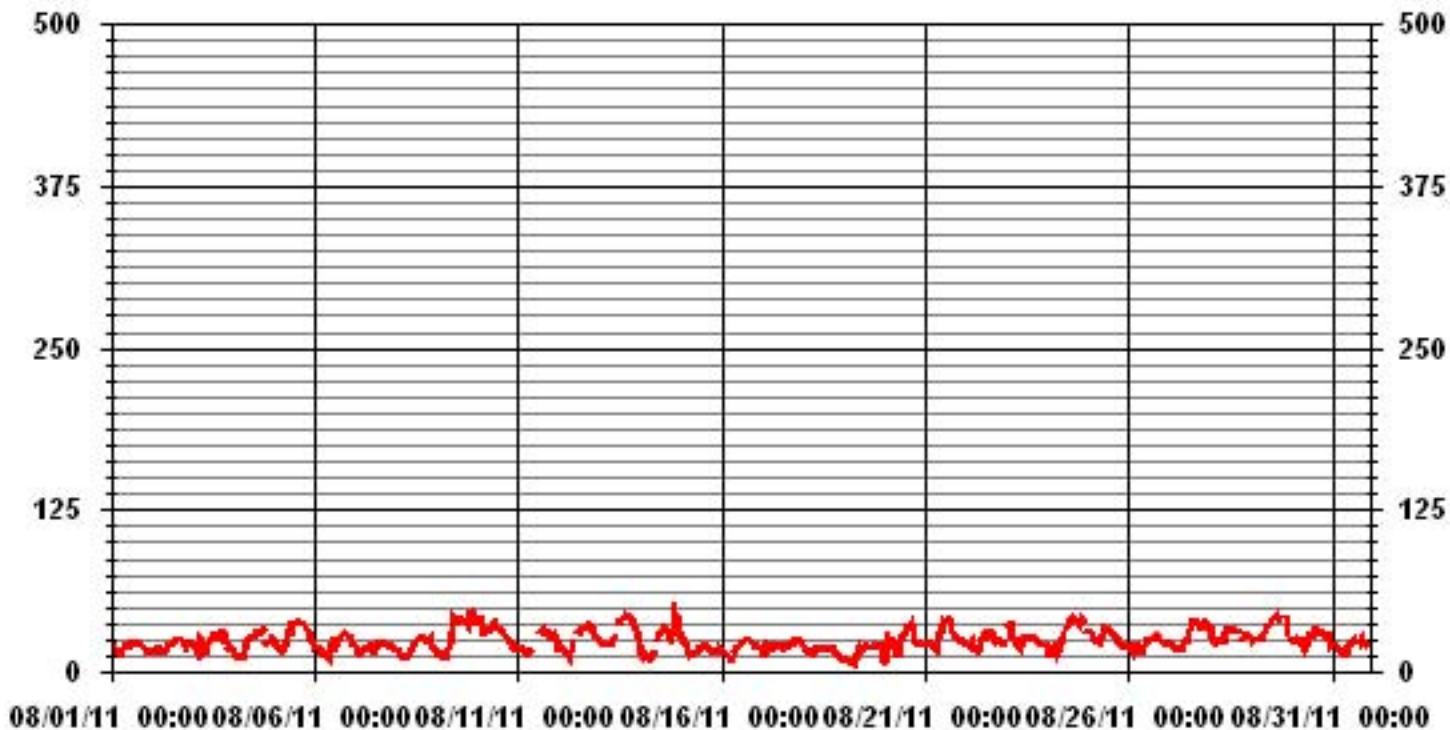
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	691
MAXIMUM INSTANTANEOUS VALUE:	45 PPB @ HOUR(S) 13 ON DAY(S) 9
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	9 HRS
OPERATIONAL TIME:	730 HRS
STANDARD DEVIATION	9.83

01 Hour Averages



— LICA31 O3MAX PPB

LICA33
O3_ / WDR Joint Frequency Distribution (Percent)

August 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	2.02	1.73	2.02	2.89	5.63	3.46	5.49	6.79	3.32	2.74	10.11	12.86	18.78	16.90	4.04	1.15	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.02	1.73	2.02	2.89	5.63	3.46	5.49	6.79	3.32	2.74	10.11	12.86	18.78	16.90	4.04	1.15	

Calm : .00 %

Total # Operational Hours : 692

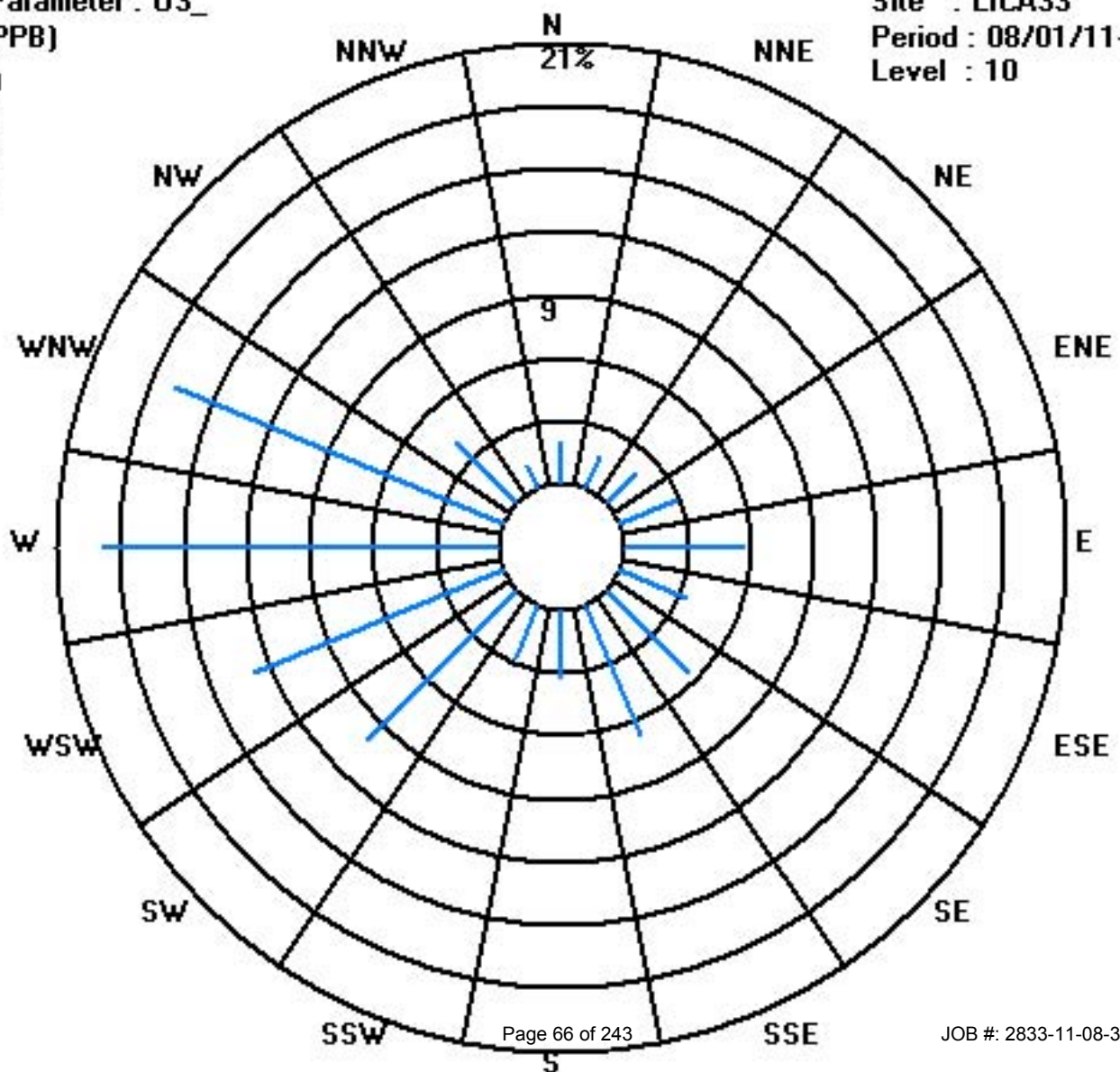
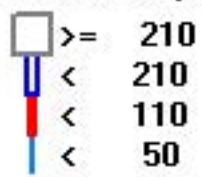
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	14	12	14	20	39	24	38	47	23	19	70	89	130	117	28	8	692
< 110																	
< 210																	
>= 210																	
Totals	14	12	14	20	39	24	38	47	23	19	70	89	130	117	28	8	

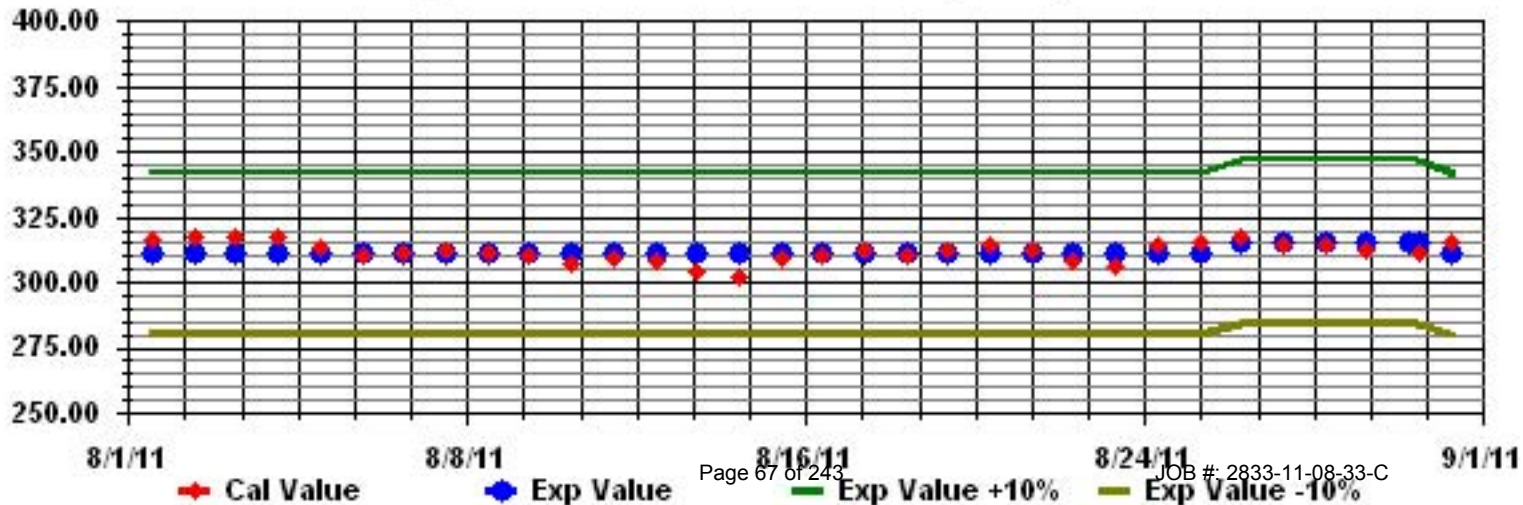
Calm : .00 %

Total # Operational Hours : 692

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

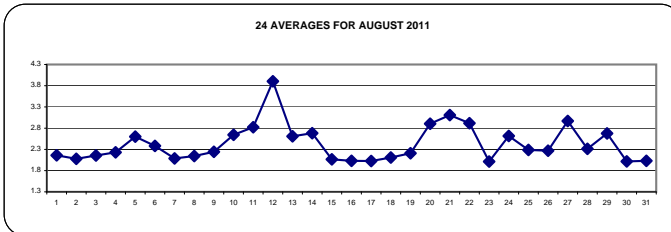
AUGUST 2011

TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR		
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	2.2	2.1	2.2	3.8	2.5	2.5	2.4	2.1	2	2	2	2	1.9	IZS	1.9	1.9	2	2	2	2	2	2.1	2	2.1	2	3.8	2.2	24
2	2.2	2.2	2.2	2.5	2.3	2.2	2.1	2.1	2	2	1.9	1.9	IZS	1.9	1.9	1.9	1.9	1.9	2	2.1	2.1	2.1	2.3	2.1	2.5	2.1	24	
3	2.1	2.1	2.2	2.3	2.2	2.3	2.9	2.5	2.4	2.1	2.1	IZS	1.9	1.9	1.9	2.1	2.1	1.9	2	2.2	1.9	2.1	2.2	2.2	2.9	2.2	24	
4	2.2	2.5	2.4	2.5	2.6	2.6	2.4	2.2	2.1	2.1	IZS	1.9	1.9	1.9	1.8	1.8	1.9	1.8	1.9	2	2.3	2.8	2.5	3.2	3.2	2.2	24	
5	3.9	3.5	3.6	3.7	2.1	2.1	2.5	2.2	2	IZS	2.1	2	2	2	2	2	2.1	2.1	2.7	2.9	4	3.4	2.9	4.0	2.6	24		
6	2.8	3	3.1	2.7	2.6	2.6	2.5	2.5	IZS	2.3	2.3	2.1	2	2.3	2.2	2.5	2.4	2.1	2	1.9	2	2.2	2.3	2.4	3.1	2.4	24	
7	2.9	2.4	2.4	2.2	2.3	1.9	1.9	IZS	2	2	2	2	2.1	2.2	1.9	1.9	1.9	1.9	2	2	2	2	2	2	2.1	2.9	2.1	24
8	2.1	2.1	2.2	2.3	2.4	2.4	IZS	2.3	2.2	2	2	2	2	1.9	1.9	1.9	1.9	1.9	2.1	2.1	2.5	2.2	2.4	2.4	2.5	2.1	24	
9	3.4	2.5	3	2.8	2.6	IZS	2.5	2.2	2.2	2.1	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.1	2	2	2.4	2.4	3.4	2.2	24	
10	2.4	2.7	2.9	3.2	IZS	3.6	6	3.9	2.6	2.4	2	2	2	1.9	2.2	2	2	2	2	2	2.1	2.4	2.8	3.1	2.6	6.0	2.6	24
11	5.3	5.3	4.1	IZS	3.5	3.5	3.5	3.1	2.2	2.2	2.1	2	2	2	2	2	2	2	2.1	2.7	2.6	2.9	2.7	3.1	5.3	2.8	24	
12	7.1	8.1	IZS	7.8	10.6	9.3	6.1	3.1	2.3	2.1	2.1	2	2	2	2	2	2	2	2	2.1	2.8	3.4	3.5	3.4	10.6	3.9	24	
13	3	IZS	2.8	3.5	3.4	3	2.8	2.4	2.5	2.3	2.2	2.2	2.2	2	1.9	1.9	1.9	1.9	2	3.2	3.6	2.9	3.1	3.3	3.6	2.6	24	
14	IZS	3.1	3	3.2	5.8	3.8	2.5	2.4	2.4	2.3	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.4	3.4	3.5	2.1	2.1	1.9	IZS	5.8	2.7	24	
15	2	2.2	2.1	2.2	2.1	2.1	2	2.1	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.2	2.2	IZS	2.1	2.2	2.1	24	
16	2	2	2.1	2.2	2.3	2.1	2.1	2.1	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	2	2.1	IZS	2.2	2.1	2.3	2.0	24	
17	2.3	2.1	2.1	2.1	2.1	2.2	2.3	2	2	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	2	1.9	2.3	IZS	2.1	1.9	1.9	2.3	2.0	24	
18	2	2.4	2.8	2.4	2.2	2	2.1	2.1	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	IZS	2.4	2.5	2.2	2.3	2.8	2.1	24		
19	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2	2	2	1.9	1.9	1.9	1.9	2	2.5	IZS	2.2	2.2	2.3	2.2	4.1	4.1	2.2	24	
20	3.3	2.3	2.2	2.3	2.6	5	4.8	2.7	3.5	2.3	2.4	2.3	2.2	2.2	2.2	2.2	IZS	2.6	3.7	3.4	3.5	3.3	3.6	5.0	2.9	24		
21	4.7	3.9	5.8	6.9	4.8	4	3.9	3	2.7	2.6	2.4	2.3	2	1.9	1.9	IZS	1.9	2	2	2.2	2.2	3.1	3.4	6.9	3.1	24		
22	5.1	5.1	3.8	4.3	5.2	4.3	3.3	2.4	2.7	2.7	2.2	1.9	1.8	1.8	IZS	1.8	1.8	1.9	2	2.9	2.4	2.9	3	5.2	2.9	24		
23	2.8	2.2	1.9	2	2.2	1.9	2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	IZS	1.9	1.9	1.9	2	2.2	2.1	2.3	2.2	2.2	2.8	2.0	24	
24	2.2	2.2	2.2	2.5	2.9	4.3	3.5	2.4	2.2	2.1	C	C	C	C	1.9	M	1.9	1.9	1.9	2.1	2.2	4.6	3.3	3.4	4.6	2.6	23	
25	3.8	2.7	2.6	3	3.1	2.4	2.1	2.1	2	1.9	1.9	1.9	IZS	1.9	1.9	1.9	1.9	1.9	2	2.3	2.7	2.4	2.3	3.8	2.3	24		
26	2.1	2.2	2.6	2.4	2.4	2.8	2.5	2.3	2.1	2	2	IZS	1.8	1.8	1.8	1.8	1.8	1.9	2	2.5	2.9	2.9	2.8	2.8	2.9	2.3	24	
27	4	2.9	4.9	2.8	3.3	3.7	4	4.2	2.8	2.3	IZS	2.3	2.2	2.2	2.1	2.3	2.3	2.3	2.8	2.8	2.9	3.8	3	2.4	4.9	3.0	24	
28	2.4	2.6	3.1	2.6	2.5	2.4	2.7	2.6	2.4	IZS	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	2.6	2.3	2.5	3.1	3.1	2.3	24	
29	3.7	3.6	3.5	4	3.1	4.1	3.9	3.4	IZS	2.3	2.1	2	2	2	1.9	1.9	2	2.4	2.3	2	P	P	1.9	2.1	4.1	2.7	22	
30	2.2	2.2	2.2	2.2	2.3	2.2	2.2	IZS	2	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.9	1.9	2	2.2	2.1	2.1	2.3	2.0	24	
31	2.1	2	2.1	2.1	2.1	2.1	IZS	2	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2.1	2.2	2.3	2.6	2.6	2.0	24	
HOURLY MAX	7.1	8.1	5.8	7.8	10.6	9.3	6.1	4.2	3.5	2.7	2.4	2.3	2.2	2.3	2.2	2.5	2.4	2.5	3.4	3.7	3.6	4.6	3.5	4.1				
HOURLY AVG	3.0	2.9	2.8	3.0	3.1	3.1	3.0	2.5	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.4	2.6	2.5	2.7				

STATUS FLAG CODES

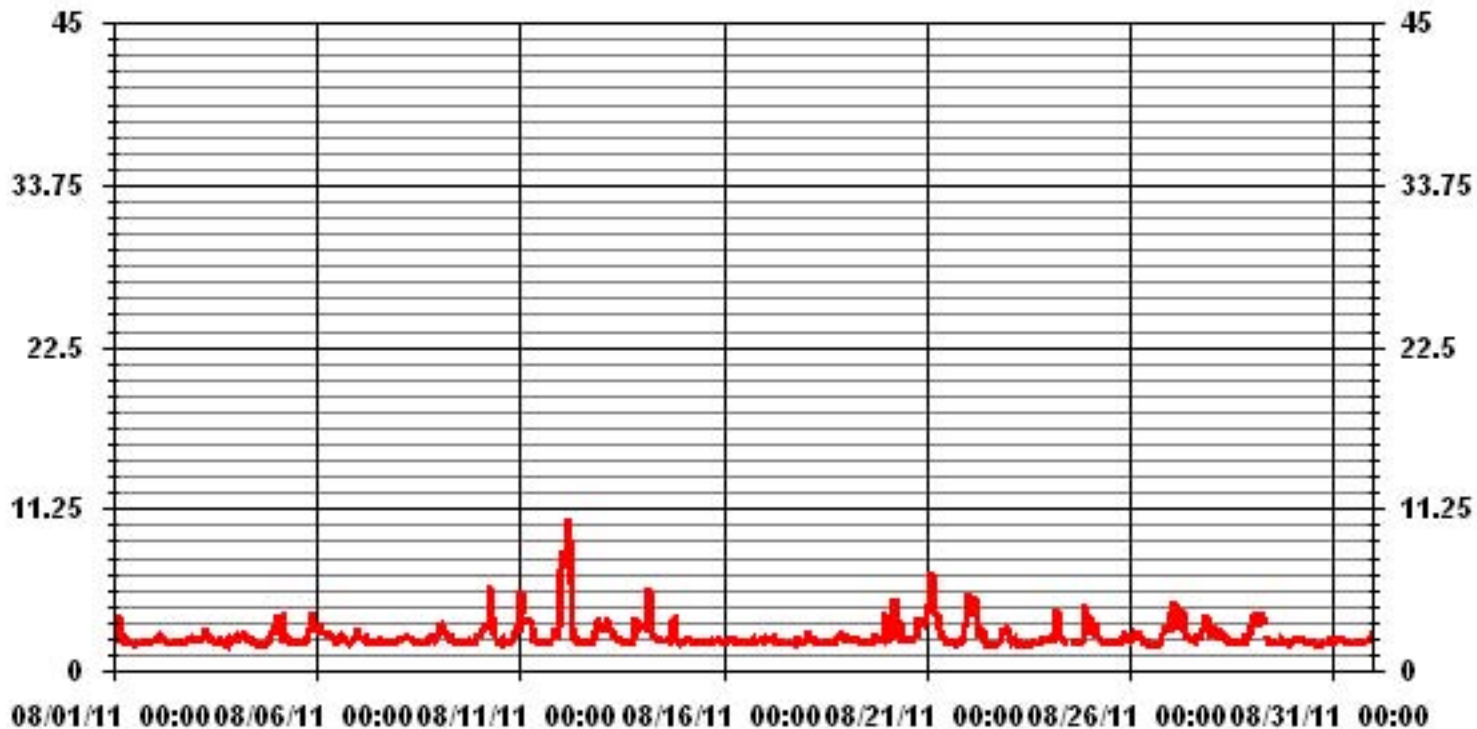
S - OUT OF SERVICE	IZS - IZS - DAILY ZERO/SPAN CHECK
N - INVALID DATA	M - MAINTENANCE
D - INSTRUMENT DRIFT	P - POWER FAILURE
C - CALIBRATION	NA - NOT APPLICABLE
BB - BELOW BACKGROUND OF 1.5 PPM	



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706					
MAXIMUM 1-HR AVERAGE:	10.6	PPM	@ HOUR(S)	4	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	3.9	PPM			ON DAY(S)	12
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.6	%	
STANDARD DEVIATION:	0.87		MONTHLY AVERAGE:	2.43	PPM	

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 2011

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	4.3	3.4	2.7	7.9	3.8	3.7	3.2	2.3	2.1	2.1	2.3	2.4	2.2	IZS	2.1	2.1	2.4	2.4	2.3	2.9	2.3	2.2	2.2	2.1	7.9	2.8	24	
2	3.4	3	3.1	5.6	2.3	2.3	2.2	2.3	2.3	2.2	2.1	2.1	IZS	2.2	2.1	2.2	2.2	2.5	2.6	2.3	2.2	2.5	2.4	2.3	5.6	2.5	24	
3	3	2.2	2.9	2.5	3	2.4	4.7	3.3	2.5	2.2	2.4	IZS	2	2	2	2.7	2.8	2.1	2.5	2.8	2	4	3.1	2.6	4.7	2.7	24	
4	3.3	4	3.4	3.1	3.5	2.8	3.2	2.5	2.3	2.2	IZS	2	2	2.4	2	2	2.4	2	2.1	2.3	5.8	4.9	5	5.2	5.8	3.1	24	
5	7.1	5.8	5.5	9.3	3.6	3.7	4.1	3	2.4	IZS	2.5	2.5	2.4	2.4	2.4	2.4	2.1	2.2	2.2	4.8	4.2	5.9	4.9	3.5	9.3	3.9	24	
6	3.5	5.2	4.7	4	3.9	3.7	3.2	3.1	IZS	2.9	2.8	2.5	3.5	3.2	3.2	3.1	2.7	2.2	2.2	2	2.1	2.2	2.5	2.5	5.2	3.1	24	
7	4.7	3.2	3.4	3.2	3.2	1.9	2.2	IZS	2.3	2.3	2.2	2.2	2.7	2.6	2.1	1.9	1.9	2	2	2	2.1	2.1	2.1	2.1	4.7	2.5	24	
8	2.1	2.2	2.4	2.4	2.5	2.5	IZS	2.3	2.3	2.1	2.1	2.5	2.3	2.7	2.2	2	2	2	3.1	2.4	4.7	3.4	10.5	7.5	10.5	3.1	24	
9	9.2	5.7	5.4	5.9	2.8	IZS	2.6	2.4	2.3	2.2	2.1	2	2.2	2	2.1	2	2.2	2.1	3.2	2.7	3	2.8	5.4	3.7	9.2	3.3	24	
10	2.9	3.3	6.5	5	IZS	4.8	13.3	8.5	2.8	2.6	2.1	2.1	6	1.9	3.7	2.7	2.8	2.1	2.1	2.2	2.6	4.1	4.8	3.5	13.3	4.0	24	
11	9.1	9.5	6.7	IZS	7.5	5.8	6.3	10.9	2.8	2.7	2.6	2.5	3	2.5	2.5	2.4	2.6	2.4	3.3	5.4	8.3	7.7	8.2	5.4	10.9	5.2	24	
12	54.1	16.4	IZS	9.1	27.3	18.8	7.8	5.5	2.5	2.2	2.1	2.1	2	2.1	2	2	2	2	2	4.2	3	4.1	6.1	5	54.1	8.0	24	
13	3.1	IZS	2.8	6.4	6.4	3.9	3.8	2.5	2.6	2.5	2.2	2.3	2.9	2	2	2	2.1	2.2	3.2	5.2	10.3	5.4	6.2	5.7	10.3	3.8	24	
14	IZS	7	10.6	6.7	8	6.1	3.5	3.3	3.3	3.3	2.7	2.4	2.5	3.1	3.1	3.2	2.7	4.6	6.6	11	2.8	3.3	2.8	IZS	11	4.7	24	
15	2.1	2.9	2.6	2.8	2.2	2.2	2.1	2.1	2	2	2.2	2	2	2	2	2	2	2.1	2.1	2.1	2.7	2.5	IZS	2.5	2.9	2.2	24	
16	2	2.1	2.1	3.3	3.7	2.5	2.5	2.7	2.1	2.9	2	2	2.1	1.9	2	2	1.9	2	2.9	2.1	2.1	IZS	2.9	2.2	3.7	2.3	24	
17	2.4	2.2	2.8	2.1	2.2	2.9	3.3	2.4	2.2	2	2.7	2.3	2.3	2	2.2	2.2	2.7	2.6	2.4	3.3	IZS	3.3	2	2.1	3.3	2.5	24	
18	3	3.8	4.1	3.9	3.4	2.1	2.1	2.1	2.1	2	2	2.1	2.1	2	2	2	2	2	2	IZS	3.8	4	2.8	2.9	4.1	2.6	24	
19	2.5	2.4	2.3	2.3	2.2	2.2	2.2	2.8	2.3	2.2	2.1	2	2	2.3	2.2	2	3.5	7.8	IZS	IZS	3.7	3.8	5.3	2.6	32.2	4.1	24	
20	9.8	2.4	2.3	2.9	3.8	13.2	7.8	4.2	4.7	3.3	3.4	3.1	2.5	2.3	2.3	2.7	2.8	IZS	4.8	10	6.6	4.3	5.2	7.5	13.2	4.9	24	
21	40.8	9.5	8.2	16.5	8.3	7.5	7.4	4.8	2.8	2.7	2.5	2.4	2.3	1.9	1.9	1.9	IZS	2.1	2	2.1	2.5	2.3	8.9	13	40.8	6.7	24	
22	7.4	10.9	5	8.9	10.9	6.2	5.9	2.8	4	2.9	2.8	1.9	1.9	1.9	1.8	IZS	1.8	1.9	2.2	2.8	9.6	3.7	8.2	3.7	10.9	4.7	24	
23	5.1	4.2	3	2.6	2.3	2.5	2.1	1.9	1.9	1.8	2	1.9	1.8	IZS	1.9	2	2	2	3.3	2.5	3.5	3.6	2.3	5.1	2.5	24		
24	2.3	2.2	2.6	8.3	9.3	10.2	4.8	3	2.8	2.2	C	C	C	C	1.9	M	2.3	2.1	2	2.3	2.8	17.8	5.8	5.4	17.8	4.7	23	
25	5.9	3.7	3.7	5.4	6.2	2.7	2.2	2.1	2	2	2	2.1	IZS	1.9	2	1.9	1.9	2	2	2.1	3	4.2	3.5	3.2	6.2	2.9	24	
26	2.2	2.8	3.1	4.7	5	6.7	2.8	3.5	2.2	2.1	2.2	IZS	2.1	1.9	1.9	2.3	1.9	2	2.1	3.2	3.2	5.2	5.2	4	6.7	3.1	24	
27	7	3.6	37.4	6	5.9	6.1	5.1	5.6	4	2.6	IZS	2.7	2.5	2.7	2.2	2.4	2.4	2.8	8.1	4.7	4.7	6.3	6.9	4	37.4	5.9	24	
28	2.5	2.7	10	4.3	2.6	2.5	2.8	2.7	2.5	IZS	2.1	2	1.9	1.9	2	1.9	1.9	1.9	2	11.9	8.1	6.1	5.7	11.4	11.9	4.1	24	
29	6.2	7.2	5.6	6.5	4.8	11	5.5	4.3	IZS	2.4	2.2	2.1	2.1	2	1.9	1.9	2.6	3.6	5.8	2.4	P	P	7.7	2.2	11	4.3	22	
30	2.2	2.2	2.3	2.4	2.4	2.3	2.4	IZS	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	2.3	2.1	2.1	2.4	2.1	24
31	2.2	2.1	2.1	2.1	2.1	2.1	IZS	2	2	2	2.1	5	2.5	1.9	1.9	1.9	1.9	2	2	2.1	2.2	2.3	2.4	2.7	5	2.2	24	
HOURLY MAX	54	16	37	17	27	19	13	11	5	3	3	5	6	3	4	3	4	8	8	12	10	18	11	32				
HOURLY AVG	7.2	4.6	5.3	5.2	5.2	4.9	4.2	3.5	2.6	2.4	2.3	2.3	2.4	2.2	2.2	2.2	2.3	2.5	2.9	3.7	4.0	4.4	4.7	5.2				

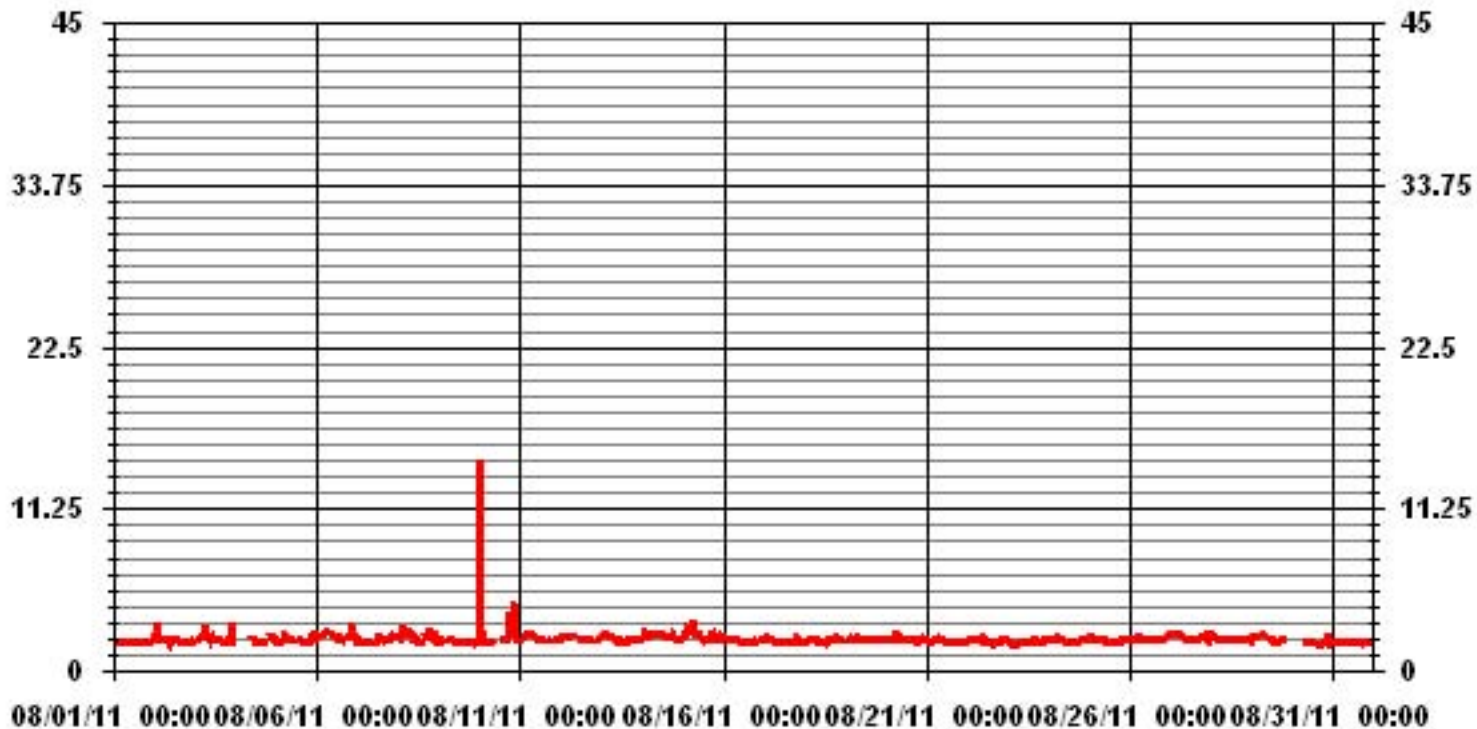
STATUS FLAG CODES

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:	706				
MAXIMUM INSTANTANEOUS VALUE:	54.1	PPB	@ HOUR(S)	0	ON DAY(S) 12
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	741	HRS
MONTHLY CALIBRATION TIME:	4	HRS			
STANDARD DEVIATION	3.80				

01 Hour Averages



LICA33
 THC / WDR Joint Frequency Distribution (Percent)

August 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	.70	.56	.56	1.27	3.68	1.84	3.39	6.09	2.54	2.40	9.20	12.46	18.41	17.28	4.10	.70	85.26
< 10.0	1.13	1.13	1.41	1.55	1.84	1.55	1.98	.56	.28	.28	.84	.42	.56	.42	.14	.42	14.58
< 50.0	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.98	1.69	1.98	2.83	5.52	3.39	5.38	6.65	2.83	2.69	10.05	12.88	18.98	17.70	4.24	1.13	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	5	4	4	9	26	13	24	43	18	17	65	88	130	122	29	5	602
< 10.0	8	8	10	11	13	11	14	4	2	2	6	3	4	3	1	3	103
< 50.0	1																1
>= 50.0																	
Totals	14	12	14	20	39	24	38	47	20	19	71	91	134	125	30	8	

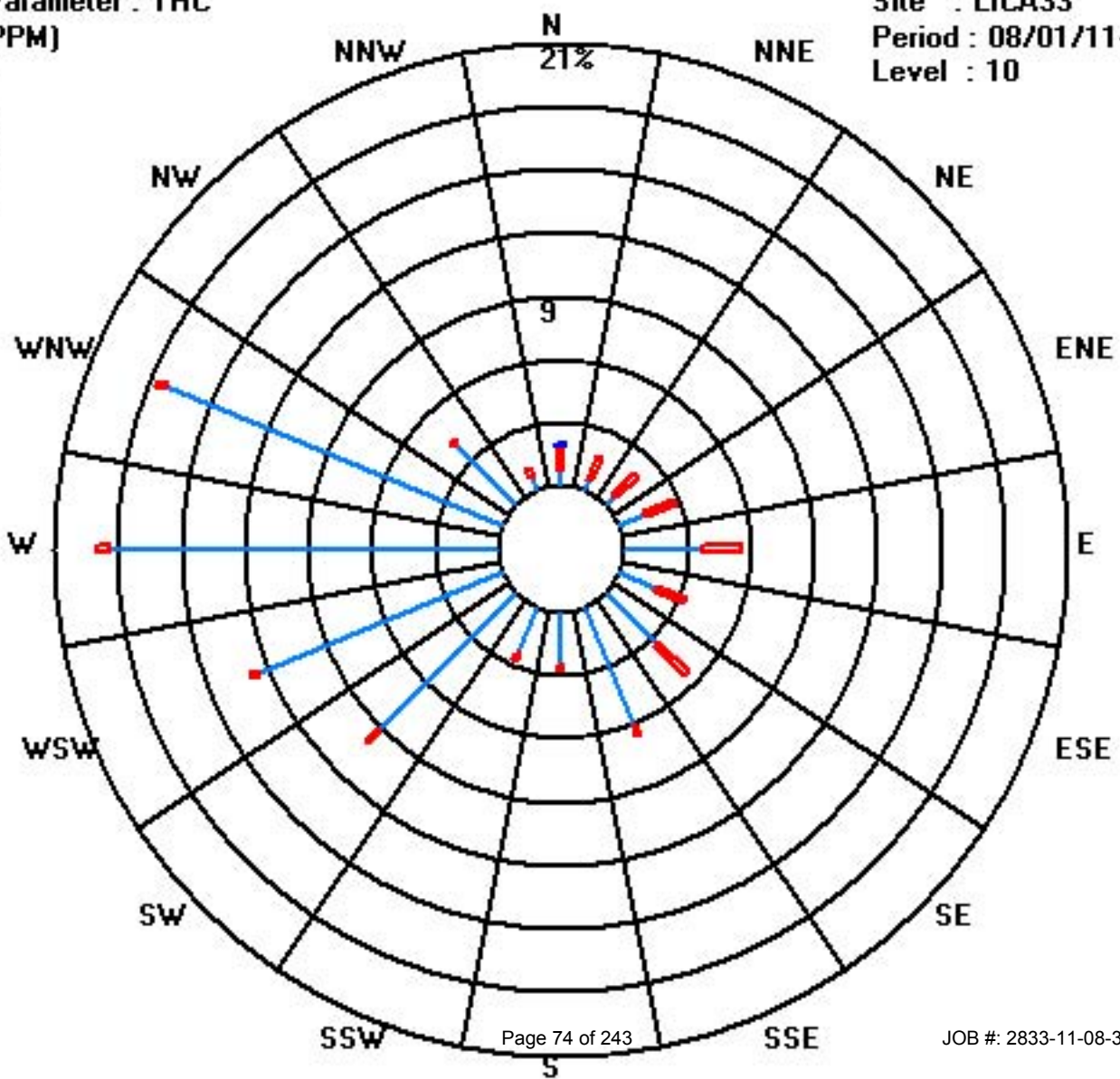
Calm : .00 %

Total # Operational Hours : 706

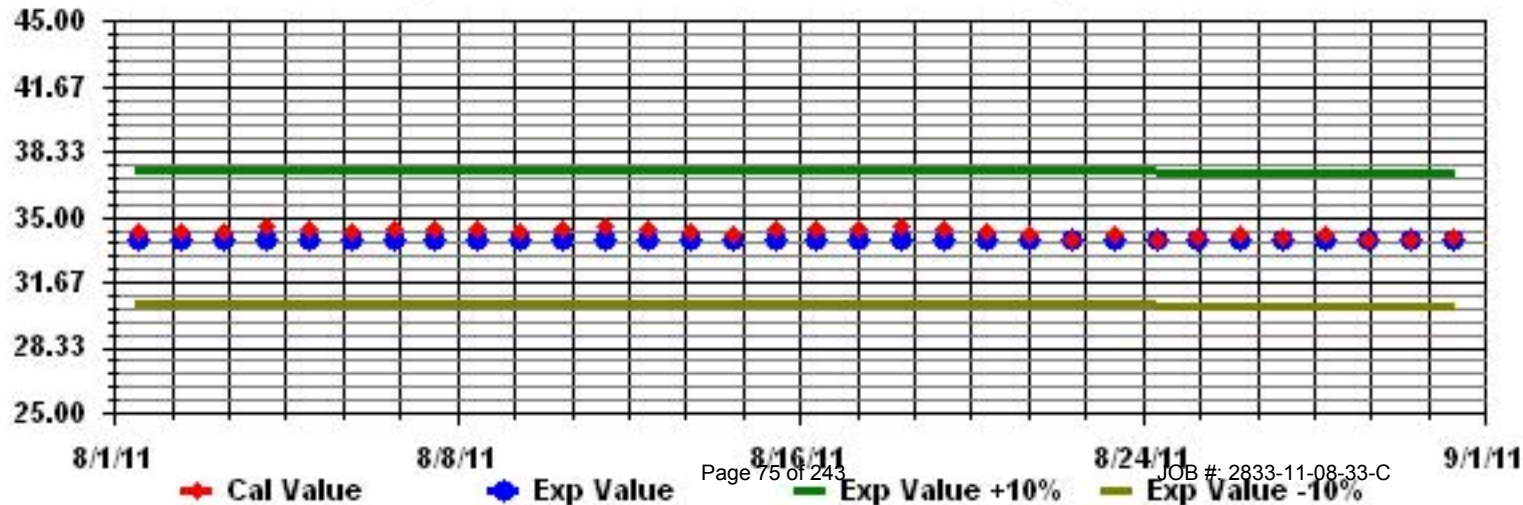
Class Limits (PPM)

Period : 08/01/11-08/31/11

Level : 10



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



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 2011

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		4.5	1.5	7.4	4.3	2.8	2.4	5.7	12.3	14.3	14.3	12.6	14	18.2	18.4	17.1	14.8	13.3	11.7	10	6.6	7.7	4.8	7.4	8.2	18.4	8.9	24	
2		5.5	6.3	5.4	5.7	6.8	5.9	7.9	8.1	8.5	8	11.8	13.5	14.5	12.3	12.9	13	10.3	9.2	6.3	5.8	4.8	4.1	6.1	4.9	14.5	7.9	24	
3		5.8	8.9	5.6	4.6	8.6	7.9	1.9	3.8	5.2	6.5	6.3	8.6	11.5	8.7	6	12.5	6.8	5.4	9.1	6	6.9	5.8	4.4	3.6	12.5	6	24	
4		3.7	4.9	4.5	5.5	4.5	2.2	3.7	5.6	3.2	4.7	5.7	5.5	6.2	3.3	8.5	9.8	5.1	2.6	3.5	1.3	1.9	3.5	3	4	9.8	3.4	24	
5		3	5.2	2.9	7.2	7	5.7	3	7.3	9.7	9.5	10.4	7	8.2	9.5	8.4	7.4	6.4	6.6	6.9	6	3.4	7.3	7.1	5.5	10.4	6.7	24	
6		5.7	5.5	5.7	7.8	8.7	7.4	8.1	8.3	8.6	11.4	5.5	7.9	2	5.2	5.2	5.5	7.9	6.5	10.6	10.7	8.8	7.9	6.3	5.7	11.4	7.2	24	
7		5.5	4.4	4.2	5	6.1	9.7	6.5	7.9	7.2	9	9	7.8	7.9	10	15.2	17.9	19.1	14.8	14.6	11.5	8.1	11.2	11.1	13	19.1	9.9	24	
8		11.1	9.4	9.4	6.5	6.6	7.4	9.1	10.4	9.6	8.8	7.3	9.2	6.4	4.7	4.2	7	8	7.3	3.8	4.2	3.4	4.4	3	2.3	11.1	6.8	24	
9		1.8	2.9	0.6	1.6	3.8	3.9	4.2	4	3.8	3.7	5.2	6.8	7	10.1	11.3	12.2	8.5	7.5	5.1	7.7	1.3	4.2	5.6	4.1	12.2	5.3	24	
10		3	1.7	2.7	3.8	3.3	3.2	3.6	6.6	7.8	7.6	7.5	4.7	5.5	6.9	11.9	7.8	6.7	6.1	5.9	6.9	7.6	6.5	6.4	9	11.9	5.9	24	
11		3.9	2.1	5.2	5.6	2.5	6.1	3.9	7.1	11.9	10.2	9.1	8	7.6	5.3	5.6	2.8	4.9	1.3	2.4	1.7	1.8	1.3	2.5	1.2	11.9	4.8	24	
12		1.4	1.4	0.7	0.9	1	2.4	2.7	3.5	7	7.4	6.8	6.8	8.7	7.3	9	9.7	8.2	6.2	4.3	4.4	5.8	6.1	4.6	6.8	9.7	5.1	24	
13		7.1	6.4	7.5	4.7	5.6	6	5.6	12.9	13.9	15.2	18	14.2	12.9	15.5	9.5	8.6	4.8	2.6	3.4	4.6	4.2	6.3	7.5	6.4	18.0	8.5	24	
14		5	6.4	6.3	6.1	4.2	5	6	5.3	9.5	8.6	11.6	14.1	11.9	7.8	8	10	9.5	8.5	4.9	12.7	12.3	3.6	18.1	11.5	18.1	8.6	24	
15		21.1	11.5	4.8	7.2	6	6.8	7.8	11.3	11	12.2	13.3	14.1	15.6	15.7	16.7	16.6	18.2	17	12.2	7.4	4.5	4	3.4	6.2	21.1	11.0	24	
16		10.4	10.8	10.4	7.7	6.6	5.4	5.3	7	11.7	12.7	15.4	18.2	19.7	21.2	18.5	18.6	17.4	13	6.5	5.8	8.4	8.2	6.2	7.4	21.2	11.4	24	
17		8.4	7.5	8.3	11.4	10.1	7.2	7.4	9.7	11.6	12.9	13.6	12.9	11.7	12.1	11.4	11.8	13.7	11.4	7	5.4	6.1	7.2	10.1	9	13.7	9.9	24	
18		6.4	6.6	5.9	6.6	8.4	13.3	10.7	11.3	12	13.8	13.7	13.2	17.2	14.2	14.1	14	13.3	10.4	10.4	4.4	4.2	4.9	4.3	3.3	17.2	9.9	24	
19		6.4	4.5	5.7	5.4	5.2	4.4	6	3.7	7.8	8.6	8.3	8.8	13.3	13.4	12.5	10	11.6	5.6	1.9	2.8	4.6	4.9	3.8	2.3	13.4	6.7	24	
20		3	4.1	3.5	2.3	1.7	2.1	2.2	3.5	2.2	5.5	6.7	9.5	10.4	12.9	9.7	6.5	5.6	8.4	6.2	3.8	4.7	6.4	6.7	5.1	12.9	5.5	24	
21		3.5	1.5	3.9	4.2	5.3	3.8	5	10	15	17.3	17.3	18.8	19.2	18.8	19.1	15.4	10.5	7.8	7.1	8.9	7.3	4.2	2.5	2.5	19.2	9.5	24	
22		1.2	3.2	4.4	2.6	0.6	1.9	2.8	4.6	6.7	10.5	8.2	11.8	9.5	8.4	7.2	6.8	6.4	3	4.1	4.8	0.7	3.2	1.1	6.2	11.8	5.0	24	
23		8.5	8.6	5.9	4.3	6.5	8.7	10.4	14.9	12.6	13.7	17.9	25.6	26.4	31.4	31.7	27.6	25.3	21.1	18.4	9.4	8.6	6.2	6.1	5.9	31.7	14.8	24	
24		5.9	6	4.4	2.4	1.3	1.6	0.1	3.5	6	8.6	13.2	16.1	17.4	13.2	11	12.7	7.3	7.1	5	5.4	4.8	4	2.5	2.4	17.4	6.7	24	
25		3.5	0.8	4.1	6.8	7.9	8.8	8.7	10.2	15	18	18.1	22.7	23.3	22.9	20.9	23.4	20.6	19.5	16.7	11.9	5.6	5.9	5.5	6.9	23.4	12.8	24	
26		7.5	7.3	4.1	4.3	3.3	2.4	4.2	4.8	5	4.5	4.5	4.8	3.8	5	6.1	5	6.9	7.4	5.6	6.7	6.6	5.7	4.5	5.1	7.5	5.2	24	
27		3.4	1.1	1.1	1.7	2.3	2	1.3	2.2	3.5	5.4	5.4	6	4.2	5.8	8.7	7.9	7.9	4.9	2.1	3.4	6.5	3.9	3.9	7.1	8.7	4.2	24	
28		4.3	5.4	2.1	4.7	4.5	9.7	6.4	7.7	8	8.4	12.2	11.7	11.2	7.3	8.3	7.7	8.4	7.6	6	4.3	1.9	3.2	3.8	2.3	12.2	6.5	24	
29		3.9	5	3.7	3.6	4.6	4.1	4.1	7.1	10.3	15.9	20	21.2	22	19.3	19.6	17	11.5	9.4	1	14.3	P	P	4.5	9.5	22.0	10.5	22	
30		6.7	4.4	3.9	3.4	3.7	3.6	5.6	7.9	9.1	10.7	15.5	11.5	13.9	12.4	11.8	9.4	10.2	9.9	14.1	8.4	5.5	4.9	5.1	7	15.5	8.3	24	
31		6.2	6.2	6.8	12	10.5	8.3	9.2	8.5	10.9	15.7	14.3	12.1	12.6	12.1	12.7	13.8	14.6	12.5	11.7	7.1	5.3	8.1	9.8	8.7	15.7	10.4	24	
HOURLY MAX		21.1	11.5	10.4	12.0	10.5	13.3	10.7	14.9	15.0	18.0	20.0	25.6	26.4	31.4	31.7	27.6	25.3	21.1	18.4	9.4	8.6	6.2	6.1	5.9	31.7	14.8	24	
HOURLY AVG		5.7	5.2	4.9	5.2	5.2	5.5	5.5	7.5	9.0	10.3	11.1	11.8	12.3	12.0	12.0	11.7	10.6	8.8	7.3	6.6	5.4	5.4	5.7	5.9				

STATUS FLAG CODES

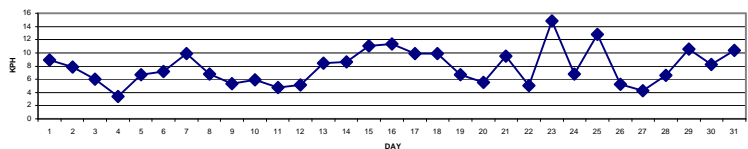
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: September 24, 2009

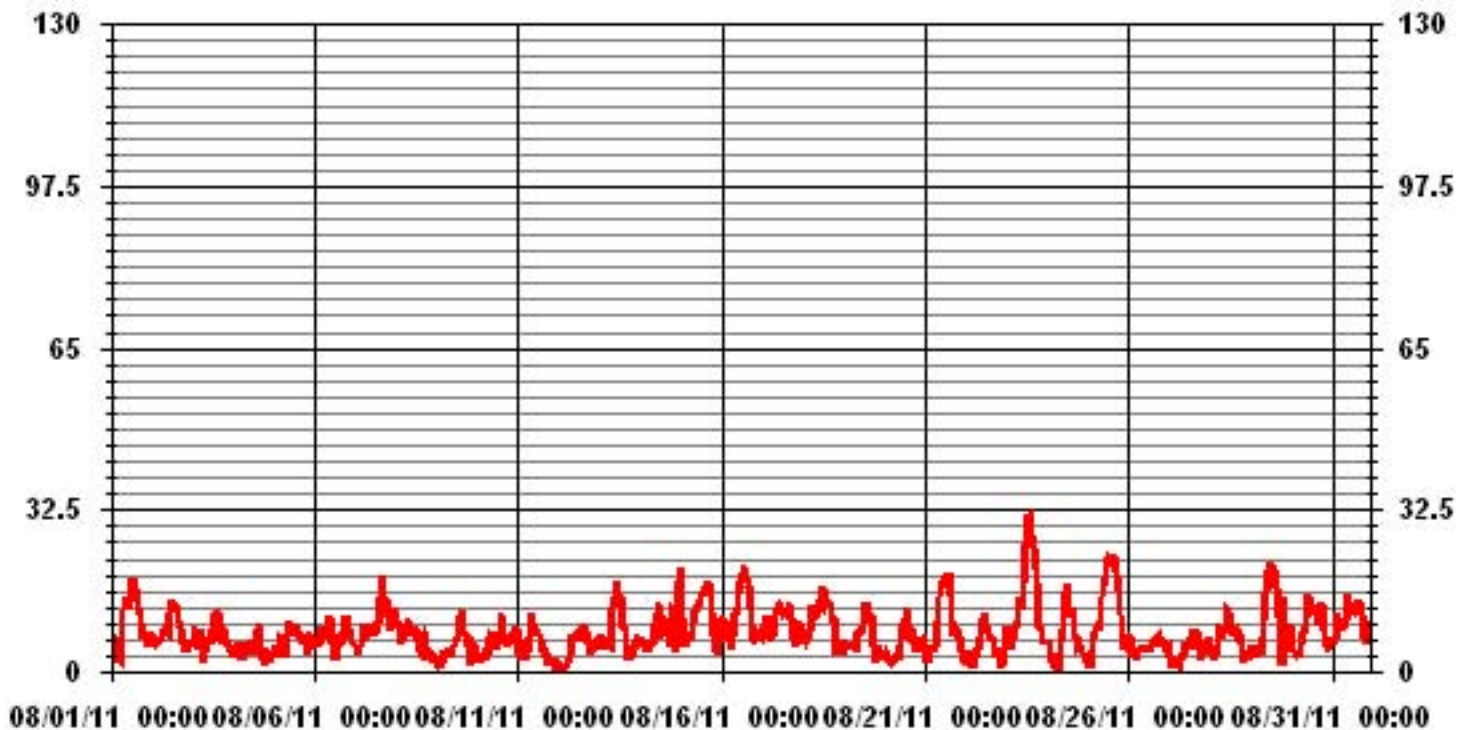
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	31.7	KPH	@ HOUR(S)	14	ON DAY(S)	23
MAXIMUM 24-HR AVERAGE:	14.8	KPH			ON DAY(S)	23
CALMS (≤ 0 KPH)	0.13	%				
MONTHLY CALIBRATION TIME:	0	HRS				
STANDARD DEVIATION:	4.82					
OPERATIONAL TIME:	742	HRS				
AMD OPERATION UPTIME:	99.7	%				
MONTHLY AVERAGE:	7.94	KPH				

24 HOUR AVERAGES FOR AUGUST 2011



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 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		11.3	12.6	17.1	10.2	8	8.6	15.2	24.3	26.6	33.1	29	33.2	38	43.2	41.4	35.4	32.6	29.2	25.9	11.8	9.8	10.6	13	11.1	43.2	
2		12.1	13.5	11.6	10.9	9.3	10.9	14.7	15.4	16.8	20.6	31.2	29.5	32	31.1	33.6	32.8	30.8	19.4	16.5	9	7.4	8.3	10.1	10.6	33.6	
3		9.7	12.3	11.5	13.7	17.4	14.6	18.9	8.9	11.3	14.3	14.8	18.7	23.4	18.2	16.9	37.6	21.5	12	20.6	14.2	13.6	12.5	9	9.4	37.6	
4		10.2	9.5	8.5	10.1	9.8	8.5	8.6	12	8.3	13.9	18.2	15.8	17.8	14.8	24.1	22.5	18.8	8	15.4	5.7	8.5	23.5	8.4	7	24.1	
5		4.8	9.3	8.3	21.6	15.3	9.8	10.9	14.4	16.1	16.7	19.4	17.8	17.7	18.4	18.3	24.9	16.5	13.4	13.2	8.9	5.7	10.4	9.8	9.1	24.9	
6		9.2	10.7	10	13.7	13.6	12.4	15.6	17	18.1	17.3	34.6	23.1	27	18.7	21.2	10.6	21.1	16.7	23	27.5	14.1	12.8	12.6	10	34.6	
7		12	8.9	12.9	12.5	16.4	19.2	16.8	14.7	17	25.3	23.1	21	20.5	24.7	34.1	33.7	33.8	24.9	25.3	23.5	14.6	16	17.4	21.3	34.1	
8		19.3	15.7	15.6	12.7	11.1	14.3	17.8	17.5	17.7	17.9	17.8	21.4	18.1	12.8	13.1	17	17.9	13.4	8	7.1	5.4	7.2	5.9	6	21.4	
9		5.2	6.1	2.5	4.1	6.8	6.6	7.1	10.7	8.5	11.3	14.6	16.5	20.7	24.7	21.5	24.7	18.4	15.4	25.6	23.2	17.4	10.4	8.9	6.1	25.6	
10		9.6	5.7	7.5	8.1	8.1	6.9	9	13.6	14.8	14.4	15.2	11.5	16.3	17.6	40.8	23.5	15.4	21.8	12.4	10.1	10.2	8.5	12.2	14.7	40.8	
11		9.2	5.2	8.9	8.7	5.2	9.9	8.6	15.5	19.3	17.5	17.1	15.9	14.7	14.5	13.8	11.1	10.2	4.9	11	4.5	4.4	3	5.8	5	19.3	
12		4.3	3.9	3.4	2.9	3.2	4.4	5.1	9.5	12.3	14.3	18.6	18.9	25.3	19.6	20.3	22.5	21.8	17.3	12.7	7.9	11	9.3	7.6	11.6	25.3	
13		10	9.8	10.7	7.4	7.6	10	15.1	20.7	21.1	24	30.4	29.6	33.3	29.7	26.2	22	13.2	9.2	7.3	7.4	7.2	9.7	9.6	9	33.3	
14		7.7	9.7	10.1	11.4	8.9	9	15.9	12.3	15	13.9	18.9	23	21.2	16.7	14.4	16.8	17	14.4	10.8	44.4	32.4	17.2	33.3	34.5	44.4	
15		45.2	24.6	15.1	14.5	14.5	13.5	16	20.2	20.9	22.7	27	28.6	30.2	31.5	33.1	28.7	32.9	32.3	24.5	15.3	9.3	6.9	7.2	14.9	45.2	
16		17.9	18.5	17.8	15.3	15.8	16.5	12.8	17.7	23.8	31.3	33.4	37.6	40.1	42.4	37.6	40.1	38.2	26.4	19.5	10.3	10.7	12.6	11	10.7	42.4	
17		11.1	12.9	18.6	21	17.8	16.8	18.5	22.5	26.9	29.1	27.3	26.7	25.6	27.2	28	29.7	29.5	27.9	15.1	9.9	12.7	13.1	15.7	17.7	29.7	
18		11.2	14.8	13.1	13.8	17.7	21.2	19.8	20.1	22.5	25.9	28.6	29.2	49.2	29.2	28.8	31	24.9	19.9	20	11.2	9.1	11.4	8	7	49.2	
19		11.3	8.1	10.5	9	11.1	9.8	11.4	11.6	15.3	19	20.4	23.3	30.4	28.1	30	27.4	36.5	22.8	7.3	6.6	8.3	8.9	7	5.1	36.5	
20		6.9	6	7.2	5.2	13.1	7.4	13.3	11	7.4	10.4	12.9	19.2	19.1	23.3	22.5	13.9	11.6	12.9	9.9	6	8.5	8.2	10.1	8.8	23.3	
21		5.8	5.6	6.9	7.3	7.4	6.8	11.8	18.4	24.7	26.3	26.7	30.9	34.5	33.6	34.2	26.6	18.2	13.9	10	10.9	10.5	9.4	7.4	17.9	34.5	
22		9.4	9.6	9.9	7.8	3.6	6.2	5.9	9.1	12.3	21.2	18.2	23	20.4	18.1	17.9	13.6	13.4	6.1	8.6	8.6	5.9	7	4	29.7	29.7	
23		28.3	17.1	29.7	11.4	13.3	18.4	22	31.6	28.6	32.7	44	46.5	56.4	54	59.2	52	48.3	38.5	42.9	20.1	16.4	14.1	12.3	10.5	59.2	
24		10.3	10.6	9.3	4.5	4.7	4.6	4.9	11.5	20.1	21.4	25.9	33.5	37.4	33.1	28.3	26	18.3	14.2	8.1	9.4	7.6	8.2	7.4	6.5	37.4	
25		12.3	7.6	14.8	15	18.8	14.9	14.5	21.2	28.5	31.8	35	45.1	42	41.9	40.3	40.2	37.9	37	30	22.1	11.5	10.5	10.4	13.6	45.1	
26		12.5	11.5	8.8	9.2	7.6	17.8	10.7	8.5	9.5	11	13.9	17.9	14.7	16.2	15.7	15.3	12.6	13.6	8.4	10.3	8.1	7	7	7	17.9	
27		4.7	3.4	3.5	5.2	5.3	5.7	3.9	5.2	9.6	11.7	11.6	11.2	10.9	15.4	23.1	16.2	12.8	8.6	5	5.5	25	12.2	9.3	13.2	25	
28		8	8.2	4.8	7.2	8.7	18.4	11.7	12.6	16.7	17.8	23.1	25.4	28.6	21.7	21.8	17.1	18.2	15.5	9.9	6.6	5.1	6.2	9.4	4.3	28.6	
29		5.6	7.1	5.8	7.5	7.9	6.3	8.4	11.6	19	28.4	33	36.8	40.5	33.7	34.7	28.3	18.5	13.8	9.1	33.3	P	P	12.5	16.7	40.5	
30		11.4	6.7	7.3	9.8	8.5	11.4	12	15.7	18.1	23.7	26.8	22.6	26.3	26.3	25.5	22.9	23.9	23.6	30.9	16.8	8.6	8.4	8.8	13.8	30.9	
31		12.7	11.7	16.1	19.1	17.9	14.7	16.2	18.6	21.7	29	29.7	25.1	28.9	23	25.6	26.1	24.2	25.6	27.5	13.2	9.8	12.7	13.8	11.9	29.7	
PEAK		45.2	24.6	29.7	21.6	18.8	21.2	22.0	31.6	28.6	33.1	44.0	46.5	56.4	54.0	59.2	52.0	48.3	38.5	42.9	44.4	32.4	23.5	33.3	34.5		

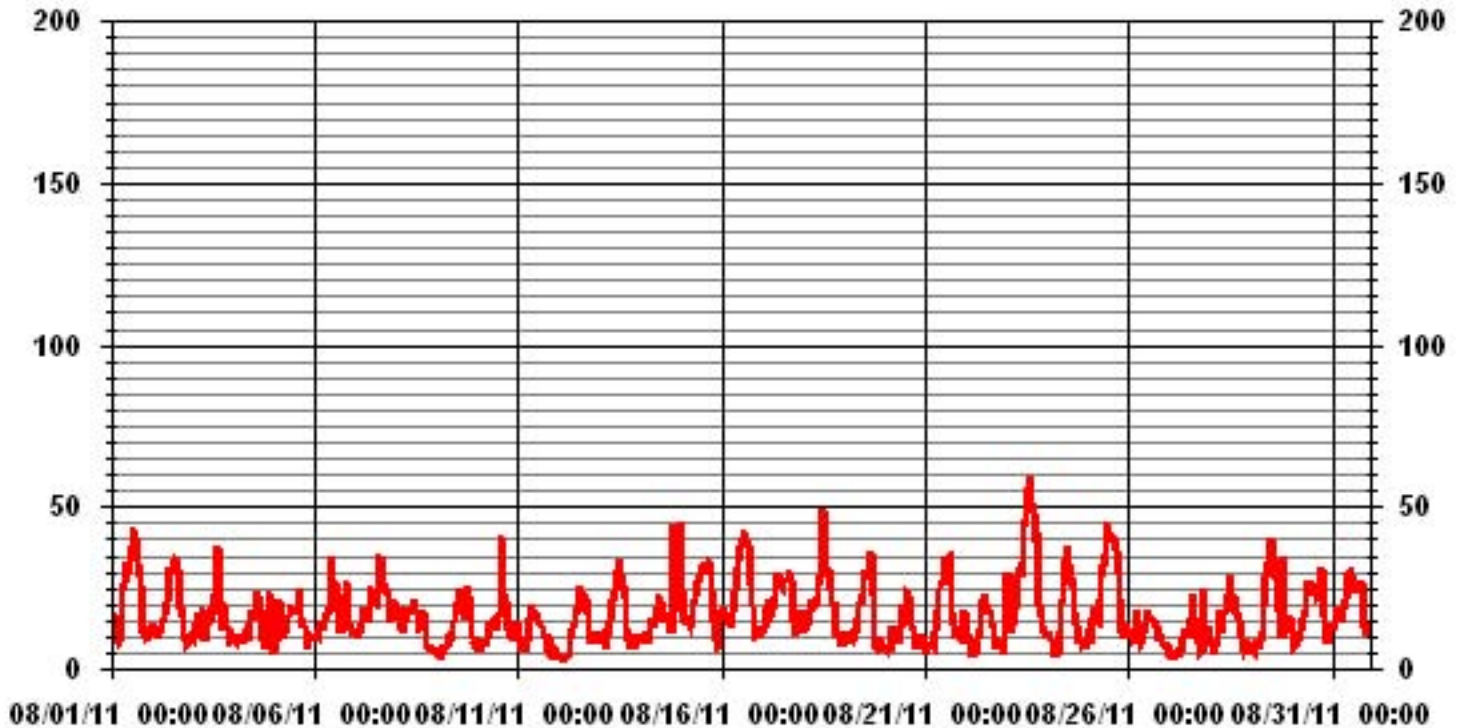
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	59.2	KPH	@ HOUR(S)	14
			ON DAY(S)	23

01 Hour Averages



LICA33
WSP / WDR Joint Frequency Distribution (Percent)

August 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	1.34	1.34	1.34	1.61	2.69	2.15	2.69	2.29	1.21	1.34	6.73	7.14	4.04	1.88	1.48	.26	39.62
< 12.0	.40	.26	.53	1.34	2.42	1.34	1.75	2.69	.94	1.34	3.36	5.25	8.89	9.29	1.88	.80	42.58
< 20.0	.13	.00	.13	.00	.13	.13	.53	1.61	1.07	.00	.26	.40	5.12	4.98	.80	.00	15.36
< 29.0	.00	.00	.00	.00	.00	.00	.26	.13	.00	.00	.00	.00	.53	1.21	.00	.00	2.15
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.26	.00	.00	.26
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.88	1.61	2.02	2.96	5.25	3.63	5.25	6.73	3.23	2.69	10.37	12.80	18.59	17.65	4.17	1.07	

Calm : .00 %

Total # Operational Hours : 742

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	10	10	10	12	20	16	20	17	9	10	50	53	30	14	11	2	294
< 12.0	3	2	4	10	18	10	13	20	7	10	25	39	66	69	14	6	316
< 20.0	1		1		1	1	4	12	8		2	3	38	37	6		114
< 29.0							2	1					4	9			16
< 39.0														2			2
>= 39.0																	
Totals	14	12	15	22	39	27	39	50	24	20	77	95	138	131	31	8	

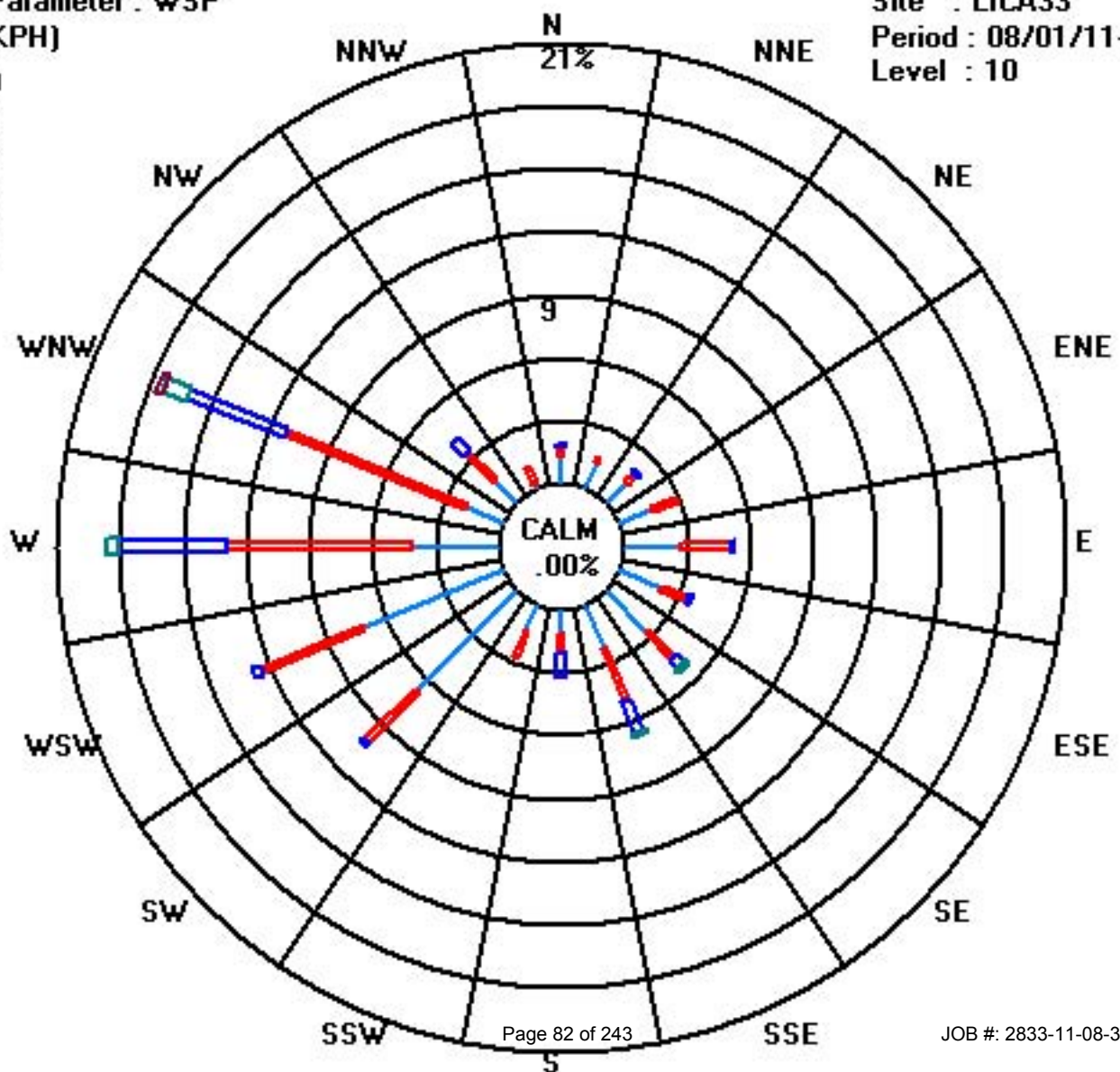
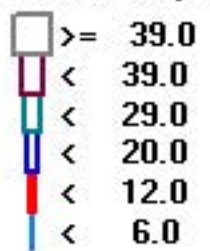
Calm : .00 %

Total # Operational Hours : 742

Class Limits (KPH)

Period : 08/01/11-08/31/11

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 2011

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	24-HOUR QUADRANT	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.	
DAY																												
1	103	232	291	262	223	268	270	280	291	280	269	253	246	254	265	268	262	260	259	239	225	216	223	227	259	WSW	24	
2	245	237	235	264	231	236	232	237	241	259	271	268	275	262	259	260	262	259	261	229	225	211	226	214	251	WSW	24	
3	236	233	240	240	275	292	349	259	276	291	271	282	299	299	258	313	319	232	246	266	273	254	266	250	273	W	24	
4	229	239	254	277	269	235	252	281	297	287	300	306	231	293	240	238	250	250	309	209	95	303	159	139	259	WSW	24	
5	121	146	121	35	122	141	98	135	138	118	128	155	148	154	144	159	165	164	142	126	89	100	104	100	131	SE	24	
6	101	84	81	81	79	71	89	96	68	75	215	144	263	95	238	247	264	311	301	293	279	277	296	282	34	NE	24	
7	244	248	246	252	258	272	255	234	249	261	254	256	256	254	275	290	292	301	292	308	309	290	298	295	277	W	24	
8	296	295	287	287	275	273	274	285	299	296	302	345	353	22	306	301	296	285	260	235	240	220	221	222	291	WNW	24	
9	219	232	218	172	216	225	232	243	277	249	238	228	238	224	230	228	237	242	281	301	181	234	237	304	240	WSW	24	
10	275	167	213	234	255	350	335	317	294	296	296	302	312	290	336	328	326	309	305	284	281	298	348	6	308	NW	24	
11	6	38	40	36	81	43	50	72	82	79	87	80	90	118	83	121	94	29	56	77	126	150	156	241	76	ENE	24	
12	349	128	144	274	5	141	120	193	217	215	216	207	199	200	207	202	200	192	206	166	119	118	126	150	187	S	24	
13	152	147	154	98	109	133	144	164	160	153	155	157	146	163	186	206	243	276	1	50	47	41	36	58	147	SE	24	
14	66	25	61	23	352	57	83	75	78	71	84	103	88	88	70	66	87	103	17	3	40	180	82	272	67	ENE	24	
15	302	3	264	259	297	291	298	287	283	294	284	293	290	296	287	286	289	287	281	270	257	234	228	256	288	WNW	24	
16	275	276	274	263	261	253	246	252	274	269	271	270	281	283	281	278	283	281	261	230	227	235	245	229	269	W	24	
17	229	241	260	278	281	274	257	269	268	275	273	276	271	267	254	264	275	272	247	263	244	242	231	236	263	W	24	
18	242	247	257	256	264	276	274	288	296	282	285	264	275	293	291	309	300	303	290	262	249	265	242	242	280	W	24	
19	232	233	228	218	224	220	228	249	238	241	256	283	279	279	280	286	319	14	251	244	178	213	232	245	259	WSW	24	
20	251	224	220	250	258	20	215	57	101	134	129	128	148	157	170	163	115	117	100	72	91	112	108	124	136	SE	24	
21	126	96	71	78	90	44	100	139	164	162	164	164	170	172	171	171	165	163	155	162	169	175	172	355	158	SSE	24	
22	85	158	181	278	119	161	233	223	314	286	276	296	298	303	308	304	303	304	291	298	156	192	270	291	285	WNW	24	
23	328	307	323	277	290	282	274	274	271	271	275	280	279	288	289	287	282	285	284	265	246	250	246	231	281	W	24	
24	229	228	237	278	138	93	203	185	181	191	169	175	175	188	195	236	251	280	308	315	320	353	12	1	209	SSW	24	
25	283	207	236	282	271	288	294	289	295	288	277	279	285	286	280	289	289	287	287	287	280	275	250	271	283	W	24	
26	277	279	252	238	239	251	235	224	229	234	238	207	241	230	203	157	159	166	155	135	119	115	119	107	197	SSW	24	
27	62	52	65	28	13	28	133	114	134	180	166	155	158	157	169	182	164	157	143	116	342	331	12	295	152	SSE	24	
28	249	238	235	228	244	282	290	293	284	283	289	276	284	265	279	286	294	295	290	293	161	159	156	146	275	W	24	
29	126	145	141	103	37	75	74	85	116	143	144	153	142	148	146	142	126	98	96	305	P	P	290	305	135	SE	22	
30	279	285	228	252	270	257	282	296	310	295	292	295	289	279	275	278	262	275	296	295	260	245	256	266	281	W	24	
31	260	254	260	279	276	272	230	252	285	300	309	326	319	298	292	292	297	288	291	277	261	274	278	281	286	WNW	24	
HOURLY AVG	349	307	323	287	352	350	349	317	314	300	309	345	353	303	336	328	326	311	309	315	342	353	348	355				

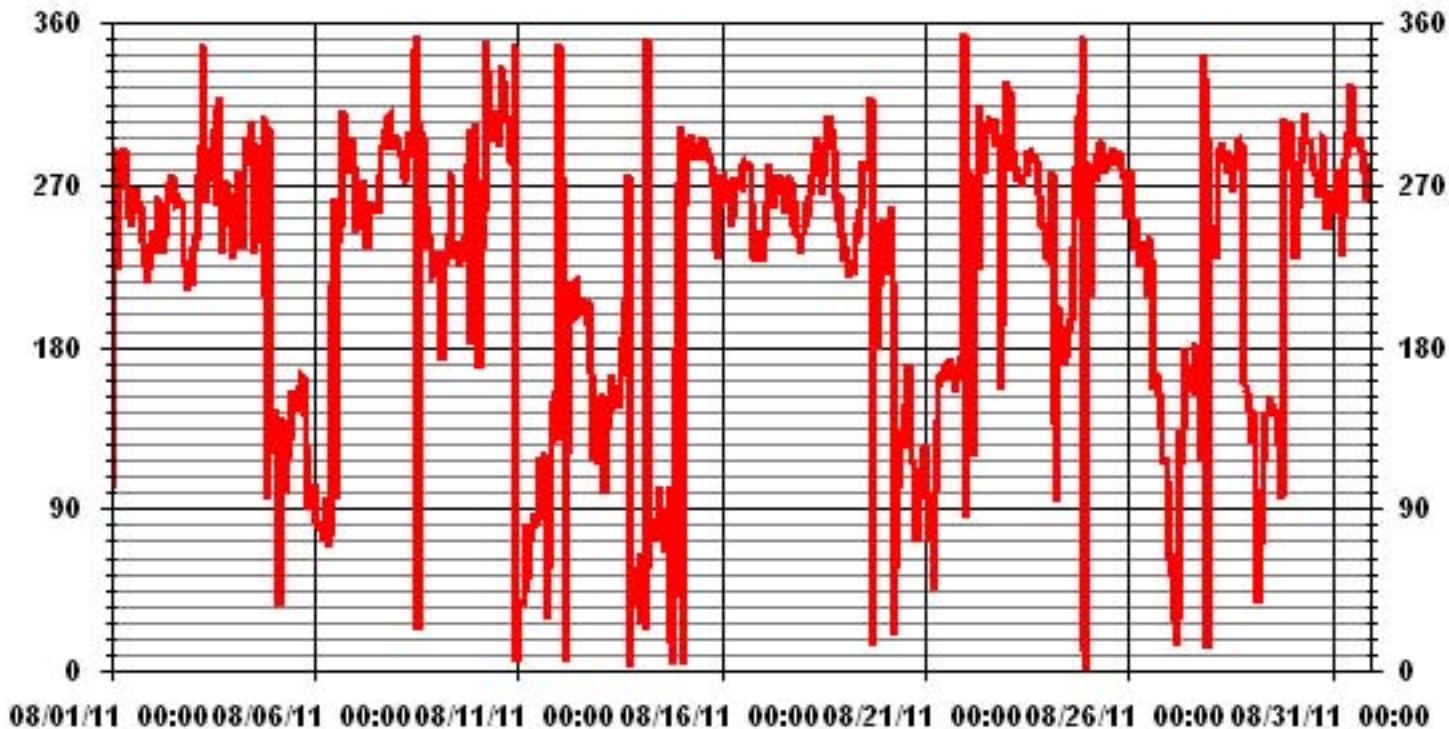
STATUS FLAG CODES

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

LAST CALIBRATION:	September 24, 2009
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	742 HRS
STANDARD DEVIATION	81.07	AMD OPERATION UPTIME	99.7 %
		MONTHLY AVERAGE	261 DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

AUGUST 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	45	23	18	18	20	33	24	16	13	16	21	23	19	20	20	20	22	21	21	14	4	17	16	7
2	17	14	18	17	9	12	10	18	21	25	22	21	20	24	24	21	23	21	19	9	8	19	10	19
3	16	6	14	15	15	14	56	24	18	13	21	19	14	18	30	16	22	19	20	22	12	16	23	24
4	25	13	12	16	19	30	19	19	36	34	30	36	36	51	20	17	32	34	31	23	49	47	34	18
5	8	5	28	18	15	21	48	12	13	18	16	27	25	21	24	23	25	20	9	7	8	5	5	18
6	17	10	18	8	9	12	9	11	13	9	30	18	53	48	49	19	20	23	12	9	8	12	13	14
7	16	16	28	18	24	16	17	15	23	24	24	22	23	23	17	11	11	12	9	12	12	8	9	9
8	9	9	11	13	11	14	16	11	15	17	24	19	35	45	27	28	19	12	17	10	9	13	24	37
9	22	12	7	24	14	9	10	22	25	34	28	26	25	22	20	16	18	18	17	21	49	27	9	23
10	16	30	2	19	20	11	20	14	15	17	19	35	36	24	21	17	17	15	11	7	6	6	11	9
11	17	17	9	5	24	10	12	15	11	12	17	17	17	24	37	57	21	29	22	23	23	29	19	27
12	28	29	34	28	20	13	20	21	15	20	26	27	23	25	24	23	23	21	22	11	7	7	9	10
13	5	7	5	10	7	8	13	9	11	11	11	11	15	15	22	25	25	29	12	13	14	8	5	6
14	7	8	10	9	16	11	14	42	12	11	12	14	14	17	13	11	11	8	16	18	31	50	10	38
15	12	16	17	16	17	14	17	13	16	17	17	17	16	15	14	12	11	11	12	16	14	12	30	13
16	12	10	11	19	20	17	22	23	20	21	21	20	18	15	18	18	14	15	20	9	5	9	16	8
17	6	12	16	13	10	16	24	21	22	19	21	25	25	25	22	23	19	19	18	13	14	14	8	13
18	15	16	19	17	14	11	16	12	15	16	19	22	18	14	19	17	12	13	12	16	19	17	13	16
19	9	12	8	13	19	21	12	30	19	22	25	24	20	23	20	22	15	19	26	22	18	13	19	29
20	14	9	15	18	69	24	38	15	40	12	13	17	15	13	22	24	16	13	7	9	8	6	8	16
21	16	30	11	10	7	16	16	9	10	10	11	12	12	13	12	10	9	7	4	3	7	17	23	21
22	53	34	18	21	50	20	13	23	19	15	25	15	19	18	22	15	12	19	12	10	22	16	29	27
23	17	12	36	35	11	14	15	16	18	19	19	14	17	12	12	14	14	11	10	16	13	15	13	10
24	12	11	17	14	33	14	49	24	23	23	11	14	14	22	25	18	24	15	9	7	12	11	32	26
25	21	67	34	15	16	10	7	11	12	12	19	15	14	15	16	13	13	11	10	7	11	10	16	13
26	12	13	14	20	18	26	23	10	18	35	42	43	45	45	23	37	17	10	5	4	3	5	7	6
27	13	9	14	22	19	28	26	17	21	24	27	18	32	30	20	20	9	9	23	12	15	48	27	10
28	13	10	26	9	13	7	11	11	16	19	15	22	25	30	26	22	23	12	7	6	26	11	20	13
29	6	6	4	11	17	17	10	9	11	10	10	12	11	11	11	9	8	5	33	13	P	P	18	12
30	13	12	18	17	17	20	16	13	18	19	12	15	15	18	22	25	24	16	11	10	12	11	12	13
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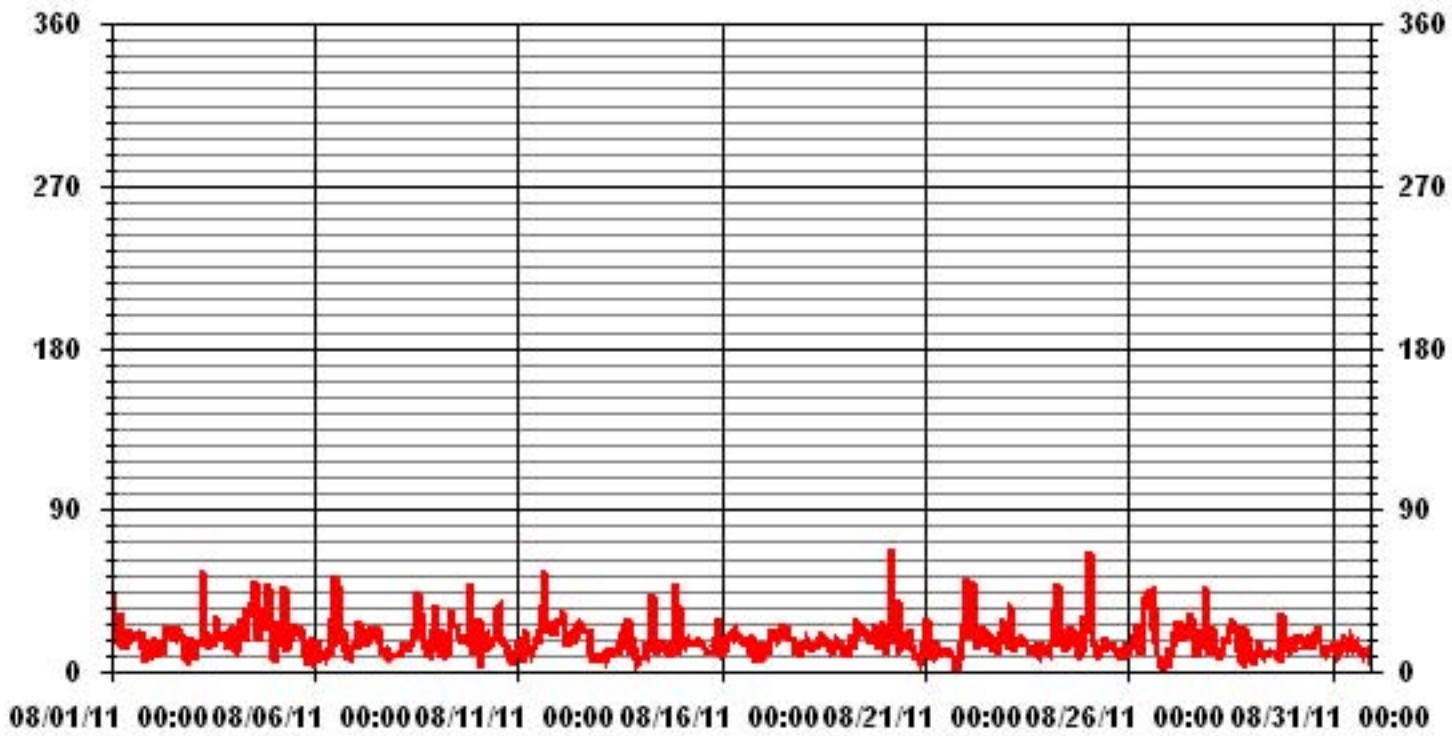
STATUS FLAG CODES

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

LAST CALIBRATION: September 24, 2009

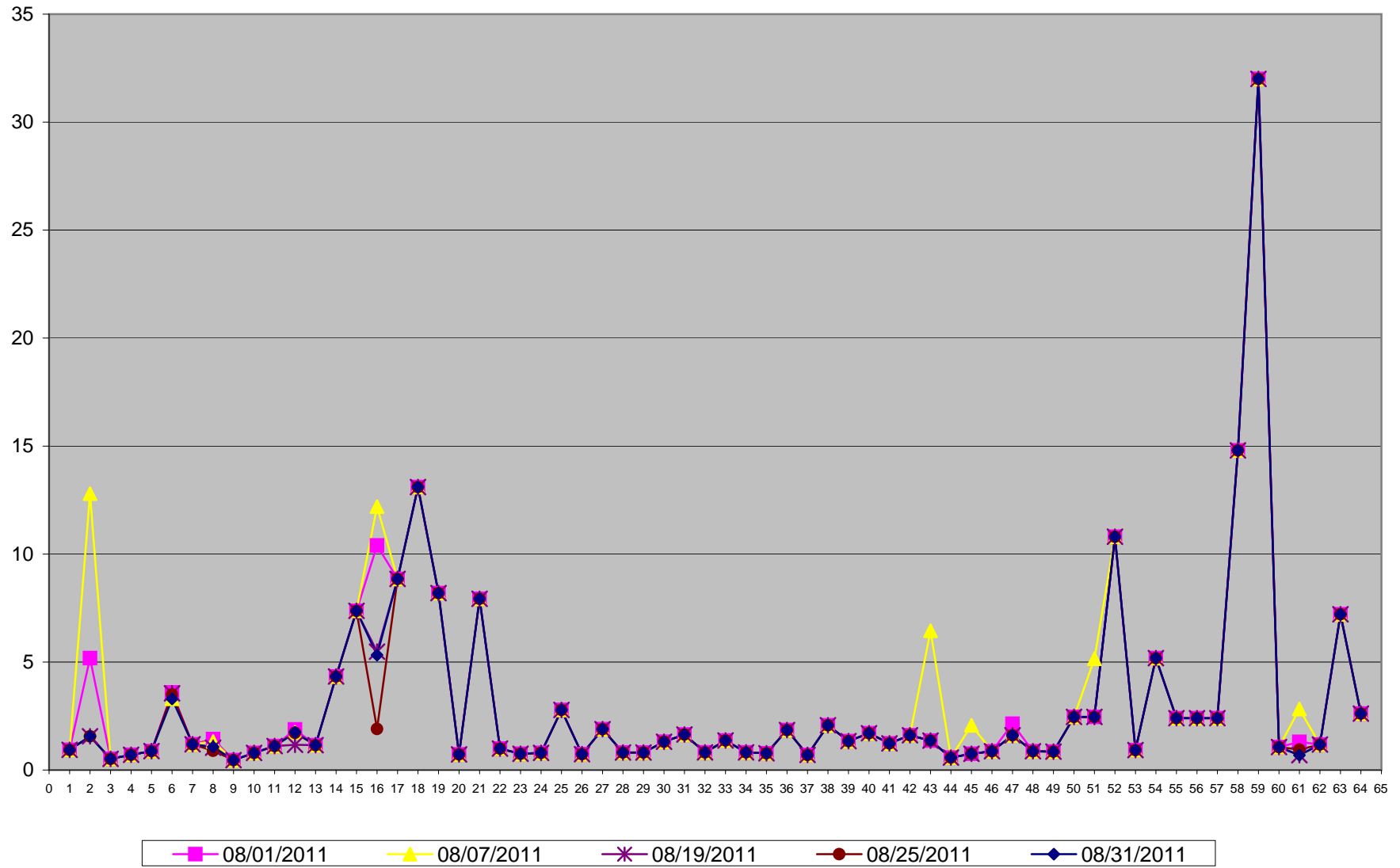
CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 742 HRS

01 Hour Averages



Volatile Organics

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



1	2,2,4-Trimethylpentane	33	1,1,2,2-Tetrachloroethane
2	Carbon Disulfide	34	cis-1,3-Dichloropropene
3	Propene	35	trans-1,3-Dichloropropene
4	Vinyl Acetate	36	1,2-Dichloropropane
5	Vinyl Bromide	37	Bromomethane
6	Dichlorodifluoromethane (FREON 12)	38	Bromoform
7	1,2-Dichlorotetrafluoroethane	39	Bromodichloromethane
8	Chloromethane	40	Dibromochloromethane
9	Vinyl Chloride	41	Heptane
10	Chloroethane	42	Trichloroethylene
11	1,3-Butadiene	43	Tetrachloroethylene
12	Trichlorofluoromethane (FREON 11)	44	Benzene
13	Trichlorotrifluoroethane	45	Toluene
14	Ethanol	46	Ethylbenzene
15	2-Propanol	47	p+m-Xylene
16	2-Propanone	48	o-Xylene
17	Methyl Ethyl Ketone (2-Butanone)	49	Styrene
18	Methyl Isobutyl Ketone	50	1,3,5-Trimethylbenzene
19	Methyl Butyl Ketone (2-Hexanone)	51	1,2,4-Trimethylbenzene
20	Methyl t-butyl ether (MTBE)	52	4-ethyltoluene
21	Ethyl Acetate	53	Chlorobenzene
22	1,1-Dichloroethylene	54	Benzyl chloride
23	cis-1,2-Dichloroethylene	55	1,3-Dichlorobenzene
24	trans-1,2-Dichloroethylene	56	1,4-Dichlorobenzene
25	Methylene Chloride (Dichloromethane)	57	1,2-Dichlorobenzene
26	Chloroform	58	1,2,4-Trichlorobenzene
27	Carbon Tetrachloride	59	Hexachlorobutadiene
28	1,1-Dichloroethane	60	Hexane
29	1,2-Dichloroethane	61	Cyclohexane
30	Ethylene Dibromide	62	Tetrahydrofuran
31	1,1,1-Trichloroethane	63	1,4-Dioxane
32	1,1,2-Trichloroethane	64	Xylene (Total)

Polycyclic Aromatic Hydrocarbons

Polycyclic Aromatic Hydrocarbons (PAHs) Results for August 2011

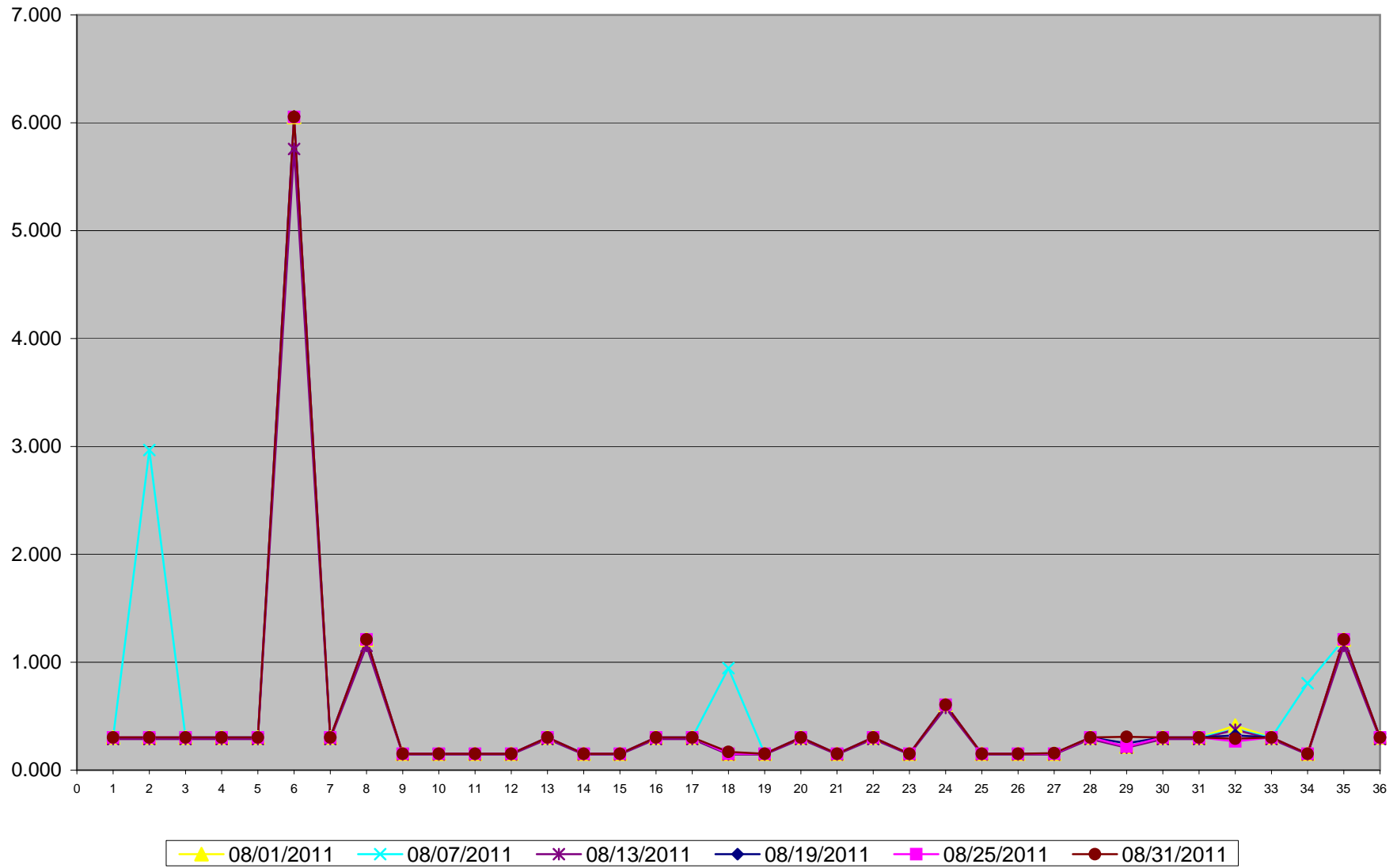
LICA- Portable Site

Unit: ng/m3

PAHs	08/01/2011	08/07/2011	08/13/2011	08/19/2011	08/25/2011	08/31/2011
Sample Volume (unit: m3)	330.34	330.29	347.42	330.02	330.34	330.34
1 1-Methylnaphthalene	0.303	0.303	0.288	0.303	0.303	0.303
2 1-Methylphenanthrene	0.303	2.967	0.288	0.303	0.303	0.303
3 2-Chloronaphthalene	0.303	0.303	0.288	0.303	0.303	0.303
4 2-Methylantracene	0.303	0.303	0.288	0.303	0.303	0.303
5 2-Methylnaphthalene	0.303	0.303	0.288	0.303	0.303	0.303
6 3-Methylcholanthrene	6.054	6.055	5.757	6.060	6.054	6.054
7 7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.288	0.303	0.303	0.303
8 9,10-Dimethylantracene	1.211	1.211	1.151	1.212	1.211	1.211
9 Acenaphthene	0.151	0.151	0.144	0.152	0.151	0.151
10 Acenaphthylene	0.151	0.151	0.144	0.152	0.151	0.151
11 Anthracene	0.151	0.151	0.144	0.152	0.151	0.151
12 Benzo(a)anthracene	0.151	0.151	0.144	0.152	0.151	0.151
13 Benzo(a)fluorene	0.303	0.303	0.288	0.303	0.303	0.303
14 Benzo(a)pyrene	0.151	0.151	0.144	0.152	0.151	0.151
15 Benzo(b)fluoranthene	0.151	0.151	0.144	0.152	0.151	0.151
16 Benzo(b)fluorene	0.303	0.303	0.288	0.303	0.303	0.303
17 Benzo(e)pyrene	0.303	0.303	0.288	0.303	0.303	0.303
18 Benzo(g,h,l)perylene	0.151	0.945	0.144	0.152	0.151	0.170
19 Benzo(k)fluoranthene	0.151	0.151	0.144	0.152	0.151	0.151
20 Biphenyl	0.303	0.303	0.288	0.303	0.303	0.303
21 Chrysene	0.151	0.151	0.144	0.152	0.151	0.151
22 Coronene	0.303	0.303	0.288	0.303	0.303	0.303
23 Dibenz(a,h)anthracene	0.151	0.151	0.144	0.152	0.151	0.151
24 Dibenzo(a,e)pyrene	0.605	0.606	0.576	0.606	0.605	0.605
25 Fluoranthene	0.151	0.151	0.144	0.152	0.151	0.151
26 Fluorene	0.151	0.151	0.144	0.152	0.151	0.151
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	0.144	0.152	0.151	0.157
28 m-Terphenyl	0.303	0.303	0.288	0.303	0.303	0.303
29 Naphthalene	0.218	0.218	0.207	0.248	0.218	0.309
30 o-Terphenyl	0.303	0.303	0.288	0.303	0.303	0.303
31 Perylene	0.303	0.303	0.288	0.303	0.303	0.303
32 Phenanthrene	0.412	0.375	0.374	0.321	0.266	0.291
33 p-Terphenyl	0.303	0.303	0.288	0.303	0.303	0.303
34 Pyrene	0.151	0.805	0.144	0.152	0.151	0.151
35 Quinoline	1.211	1.211	1.151	1.212	1.211	1.211
36 Tetralin	0.303	0.303	0.288	0.303	0.303	0.303

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

PAHs in ng/m3 Site: LICA - Portable Site



1	1-Methylnaphthalene
2	1-Methylphenanthrene
3	2-Chloronaphthalene
4	2-Methylantracene
5	2-Methylnaphthalene
6	3-Methylcholanthrene
7	7,12-Dimethylbenzo(a)anthracene
8	9,10-Dimethylantracene
9	Acenaphthene
10	Acenaphthylene
11	Anthracene
12	Benzo(a)anthracene
13	Benzo(a)fluorene
14	Benzo(a)pyrene
15	Benzo(b)fluoranthene
16	Benzo(b)fluorene
17	Benzo(e)pyrene
18	Benzo(g,h,l)perylene
19	Benzo(k)fluoranthene
20	Biphenyl
21	Chrysene
22	Coronene
23	Dibenz(a,h)anthracene
24	Dibenzo(a,e)pyrene
25	Fluoranthene
26	Fluorene
27	Indeno(1,2,3-cd)pyrene
28	m-Terphenyl
29	Naphthalene
30	o-Terphenyl
31	Perylene
32	Phenanthrene
33	p-Terphenyl
34	Pyrene
35	Quinoline
36	Tetralin

Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	August 25, 2011	Previous Calibration	July 15, 2011
Company	Lakeland Community and Industry Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	12:11	End Time (MST)	16:09
Reason:	Monthly Calibration		
Barometric Pressure	0.936 atm	Station Temperature	23 Deg C
Cal Gas	49 ppm	Gas Cyl. #	LL103822
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	February 4, 2013
		Chart Rec. Output	0 - 1 Volts

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	467	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	EnviroNics 6100	S/N :	4760	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	EnviroNics 6100	S/N :	4760		

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0 - 1000				
Sample Flow / Box Temp	586 ccm	32.5 Deg C	586 ccm	33.1 Deg C	
HVPS / Lamp Setting	612	2057	612	2056	
PMT / RxCell Temp	8.1 Deg C	50 Deg C	8.1 Deg C	50 Deg C	
Converter / IZS Temp	NA Deg C	45 Deg C	NA Deg C	45.0 Deg C	
Offset / Slope	77	1.025	80.6	1.008	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	2	N/A
4995	0	0	0	N/A
4918	76.3	749	762	0.9824
4918	76.3	749	750	0.9981
4954	40.7	399	398	1.0032
4977	17.3	170	170	1.0000
4995	0	0	0	N/A
Sum of Least Squares				0.9874
New Correction Factor				0.9981

Before Calibration

After Calibration

Auto Zero	3.1	1.1
Auto Span	377.0	368.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9984
Current Correction Factor Before Span Adjust:	0.9824
Percent Change:	1.6%

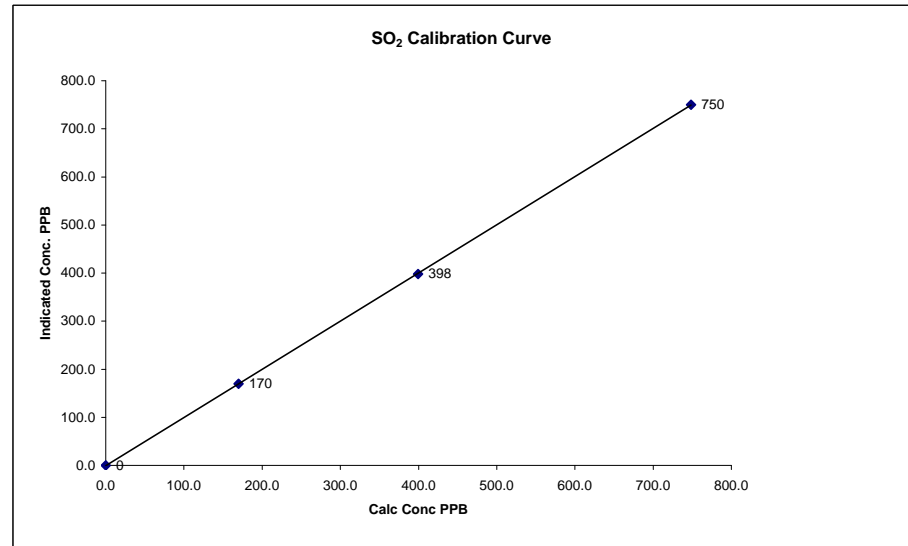
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

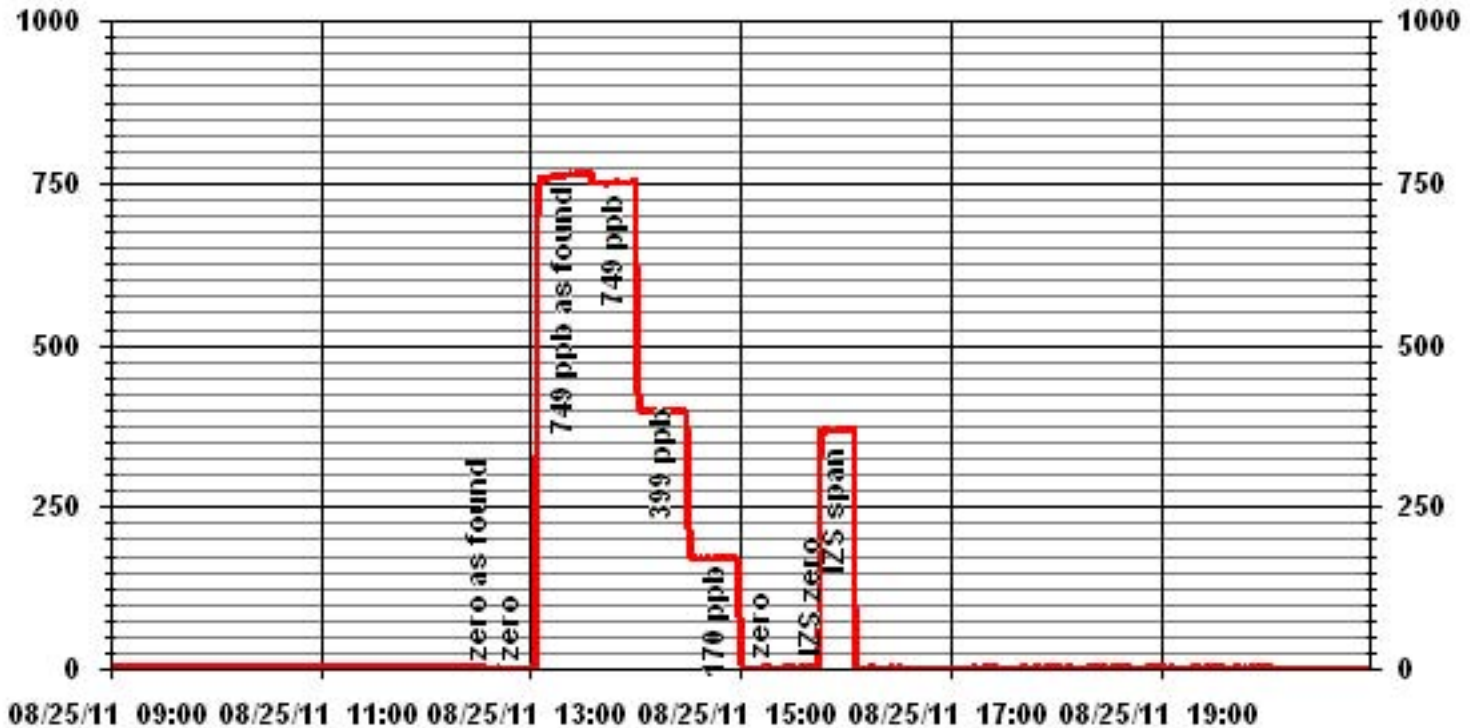
Calibration Date	August 25, 2011
Company	Lakeland Community and Industry Association
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M
Start Time (MST)	12:11
End Time (MST)	16:09

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	n/a		0.999991
170	170	0.9984		1.001454
399	398	1.0032		-0.381458
749	750	0.9981		



Notes:

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	August 25, 2011	Previous Calibration	July 14, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Portable/ Devon Wellsite 13-16-62-5-W4M		
Start Time (MST)	10:27	End Time (MST)	14:28
Reason:	Post Repair Calibration		
Barometric Pressure	0.935 atm	Station Temperature	23 Deg C
Cal Gas	10.2 ppm	Gas Cyl. #	bim000804
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	February 2, 2012
		Chart Rec. Output	0 - 1 Volts

Equipment Information

Analyzer Make / Model:	API 101E	S/N :	509	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	A0717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 100 ppb		
Sample Flow / Box Temp	529 ccm 32.5 Deg C	528 ccm 32.9 Deg C	
HV/PS / Lamp Setting	540 1996	540 1995	
PMT / RxCell Temp	7.9 Deg C 50 Deg C	7.9 Deg C 50 Deg C	
Converter / IZS Temp	314 Deg C 45 Deg C	315.8 Deg C 45.0 Deg C	
Offset / Slope	58.9 1.049	61.6 1.057	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	2	NA
4995	0	0	0	1.0000
4959	39.2	80	81	0.9876
4959	39.2	80	80	1.0000
4981	19.6	40	41	0.9751
4986	11.3	23	23	1.0000
4995	0	0	0	NA
Sum of Least Squares				0.9954
New Correction Factor				1.0000

Before Calibration		After Calibration	
Auto Zero	2.1		0.6
Auto Span	59.0		58.0
Sample Lines Connected			YES

Percent Change

Previous Month's Calibration Correction Factor:	-
Current Correction Factor Before Span Adjust:	0.9876
Percent Change:	#VALUE!

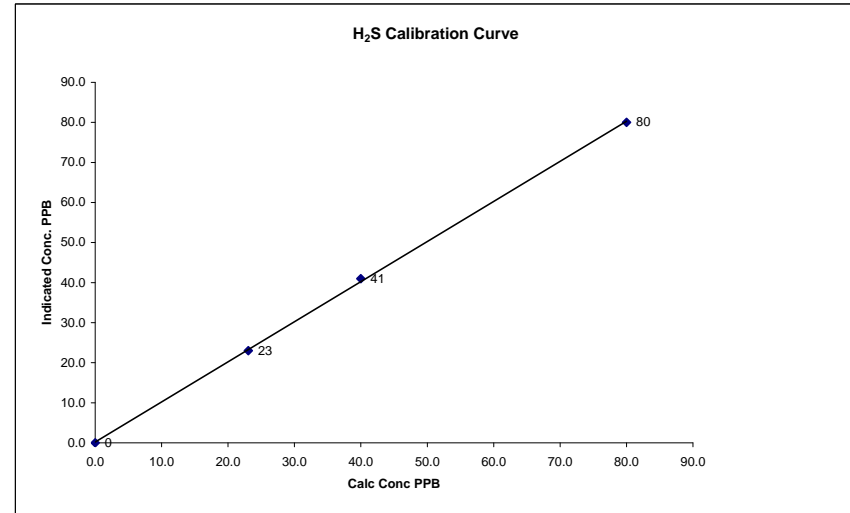
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

H₂S Calibration Curve

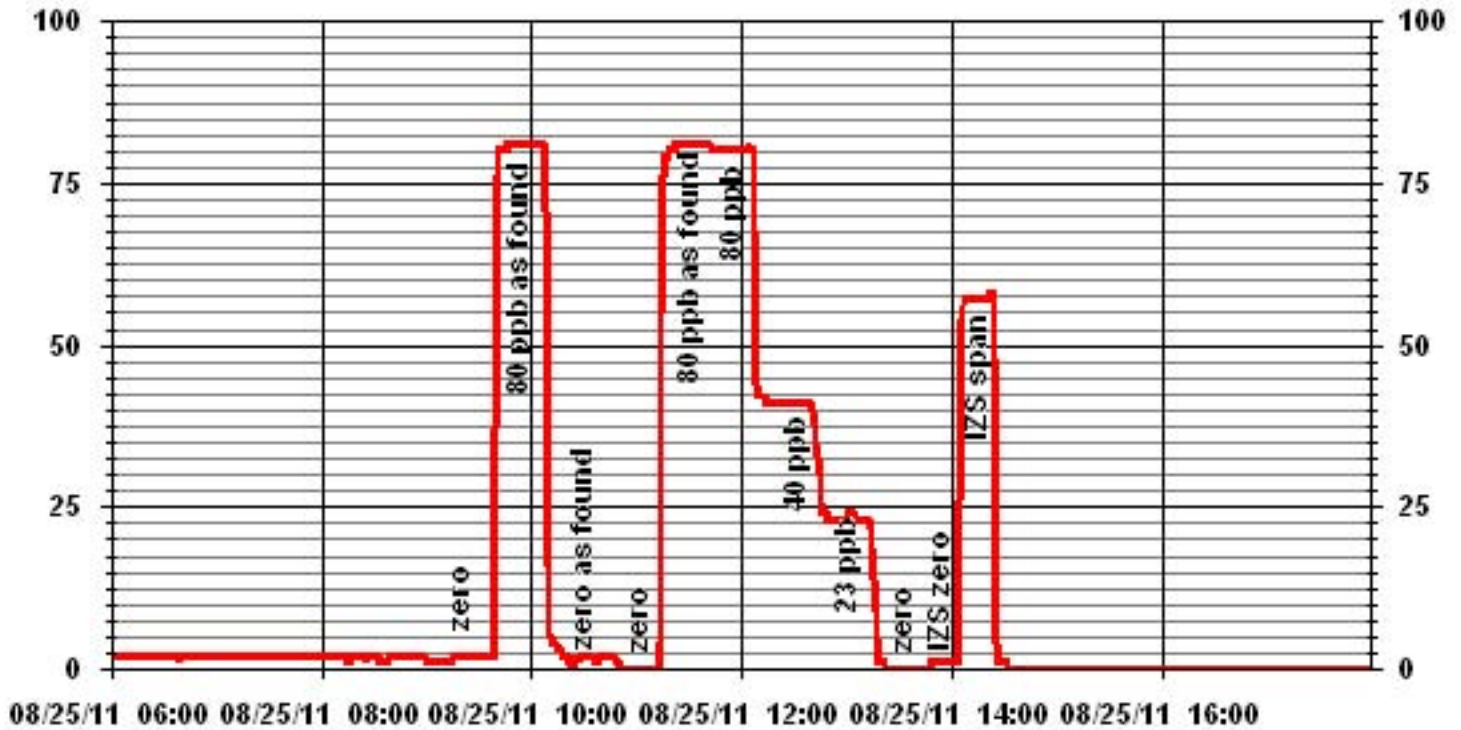
Calibration Date	August 25, 2011
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	Portable/ Devon Wellsite 13-16-62-5-W4M
Start Time (MST)	10:27
End Time (MST)	14:28

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0			0.999764
23	23	1.0028		1.001542
40	41	0.9751		0.184730
80	80	1.0000		



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOM 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	<u>August 25, 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>

	<u>Sampler</u>		<u>Set-up and current Sampler readings</u>
Make/Model	<u>Thermo Scientific Series 1405F</u>	F-Main Set Pt (l/min)	<u>3.00</u>
Unit #	<u>NA</u>	F-Aux Set Pt (l/min)	<u>13.67</u>
Unit s/n	<u>1405A207691003</u>	Filter Load (%)	<u>22.3%</u>
Firmware Ver.	<u>1.51</u>	K _o Factor	<u>15634.0</u>
Parameter	<u>PM 2.5 (with FDMS)</u>	Temp (°C)	<u>18.7</u>
		Press (ATM)	<u>0.936</u>

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Audit

Status			
Noise <0.10ug	<u>0.002</u>	Warnings	<u>None</u>
Pump Vacuum <0.40atm	<u>0.33</u>	Pump Gauge (inHg)	<u>-19</u>
Temperature/Pressure			
Measured Temp (± 2 °C)	<u>19.3</u>	D °C	<u>-0.6</u>
Measured Press (± 0.01atm)	<u>0.937</u>	DATM	<u>-0.001</u>
Flow Audit			
Indicated Main Flow (l/min)	<u>3.00</u>	Main Flow Drift (±10.0%)	<u>0.23%</u>
Measured Main Flow (l/min)	<u>2.98</u>	Flow Adjusted to Measured?	<u>Yes</u>
Indicated Bypass Flow (l/min)	<u>13.67</u>	Bypass Flow Drift (±10.0%)	<u>0.45%</u>
Measured Bypass Flow (l/min)	<u>13.62</u>	Flow Adjusted to Measured?	<u>Yes</u>
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	<u>NA</u>	<u>Flow Control = Active</u>	
Aux (< 0.6 l/min)	<u>NA</u>	<u>Report Conditions = Actual</u>	
K_o Factor			
Measured	<u>NA</u>		
K _o Difference (± 2.5%)	<u>NA</u>		

Start Time: 13:50 **Finish Time:** 15:23

Sample Inlet Cleaned: Yes **New Filters Installed:** Yes
New Filter Loading %: 17.8%

Comments:

Auditor/s: Ting Xu

Nitrogen Dioxide

NOx - NO- NO2 Calibration Report
Station Information

Calibration Date	August 24, 2011	Previous Calibration	July 14, 2011
Company	LICA	Plant/Location	Portable/ 13-16-62-5W4M
Start Time (MST)	10:04	End Time (MST)	16:10
Reason:	Monthly Calibration		
Barometric Pressure	0.934 atm	Station Temperature	23 Deg C
Cal Gas Concentration	NOx 51.7 ppm	NO 50.4 ppm	Cal Gas Expiry date February 4, 2013
Cal Gas Cylinder #	LL103822		
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	NA Volts

Equipment Information

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

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0 - 1000		ppb		
Sample Flow/Conv. Temp	483 ccm	314.1 Deg C	481 ccm	315 Deg C	
Ozone Flow / Vacuum	78 ccm	4.3 Hg-A	78 ccm	4.2 Hg-A	
HVPS / A ZERO	662 Volts	6.8 MV	662 Volts	6.7 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	32.4 Deg C	45.2 Deg C	31.8 Deg C	45 Deg C	
Offset	1.1 NOx	0.9 NO	1.1 NOx	0.9 NO	
Slope	1.254 NOx	1.206 NO	1.286 NOx	1.236 NO	
NO2 COEF / Conv Efficiency	NA NO2	0.996	NA NO2	0.996	

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	NA	0	0	NA	-1	0	0	NA	NA
No Zero Adj										
4921	74.2	NA	768	749	NA	748	731	17	1.0253	1.0242
4921	74.2	NA	768	749	NA	770	750	20	0.9961	0.9982
4954	39.6	NA	410	400	NA	410	400	11	1.0000	1.0000
4973	19.8	NA	205	200	NA	206	201	5	0.9905	0.9944
4995	0.0	NA	0	0	NA	-1	0	0	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4921	74.2	NA	768	749	NA	771	750	22	NA	NA
No Adj Required										
4921	74.2	600	768	NA	552	769	220	549	1.0055	99.43%
4921	74.2	250	768	NA	244	772	528	244	1.0000	100.00%
4921	74.2	140	768	NA	146	774	626	147	0.9932	100.81%

Linearity	Sum of Least Squares	NOx= 0.998	NO= 0.998	NO2= 1.004
OK?	Correction Factors:	NOx= 0.9961	NO= 0.9982	NO2= 1.0055
Average Converter Efficiency= 100.08%				

Before Calibration			After Calibration		
Auto Zero	-0.5 NOx	0.2 NO2	0.1 NOx	-0.2 NO2	
Auto Span	861 NOx	839 NO2	892 NOx	868 NO2	
Sample Lines Connected YES					
Percent Change from Previous Calibration			NOx -2.9%	NO -2.4%	NO2 -0.9%

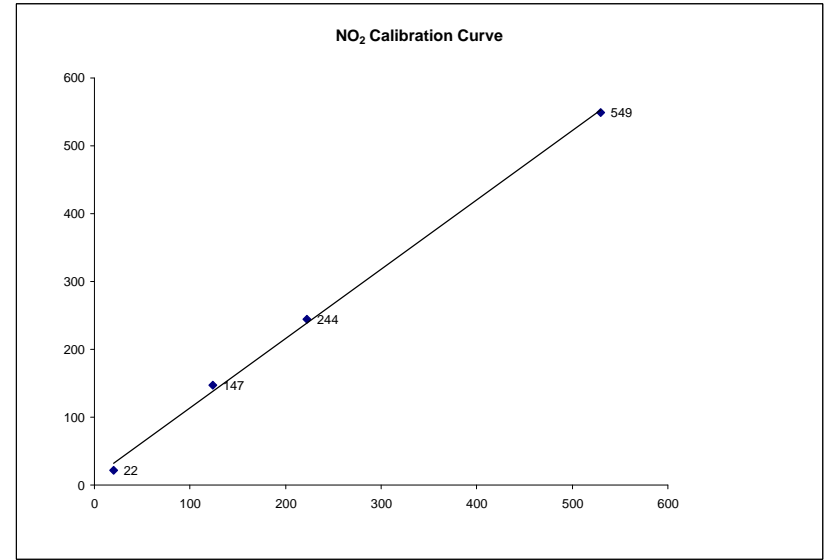
Notes: **NA : Not Applicable**
Additional GPT was done for O3 clibration. O3 set point 420, NOx=772, NO=376, NO2=396

Calibration Performed by: Ting Xu

NO2 Calibration Curve

Calibration Date	August 24, 2011
Company	LICA
Plant / Location	Portable/ 13-16-62-5W4M
Start Time (MST)	10:04
End Time (MST)	16:10

Calculated Conc.	Indicated Response	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.998520
ppb	ppb		Slope	(0.85 to 1.15)	1.021080
20	22	N/A	Intercept	(± 3% F.S.)	11.77807
124	147	0.8435			
222	244	0.9098			
530	549	0.9654			

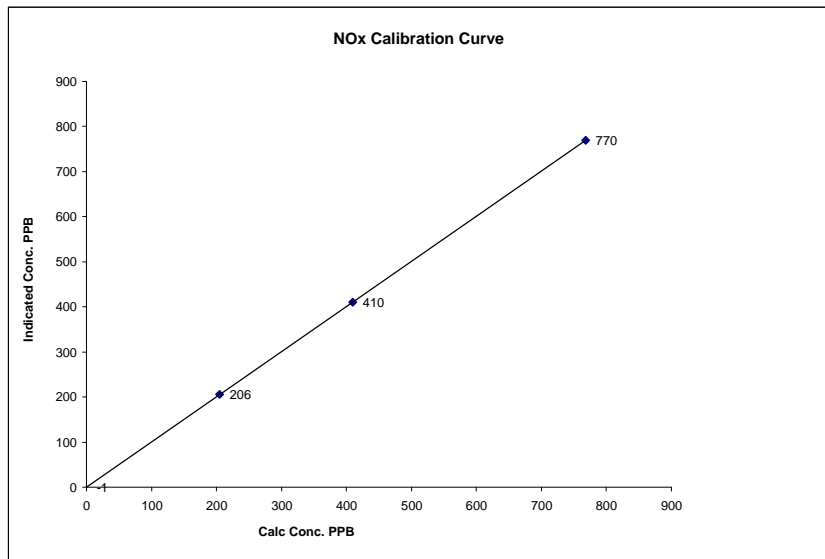


Notes:

NOx Calibration Curve

Calibration Date August 24, 2011
 Company LICA
 Plant / Location Portable/ 13-16-62-5W4M
 Start Time (MST) 10:04 End Time (MST) 16:10

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999995
0	-1	N/A	Intercept	(± 3% F.S.)	-0.64375
205	206	0.9953			
410	410	1.0000			
768	770	0.9974			

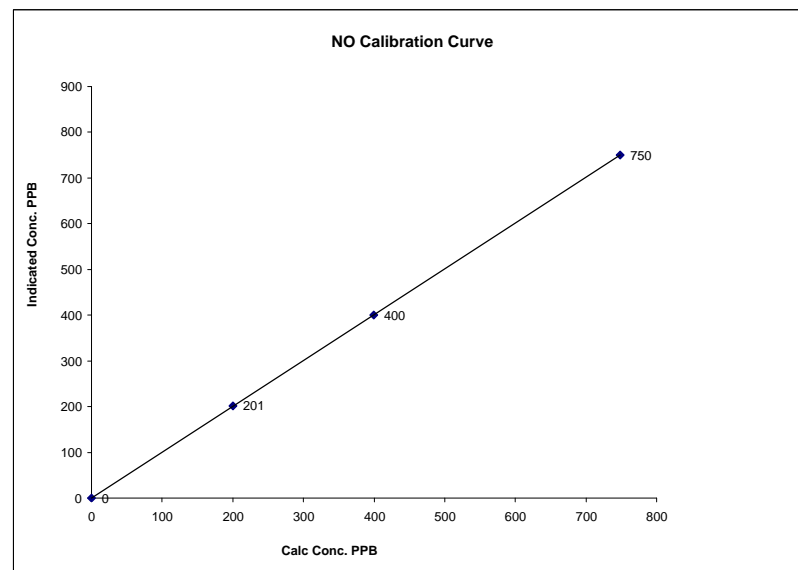


Notes:

NO Calibration Curve

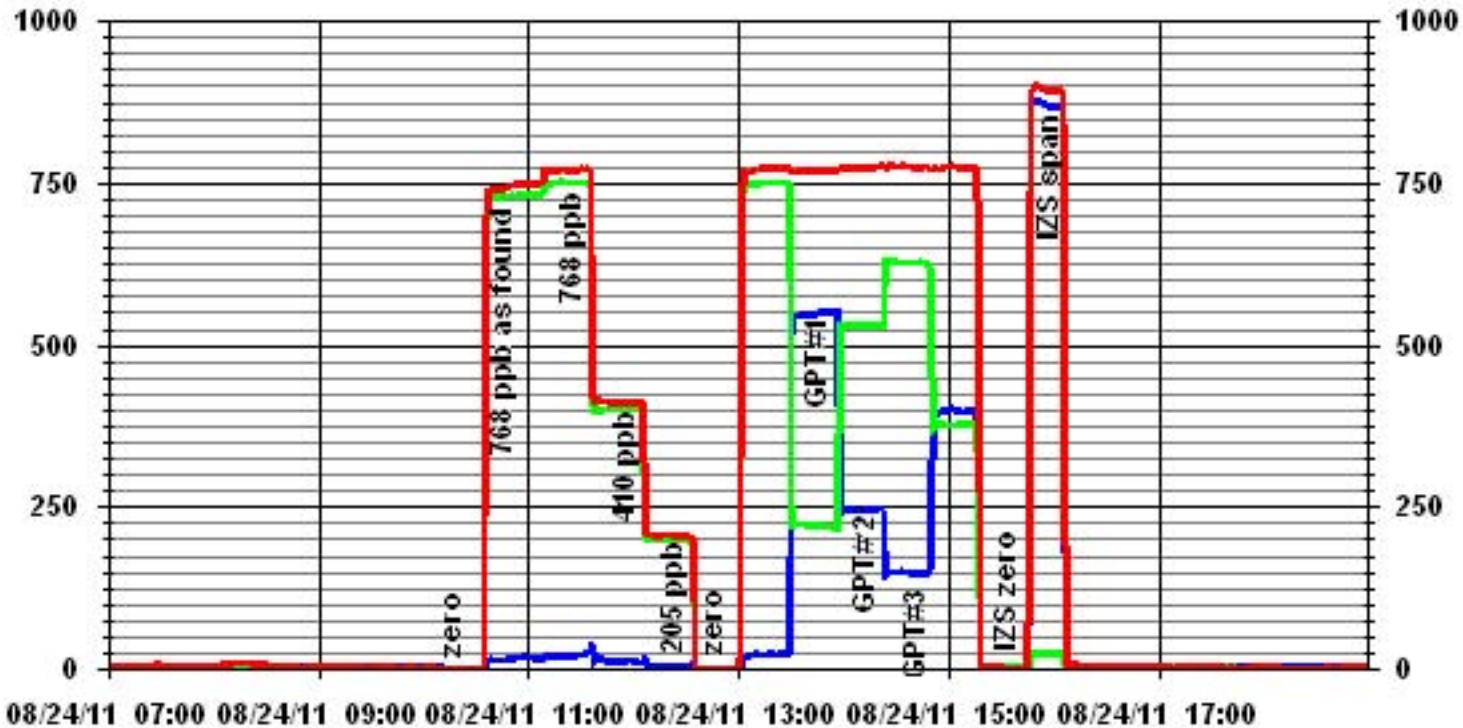
Calibration Date August 24, 2011
 Company LICA
 Plant / Location Portable/ 13-16-62-5W4M
 Start Time (MST) 10:04 End Time (MST) 16:10

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999998
0	0	N/A	Intercept	(± 3% F.S.)	-0.8534
200	201	0.9944			
400	400	0.9992			
749	750	0.9982			



Notes:

01 Minute Averages



Ozone

O₃ Calibration Report

Station Information

Calibration Date	August 25, 2011	Previous Calibration	July 15, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	9:05	End Time (MST)	12:50
Reason:	Monthly Calibration		
Barometric Pressure	0.935 atm	Station Temperature	23 Deg C
DAS Output Voltage	0 - 10 Volts		

Equipment Information

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

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 500 ppb			
Cell A Flow / Cell B Flow	753 ccm	763 ccm	752 ccm	765 ccm
Pressure	699 mmHg		700 mmHg	
Bench Lamp	54.1 Deg C		54.1 Deg C	
O3 Lamp / Box Temp	68.2 Deg C	32.5 Deg C	68.2 Deg C	32.6 Deg C
Offset / Slope	0	0.94	0	0.948

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	NA
	No Adj Required			
4995	420	374	370	1.0108
4995	420	374	374	1.0000
4995	250	222	224	0.9911
4995	140	124	126	0.9841
4995	0	0	0	NA
Sum of Least Squares				0.9966
New Correction Factor				1.0000

Before Calibration

After Calibration

Auto Zero	-0.1	-0.1
Auto Span	314.0	315.0
Sample Lines Connected		YES
Previous Calibration Correction Factor:		0.9973
Current Correctio Factor Before Span Adjust:		1.0000
Percent Change:		-0.3%

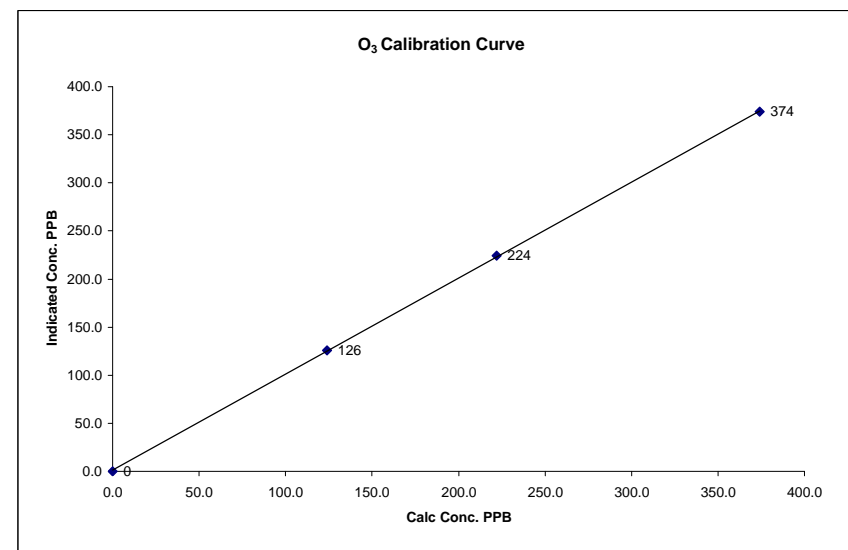
Note: NA : Not Applicable

Calibration Performed by: Ting Xu

O₃ Calibration Curve

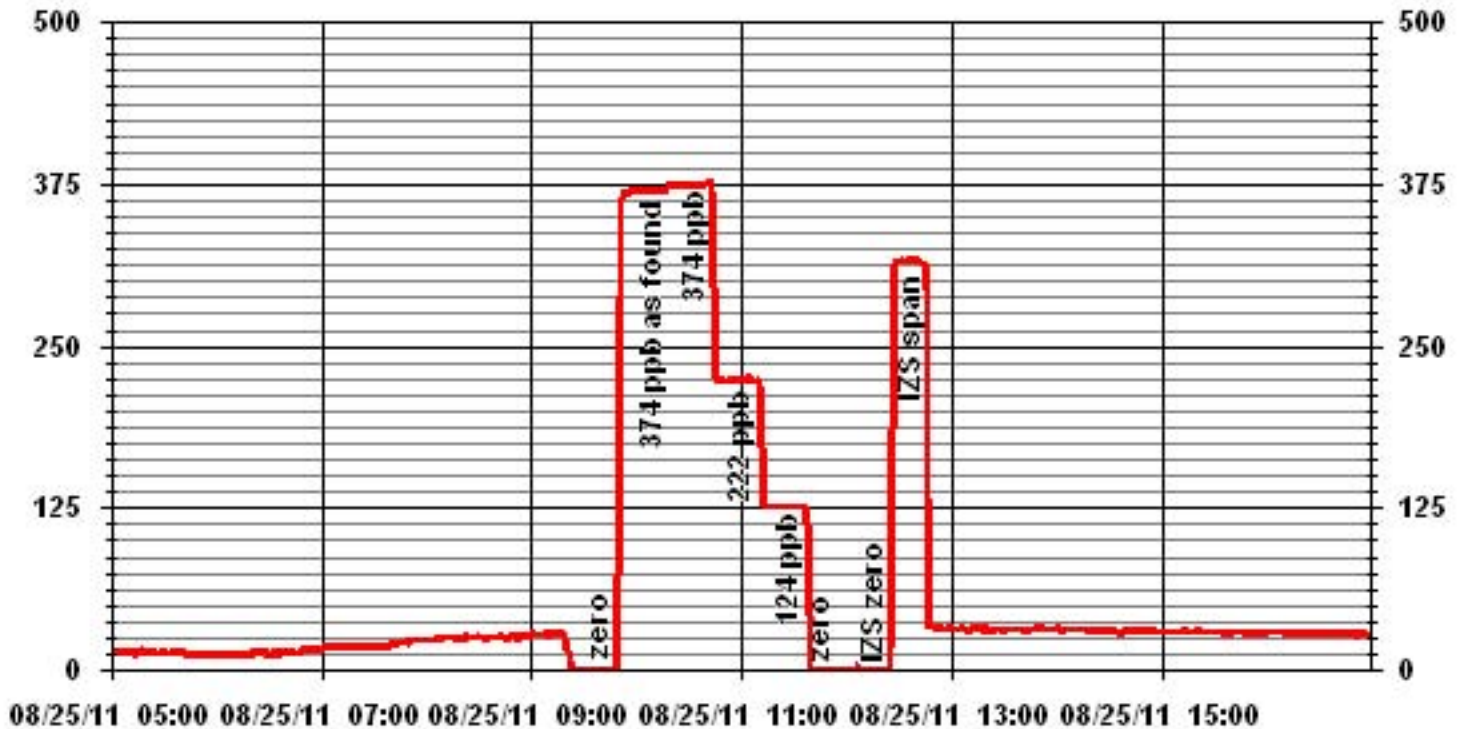
Calibration Date	August 25, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	9:05	End Time (MST)	12:50

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	0.999947 0.999626 1.067257
0	0	n/a			
124	126	0.9841			
222	224	0.9911			
374	374	1.0000			



Notes:

01 Minute Averages



O₃ Calibration Report

Station Information

Calibration Date	August 30, 2011	Previous Calibration	August 25, 2011
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	9:50	End Time (MST)	13:01
Reason:	Post Repair Calibration		
Barometric Pressure	0.929 atm	Station Temperature	21 Deg C
DAS Output Voltage	0 - 10 Volts		

Equipment Information

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

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 500 ppb			
Cell A Flow / Cell B Flow	751 ccm	762 ccm	751 ccm	763 ccm
Pressure	696 mmHg		696 mmHg	
Bench Lamp	54.1 Deg C		54.1 Deg C	
O3 Lamp / Box Temp	68.2 Deg C	32.1 Deg C	68.2 Deg C	32.7 Deg C
Offset / Slope	0	0.948	0	0.948

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	NA
	No Zero Adj			
4995	420	374	371	1.0081
	No Span Adj			
4995	250	222	222	1.0000
4995	140	124	124	1.0000
4995	0	0	0	NA
Sum of Least Squares				1.0055
New Correction Factor				1.0081

Before Calibration

After Calibration

Auto Zero	NA	-0.1
Auto Span	NA	311.0
Sample Lines Connected		YES
Previous Calibration Correction Factor:		1.0000
Current Correctio Factor Before Span Adjust:		1.0081
Percent Change:		-0.8%

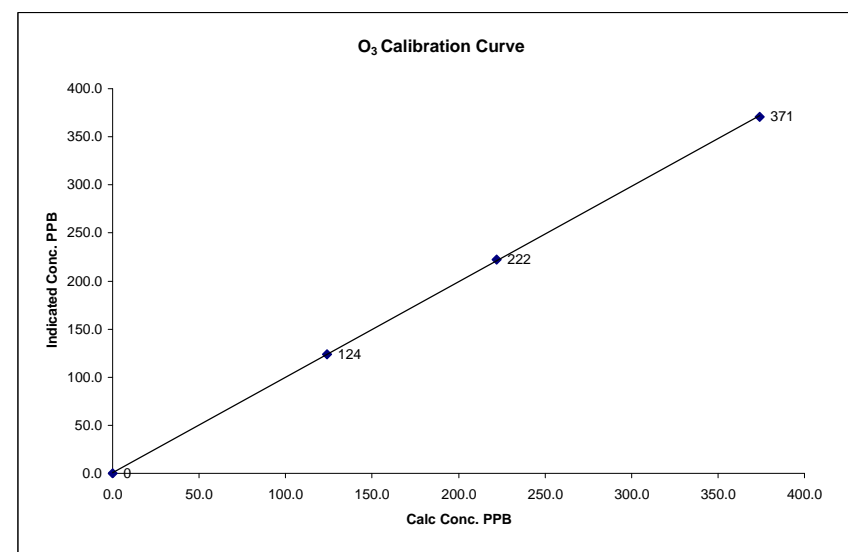
Note: NA : Not Applicable

Calibration Performed by: Ting Xu

O₃ Calibration Curve

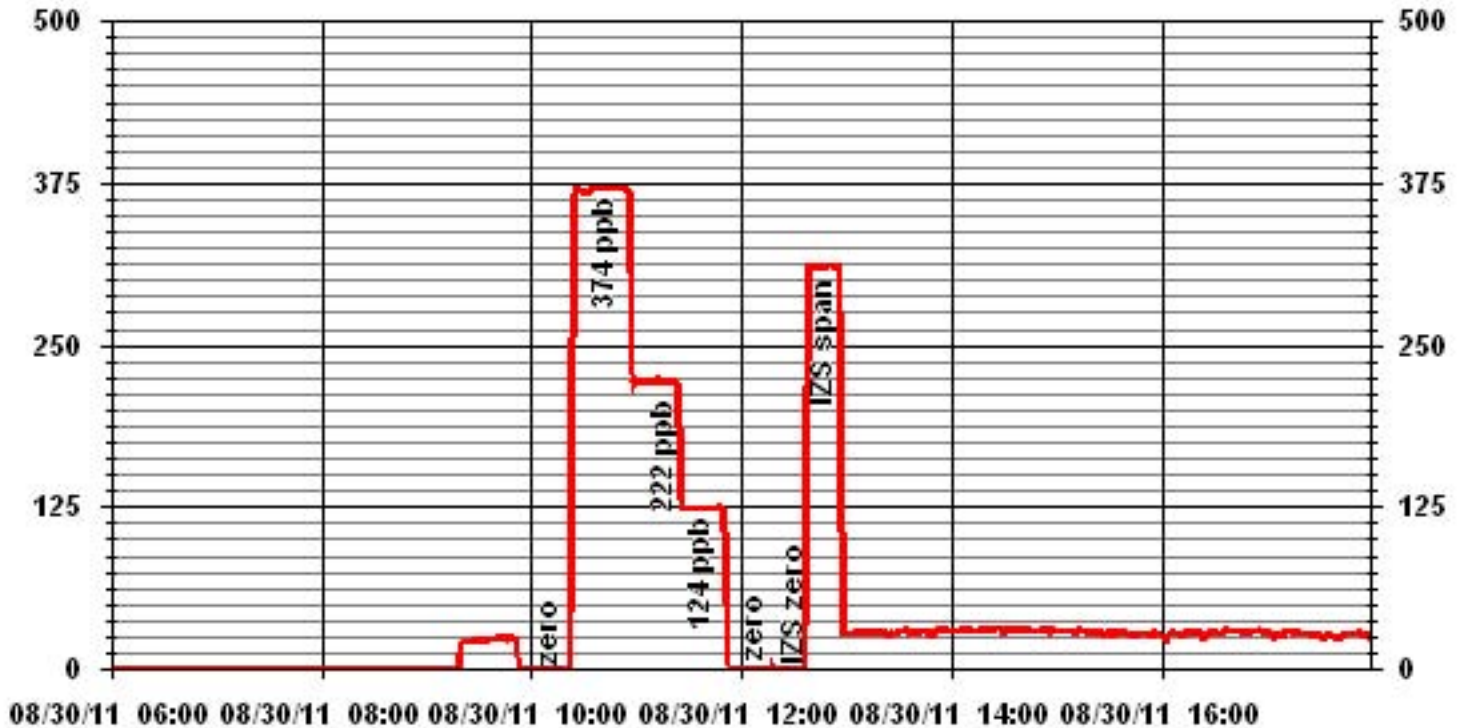
Calibration Date	August 30, 2011		
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	9:50	End Time (MST)	13:01

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	0.999970 0.992233 0.647993
0	0	n/a			
124	124	1.0000			
222	222	1.0000			
374	371	1.0081			



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	August 24, 2011	Previous Calibration:	July 14, 2011
Company:	Lakeland Industry and Community Association		
Plant / Location:	Portable Station Devon Wellsite 13-16-62-5W4M		
Start Time (MST)	10:15	End Time (MST)	13:53
Reason:	Monthly Calibration		
Barometric Pressure:	0.934 atm	Station Temperature:	23 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	CH4 980 PPM	C3H8 304 PPM	
	TOTAL CH4 1816.0 PPM	Gas Cyl. # LL84144	Cal Gas Expiry Date: December 3, 2013
DAS make & Model:	ESC 8832	S/N :	AO 717
Chart Recorder:	NA	S/N:	NA
Output Voltage Range:	0 - 10 VDC	Chart Speed:	NA mm/hr

Analyzer Information

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

	Before Calibration		After Calibration	
Concentration Range	0 - 50	ppm	0 - 50	ppm
Sample Pressure	6.8	psi	6.8	psi
Hydrogen Pressure	8	psi	8	psi
Air Pressure	21	psi	21	psi

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
1999	0.0	0.0	0.0	NA
	No Zero Adj			
3000	70.0	41.4	42.1	0.9835
3000	70.0	41.4	41.5	0.9978
3000	35.0	20.9	20.4	1.0266
3000	20.0	12.0	11.7	1.0279
1999	0.0	0.0	0.0	NA
New Correction Factor:				0.9978

Percent Change

Previous Calibration Correction Factor:	0.9931
Current Correction Factor Before Span Adjust:	0.9835
Percent Change:	1.0%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-0.1	0.0
Auto Span	34.3	33.8
Sample Lines Connected		YES

Cylinder Pressures			
Span	700 psi	Hydrogen	400 psi
		Zero Air	35 psi

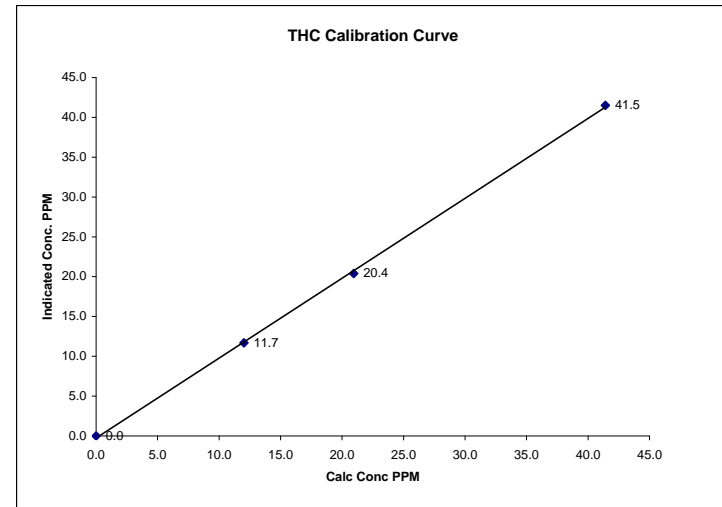
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

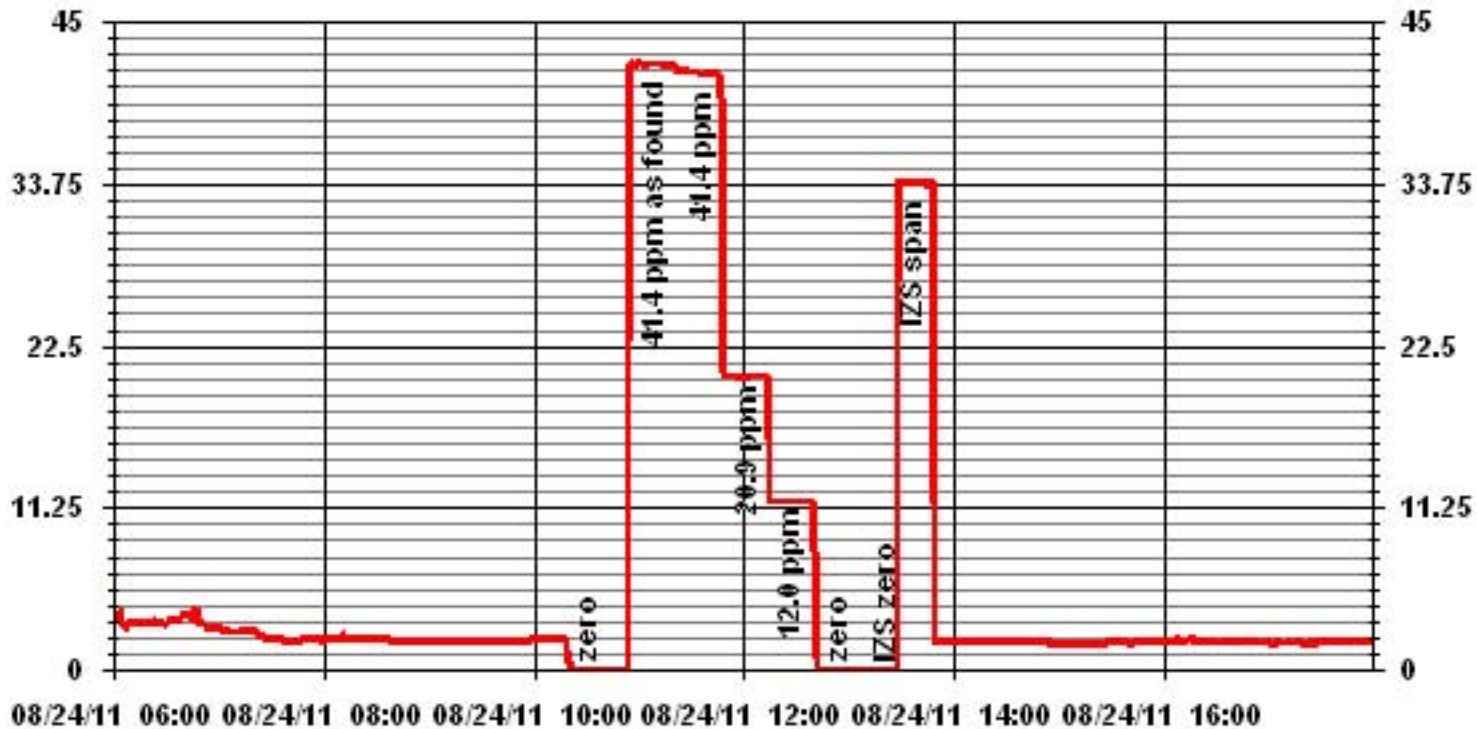
Calibration Date	August 24, 2011
Company	Lakeland Industry and Community Association
Plant / Location	Portable Station Devon Wellsite 13-16-62-5W4M
Start Time (MST)	10:15
End Time (MST)	13:53

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope (0.85 to 1.15)	Correlation Coefficient Intercept (±3% F.S.)
0.0	0.0	NA	1.003267	-0.25474
12.0	11.7	1.0279		
20.9	20.4	1.0266		
41.4	41.5	0.9978		



Notes:

01 Minute Averages



Volatile Organics Laboratory Analysis

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: 13-16-62-5 W4M Canister ID: 7812
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Jul 29, 11 @ 15:11 mst
Field Sample ID: LICA VOC/PORT/ Aug 01, 11 Canister Removal Date/Time: Aug 02, 11 @ 8:53 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
1-Aug-11	08/01/2011 0:00	08/02/2011 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1472	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	20

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 # 05454

Technician Signiture: Ting Xu_____



Your C.O.C. #: 05454

Attention: Michael Bisaga

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

Report Date: 2011/08/17

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1B6624

Received: 2011/08/04, 09:25

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	1	N/A	2011/08/13	BRL SOP-00304	EPA TO-15
Canister Pressure (TO-15)	1	N/A	2011/08/14	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/08/13	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/08/14	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Maxxam Job #: B1B6624
 Report Date: 2011/08/17

RESULTS OF ANALYSES OF AIR

Maxxam ID		KK3198		KK3199	
Sampling Date		2011/08/01		2011/08/01	
COC Number		05454		05454	
	Units	LICA VOC\CLSAUG 01,11 - 7849	QC Batch	LICA VOC\PORTAUG 01,11 - 7812	QC Batch

Volatile Organics					
Pressure on Receipt	psig	21	2583721	21	2582314

QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KK3198				
Sampling Date		2011/08/01				
COC Number		05454				
	Units	LICA VOC\CLSIAUG 01,11 - 7849	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2583956
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2583956
Propene	ppbv	<0.30	0.30	<0.516	0.516	2583956
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2583956
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2583956
Dichlorodifluoromethane (FREON 12)	ppbv	0.72	0.20	3.54	0.989	2583956
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2583956
Chloromethane	ppbv	0.64	0.30	1.32	0.620	2583956
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2583956
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2583956
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2583956
Trichlorofluoromethane (FREON 11)	ppbv	0.32	0.20	1.82	1.12	2583956
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2583956
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2583956
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2583956
2-Propanone	ppbv	3.77	0.80	8.95	1.90	2583956
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2583956
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2583956
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2583956
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2583956
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2583956
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2583956
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2583956
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2583956
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2583956
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2583956
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2583956
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2583956
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2583956
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2583956
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2583956

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KK3198				
Sampling Date		2011/08/01				
COC Number		05454				
	Units	LICA VOC\CLSIAUG 01,11 - 7849	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2583956
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2583956
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2583956
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2583956
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2583956
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2583956
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2583956
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2583956
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2583956
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2583956
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2583956
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2583956
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2583956
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2583956
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2583956
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2583956
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2583956
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2583956
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2583956
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2583956
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2583956
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2583956
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2583956
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2583956
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2583956
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2583956
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2583956
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2583956
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2583956
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2583956
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2583956
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2583956
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2583956
QC Batch = Quality Control Batch						

Maxxam Job #: B1B6624
 Report Date: 2011/08/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KK3198				
Sampling Date		2011/08/01				
COC Number		05454				
	Units	LICA VOC\CLSIAUG 01,11 - 7849	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	91		N/A	N/A	2583956
D5-Chlorobenzene	%	91		N/A	N/A	2583956
Difluorobenzene	%	92		N/A	N/A	2583956

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

Maxxam Job #: B1B6624
 Report Date: 2011/08/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KK3199				
Sampling Date		2011/08/01				
COC Number		05454				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORTAUG				
		01,11 - 7812				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2582319
Carbon Disulfide	ppbv	1.66	0.50	5.18	1.56	2582319
Propene	ppbv	<0.30	0.30	<0.516	0.516	2582319
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2582319
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2582319
Dichlorodifluoromethane (FREON 12)	ppbv	0.73	0.20	3.59	0.989	2582319
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2582319
Chloromethane	ppbv	0.69	0.30	1.43	0.620	2582319
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2582319
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2582319
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2582319
Trichlorofluoromethane (FREON 11)	ppbv	0.34	0.20	1.88	1.12	2582319
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2582319
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2582319
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2582319
2-Propanone	ppbv	4.38	0.80	10.4	1.90	2582319
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2582319
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2582319
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2582319
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2582319
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2582319
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2582319
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2582319
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2582319
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2582319
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2582319
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2582319
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2582319
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2582319
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2582319
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2582319

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1B6624
 Report Date: 2011/08/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KK3199				
Sampling Date		2011/08/01				
COC Number		05454				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/AUG				
		01,11 - 7812				
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2582319
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2582319
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2582319
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2582319
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2582319
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2582319
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2582319
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2582319
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2582319
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2582319
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2582319
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2582319
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2582319
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2582319
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2582319
p+m-Xylene	ppbv	0.49	0.37	2.14	1.61	2582319
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2582319
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2582319
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2582319
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2582319
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2582319
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2582319
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2582319
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2582319
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2582319
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2582319
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2582319
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2582319
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2582319
Cyclohexane	ppbv	0.38	0.20	1.30	0.688	2582319
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2582319
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2582319
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2582319
QC Batch = Quality Control Batch						

Maxxam Job #: B1B6624
 Report Date: 2011/08/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KK3199				
Sampling Date		2011/08/01				
COC Number		05454				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\PORTAUG				
		01,11 - 7812				

Surrogate Recovery (%)						
Bromochloromethane	%	90		N/A	N/A	2582319
D5-Chlorobenzene	%	94		N/A	N/A	2582319
Difluorobenzene	%	92		N/A	N/A	2582319

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

Maxxam Job #: B1B6624
Report Date: 2011/08/17

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1B6624

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2582319 LSY	Spiked Blank	Bromochloromethane	2011/08/13		97	%	60 - 140
		D5-Chlorobenzene	2011/08/13		98	%	60 - 140
		Difluorobenzene	2011/08/13		99	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/13		99	%	70 - 130
		Carbon Disulfide	2011/08/13		93	%	70 - 130
		Propene	2011/08/13		95	%	70 - 130
		Vinyl Acetate	2011/08/13		101	%	70 - 130
		Vinyl Bromide	2011/08/13		101	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/08/13		98	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/08/13		113	%	70 - 130
		Chloromethane	2011/08/13		100	%	70 - 130
		Vinyl Chloride	2011/08/13		100	%	70 - 130
		Chloroethane	2011/08/13		99	%	70 - 130
		1,3-Butadiene	2011/08/13		87	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/08/13		98	%	70 - 130
		Trichlorotrifluoroethane	2011/08/13		99	%	70 - 130
		Ethanol	2011/08/13		99	%	70 - 130
		2-propanol	2011/08/13		102	%	70 - 130
		2-Propanone	2011/08/13		103	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/08/13		94	%	70 - 130
		Methyl Isobutyl Ketone	2011/08/13		93	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/08/13		93	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/08/13		100	%	70 - 130
		Ethyl Acetate	2011/08/13		100	%	70 - 130
		1,1-Dichloroethylene	2011/08/13		100	%	70 - 130
		cis-1,2-Dichloroethylene	2011/08/13		99	%	70 - 130
		trans-1,2-Dichloroethylene	2011/08/13		101	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/08/13		89	%	70 - 130
		Chloroform	2011/08/13		100	%	70 - 130
		Carbon Tetrachloride	2011/08/13		102	%	70 - 130
		1,1-Dichloroethane	2011/08/13		100	%	70 - 130
		1,2-Dichloroethane	2011/08/13		100	%	70 - 130
		Ethylene Dibromide	2011/08/13		95	%	70 - 130
		1,1,1-Trichloroethane	2011/08/13		97	%	70 - 130
		1,1,2-Trichloroethane	2011/08/13		97	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/08/13		82	%	70 - 130
		cis-1,3-Dichloropropene	2011/08/13		100	%	70 - 130
		trans-1,3-Dichloropropene	2011/08/13		98	%	70 - 130
		1,2-Dichloropropane	2011/08/13		98	%	70 - 130
		Bromomethane	2011/08/13		99	%	70 - 130
		Bromoform	2011/08/13		111	%	70 - 130
		Bromodichloromethane	2011/08/13		104	%	70 - 130
		Dibromochloromethane	2011/08/13		110	%	70 - 130
		Heptane	2011/08/13		99	%	70 - 130
		Trichloroethylene	2011/08/13		95	%	70 - 130
		Tetrachloroethylene	2011/08/13		96	%	70 - 130
		Benzene	2011/08/13		97	%	70 - 130
		Toluene	2011/08/13		97	%	70 - 130
		Ethylbenzene	2011/08/13		95	%	70 - 130
		p+m-Xylene	2011/08/13		93	%	70 - 130
		o-Xylene	2011/08/13		92	%	70 - 130
		Styrene	2011/08/13		90	%	70 - 130
		1,3,5-Trimethylbenzene	2011/08/13		80	%	70 - 130
		1,2,4-Trimethylbenzene	2011/08/13		74	%	70 - 130
		4-ethyltoluene	2011/08/13		83	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1B6624

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2582319 LSY	Spiked Blank	Chlorobenzene	2011/08/13		94	%	70 - 130
		Benzyl chloride	2011/08/13		76	%	70 - 130
		1,3-Dichlorobenzene	2011/08/13		75	%	70 - 130
		1,4-Dichlorobenzene	2011/08/13		75	%	70 - 130
		1,2-Dichlorobenzene	2011/08/13		71	%	70 - 130
		1,2,4-Trichlorobenzene	2011/08/13		75	%	70 - 130
		Hexachlorobutadiene	2011/08/13		87	%	70 - 130
		Hexane	2011/08/13		99	%	70 - 130
		Cyclohexane	2011/08/13		98	%	70 - 130
		Tetrahydrofuran	2011/08/13		99	%	70 - 130
		1,4-Dioxane	2011/08/13		87	%	70 - 130
	Method Blank	Bromochloromethane	2011/08/13		91	%	60 - 140
		D5-Chlorobenzene	2011/08/13		92	%	60 - 140
		Difluorobenzene	2011/08/13		92	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/13	<0.20		ppbv	
		Carbon Disulfide	2011/08/13	<0.50		ppbv	
		Propene	2011/08/13	<0.30		ppbv	
		Vinyl Acetate	2011/08/13	<0.20		ppbv	
		Vinyl Bromide	2011/08/13	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/08/13	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/08/13	<0.17		ppbv	
		Chloromethane	2011/08/13	<0.30		ppbv	
		Vinyl Chloride	2011/08/13	<0.18		ppbv	
		Chloroethane	2011/08/13	<0.30		ppbv	
		1,3-Butadiene	2011/08/13	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/08/13	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/08/13	<0.15		ppbv	
		Ethanol	2011/08/13	<2.3		ppbv	
		2-propanol	2011/08/13	<3.0		ppbv	
		2-Propanone	2011/08/13	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/08/13	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/08/13	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/08/13	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/08/13	<0.20		ppbv	
		Ethyl Acetate	2011/08/13	<2.2		ppbv	
		1,1-Dichloroethylene	2011/08/13	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/08/13	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/08/13	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/08/13	<0.80		ppbv	
		Chloroform	2011/08/13	<0.15		ppbv	
		Carbon Tetrachloride	2011/08/13	<0.30		ppbv	
		1,1-Dichloroethane	2011/08/13	<0.20		ppbv	
		1,2-Dichloroethane	2011/08/13	<0.20		ppbv	
		Ethylene Dibromide	2011/08/13	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/08/13	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/08/13	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/08/13	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/08/13	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/08/13	<0.17		ppbv	
		1,2-Dichloropropane	2011/08/13	<0.40		ppbv	
		Bromomethane	2011/08/13	<0.18		ppbv	
		Bromoform	2011/08/13	<0.20		ppbv	
		Bromodichloromethane	2011/08/13	<0.20		ppbv	
		Dibromochloromethane	2011/08/13	<0.20		ppbv	
		Heptane	2011/08/13	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1B6624

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2582319 LSY	Method Blank	Trichloroethylene	2011/08/13	<0.30		ppbv	
		Tetrachloroethylene	2011/08/13	<0.20		ppbv	
		Benzene	2011/08/13	<0.18		ppbv	
		Toluene	2011/08/13	<0.20		ppbv	
		Ethylbenzene	2011/08/13	<0.20		ppbv	
		p+m-Xylene	2011/08/13	<0.37		ppbv	
		o-Xylene	2011/08/13	<0.20		ppbv	
		Styrene	2011/08/13	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/08/13	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/08/13	<0.50		ppbv	
		4-ethyltoluene	2011/08/13	<2.2		ppbv	
		Chlorobenzene	2011/08/13	<0.20		ppbv	
		Benzyl chloride	2011/08/13	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/08/13	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/08/13	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/08/13	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/08/13	<2.0		ppbv	
		Hexachlorobutadiene	2011/08/13	<3.0		ppbv	
		Hexane	2011/08/13	<0.30		ppbv	
		Cyclohexane	2011/08/13	<0.20		ppbv	
Tetrahydrofuran	2011/08/13	<0.40		ppbv			
1,4-Dioxane	2011/08/13	<2.0		ppbv			
Xylene (Total)	2011/08/13	<0.60		ppbv			
2583956 DBJ	Spiked Blank	Bromochloromethane	2011/08/14		99	%	60 - 140
		D5-Chlorobenzene	2011/08/14		98	%	60 - 140
		Difluorobenzene	2011/08/14		100	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/14		101	%	70 - 130
		Carbon Disulfide	2011/08/14		95	%	70 - 130
		Propene	2011/08/14		99	%	70 - 130
		Vinyl Acetate	2011/08/14		103	%	70 - 130
		Vinyl Bromide	2011/08/14		102	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/08/14		98	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/08/14		116	%	70 - 130
		Chloromethane	2011/08/14		103	%	70 - 130
		Vinyl Chloride	2011/08/14		103	%	70 - 130
		Chloroethane	2011/08/14		101	%	70 - 130
		1,3-Butadiene	2011/08/14		89	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/08/14		99	%	70 - 130
		Trichlorotrifluoroethane	2011/08/14		100	%	70 - 130
		Ethanol	2011/08/14		91	%	70 - 130
		2-propanol	2011/08/14		102	%	70 - 130
		2-Propanone	2011/08/14		106	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/08/14		96	%	70 - 130
		Methyl Isobutyl Ketone	2011/08/14		96	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/08/14		96	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/08/14		101	%	70 - 130
		Ethyl Acetate	2011/08/14		103	%	70 - 130
		1,1-Dichloroethylene	2011/08/14		101	%	70 - 130
		cis-1,2-Dichloroethylene	2011/08/14		101	%	70 - 130
		trans-1,2-Dichloroethylene	2011/08/14		103	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/08/14		91	%	70 - 130
		Chloroform	2011/08/14		102	%	70 - 130
		Carbon Tetrachloride	2011/08/14		103	%	70 - 130
1,1-Dichloroethane	2011/08/14		102	%	70 - 130		
1,2-Dichloroethane	2011/08/14		101	%	70 - 130		

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1B6624

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2583956 DBJ	Spiked Blank	Ethylene Dibromide	2011/08/14		98	%	70 - 130
		1,1,1-Trichloroethane	2011/08/14		98	%	70 - 130
		1,1,2-Trichloroethane	2011/08/14		99	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/08/14		85	%	70 - 130
		cis-1,3-Dichloropropene	2011/08/14		102	%	70 - 130
		trans-1,3-Dichloropropene	2011/08/14		100	%	70 - 130
		1,2-Dichloropropane	2011/08/14		100	%	70 - 130
		Bromomethane	2011/08/14		101	%	70 - 130
		Bromoform	2011/08/14		114	%	70 - 130
		Bromodichloromethane	2011/08/14		105	%	70 - 130
		Dibromochloromethane	2011/08/14		114	%	70 - 130
		Heptane	2011/08/14		101	%	70 - 130
		Trichloroethylene	2011/08/14		96	%	70 - 130
		Tetrachloroethylene	2011/08/14		97	%	70 - 130
		Benzene	2011/08/14		99	%	70 - 130
		Toluene	2011/08/14		98	%	70 - 130
		Ethylbenzene	2011/08/14		96	%	70 - 130
		p+m-Xylene	2011/08/14		94	%	70 - 130
		o-Xylene	2011/08/14		94	%	70 - 130
		Styrene	2011/08/14		91	%	70 - 130
		1,3,5-Trimethylbenzene	2011/08/14		81	%	70 - 130
		1,2,4-Trimethylbenzene	2011/08/14		77	%	70 - 130
		4-ethyltoluene	2011/08/14		86	%	70 - 130
		Chlorobenzene	2011/08/14		95	%	70 - 130
		Benzyl chloride	2011/08/14		79	%	70 - 130
		1,3-Dichlorobenzene	2011/08/14		78	%	70 - 130
		1,4-Dichlorobenzene	2011/08/14		77	%	70 - 130
		1,2-Dichlorobenzene	2011/08/14		73	%	70 - 130
		1,2,4-Trichlorobenzene	2011/08/14		75	%	70 - 130
		Hexachlorobutadiene	2011/08/14		86	%	70 - 130
		Hexane	2011/08/14		102	%	70 - 130
		Cyclohexane	2011/08/14		101	%	70 - 130
		Tetrahydrofuran	2011/08/14		102	%	70 - 130
		1,4-Dioxane	2011/08/14		84	%	70 - 130
	Method Blank	Bromochloromethane	2011/08/14		91	%	60 - 140
		D5-Chlorobenzene	2011/08/14		91	%	60 - 140
		Difluorobenzene	2011/08/14		93	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/14	<0.20		ppbv	
		Carbon Disulfide	2011/08/14	<0.50		ppbv	
		Propene	2011/08/14	<0.30		ppbv	
		Vinyl Acetate	2011/08/14	<0.20		ppbv	
		Vinyl Bromide	2011/08/14	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/08/14	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/08/14	<0.17		ppbv	
		Chloromethane	2011/08/14	<0.30		ppbv	
		Vinyl Chloride	2011/08/14	<0.18		ppbv	
		Chloroethane	2011/08/14	<0.30		ppbv	
		1,3-Butadiene	2011/08/14	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/08/14	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/08/14	<0.15		ppbv	
		Ethanol	2011/08/14	<2.3		ppbv	
		2-propanol	2011/08/14	<3.0		ppbv	
		2-Propanone	2011/08/14	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/08/14	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/08/14	<3.2		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1B6624

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2583956 DBJ	Method Blank	Methyl Butyl Ketone (2-Hexanone)	2011/08/14	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/08/14	<0.20		ppbv	
		Ethyl Acetate	2011/08/14	<2.2		ppbv	
		1,1-Dichloroethylene	2011/08/14	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/08/14	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/08/14	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/08/14	<0.80		ppbv	
		Chloroform	2011/08/14	<0.15		ppbv	
		Carbon Tetrachloride	2011/08/14	<0.30		ppbv	
		1,1-Dichloroethane	2011/08/14	<0.20		ppbv	
		1,2-Dichloroethane	2011/08/14	<0.20		ppbv	
		Ethylene Dibromide	2011/08/14	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/08/14	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/08/14	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/08/14	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/08/14	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/08/14	<0.17		ppbv	
		1,2-Dichloropropane	2011/08/14	<0.40		ppbv	
		Bromomethane	2011/08/14	<0.18		ppbv	
		Bromoform	2011/08/14	<0.20		ppbv	
		Bromodichloromethane	2011/08/14	<0.20		ppbv	
		Dibromochloromethane	2011/08/14	<0.20		ppbv	
		Heptane	2011/08/14	<0.30		ppbv	
		Trichloroethylene	2011/08/14	<0.30		ppbv	
		Tetrachloroethylene	2011/08/14	<0.20		ppbv	
		Benzene	2011/08/14	<0.18		ppbv	
		Toluene	2011/08/14	<0.20		ppbv	
		Ethylbenzene	2011/08/14	<0.20		ppbv	
		p+m-Xylene	2011/08/14	<0.37		ppbv	
		o-Xylene	2011/08/14	<0.20		ppbv	
		Styrene	2011/08/14	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/08/14	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/08/14	<0.50		ppbv	
		4-ethyltoluene	2011/08/14	<2.2		ppbv	
		Chlorobenzene	2011/08/14	<0.20		ppbv	
		Benzyl chloride	2011/08/14	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/08/14	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/08/14	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/08/14	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/08/14	<2.0		ppbv	
		Hexachlorobutadiene	2011/08/14	<3.0		ppbv	
		Hexane	2011/08/14	<0.30		ppbv	
		Cyclohexane	2011/08/14	<0.20		ppbv	
		Tetrahydrofuran	2011/08/14	<0.40		ppbv	
		1,4-Dioxane	2011/08/14	<2.0		ppbv	
		Xylene (Total)	2011/08/14	<0.60		ppbv	
	RPD - Sample/Sample Dup	Vinyl Chloride	2011/08/14	NC		%	25
		cis-1,2-Dichloroethylene	2011/08/14	NC		%	25
		trans-1,2-Dichloroethylene	2011/08/14	NC		%	25
		Trichloroethylene	2011/08/14	NC		%	25
		Tetrachloroethylene	2011/08/14	NC		%	25

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

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

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

Maxxam Job Number: GB1B6624

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: 13-16-62-5 W4M Canister ID: 7909
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Aug 05, 11 @ 14:22 mst
Field Sample ID: LICA VOC/PORT/ Aug 07, 11 Canister Removal Date/Time: Aug 09, 11 @ 13:48 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
07-Aug-11	08/07/2011 0:00	08/08/2011 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1472	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	20

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 # 4854

Technician Signiture: Ting Xu_____

Your C.O.C. #: 4854

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

Report Date: 2011/08/22

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1C1925****Received: 2011/08/12, 09:45**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	1	N/A	2011/08/17	BRL SOP-00304	EPA TO-15
Canister Pressure (TO-15)	1	N/A	2011/08/18	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/08/17	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	1	N/A	2011/08/18	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 #: B1C1925
 Report Date: 2011/08/22

RESULTS OF ANALYSES OF AIR

Maxxam ID		KN0298		KN0299	
Sampling Date		2011/08/07		2011/08/07	
COC Number		4854		4854	
	Units	LICA VOC/PORT/AUG 7,11 - 7909	QC Batch	LICA VOC/CLS/AUG 7,11/ - 7614	QC Batch

Volatile Organics					
Pressure on Receipt	psig	20	2586297	21	2587740

QC Batch = Quality Control Batch

Maxxam Job #: B1C1925
 Report Date: 2011/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KN0298				
Sampling Date		2011/08/07				
COC Number		4854				
	Units	LICA VOC/PORT/AUG 7,11 - 7909	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2586310
Carbon Disulfide	ppbv	4.10	0.50	12.8	1.56	2586310
Propene	ppbv	<0.30	0.30	<0.516	0.516	2586310
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2586310
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2586310
Dichlorodifluoromethane (FREON 12)	ppbv	0.67	0.20	3.30	0.989	2586310
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2586310
Chloromethane	ppbv	0.64	0.30	1.32	0.620	2586310
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2586310
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2586310
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2586310
Trichlorofluoromethane (FREON 11)	ppbv	0.31	0.20	1.75	1.12	2586310
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2586310
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2586310
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2586310
2-Propanone	ppbv	5.16	0.80	12.2	1.90	2586310
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2586310
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2586310
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2586310
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2586310
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2586310
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2586310
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2586310
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2586310
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2586310
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2586310
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2586310
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2586310
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2586310
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2586310
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2586310

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1C1925
 Report Date: 2011/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KN0298				
Sampling Date		2011/08/07				
COC Number		4854				
	Units	LICA VOC/PORT/AUG 7,11 - 7909	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2586310
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2586310
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2586310
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2586310
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2586310
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2586310
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2586310
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2586310
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2586310
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2586310
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2586310
Tetrachloroethylene	ppbv	0.95	0.20	6.45	1.36	2586310
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2586310
Toluene	ppbv	0.55	0.20	2.07	0.753	2586310
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2586310
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2586310
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2586310
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2586310
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2586310
1,2,4-Trimethylbenzene	ppbv	1.05	0.50	5.15	2.46	2586310
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2586310
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2586310
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2586310
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2586310
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2586310
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2586310
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2586310
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2586310
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2586310
Cyclohexane	ppbv	0.82	0.20	2.82	0.688	2586310
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2586310
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2586310
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2586310
QC Batch = Quality Control Batch						

Maxxam Job #: B1C1925
 Report Date: 2011/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KN0298				
Sampling Date		2011/08/07				
COC Number		4854				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/AUG				
		7,11 - 7909				

Surrogate Recovery (%)						
Bromochloromethane	%	90		N/A	N/A	2586310
D5-Chlorobenzene	%	97		N/A	N/A	2586310
Difluorobenzene	%	93		N/A	N/A	2586310

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

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KN0299				
Sampling Date		2011/08/07				
COC Number		4854				
	Units	LICA VOC/CLS/AUG 7,11/ - 7614	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2589619
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2589619
Propene	ppbv	<0.30	0.30	<0.516	0.516	2589619
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2589619
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2589619
Dichlorodifluoromethane (FREON 12)	ppbv	0.67	0.20	3.32	0.989	2589619
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2589619
Chloromethane	ppbv	0.55	0.30	1.13	0.620	2589619
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2589619
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2589619
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2589619
Trichlorofluoromethane (FREON 11)	ppbv	0.33	0.20	1.87	1.12	2589619
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2589619
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2589619
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2589619
2-Propanone	ppbv	2.77	0.80	6.58	1.90	2589619
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2589619
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2589619
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2589619
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2589619
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2589619
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2589619
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2589619
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2589619
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2589619
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2589619
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2589619
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2589619
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2589619
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2589619
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2589619
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KN0299				
Sampling Date		2011/08/07				
COC Number		4854				
	Units	LICA VOC/CLS/AUG 7,11/ - 7614	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2589619
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2589619
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2589619
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2589619
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2589619
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2589619
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2589619
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2589619
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2589619
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2589619
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2589619
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2589619
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2589619
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2589619
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2589619
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2589619
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2589619
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2589619
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2589619
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2589619
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2589619
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2589619
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2589619
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2589619
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2589619
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2589619
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2589619
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2589619
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2589619
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2589619
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2589619
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2589619
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2589619
QC Batch = Quality Control Batch						

Maxxam Job #: B1C1925
 Report Date: 2011/08/22

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KN0299				
Sampling Date		2011/08/07				
COC Number		4854				
	Units	LICA VOC/CLS/AUG 7,11/ - 7614	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	87		N/A	N/A	2589619
D5-Chlorobenzene	%	90		N/A	N/A	2589619
Difluorobenzene	%	87		N/A	N/A	2589619

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

Maxxam Job #: B1C1925
 Report Date: 2011/08/22

Test Summary

Maxxam ID KN0298 **Collected** 2011/08/07
Sample ID LICA VOC/PORT/AUG 7,11 - 7909 **Shipped**
Matrix AIR **Received** 2011/08/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2586297	N/A	2011/08/17	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2586310	N/A	2011/08/17	YAO LIANG SUN

Maxxam ID KN0299 **Collected** 2011/08/07
Sample ID LICA VOC/CLS/AUG 7,11/ - 7614 **Shipped**
Matrix AIR **Received** 2011/08/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2587740	N/A	2011/08/18	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2589619	N/A	2011/08/18	YAO LIANG SUN

Maxxam Job #: B1C1925
Report Date: 2011/08/22

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1C1925

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2586310 LSY	Spiked Blank	Bromochloromethane	2011/08/17		98	%	60 - 140
		D5-Chlorobenzene	2011/08/17		105	%	60 - 140
		Difluorobenzene	2011/08/17		101	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/17		93	%	70 - 130
		Carbon Disulfide	2011/08/17		91	%	70 - 130
		Propene	2011/08/17		86	%	70 - 130
		Vinyl Acetate	2011/08/17		88	%	70 - 130
		Vinyl Bromide	2011/08/17		101	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/08/17		93	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/08/17		111	%	70 - 130
		Chloromethane	2011/08/17		93	%	70 - 130
		Vinyl Chloride	2011/08/17		96	%	70 - 130
		Chloroethane	2011/08/17		95	%	70 - 130
		1,3-Butadiene	2011/08/17		76	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/08/17		95	%	70 - 130
		Trichlorotrifluoroethane	2011/08/17		98	%	70 - 130
		Ethanol	2011/08/17		80	%	70 - 130
		2-propanol	2011/08/17		88	%	70 - 130
		2-Propanone	2011/08/17		92	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/08/17		82	%	70 - 130
		Methyl Isobutyl Ketone	2011/08/17		83	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/08/17		82	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/08/17		93	%	70 - 130
		Ethyl Acetate	2011/08/17		88	%	70 - 130
		1,1-Dichloroethylene	2011/08/17		92	%	70 - 130
		cis-1,2-Dichloroethylene	2011/08/17		92	%	70 - 130
		trans-1,2-Dichloroethylene	2011/08/17		93	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/08/17		82	%	70 - 130
		Chloroform	2011/08/17		96	%	70 - 130
		Carbon Tetrachloride	2011/08/17		103	%	70 - 130
		1,1-Dichloroethane	2011/08/17		93	%	70 - 130
		1,2-Dichloroethane	2011/08/17		90	%	70 - 130
		Ethylene Dibromide	2011/08/17		94	%	70 - 130
		1,1,1-Trichloroethane	2011/08/17		94	%	70 - 130
		1,1,2-Trichloroethane	2011/08/17		96	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/08/17		82	%	70 - 130
		cis-1,3-Dichloropropene	2011/08/17		95	%	70 - 130
		trans-1,3-Dichloropropene	2011/08/17		91	%	70 - 130
		1,2-Dichloropropane	2011/08/17		94	%	70 - 130
		Bromomethane	2011/08/17		99	%	70 - 130
		Bromoform	2011/08/17		120	%	70 - 130
		Bromodichloromethane	2011/08/17		100	%	70 - 130
		Dibromochloromethane	2011/08/17		114	%	70 - 130
		Heptane	2011/08/17		87	%	70 - 130
		Trichloroethylene	2011/08/17		97	%	70 - 130
		Tetrachloroethylene	2011/08/17		99	%	70 - 130
		Benzene	2011/08/17		94	%	70 - 130
		Toluene	2011/08/17		94	%	70 - 130
		Ethylbenzene	2011/08/17		92	%	70 - 130
		p+m-Xylene	2011/08/17		90	%	70 - 130
		o-Xylene	2011/08/17		90	%	70 - 130
		Styrene	2011/08/17		89	%	70 - 130
		1,3,5-Trimethylbenzene	2011/08/17		79	%	70 - 130
		1,2,4-Trimethylbenzene	2011/08/17		74	%	70 - 130
		4-ethyltoluene	2011/08/17		83	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C1925

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2586310 LSY	Spiked Blank	Chlorobenzene	2011/08/17		95	%	70 - 130
		Benzyl chloride	2011/08/17		75	%	70 - 130
		1,3-Dichlorobenzene	2011/08/17		77	%	70 - 130
		1,4-Dichlorobenzene	2011/08/17		77	%	70 - 130
		1,2-Dichlorobenzene	2011/08/17		73	%	70 - 130
		1,2,4-Trichlorobenzene	2011/08/17		81	%	70 - 130
		Hexachlorobutadiene	2011/08/17		96	%	70 - 130
		Hexane	2011/08/17		92	%	70 - 130
		Cyclohexane	2011/08/17		93	%	70 - 130
		Tetrahydrofuran	2011/08/17		87	%	70 - 130
		1,4-Dioxane	2011/08/17		87	%	70 - 130
	Method Blank	Bromochloromethane	2011/08/17		93	%	60 - 140
		D5-Chlorobenzene	2011/08/17		99	%	60 - 140
		Difluorobenzene	2011/08/17		95	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/17	<0.20		ppbv	
		Carbon Disulfide	2011/08/17	<0.50		ppbv	
		Propene	2011/08/17	<0.30		ppbv	
		Vinyl Acetate	2011/08/17	<0.20		ppbv	
		Vinyl Bromide	2011/08/17	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/08/17	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/08/17	<0.17		ppbv	
		Chloromethane	2011/08/17	<0.30		ppbv	
		Vinyl Chloride	2011/08/17	<0.18		ppbv	
		Chloroethane	2011/08/17	<0.30		ppbv	
		1,3-Butadiene	2011/08/17	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/08/17	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/08/17	<0.15		ppbv	
		Ethanol	2011/08/17	<2.3		ppbv	
		2-propanol	2011/08/17	<3.0		ppbv	
		2-Propanone	2011/08/17	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/08/17	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/08/17	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/08/17	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/08/17	<0.20		ppbv	
		Ethyl Acetate	2011/08/17	<2.2		ppbv	
		1,1-Dichloroethylene	2011/08/17	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/08/17	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/08/17	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/08/17	<0.80		ppbv	
		Chloroform	2011/08/17	<0.15		ppbv	
		Carbon Tetrachloride	2011/08/17	<0.30		ppbv	
		1,1-Dichloroethane	2011/08/17	<0.20		ppbv	
		1,2-Dichloroethane	2011/08/17	<0.20		ppbv	
		Ethylene Dibromide	2011/08/17	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/08/17	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/08/17	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/08/17	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/08/17	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/08/17	<0.17		ppbv	
		1,2-Dichloropropane	2011/08/17	<0.40		ppbv	
		Bromomethane	2011/08/17	<0.18		ppbv	
		Bromoform	2011/08/17	<0.20		ppbv	
		Bromodichloromethane	2011/08/17	<0.20		ppbv	
		Dibromochloromethane	2011/08/17	<0.20		ppbv	
		Heptane	2011/08/17	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C1925

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2586310 LSY	Method Blank	Trichloroethylene	2011/08/17	<0.30		ppbv	
		Tetrachloroethylene	2011/08/17	<0.20		ppbv	
		Benzene	2011/08/17	<0.18		ppbv	
		Toluene	2011/08/17	<0.20		ppbv	
		Ethylbenzene	2011/08/17	<0.20		ppbv	
		p+m-Xylene	2011/08/17	<0.37		ppbv	
		o-Xylene	2011/08/17	<0.20		ppbv	
		Styrene	2011/08/17	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/08/17	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/08/17	<0.50		ppbv	
		4-ethyltoluene	2011/08/17	<2.2		ppbv	
		Chlorobenzene	2011/08/17	<0.20		ppbv	
		Benzyl chloride	2011/08/17	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/08/17	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/08/17	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/08/17	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/08/17	<2.0		ppbv	
		Hexachlorobutadiene	2011/08/17	<3.0		ppbv	
		Hexane	2011/08/17	<0.30		ppbv	
		Cyclohexane	2011/08/17	<0.20		ppbv	
Tetrahydrofuran	2011/08/17	<0.40		ppbv			
1,4-Dioxane	2011/08/17	<2.0		ppbv			
Xylene (Total)	2011/08/17	<0.60		ppbv			
2589619 LSY	Spiked Blank	Bromochloromethane	2011/08/18		103	%	60 - 140
		D5-Chlorobenzene	2011/08/18		108	%	60 - 140
		Difluorobenzene	2011/08/18		106	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/18		84	%	70 - 130
		Carbon Disulfide	2011/08/18		83	%	70 - 130
		Propene	2011/08/18		74	%	70 - 130
		Vinyl Acetate	2011/08/18		75	%	70 - 130
		Vinyl Bromide	2011/08/18		96	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/08/18		87	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/08/18		103	%	70 - 130
		Chloromethane	2011/08/18		83	%	70 - 130
		Vinyl Chloride	2011/08/18		87	%	70 - 130
		Chloroethane	2011/08/18		86	%	70 - 130
		1,3-Butadiene	2011/08/18		66 (1)	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/08/18		87	%	70 - 130
		Trichlorotrifluoroethane	2011/08/18		91	%	70 - 130
		Ethanol	2011/08/18		66 (1)	%	70 - 130
		2-propanol	2011/08/18		79	%	70 - 130
		2-Propanone	2011/08/18		80	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/08/18		71	%	70 - 130
		Methyl Isobutyl Ketone	2011/08/18		71	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/08/18		71	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/08/18		84	%	70 - 130
		Ethyl Acetate	2011/08/18		76	%	70 - 130
		1,1-Dichloroethylene	2011/08/18		83	%	70 - 130
		cis-1,2-Dichloroethylene	2011/08/18		83	%	70 - 130
		trans-1,2-Dichloroethylene	2011/08/18		83	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/08/18		72	%	70 - 130
		Chloroform	2011/08/18		87	%	70 - 130
		Carbon Tetrachloride	2011/08/18		97	%	70 - 130
1,1-Dichloroethane	2011/08/18		84	%	70 - 130		
1,2-Dichloroethane	2011/08/18		80	%	70 - 130		

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C1925

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2589619 LSY	Spiked Blank	Ethylene Dibromide	2011/08/18		89	%	70 - 130
		1,1,1-Trichloroethane	2011/08/18		87	%	70 - 130
		1,1,2-Trichloroethane	2011/08/18		91	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/08/18		77	%	70 - 130
		cis-1,3-Dichloropropene	2011/08/18		88	%	70 - 130
		trans-1,3-Dichloropropene	2011/08/18		84	%	70 - 130
		1,2-Dichloropropane	2011/08/18		86	%	70 - 130
		Bromomethane	2011/08/18		93	%	70 - 130
		Bromoform	2011/08/18		116	%	70 - 130
		Bromodichloromethane	2011/08/18		93	%	70 - 130
		Dibromochloromethane	2011/08/18		110	%	70 - 130
		Heptane	2011/08/18		76	%	70 - 130
		Trichloroethylene	2011/08/18		94	%	70 - 130
		Tetrachloroethylene	2011/08/18		97	%	70 - 130
		Benzene	2011/08/18		87	%	70 - 130
		Toluene	2011/08/18		89	%	70 - 130
		Ethylbenzene	2011/08/18		86	%	70 - 130
		p+m-Xylene	2011/08/18		84	%	70 - 130
		o-Xylene	2011/08/18		84	%	70 - 130
		Styrene	2011/08/18		83	%	70 - 130
		1,3,5-Trimethylbenzene	2011/08/18		75	%	70 - 130
		1,2,4-Trimethylbenzene	2011/08/18		70	%	70 - 130
		4-ethyltoluene	2011/08/18		78	%	70 - 130
		Chlorobenzene	2011/08/18		90	%	70 - 130
		Benzyl chloride	2011/08/18		70	%	70 - 130
		1,3-Dichlorobenzene	2011/08/18		75	%	70 - 130
		1,4-Dichlorobenzene	2011/08/18		74	%	70 - 130
		1,2-Dichlorobenzene	2011/08/18		71	%	70 - 130
		1,2,4-Trichlorobenzene	2011/08/18		81	%	70 - 130
		Hexachlorobutadiene	2011/08/18		95	%	70 - 130
		Hexane	2011/08/18		81	%	70 - 130
		Cyclohexane	2011/08/18		83	%	70 - 130
		Tetrahydrofuran	2011/08/18		75	%	70 - 130
		1,4-Dioxane	2011/08/18		82	%	70 - 130
	Method Blank	Bromochloromethane	2011/08/18		92	%	60 - 140
		D5-Chlorobenzene	2011/08/18		95	%	60 - 140
		Difluorobenzene	2011/08/18		93	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/18	<0.20		ppbv	
		Carbon Disulfide	2011/08/18	<0.50		ppbv	
		Propene	2011/08/18	<0.30		ppbv	
		Vinyl Acetate	2011/08/18	<0.20		ppbv	
		Vinyl Bromide	2011/08/18	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/08/18	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/08/18	<0.17		ppbv	
		Chloromethane	2011/08/18	<0.30		ppbv	
		Vinyl Chloride	2011/08/18	<0.18		ppbv	
		Chloroethane	2011/08/18	<0.30		ppbv	
		1,3-Butadiene	2011/08/18	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/08/18	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/08/18	<0.15		ppbv	
		Ethanol	2011/08/18	<2.3		ppbv	
		2-propanol	2011/08/18	<3.0		ppbv	
		2-Propanone	2011/08/18	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/08/18	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/08/18	<3.2		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C1925

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2589619 LSY	Method Blank	Methyl Butyl Ketone (2-Hexanone)	2011/08/18	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/08/18	<0.20		ppbv	
		Ethyl Acetate	2011/08/18	<2.2		ppbv	
		1,1-Dichloroethylene	2011/08/18	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/08/18	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/08/18	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/08/18	<0.80		ppbv	
		Chloroform	2011/08/18	<0.15		ppbv	
		Carbon Tetrachloride	2011/08/18	<0.30		ppbv	
		1,1-Dichloroethane	2011/08/18	<0.20		ppbv	
		1,2-Dichloroethane	2011/08/18	<0.20		ppbv	
		Ethylene Dibromide	2011/08/18	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/08/18	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/08/18	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/08/18	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/08/18	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/08/18	<0.17		ppbv	
		1,2-Dichloropropane	2011/08/18	<0.40		ppbv	
		Bromomethane	2011/08/18	<0.18		ppbv	
		Bromoform	2011/08/18	<0.20		ppbv	
		Bromodichloromethane	2011/08/18	<0.20		ppbv	
		Dibromochloromethane	2011/08/18	<0.20		ppbv	
		Heptane	2011/08/18	<0.30		ppbv	
		Trichloroethylene	2011/08/18	<0.30		ppbv	
		Tetrachloroethylene	2011/08/18	<0.20		ppbv	
		Benzene	2011/08/18	<0.18		ppbv	
		Toluene	2011/08/18	<0.20		ppbv	
		Ethylbenzene	2011/08/18	<0.20		ppbv	
		p+m-Xylene	2011/08/18	<0.37		ppbv	
		o-Xylene	2011/08/18	<0.20		ppbv	
		Styrene	2011/08/18	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/08/18	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/08/18	<0.50		ppbv	
		4-ethyltoluene	2011/08/18	<2.2		ppbv	
		Chlorobenzene	2011/08/18	<0.20		ppbv	
		Benzyl chloride	2011/08/18	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/08/18	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/08/18	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/08/18	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/08/18	<2.0		ppbv	
		Hexachlorobutadiene	2011/08/18	<3.0		ppbv	
		Hexane	2011/08/18	<0.30		ppbv	
		Cyclohexane	2011/08/18	<0.20		ppbv	
		Tetrahydrofuran	2011/08/18	<0.40		ppbv	
		1,4-Dioxane	2011/08/18	<2.0		ppbv	
		Xylene (Total)	2011/08/18	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/08/18	NC		%	25
		Carbon Disulfide	2011/08/18	NC		%	25
		Propene	2011/08/18	NC		%	25
		Vinyl Acetate	2011/08/18	NC		%	25
		Vinyl Bromide	2011/08/18	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/08/18	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/08/18	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C1925

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2589619 LSY	RPD - Sample/Sample Dup	Chloromethane	2011/08/18	NC		%	25
		Vinyl Chloride	2011/08/18	NC		%	25
		Chloroethane	2011/08/18	NC		%	25
		1,3-Butadiene	2011/08/18	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/08/18	NC		%	25
		Trichlorotrifluoroethane	2011/08/18	NC		%	25
		Ethanol	2011/08/18	NC		%	25
		2-propanol	2011/08/18	NC		%	25
		2-Propanone	2011/08/18	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/08/18	NC		%	25
		Methyl Isobutyl Ketone	2011/08/18	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/08/18	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/08/18	NC		%	25
		Ethyl Acetate	2011/08/18	NC		%	25
		1,1-Dichloroethylene	2011/08/18	NC		%	25
		cis-1,2-Dichloroethylene	2011/08/18	NC		%	25
		trans-1,2-Dichloroethylene	2011/08/18	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/08/18	NC		%	25
		Chloroform	2011/08/18	NC		%	25
		Carbon Tetrachloride	2011/08/18	NC		%	25
		1,1-Dichloroethane	2011/08/18	NC		%	25
		1,2-Dichloroethane	2011/08/18	NC		%	25
		Ethylene Dibromide	2011/08/18	NC		%	25
		1,1,1-Trichloroethane	2011/08/18	NC		%	25
		1,1,2-Trichloroethane	2011/08/18	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/08/18	NC		%	25
		cis-1,3-Dichloropropene	2011/08/18	NC		%	25
		trans-1,3-Dichloropropene	2011/08/18	NC		%	25
		1,2-Dichloropropane	2011/08/18	NC		%	25
		Bromomethane	2011/08/18	NC		%	25
		Bromoform	2011/08/18	NC		%	25
		Bromodichloromethane	2011/08/18	NC		%	25
		Dibromochloromethane	2011/08/18	NC		%	25
		Heptane	2011/08/18	NC		%	25
		Trichloroethylene	2011/08/18	NC		%	25
		Tetrachloroethylene	2011/08/18	NC		%	25
		Benzene	2011/08/18	NC		%	25
		Toluene	2011/08/18	1		%	25
		Ethylbenzene	2011/08/18	NC		%	25
		p+m-Xylene	2011/08/18	NC		%	25
		o-Xylene	2011/08/18	NC		%	25
		Styrene	2011/08/18	NC		%	25
		1,3,5-Trimethylbenzene	2011/08/18	NC		%	25
		1,2,4-Trimethylbenzene	2011/08/18	NC		%	25
		4-ethyltoluene	2011/08/18	NC		%	25
		Chlorobenzene	2011/08/18	NC		%	25
		Benzyl chloride	2011/08/18	NC		%	25
		1,3-Dichlorobenzene	2011/08/18	NC		%	25
		1,4-Dichlorobenzene	2011/08/18	NC		%	25
		1,2-Dichlorobenzene	2011/08/18	NC		%	25
		1,2,4-Trichlorobenzene	2011/08/18	NC		%	25
		Hexachlorobutadiene	2011/08/18	NC		%	25
		Hexane	2011/08/18	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C1925

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2589619 LSY	RPD - Sample/Sample Dup	Cyclohexane	2011/08/18	NC		%	25
		Tetrahydrofuran	2011/08/18	NC		%	25
		1,4-Dioxane	2011/08/18	NC		%	25
		Xylene (Total)	2011/08/18	NC		%	25

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

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: 13-16-62-5 W4M Canister ID: 7807
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Aug 18, 11 @ 12:44 mst
Field Sample ID: LICA VOC/PORT/ Aug 19, 11 Canister Removal Date/Time: Aug 22, 11 @ 10:29 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
19-Aug-11	08/19/2011 0:00	08/20/2011 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1472	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	20

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 # 05527

Technician Signiture: Jacob Roch/ Ting Xu



Your C.O.C. #: 05527

Attention: Michael Bisaga

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

Report Date: 2011/09/01

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1C9184

Received: 2011/08/24, 11:30

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/08/30	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/08/30	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 #: B1C9184
 Report Date: 2011/09/01

RESULTS OF ANALYSES OF AIR

Maxxam ID		KQ7850	KQ7851	
Sampling Date		2011/08/19	2011/08/19	
COC Number		05527	05527	
	Units	LICA VOC\CLSIAUG 19,2011 - 7798	LICA VOC\PORTAUG 19,2011 - 7807	QC Batch

Volatile Organics				
Pressure on Receipt	psig	21	20	2601443

QC Batch = Quality Control Batch

Maxxam Job #: B1C9184
 Report Date: 2011/09/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KQ7850			KQ7851				
Sampling Date		2011/08/19			2011/08/19				
COC Number		05527			05527				
	Units	LICA	ug/m3	DL (ug/m3)	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\CLSIAUG			VOC\PORTAUG				
		19,2011 - 7798			19,2011 - 7807				

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2600328
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2600328
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2600328
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2600328
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2600328
Dichlorodifluoromethane (FREON 12)	ppbv	0.81	4.02	0.989	0.72	0.20	3.55	0.989	2600328
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2600328
Chloromethane	ppbv	0.53	1.08	0.620	0.50	0.30	1.03	0.620	2600328
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2600328
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2600328
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2600328
Trichlorofluoromethane (FREON 11)	ppbv	0.23	1.27	1.12	0.21	0.20	1.17	1.12	2600328
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2600328
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2600328
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2600328
2-Propanone	ppbv	2.03	4.82	1.90	2.31	0.80	5.48	1.90	2600328
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2600328
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2600328
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2600328
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2600328
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2600328
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2600328
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2600328
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2600328
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2600328
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2600328
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2600328
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2600328
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2600328
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2600328
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2600328

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1C9184
 Report Date: 2011/09/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KQ7850			KQ7851					
Sampling Date		2011/08/19			2011/08/19					
COC Number		05527			05527					
	Units	LICA VOC\CLS\AUG 19,2011 - 7798	ug/m3	DL (ug/m3)	LICA VOC\PORT\AUG 19,2011 - 7807	RDL	ug/m3	DL (ug/m3)	QC Batch	
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2600328	
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2600328	
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2600328	
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2600328	
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2600328	
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2600328	
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2600328	
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2600328	
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2600328	
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2600328	
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2600328	
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2600328	
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2600328	
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2600328	
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2600328	
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2600328	
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2600328	
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2600328	
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2600328	
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2600328	
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2600328	
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2600328	
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2600328	
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2600328	
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2600328	
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2600328	
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2600328	
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2600328	
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2600328	
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2600328	
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2600328	
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2600328	
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2600328	
QC Batch = Quality Control Batch										

Maxxam Job #: B1C9184
 Report Date: 2011/09/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KQ7850			KQ7851				
Sampling Date		2011/08/19			2011/08/19				
COC Number		05527			05527				
	Units	LICA	ug/m3	DL (ug/m3)	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\CLSAUG			VOC\PORTAUG				
		19,2011 - 7798			19,2011 - 7807				

Surrogate Recovery (%)									
Bromochloromethane	%	83	N/A	N/A	89		N/A	N/A	2600328
D5-Chlorobenzene	%	77	N/A	N/A	82		N/A	N/A	2600328
Difluorobenzene	%	85	N/A	N/A	92		N/A	N/A	2600328

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

Maxxam Job #: B1C9184
 Report Date: 2011/09/01

Test Summary

Maxxam ID KQ7850 **Collected** 2011/08/19
Sample ID LICA VOC\CLSAUG 19,2011 - 7798 **Shipped**
Matrix AIR **Received** 2011/08/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2601443	N/A	2011/08/30	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2600328	N/A	2011/08/30	VALERIE RANDALL

Maxxam ID KQ7851 **Collected** 2011/08/19
Sample ID LICA VOC\PORT\AUG 19,2011 - 7807 **Shipped**
Matrix AIR **Received** 2011/08/24

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2601443	N/A	2011/08/30	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2600328	N/A	2011/08/30	VALERIE RANDALL

Maxxam Job #: B1C9184
Report Date: 2011/09/01

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1C9184

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2600328 VEA	Spiked Blank	Bromochloromethane	2011/08/30		100	%	60 - 140
		D5-Chlorobenzene	2011/08/30		101	%	60 - 140
		Difluorobenzene	2011/08/30		102	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/30		106	%	70 - 130
		Carbon Disulfide	2011/08/30		87	%	70 - 130
		Propene	2011/08/30		119	%	70 - 130
		Vinyl Acetate	2011/08/30		109	%	70 - 130
		Vinyl Bromide	2011/08/30		75	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/08/30		104	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/08/30		105	%	70 - 130
		Chloromethane	2011/08/30		95	%	70 - 130
		Vinyl Chloride	2011/08/30		92	%	70 - 130
		Chloroethane	2011/08/30		81	%	70 - 130
		1,3-Butadiene	2011/08/30		86	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/08/30		75	%	70 - 130
		Trichlorotrifluoroethane	2011/08/30		92	%	70 - 130
		Ethanol	2011/08/30		73	%	70 - 130
		2-propanol	2011/08/30		103	%	70 - 130
		2-Propanone	2011/08/30		93	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/08/30		89	%	70 - 130
		Methyl Isobutyl Ketone	2011/08/30		102	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/08/30		110	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/08/30		97	%	70 - 130
		Ethyl Acetate	2011/08/30		109	%	70 - 130
		1,1-Dichloroethylene	2011/08/30		98	%	70 - 130
		cis-1,2-Dichloroethylene	2011/08/30		107	%	70 - 130
		trans-1,2-Dichloroethylene	2011/08/30		99	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/08/30		90	%	70 - 130
		Chloroform	2011/08/30		99	%	70 - 130
		Carbon Tetrachloride	2011/08/30		92	%	70 - 130
		1,1-Dichloroethane	2011/08/30		101	%	70 - 130
		1,2-Dichloroethane	2011/08/30		103	%	70 - 130
		Ethylene Dibromide	2011/08/30		100	%	70 - 130
		1,1,1-Trichloroethane	2011/08/30		92	%	70 - 130
		1,1,2-Trichloroethane	2011/08/30		98	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/08/30		100	%	70 - 130
		cis-1,3-Dichloropropene	2011/08/30		112	%	70 - 130
		trans-1,3-Dichloropropene	2011/08/30		121	%	70 - 130
		1,2-Dichloropropane	2011/08/30		107	%	70 - 130
		Bromomethane	2011/08/30		79	%	70 - 130
		Bromoform	2011/08/30		101	%	70 - 130
		Bromodichloromethane	2011/08/30		91	%	70 - 130
		Dibromochloromethane	2011/08/30		93	%	70 - 130
		Heptane	2011/08/30		98	%	70 - 130
		Trichloroethylene	2011/08/30		91	%	70 - 130
		Tetrachloroethylene	2011/08/30		91	%	70 - 130
		Benzene	2011/08/30		99	%	70 - 130
		Toluene	2011/08/30		100	%	70 - 130
		Ethylbenzene	2011/08/30		98	%	70 - 130
		p+m-Xylene	2011/08/30		97	%	70 - 130
		o-Xylene	2011/08/30		104	%	70 - 130
		Styrene	2011/08/30		126	%	70 - 130
		1,3,5-Trimethylbenzene	2011/08/30		99	%	70 - 130
		1,2,4-Trimethylbenzene	2011/08/30		104	%	70 - 130
		4-ethyltoluene	2011/08/30		115	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C9184

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2600328 VEA	Spiked Blank	Chlorobenzene	2011/08/30		95	%	70 - 130
		Benzyl chloride	2011/08/30		131 (1)	%	70 - 130
		1,3-Dichlorobenzene	2011/08/30		104	%	70 - 130
		1,4-Dichlorobenzene	2011/08/30		116	%	70 - 130
		1,2-Dichlorobenzene	2011/08/30		105	%	70 - 130
		1,2,4-Trichlorobenzene	2011/08/30		96	%	70 - 130
		Hexachlorobutadiene	2011/08/30		83	%	70 - 130
		Hexane	2011/08/30		101	%	70 - 130
		Cyclohexane	2011/08/30		100	%	70 - 130
		Tetrahydrofuran	2011/08/30		114	%	70 - 130
		1,4-Dioxane	2011/08/30		101	%	70 - 130
		Xylene (Total)	2011/08/30		100	%	N/A
	Method Blank	Bromochloromethane	2011/08/30		87	%	60 - 140
		D5-Chlorobenzene	2011/08/30		79	%	60 - 140
		Difluorobenzene	2011/08/30		88	%	60 - 140
		2,2,4-Trimethylpentane	2011/08/30	<0.20		ppbv	
		Carbon Disulfide	2011/08/30	<0.50		ppbv	
		Propene	2011/08/30	<0.30		ppbv	
		Vinyl Acetate	2011/08/30	<0.20		ppbv	
		Vinyl Bromide	2011/08/30	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/08/30	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/08/30	<0.17		ppbv	
		Chloromethane	2011/08/30	<0.30		ppbv	
		Vinyl Chloride	2011/08/30	<0.18		ppbv	
		Chloroethane	2011/08/30	<0.30		ppbv	
		1,3-Butadiene	2011/08/30	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/08/30	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/08/30	<0.15		ppbv	
		Ethanol	2011/08/30	<2.3		ppbv	
		2-propanol	2011/08/30	<3.0		ppbv	
		2-Propanone	2011/08/30	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/08/30	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/08/30	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/08/30	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/08/30	<0.20		ppbv	
		Ethyl Acetate	2011/08/30	<2.2		ppbv	
		1,1-Dichloroethylene	2011/08/30	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/08/30	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/08/30	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/08/30	<0.80		ppbv	
		Chloroform	2011/08/30	<0.15		ppbv	
		Carbon Tetrachloride	2011/08/30	<0.30		ppbv	
		1,1-Dichloroethane	2011/08/30	<0.20		ppbv	
		1,2-Dichloroethane	2011/08/30	<0.20		ppbv	
		Ethylene Dibromide	2011/08/30	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/08/30	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/08/30	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/08/30	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/08/30	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/08/30	<0.17		ppbv	
		1,2-Dichloropropane	2011/08/30	<0.40		ppbv	
		Bromomethane	2011/08/30	<0.18		ppbv	
		Bromoform	2011/08/30	<0.20		ppbv	
		Bromodichloromethane	2011/08/30	<0.20		ppbv	
		Dibromochloromethane	2011/08/30	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C9184

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2600328 VEA	Method Blank	Heptane	2011/08/30	<0.30		ppbv	
		Trichloroethylene	2011/08/30	<0.30		ppbv	
		Tetrachloroethylene	2011/08/30	<0.20		ppbv	
		Benzene	2011/08/30	<0.18		ppbv	
		Toluene	2011/08/30	<0.20		ppbv	
		Ethylbenzene	2011/08/30	<0.20		ppbv	
		p+m-Xylene	2011/08/30	<0.37		ppbv	
		o-Xylene	2011/08/30	<0.20		ppbv	
		Styrene	2011/08/30	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/08/30	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/08/30	<0.50		ppbv	
		4-ethyltoluene	2011/08/30	<2.2		ppbv	
		Chlorobenzene	2011/08/30	<0.20		ppbv	
		Benzyl chloride	2011/08/30	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/08/30	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/08/30	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/08/30	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/08/30	<2.0		ppbv	
		Hexachlorobutadiene	2011/08/30	<3.0		ppbv	
		Hexane	2011/08/30	<0.30		ppbv	
		Cyclohexane	2011/08/30	<0.20		ppbv	
		Tetrahydrofuran	2011/08/30	<0.40		ppbv	
		1,4-Dioxane	2011/08/30	<2.0		ppbv	
		Xylene (Total)	2011/08/30	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/08/30	NC		%	25
		Carbon Disulfide	2011/08/30	NC		%	25
		Propene	2011/08/30	NC		%	25
		Vinyl Acetate	2011/08/30	NC		%	25
		Vinyl Bromide	2011/08/30	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/08/30	1.2		%	25
		1,2-Dichlorotetrafluoroethane	2011/08/30	NC		%	25
		Chloromethane	2011/08/30	NC		%	25
		Vinyl Chloride	2011/08/30	NC		%	25
		Chloroethane	2011/08/30	NC		%	25
		1,3-Butadiene	2011/08/30	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/08/30	NC		%	25
		Trichlorotrifluoroethane	2011/08/30	NC		%	25
		Ethanol	2011/08/30	NC		%	25
		2-propanol	2011/08/30	NC		%	25
		2-Propanone	2011/08/30	8.8		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/08/30	NC		%	25
		Methyl Isobutyl Ketone	2011/08/30	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/08/30	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/08/30	NC		%	25
		Ethyl Acetate	2011/08/30	NC		%	25
		1,1-Dichloroethylene	2011/08/30	NC		%	25
		cis-1,2-Dichloroethylene	2011/08/30	NC		%	25
		trans-1,2-Dichloroethylene	2011/08/30	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/08/30	NC		%	25
		Chloroform	2011/08/30	NC		%	25
		Carbon Tetrachloride	2011/08/30	NC		%	25
		1,1-Dichloroethane	2011/08/30	NC		%	25
		1,2-Dichloroethane	2011/08/30	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C9184

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2600328 VEA	RPD - Sample/Sample Dup	Ethylene Dibromide	2011/08/30	NC		%	25
		1,1,1-Trichloroethane	2011/08/30	NC		%	25
		1,1,2-Trichloroethane	2011/08/30	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/08/30	NC		%	25
		cis-1,3-Dichloropropene	2011/08/30	NC		%	25
		trans-1,3-Dichloropropene	2011/08/30	NC		%	25
		1,2-Dichloropropane	2011/08/30	NC		%	25
		Bromomethane	2011/08/30	NC		%	25
		Bromoform	2011/08/30	NC		%	25
		Bromodichloromethane	2011/08/30	NC		%	25
		Dibromochloromethane	2011/08/30	NC		%	25
		Heptane	2011/08/30	NC		%	25
		Trichloroethylene	2011/08/30	NC		%	25
		Tetrachloroethylene	2011/08/30	NC		%	25
		Benzene	2011/08/30	4.4		%	25
		Toluene	2011/08/30	4.0		%	25
		Ethylbenzene	2011/08/30	NC		%	25
		p+m-Xylene	2011/08/30	NC		%	25
		o-Xylene	2011/08/30	NC		%	25
		Styrene	2011/08/30	NC		%	25
		1,3,5-Trimethylbenzene	2011/08/30	NC		%	25
		1,2,4-Trimethylbenzene	2011/08/30	NC		%	25
		4-ethyltoluene	2011/08/30	NC		%	25
		Chlorobenzene	2011/08/30	NC		%	25
		Benzyl chloride	2011/08/30	NC		%	25
		1,3-Dichlorobenzene	2011/08/30	NC		%	25
		1,4-Dichlorobenzene	2011/08/30	NC		%	25
		1,2-Dichlorobenzene	2011/08/30	NC		%	25
		1,2,4-Trichlorobenzene	2011/08/30	NC		%	25
		Hexachlorobutadiene	2011/08/30	NC		%	25
		Hexane	2011/08/30	NC		%	25
		Cyclohexane	2011/08/30	NC		%	25
		Tetrahydrofuran	2011/08/30	NC		%	25
		1,4-Dioxane	2011/08/30	NC		%	25
		Xylene (Total)	2011/08/30	NC		%	25

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

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: 13-16-62-5 W4M Canister ID: 7867
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Aug 24, 11 @ 13:45 mst
Field Sample ID: LICA VOC/PORT/ Aug 25, 11 Canister Removal Date/Time: Aug 26, 11 @ 8:20 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
25-Aug-11	08/25/2011 0:00	08/26/2011 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1472	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	20

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 # 06300

Technician Signiture: Jacob Roch/ Ting Xu



Your C.O.C. #: 06300

Attention: Michael Bisaga

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

Report Date: 2011/09/14

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B1D4251

Received: 2011/09/01, 10:30

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/09/09	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/09/09	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 #: B1D4251
 Report Date: 2011/09/14

RESULTS OF ANALYSES OF AIR

Maxxam ID		KT1187	KT1188	
Sampling Date		2011/08/25	2011/08/25	
COC Number		06300	06300	
	Units	LICAVOC/CLS/AUG	LICAVOC/PORT/AUG	QC Batch
		25,11 - 7796	25,11 - 7867	

Volatile Organics				
Pressure on Receipt	psig	22	20	2610570

QC Batch = Quality Control Batch

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT1187				
Sampling Date		2011/08/25				
COC Number		06300				
	Units	LICAVOC/CLS/AUG	RDL	ug/m3	DL (ug/m3)	QC Batch
		25,11 - 7796				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2610563
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2610563
Propene	ppbv	<0.30	0.30	<0.516	0.516	2610563
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2610563
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2610563
Dichlorodifluoromethane (FREON 12)	ppbv	0.74	0.20	3.67	0.989	2610563
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2610563
Chloromethane	ppbv	0.54	0.30	1.11	0.620	2610563
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2610563
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2610563
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2610563
Trichlorofluoromethane (FREON 11)	ppbv	0.34	0.20	1.93	1.12	2610563
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2610563
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2610563
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2610563
2-Propanone	ppbv	<0.80	0.80	<1.90	1.90	2610563
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2610563
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2610563
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2610563
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2610563
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2610563
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2610563
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2610563
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2610563
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2610563
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2610563
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2610563
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2610563
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2610563
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2610563
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2610563
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2610563

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT1187				
Sampling Date		2011/08/25				
COC Number		06300				
	Units	LICAVOC/CLS/AUG	RDL	ug/m3	DL (ug/m3)	QC Batch
		25,11 - 7796				

1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2610563
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2610563
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2610563
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2610563
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2610563
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2610563
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2610563
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2610563
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2610563
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2610563
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2610563
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2610563
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2610563
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2610563
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2610563
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2610563
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2610563
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2610563
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2610563
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2610563
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2610563
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2610563
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2610563
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2610563
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2610563
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2610563
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2610563
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2610563
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2610563
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2610563
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2610563
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2610563
Surrogate Recovery (%)						
Bromochloromethane	%	75		N/A	N/A	2610563

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

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT1187				
Sampling Date		2011/08/25				
COC Number		06300				
	Units	LICAVOC/CLS/AUG	RDL	ug/m3	DL (ug/m3)	QC Batch
		25,11 - 7796				

D5-Chlorobenzene	%	76		N/A	N/A	2610563
Difluorobenzene	%	78		N/A	N/A	2610563

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

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT1188				
Sampling Date		2011/08/25				
COC Number		06300				
	Units	LICAVOC/PORT/AUG	RDL	ug/m3	DL (ug/m3)	QC Batch
		25,11 - 7867				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2610563
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2610563
Propene	ppbv	<0.30	0.30	<0.516	0.516	2610563
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2610563
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2610563
Dichlorodifluoromethane (FREON 12)	ppbv	0.71	0.20	3.50	0.989	2610563
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2610563
Chloromethane	ppbv	0.43	0.30	0.890	0.620	2610563
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2610563
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2610563
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2610563
Trichlorofluoromethane (FREON 11)	ppbv	0.31	0.20	1.72	1.12	2610563
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2610563
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2610563
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2610563
2-Propanone	ppbv	<0.80	0.80	<1.90	1.90	2610563
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2610563
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2610563
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2610563
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2610563
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2610563
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2610563
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2610563
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2610563
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2610563
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2610563
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2610563
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2610563
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2610563
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2610563
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2610563
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2610563

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT1188				
Sampling Date		2011/08/25				
COC Number		06300				
	Units	LICAVOC/PORT/AUG	RDL	ug/m3	DL (ug/m3)	QC Batch
		25,11 - 7867				
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2610563
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2610563
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2610563
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2610563
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2610563
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2610563
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2610563
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2610563
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2610563
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2610563
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2610563
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2610563
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2610563
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2610563
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2610563
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2610563
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2610563
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2610563
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2610563
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2610563
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2610563
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2610563
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2610563
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2610563
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2610563
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2610563
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2610563
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2610563
Cyclohexane	ppbv	0.27	0.20	0.945	0.688	2610563
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2610563
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2610563
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2610563
Surrogate Recovery (%)						
Bromochloromethane	%	82		N/A	N/A	2610563
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B1D4251
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT1188				
Sampling Date		2011/08/25				
COC Number		06300				
	Units	LICAVOC/PORT/AUG	RDL	ug/m3	DL (ug/m3)	QC Batch
		25,11 - 7867				

D5-Chlorobenzene	%	81		N/A	N/A	2610563
Difluorobenzene	%	84		N/A	N/A	2610563

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

Maxxam Job #: B1D4251
Report Date: 2011/09/14

Test Summary

Maxxam ID KT1187 **Collected** 2011/08/25
Sample ID LICAVOC/CLS/AUG 25,11 - 7796 **Shipped**
Matrix AIR **Received** 2011/09/01

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2610570	N/A	2011/09/09	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2610563	N/A	2011/09/09	VALERIE RANDALL

Maxxam ID KT1188 **Collected** 2011/08/25
Sample ID LICAVOC/PORT/AUG 25,11 - 7867 **Shipped**
Matrix AIR **Received** 2011/09/01

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2610570	N/A	2011/09/09	VALERIE RANDALL
Volatile Organics in Air (TO-15)	GC/MS	2610563	N/A	2011/09/09	VALERIE RANDALL

Maxxam Job #: B1D4251
Report Date: 2011/09/14

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1D4251

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2610563 VEA	Spiked Blank	Bromochloromethane	2011/09/09		105	%	60 - 140
		D5-Chlorobenzene	2011/09/09		110	%	60 - 140
		Difluorobenzene	2011/09/09		109	%	60 - 140
		2,2,4-Trimethylpentane	2011/09/09		96	%	70 - 130
		Carbon Disulfide	2011/09/09		89	%	70 - 130
		Propene	2011/09/09		89	%	70 - 130
		Vinyl Acetate	2011/09/09		101	%	70 - 130
		Vinyl Bromide	2011/09/09		104	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/09/09		99	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/09/09		120	%	70 - 130
		Chloromethane	2011/09/09		109	%	70 - 130
		Vinyl Chloride	2011/09/09		102	%	70 - 130
		Chloroethane	2011/09/09		100	%	70 - 130
		1,3-Butadiene	2011/09/09		100	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/09/09		105	%	70 - 130
		Trichlorotrifluoroethane	2011/09/09		101	%	70 - 130
		Ethanol	2011/09/09		104	%	70 - 130
		2-propanol	2011/09/09		108	%	70 - 130
		2-Propanone	2011/09/09		122	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/09/09		95	%	70 - 130
		Methyl Isobutyl Ketone	2011/09/09		99	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/09/09		100	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/09/09		102	%	70 - 130
		Ethyl Acetate	2011/09/09		102	%	70 - 130
		1,1-Dichloroethylene	2011/09/09		99	%	70 - 130
		cis-1,2-Dichloroethylene	2011/09/09		98	%	70 - 130
		trans-1,2-Dichloroethylene	2011/09/09		100	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/09/09		92	%	70 - 130
		Chloroform	2011/09/09		102	%	70 - 130
		Carbon Tetrachloride	2011/09/09		102	%	70 - 130
		1,1-Dichloroethane	2011/09/09		101	%	70 - 130
		1,2-Dichloroethane	2011/09/09		99	%	70 - 130
		Ethylene Dibromide	2011/09/09		97	%	70 - 130
		1,1,1-Trichloroethane	2011/09/09		99	%	70 - 130
		1,1,2-Trichloroethane	2011/09/09		99	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/09/09		92	%	70 - 130
		cis-1,3-Dichloropropene	2011/09/09		102	%	70 - 130
		trans-1,3-Dichloropropene	2011/09/09		98	%	70 - 130
		1,2-Dichloropropane	2011/09/09		98	%	70 - 130
		Bromomethane	2011/09/09		106	%	70 - 130
		Bromoform	2011/09/09		115	%	70 - 130
		Bromodichloromethane	2011/09/09		104	%	70 - 130
		Dibromochloromethane	2011/09/09		114	%	70 - 130
		Heptane	2011/09/09		99	%	70 - 130
		Trichloroethylene	2011/09/09		99	%	70 - 130
		Tetrachloroethylene	2011/09/09		100	%	70 - 130
		Benzene	2011/09/09		100	%	70 - 130
		Toluene	2011/09/09		101	%	70 - 130
		Ethylbenzene	2011/09/09		96	%	70 - 130
		p+m-Xylene	2011/09/09		95	%	70 - 130
		o-Xylene	2011/09/09		96	%	70 - 130
		Styrene	2011/09/09		92	%	70 - 130
		1,3,5-Trimethylbenzene	2011/09/09		94	%	70 - 130
		1,2,4-Trimethylbenzene	2011/09/09		90	%	70 - 130
		4-ethyltoluene	2011/09/09		114	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D4251

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2610563 VEA	Spiked Blank	Chlorobenzene	2011/09/09		95	%	70 - 130
		Benzyl chloride	2011/09/09		92	%	70 - 130
		1,3-Dichlorobenzene	2011/09/09		85	%	70 - 130
		1,4-Dichlorobenzene	2011/09/09		84	%	70 - 130
		1,2-Dichlorobenzene	2011/09/09		86	%	70 - 130
		1,2,4-Trichlorobenzene	2011/09/09		61 (1)	%	70 - 130
		Hexachlorobutadiene	2011/09/09		83	%	70 - 130
		Hexane	2011/09/09		106	%	70 - 130
		Cyclohexane	2011/09/09		98	%	70 - 130
		Tetrahydrofuran	2011/09/09		102	%	70 - 130
		1,4-Dioxane	2011/09/09		106	%	70 - 130
		Xylene (Total)	2011/09/09		95	%	70 - 130
	Method Blank	Bromochloromethane	2011/09/09		83	%	60 - 140
		D5-Chlorobenzene	2011/09/09		82	%	60 - 140
		Difluorobenzene	2011/09/09		87	%	60 - 140
		2,2,4-Trimethylpentane	2011/09/09	<0.20		ppbv	
		Carbon Disulfide	2011/09/09	<0.50		ppbv	
		Propene	2011/09/09	<0.30		ppbv	
		Vinyl Acetate	2011/09/09	<0.20		ppbv	
		Vinyl Bromide	2011/09/09	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/09/09	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/09/09	<0.17		ppbv	
		Chloromethane	2011/09/09	<0.30		ppbv	
		Vinyl Chloride	2011/09/09	<0.18		ppbv	
		Chloroethane	2011/09/09	<0.30		ppbv	
		1,3-Butadiene	2011/09/09	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/09/09	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/09/09	<0.15		ppbv	
		Ethanol	2011/09/09	<2.3		ppbv	
		2-propanol	2011/09/09	<3.0		ppbv	
		2-Propanone	2011/09/09	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/09/09	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/09/09	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/09/09	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/09/09	<0.20		ppbv	
		Ethyl Acetate	2011/09/09	<2.2		ppbv	
		1,1-Dichloroethylene	2011/09/09	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/09/09	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/09/09	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/09/09	<0.80		ppbv	
		Chloroform	2011/09/09	<0.15		ppbv	
		Carbon Tetrachloride	2011/09/09	<0.30		ppbv	
		1,1-Dichloroethane	2011/09/09	<0.20		ppbv	
		1,2-Dichloroethane	2011/09/09	<0.20		ppbv	
		Ethylene Dibromide	2011/09/09	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/09/09	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/09/09	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/09/09	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/09/09	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/09/09	<0.17		ppbv	
		1,2-Dichloropropane	2011/09/09	<0.40		ppbv	
		Bromomethane	2011/09/09	<0.18		ppbv	
		Bromoform	2011/09/09	<0.20		ppbv	
		Bromodichloromethane	2011/09/09	<0.20		ppbv	
		Dibromochloromethane	2011/09/09	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D4251

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2610563 VEA	Method Blank	Heptane	2011/09/09	<0.30		ppbv	
		Trichloroethylene	2011/09/09	<0.30		ppbv	
		Tetrachloroethylene	2011/09/09	<0.20		ppbv	
		Benzene	2011/09/09	<0.18		ppbv	
		Toluene	2011/09/09	<0.20		ppbv	
		Ethylbenzene	2011/09/09	<0.20		ppbv	
		p+m-Xylene	2011/09/09	<0.37		ppbv	
		o-Xylene	2011/09/09	<0.20		ppbv	
		Styrene	2011/09/09	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/09/09	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/09/09	<0.50		ppbv	
		4-ethyltoluene	2011/09/09	<2.2		ppbv	
		Chlorobenzene	2011/09/09	<0.20		ppbv	
		Benzyl chloride	2011/09/09	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/09/09	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/09/09	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/09/09	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/09/09	<2.0		ppbv	
		Hexachlorobutadiene	2011/09/09	<3.0		ppbv	
		Hexane	2011/09/09	<0.30		ppbv	
		Cyclohexane	2011/09/09	<0.20		ppbv	
		Tetrahydrofuran	2011/09/09	<0.40		ppbv	
		1,4-Dioxane	2011/09/09	<2.0		ppbv	
		Xylene (Total)	2011/09/09	<0.60		ppbv	

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: 13-16-62-5 W4M Canister ID: 7785
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Aug 29, 11 @ 14:24 mst
Field Sample ID: LICA VOC/PORT/ Aug 31, 11 Canister Removal Date/Time: Sept 01, 11 @ 10:09 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
31-Aug-11	08/31/2011 0:00	09/01/2011 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1472	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	20

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 # 05819

Technician Signiture: Jacob Roch/ Ting Xu

Your C.O.C. #: 05819

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

Report Date: 2011/09/14

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1D5730****Received: 2011/09/03, 11:20**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/09/13	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/09/13	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Page 1 of 14

Maxxam Job #: B1D5730
 Report Date: 2011/09/14

RESULTS OF ANALYSES OF AIR

Maxxam ID		KT8149	KT8150	
Sampling Date		2011/08/31	2011/08/31	
COC Number		05819	05819	
	Units	LICA VOC/CLS/AUG 31,2011 - 7823	LICA VOC/PORT/AUG 31,2011 - 7785	QC Batch

Volatile Organics				
Pressure on Receipt	psig	20	20	2613351

QC Batch = Quality Control Batch

Maxxam Job #: B1D5730
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT8149				
Sampling Date		2011/08/31				
COC Number		05819				
	Units	LICA VOC/CLS/AUG 31,2011 - 7823	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2613205
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2613205
Propene	ppbv	<0.60	0.60	<1.03	1.03	2613205
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2613205
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2613205
Dichlorodifluoromethane (FREON 12)	ppbv	0.65	0.20	3.20	0.989	2613205
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2613205
Chloromethane	ppbv	0.52	0.30	1.07	0.620	2613205
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2613205
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2613205
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2613205
Trichlorofluoromethane (FREON 11)	ppbv	0.32	0.20	1.82	1.12	2613205
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2613205
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2613205
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2613205
2-Propanone	ppbv	2.56	0.80	6.08	1.90	2613205
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2613205
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2613205
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2613205
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2613205
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2613205
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2613205
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2613205
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2613205
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2613205
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2613205
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2613205
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2613205
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2613205
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2613205
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2613205
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT8149				
Sampling Date		2011/08/31				
COC Number		05819				
	Units	LICA VOC/CLS/AUG 31,2011 - 7823	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2613205
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2613205
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2613205
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2613205
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2613205
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2613205
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2613205
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2613205
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2613205
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2613205
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2613205
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2613205
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2613205
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2613205
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2613205
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2613205
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2613205
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2613205
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2613205
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2613205
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2613205
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2613205
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2613205
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2613205
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2613205
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2613205
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2613205
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2613205
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2613205
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2613205
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2613205
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2613205
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2613205
QC Batch = Quality Control Batch						

Maxxam Job #: B1D5730
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT8149				
Sampling Date		2011/08/31				
COC Number		05819				
	Units	LICA VOC/CLS/AUG 31,2011 - 7823	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	87		N/A	N/A	2613205
D5-Chlorobenzene	%	83		N/A	N/A	2613205
Difluorobenzene	%	87		N/A	N/A	2613205

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

Maxxam Job #: B1D5730
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT8150				
Sampling Date		2011/08/31				
COC Number		05819				
	Units	LICA VOC/PORT/AUG 31,2011 - 7785	RDL	ug/m3	DL (ug/m3)	QC Batch
Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2613205
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2613205
Propene	ppbv	<0.30	0.30	<0.516	0.516	2613205
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2613205
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2613205
Dichlorodifluoromethane (FREON 12)	ppbv	0.67	0.20	3.29	0.989	2613205
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2613205
Chloromethane	ppbv	0.52	0.30	1.07	0.620	2613205
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2613205
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2613205
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2613205
Trichlorofluoromethane (FREON 11)	ppbv	0.31	0.20	1.75	1.12	2613205
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2613205
Ethanol	ppbv	<2.3	2.3	<4.33	4.33	2613205
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2613205
2-Propanone	ppbv	2.24	0.80	5.32	1.90	2613205
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2613205
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2613205
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2613205
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2613205
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2613205
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2613205
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2613205
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2613205
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2613205
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2613205
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2613205
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2613205
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2613205
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2613205
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2613205
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B1D5730
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT8150				
Sampling Date		2011/08/31				
COC Number		05819				
	Units	LICA VOC/PORT/AUG 31,2011 - 7785	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2613205
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2613205
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2613205
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2613205
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2613205
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2613205
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2613205
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2613205
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2613205
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2613205
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2613205
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2613205
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2613205
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2613205
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2613205
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2613205
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2613205
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2613205
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2613205
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2613205
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2613205
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2613205
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2613205
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2613205
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2613205
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2613205
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2613205
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2613205
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2613205
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2613205
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2613205
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2613205
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2613205
QC Batch = Quality Control Batch						

Maxxam Job #: B1D5730
 Report Date: 2011/09/14

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		KT8150				
Sampling Date		2011/08/31				
COC Number		05819				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/AUG				
		31,2011 - 7785				

Surrogate Recovery (%)						
Bromochloromethane	%	84		N/A	N/A	2613205
D5-Chlorobenzene	%	81		N/A	N/A	2613205
Difluorobenzene	%	86		N/A	N/A	2613205

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

Maxxam Job #: B1D5730
Report Date: 2011/09/14

GENERAL COMMENTS

Sample KT8149-01: DL was raised for propene due to matrix interference.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1D5730

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2613205 DVO	Spiked Blank	Bromochloromethane	2011/09/13		99	%	60 - 140
		D5-Chlorobenzene	2011/09/13		100	%	60 - 140
		Difluorobenzene	2011/09/13		103	%	60 - 140
		2,2,4-Trimethylpentane	2011/09/13		102	%	70 - 130
		Carbon Disulfide	2011/09/13		99	%	70 - 130
		Propene	2011/09/13		102	%	70 - 130
		Vinyl Acetate	2011/09/13		107	%	70 - 130
		Vinyl Bromide	2011/09/13		106	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/09/13		118	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/09/13		129	%	70 - 130
		Chloromethane	2011/09/13		114	%	70 - 130
		Vinyl Chloride	2011/09/13		111	%	70 - 130
		Chloroethane	2011/09/13		107	%	70 - 130
		1,3-Butadiene	2011/09/13		109	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/09/13		114	%	70 - 130
		Trichlorotrifluoroethane	2011/09/13		110	%	70 - 130
		Ethanol	2011/09/13		93	%	70 - 130
		2-propanol	2011/09/13		101	%	70 - 130
		2-Propanone	2011/09/13		98	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/09/13		107	%	70 - 130
		Methyl Isobutyl Ketone	2011/09/13		105	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/09/13		105	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/09/13		107	%	70 - 130
		Ethyl Acetate	2011/09/13		105	%	70 - 130
		1,1-Dichloroethylene	2011/09/13		108	%	70 - 130
		cis-1,2-Dichloroethylene	2011/09/13		107	%	70 - 130
		trans-1,2-Dichloroethylene	2011/09/13		106	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/09/13		100	%	70 - 130
		Chloroform	2011/09/13		111	%	70 - 130
		Carbon Tetrachloride	2011/09/13		117	%	70 - 130
		1,1-Dichloroethane	2011/09/13		107	%	70 - 130
		1,2-Dichloroethane	2011/09/13		112	%	70 - 130
		Ethylene Dibromide	2011/09/13		110	%	70 - 130
		1,1,1-Trichloroethane	2011/09/13		115	%	70 - 130
		1,1,2-Trichloroethane	2011/09/13		110	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/09/13		107	%	70 - 130
		cis-1,3-Dichloropropene	2011/09/13		110	%	70 - 130
		trans-1,3-Dichloropropene	2011/09/13		109	%	70 - 130
		1,2-Dichloropropane	2011/09/13		106	%	70 - 130
		Bromomethane	2011/09/13		112	%	70 - 130
		Bromoform	2011/09/13		122	%	70 - 130
		Bromodichloromethane	2011/09/13		109	%	70 - 130
		Dibromochloromethane	2011/09/13		119	%	70 - 130
		Heptane	2011/09/13		106	%	70 - 130
		Trichloroethylene	2011/09/13		110	%	70 - 130
		Tetrachloroethylene	2011/09/13		113	%	70 - 130
		Benzene	2011/09/13		104	%	70 - 130
		Toluene	2011/09/13		110	%	70 - 130
		Ethylbenzene	2011/09/13		110	%	70 - 130
		p+m-Xylene	2011/09/13		109	%	70 - 130
		o-Xylene	2011/09/13		110	%	70 - 130
		Styrene	2011/09/13		107	%	70 - 130
		1,3,5-Trimethylbenzene	2011/09/13		110	%	70 - 130
		1,2,4-Trimethylbenzene	2011/09/13		109	%	70 - 130
		4-ethyltoluene	2011/09/13		109	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D5730

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2613205 DVO	Spiked Blank	Chlorobenzene	2011/09/13		108	%	70 - 130	
		Benzyl chloride	2011/09/13		111	%	70 - 130	
1,3-Dichlorobenzene		2011/09/13		106	%	70 - 130		
1,4-Dichlorobenzene		2011/09/13		104	%	70 - 130		
1,2-Dichlorobenzene		2011/09/13		106	%	70 - 130		
1,2,4-Trichlorobenzene		2011/09/13		89	%	70 - 130		
Hexachlorobutadiene		2011/09/13		118	%	70 - 130		
Hexane		2011/09/13		103	%	70 - 130		
Cyclohexane		2011/09/13		105	%	70 - 130		
Tetrahydrofuran		2011/09/13		107	%	70 - 130		
Method Blank		1,4-Dioxane	2011/09/13		103	%	70 - 130	
		Bromochloromethane	2011/09/13		89	%	60 - 140	
		D5-Chlorobenzene	2011/09/13		86	%	60 - 140	
		Difluorobenzene	2011/09/13		91	%	60 - 140	
		2,2,4-Trimethylpentane	2011/09/13	<0.20			ppbv	
		Carbon Disulfide	2011/09/13	<0.50			ppbv	
		Propene	2011/09/13	<0.30			ppbv	
		Vinyl Acetate	2011/09/13	<0.20			ppbv	
		Vinyl Bromide	2011/09/13	<0.20			ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/09/13	<0.20			ppbv	
		1,2-Dichlorotetrafluoroethane	2011/09/13	<0.17			ppbv	
		Chloromethane	2011/09/13	<0.30			ppbv	
		Vinyl Chloride	2011/09/13	<0.18			ppbv	
		Chloroethane	2011/09/13	<0.30			ppbv	
		1,3-Butadiene	2011/09/13	<0.50			ppbv	
		Trichlorofluoromethane (FREON 11)	2011/09/13	<0.20			ppbv	
		Trichlorotrifluoroethane	2011/09/13	<0.15			ppbv	
		Ethanol	2011/09/13	<2.3			ppbv	
		2-propanol	2011/09/13	<3.0			ppbv	
		2-Propanone	2011/09/13	<0.80			ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/09/13	<3.0			ppbv	
		Methyl Isobutyl Ketone	2011/09/13	<3.2			ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/09/13	<2.0			ppbv	
		Methyl t-butyl ether (MTBE)	2011/09/13	<0.20			ppbv	
		Ethyl Acetate	2011/09/13	<2.2			ppbv	
		1,1-Dichloroethylene	2011/09/13	<0.25			ppbv	
		cis-1,2-Dichloroethylene	2011/09/13	<0.19			ppbv	
		trans-1,2-Dichloroethylene	2011/09/13	<0.20			ppbv	
		Methylene Chloride(Dichloromethane)	2011/09/13	<0.80			ppbv	
		Chloroform	2011/09/13	<0.15			ppbv	
		Carbon Tetrachloride	2011/09/13	<0.30			ppbv	
		1,1-Dichloroethane	2011/09/13	<0.20			ppbv	
		1,2-Dichloroethane	2011/09/13	<0.20			ppbv	
		Ethylene Dibromide	2011/09/13	<0.17			ppbv	
		1,1,1-Trichloroethane	2011/09/13	<0.30			ppbv	
		1,1,2-Trichloroethane	2011/09/13	<0.15			ppbv	
		1,1,2,2-Tetrachloroethane	2011/09/13	<0.20			ppbv	
		cis-1,3-Dichloropropene	2011/09/13	<0.18			ppbv	
trans-1,3-Dichloropropene	2011/09/13	<0.17			ppbv			
1,2-Dichloropropane	2011/09/13	<0.40			ppbv			
Bromomethane	2011/09/13	<0.18			ppbv			
Bromoform	2011/09/13	<0.20			ppbv			
Bromodichloromethane	2011/09/13	<0.20			ppbv			
Dibromochloromethane	2011/09/13	<0.20			ppbv			
Heptane	2011/09/13	<0.30			ppbv			

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D5730

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2613205	DVO	Method Blank					
		Trichloroethylene	2011/09/13	<0.30		ppbv	
		Tetrachloroethylene	2011/09/13	<0.20		ppbv	
		Benzene	2011/09/13	<0.18		ppbv	
		Toluene	2011/09/13	<0.20		ppbv	
		Ethylbenzene	2011/09/13	<0.20		ppbv	
		p+m-Xylene	2011/09/13	<0.37		ppbv	
		o-Xylene	2011/09/13	<0.20		ppbv	
		Styrene	2011/09/13	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/09/13	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/09/13	<0.50		ppbv	
		4-ethyltoluene	2011/09/13	<2.2		ppbv	
		Chlorobenzene	2011/09/13	<0.20		ppbv	
		Benzyl chloride	2011/09/13	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/09/13	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/09/13	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/09/13	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/09/13	<2.0		ppbv	
		Hexachlorobutadiene	2011/09/13	<3.0		ppbv	
		Hexane	2011/09/13	<0.30		ppbv	
		Cyclohexane	2011/09/13	<0.20		ppbv	
		Tetrahydrofuran	2011/09/13	<0.40		ppbv	
		1,4-Dioxane	2011/09/13	<2.0		ppbv	
		Xylene (Total)	2011/09/13	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2011/09/13	0.9		%	25
		Carbon Disulfide	2011/09/13	NC		%	25
		Propene	2011/09/13	NC		%	25
		Vinyl Acetate	2011/09/13	NC		%	25
		Vinyl Bromide	2011/09/13	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2011/09/13	NC		%	25
		1,2-Dichlorotetrafluoroethane	2011/09/13	NC		%	25
		Chloromethane	2011/09/13	NC		%	25
		Vinyl Chloride	2011/09/13	NC		%	25
		Chloroethane	2011/09/13	NC		%	25
		1,3-Butadiene	2011/09/13	NC		%	25
		Trichlorofluoromethane (FREON 11)	2011/09/13	NC		%	25
		Trichlorotrifluoroethane	2011/09/13	NC		%	25
		Ethanol	2011/09/13	NC		%	25
		2-propanol	2011/09/13	NC		%	25
		2-Propanone	2011/09/13	1.8		%	25
		Methyl Ethyl Ketone (2-Butanone)	2011/09/13	NC		%	25
		Methyl Isobutyl Ketone	2011/09/13	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2011/09/13	NC		%	25
		Methyl t-butyl ether (MTBE)	2011/09/13	NC		%	25
		Ethyl Acetate	2011/09/13	NC		%	25
		1,1-Dichloroethylene	2011/09/13	NC		%	25
		cis-1,2-Dichloroethylene	2011/09/13	NC		%	25
		trans-1,2-Dichloroethylene	2011/09/13	NC		%	25
		Methylene Chloride(Dichloromethane)	2011/09/13	NC		%	25
		Chloroform	2011/09/13	NC		%	25
		Carbon Tetrachloride	2011/09/13	NC		%	25
		1,1-Dichloroethane	2011/09/13	NC		%	25
		1,2-Dichloroethane	2011/09/13	NC		%	25
		Ethylene Dibromide	2011/09/13	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D5730

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2613205 DVO	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2011/09/13	NC		%	25
		1,1,2-Trichloroethane	2011/09/13	NC		%	25
		1,1,2,2-Tetrachloroethane	2011/09/13	NC		%	25
		cis-1,3-Dichloropropene	2011/09/13	NC		%	25
		trans-1,3-Dichloropropene	2011/09/13	NC		%	25
		1,2-Dichloropropane	2011/09/13	NC		%	25
		Bromomethane	2011/09/13	NC		%	25
		Bromoform	2011/09/13	NC		%	25
		Bromodichloromethane	2011/09/13	NC		%	25
		Dibromochloromethane	2011/09/13	NC		%	25
		Heptane	2011/09/13	NC		%	25
		Trichloroethylene	2011/09/13	NC		%	25
		Tetrachloroethylene	2011/09/13	NC		%	25
		Benzene	2011/09/13	1		%	25
		Toluene	2011/09/13	3.6		%	25
		Ethylbenzene	2011/09/13	NC		%	25
		p+m-Xylene	2011/09/13	3.5		%	25
		o-Xylene	2011/09/13	NC		%	25
		Styrene	2011/09/13	NC		%	25
		1,3,5-Trimethylbenzene	2011/09/13	NC		%	25
		1,2,4-Trimethylbenzene	2011/09/13	NC		%	25
		4-ethyltoluene	2011/09/13	NC		%	25
		Chlorobenzene	2011/09/13	NC		%	25
		Benzyl chloride	2011/09/13	NC		%	25
		1,3-Dichlorobenzene	2011/09/13	NC		%	25
		1,4-Dichlorobenzene	2011/09/13	NC		%	25
		1,2-Dichlorobenzene	2011/09/13	NC		%	25
		1,2,4-Trichlorobenzene	2011/09/13	NC		%	25
		Hexachlorobutadiene	2011/09/13	NC		%	25
		Hexane	2011/09/13	NC		%	25
		Cyclohexane	2011/09/13	NC		%	25
		Tetrahydrofuran	2011/09/13	NC		%	25
		1,4-Dioxane	2011/09/13	NC		%	25
		Xylene (Total)	2011/09/13	3.0		%	25

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

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

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

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

Polycyclic Aromatic Hydrocarbons Laboratory Analysis

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: 13-16-62-5 W4M
 Station ID: Lica 33 (Portable)
 Field Sample ID: LICA PUF/PORT/Aug 01, 11

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: Jul 29, 2011 @ 15:23 mst
 Removal Date/Time: Aug 02, 2011 @ 8:58 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
01-Aug-11	08/01/2011 0:00	08/02/2011 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
27-Jul-11	02-Aug-11	15-Aug-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 ³)
709	229	15.9	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# 05455

GB1A4642 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Aug 01, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 05455

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

Report Date: 2011/08/18

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1B6787****Received: 2011/08/04, 08:40**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/08/08	2011/08/18	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B1B6787
 Report Date: 2011/08/18

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

Maxxam ID		KK4085	KK4086		
Sampling Date		2011/08/01	2011/08/01		
COC Number		05455	05455		
	Units	LICAPUFF/CLS/AUG 01,2011	LICAPUFF/PORT/AUG 01,2011	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2574722
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2574722
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2574722
2-Methylantracene	ug	<0.10	<0.10	0.10	2574722
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2574722
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2574722
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2574722
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2574722
Acenaphthene	ug	<0.050	<0.050	0.050	2574722
Acenaphthylene	ug	<0.050	<0.050	0.050	2574722
Anthracene	ug	<0.050	<0.050	0.050	2574722
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2574722
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2574722
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2574722
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2574722
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2574722
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2574722
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2574722
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2574722
Biphenyl	ug	<0.10	<0.10	0.10	2574722
Chrysene	ug	<0.050	<0.050	0.050	2574722
Coronene	ug	<0.10	<0.10	0.10	2574722
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2574722
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2574722
Fluoranthene	ug	<0.050	<0.050	0.050	2574722
Fluorene	ug	<0.050	<0.050	0.050	2574722
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2574722
m-Terphenyl	ug	<0.10	<0.10	0.10	2574722
Naphthalene	ug	0.098	<0.072	0.072	2574722
o-Terphenyl	ug	<0.10	<0.10	0.10	2574722
Perylene	ug	<0.10	<0.10	0.10	2574722
Phenanthrene	ug	<0.050	0.136	0.050	2574722

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1B6787
 Report Date: 2011/08/18

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

Maxxam ID		KK4085	KK4086		
Sampling Date		2011/08/01	2011/08/01		
COC Number		05455	05455		
	Units	LICAPUFF/CLS/AUG 01,2011	LICAPUFF/PORT/AUG 01,2011	RDL	QC Batch

p-Terphenyl	ug	<0.10	<0.10	0.10	2574722
Pyrene	ug	<0.050	<0.050	0.050	2574722
Quinoline	ug	<0.40	<0.40	0.40	2574722
Tetralin	ug	<0.10	<0.10	0.10	2574722
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	74	74		2574722
D10-Fluoranthene	%	88	96		2574722
D10-Fluorene (FS)	%	83	15 (1)		2574722
D10-Phenanthrene	%	86	90		2574722
D12-Benzo(a)anthracene	%	94	86		2574722
D12-Benzo(a)pyrene	%	76	76		2574722
D12-Benzo(b)fluoranthene	%	80	80		2574722
D12-Benzo(ghi)perylene	%	74	76		2574722
D12-Benzo(k)fluoranthene	%	74	76		2574722
D12-Chrysene	%	80	76		2574722
D12-Indeno(1,2,3-cd)pyrene	%	74	78		2574722
D12-Perylene	%	76	74		2574722
D14-Dibenzo(a,h)anthracene	%	76	80		2574722
D14-Terphenyl (FS)	%	94	91		2574722
D8-Acenaphthylene	%	74	74		2574722
D8-Naphthalene	%	70	70		2574722

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 #: B1B6787
Report Date: 2011/08/18

GENERAL COMMENTS

PAHMS-F

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

Low benzo(a)pyrene recovery in spike:dup.

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

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

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

Sample KK4086-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB1B6787

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2574722 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/08/18		80	%	50 - 150
		D10-Fluoranthene	2011/08/18		90	%	50 - 150
		D10-Phenanthrene	2011/08/18		86	%	50 - 150
		D12-Benzo(a)anthracene	2011/08/18		82	%	50 - 150
		D12-Benzo(a)pyrene	2011/08/18		76	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/08/18		80	%	50 - 150
		D12-Benzo(ghi)perylene	2011/08/18		78	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/08/18		76	%	50 - 150
		D12-Chrysene	2011/08/18		82	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/08/18		78	%	50 - 150
		D12-Perylene	2011/08/18		76	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/08/18		80	%	50 - 150
		D8-Acenaphthylene	2011/08/18		76	%	50 - 150
		D8-Naphthalene	2011/08/18		80	%	50 - 150
		Acenaphthene	2011/08/18		74	%	60 - 130
	RPD	Acenaphthene	2011/08/18	5.9		%	50
	Spiked Blank	Acenaphthylene	2011/08/18		74	%	60 - 130
	RPD	Acenaphthylene	2011/08/18	5.3		%	50
	Spiked Blank	Anthracene	2011/08/18		73	%	60 - 130
	RPD	Anthracene	2011/08/18	1.0		%	50
	Spiked Blank	Benzo(a)anthracene	2011/08/18		71	%	60 - 130
	RPD	Benzo(a)anthracene	2011/08/18	0.4		%	50
	Spiked Blank	Benzo(a)pyrene	2011/08/18		60	%	60 - 130
	RPD	Benzo(a)pyrene	2011/08/18	3.8		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/08/18		69	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/08/18	0		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/08/18		72	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/08/18	0		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/08/18		76	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/08/18	1		%	50
	Spiked Blank	Chrysene	2011/08/18		74	%	60 - 130
	RPD	Chrysene	2011/08/18	0.7		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/08/18		74	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/08/18	0.7		%	50
	Spiked Blank	Fluoranthene	2011/08/18		83	%	60 - 130
	RPD	Fluoranthene	2011/08/18	1.2		%	50
	Spiked Blank	Fluorene	2011/08/18		75	%	60 - 130
	RPD	Fluorene	2011/08/18	5.5		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/08/18		74	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/08/18	1.0		%	50
	Spiked Blank	Naphthalene	2011/08/18		84	%	60 - 130
	RPD	Naphthalene	2011/08/18	2.1		%	50
	Spiked Blank	Phenanthrene	2011/08/18		78	%	60 - 130
	RPD	Phenanthrene	2011/08/18	3.5		%	50
	Spiked Blank	Pyrene	2011/08/18		76	%	60 - 130
	RPD	Pyrene	2011/08/18	0.7		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/08/18		84	%	50 - 150
		D10-Fluoranthene	2011/08/18		88	%	50 - 150
		D10-Phenanthrene	2011/08/18		86	%	50 - 150
		D12-Benzo(a)anthracene	2011/08/18		86	%	50 - 150
		D12-Benzo(a)pyrene	2011/08/18		74	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/08/18		78	%	50 - 150
		D12-Benzo(ghi)perylene	2011/08/18		74	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/08/18		72	%	50 - 150
		D12-Chrysene	2011/08/18		76	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1B6787

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2574722 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/08/18		74	%	50 - 150
		D12-Perylene	2011/08/18		74	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/08/18		76	%	50 - 150
		D8-Acenaphthylene	2011/08/18		78	%	50 - 150
		D8-Naphthalene	2011/08/18		84	%	50 - 150
		1-Methylnaphthalene	2011/08/18	<0.10		ug	
		1-Methylphenanthrene	2011/08/18	<0.10		ug	
		2-Chloronaphthalene	2011/08/18	<0.10		ug	
		2-Methylanthracene	2011/08/18	<0.10		ug	
		2-Methylnaphthalene	2011/08/18	<0.10		ug	
		3-Methylcholanthrene	2011/08/18	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/08/18	<0.10		ug	
		9,10-Dimethylanthracene	2011/08/18	<0.40		ug	
		Acenaphthene	2011/08/18	<0.050		ug	
		Acenaphthylene	2011/08/18	<0.050		ug	
		Anthracene	2011/08/18	<0.050		ug	
		Benzo(a)anthracene	2011/08/18	<0.050		ug	
		Benzo(a)fluorene	2011/08/18	<0.10		ug	
		Benzo(a)pyrene	2011/08/18	<0.050		ug	
		Benzo(b)fluoranthene	2011/08/18	<0.050		ug	
		Benzo(b)fluorene	2011/08/18	<0.10		ug	
		Benzo(e)pyrene	2011/08/18	<0.10		ug	
		Benzo(g,h,i)perylene	2011/08/18	<0.050		ug	
		Benzo(k)fluoranthene	2011/08/18	<0.050		ug	
		Biphenyl	2011/08/18	<0.10		ug	
		Chrysene	2011/08/18	<0.050		ug	
		Coronene	2011/08/18	<0.10		ug	
		Dibenz(a,h)anthracene	2011/08/18	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/08/18	<0.20		ug	
		Fluoranthene	2011/08/18	<0.050		ug	
		Fluorene	2011/08/18	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/08/18	<0.050		ug	
		m-Terphenyl	2011/08/18	<0.10		ug	
		Naphthalene	2011/08/18	<0.072		ug	
		o-Terphenyl	2011/08/18	<0.10		ug	
		Perylene	2011/08/18	<0.10		ug	
		Phenanthrene	2011/08/18	<0.050		ug	
		p-Terphenyl	2011/08/18	<0.10		ug	
		Pyrene	2011/08/18	<0.050		ug	
		Quinoline	2011/08/18	<0.40		ug	
		Tetralin	2011/08/18	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: 13-16-62-5 W4M
Station ID: Lica 33 (Portable)
Field Sample ID: LICA PUF/PORT/Aug 07, 11

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Aug 05, 2011 @ 14:33 mst
Removal Date/Time: Aug 09, 2011 @ 14:04 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
07-Aug-11	08/07/2011 0:00	08/08/2011 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
03-Aug-11	10-Aug-11	15-Aug-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-May-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
708	228	12.9	328.29

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#
GB1A4647 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Aug 07, 11

Technician Signiture: Jacob Roch

Your C.O.C. #: na

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2011/08/24****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B1C1968****Received: 2011/08/12, 09:23**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/08/15	2011/08/23	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B1C1968
 Report Date: 2011/08/24

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

Maxxam ID		KN0495	KN0496		
Sampling Date		2011/08/07	2011/08/07		
COC Number		na	na		
	Units	LICA PUFF+QFF/CLS/AUG 7,11	LICA PUFF+QFF/PORT/AUG 7,11	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2581977
1-Methylphenanthrene	ug	0.68	0.98	0.10	2581977
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2581977
2-Methylantracene	ug	<0.10	<0.10	0.10	2581977
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2581977
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2581977
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2581977
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2581977
Acenaphthene	ug	<0.050	<0.050	0.050	2581977
Acenaphthylene	ug	<0.050	<0.050	0.050	2581977
Anthracene	ug	<0.050	<0.050	0.050	2581977
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2581977
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2581977
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2581977
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2581977
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2581977
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2581977
Benzo(g,h,i)perylene	ug	0.210	0.312	0.050	2581977
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2581977
Biphenyl	ug	<0.10	<0.10	0.10	2581977
Chrysene	ug	<0.050	<0.050	0.050	2581977
Coronene	ug	<0.10	<0.10	0.10	2581977
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2581977
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2581977
Fluoranthene	ug	<0.050	<0.050	0.050	2581977
Fluorene	ug	<0.050	<0.050	0.050	2581977
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2581977
m-Terphenyl	ug	<0.10	<0.10	0.10	2581977
Naphthalene	ug	0.090	<0.072	0.072	2581977
o-Terphenyl	ug	<0.10	<0.10	0.10	2581977
Perylene	ug	<0.10	<0.10	0.10	2581977

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1C1968
 Report Date: 2011/08/24

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

Maxxam ID		KN0495	KN0496		
Sampling Date		2011/08/07	2011/08/07		
COC Number		na	na		
	Units	LICA PUFF+QFF/CLS/AUG 7,11	LICA PUFF+QFF/PORT/AUG 7,11	RDL	QC Batch

Phenanthrene	ug	0.060	0.124	0.050	2581977
p-Terphenyl	ug	<0.10	<0.10	0.10	2581977
Pyrene	ug	0.162	0.266	0.050	2581977
Quinoline	ug	<0.40	<0.40	0.40	2581977
Tetralin	ug	<0.10	<0.10	0.10	2581977
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	84	86		2581977
D10-Fluoranthene	%	110	98		2581977
D10-Fluorene (FS)	%	93	11 (1)		2581977
D10-Phenanthrene	%	100	92		2581977
D12-Benzo(a)anthracene	%	88	80		2581977
D12-Benzo(a)pyrene	%	82	78		2581977
D12-Benzo(b)fluoranthene	%	80	72		2581977
D12-Benzo(ghi)perylene	%	66	64		2581977
D12-Benzo(k)fluoranthene	%	72	72		2581977
D12-Chrysene	%	72	68		2581977
D12-Indeno(1,2,3-cd)pyrene	%	68	60		2581977
D12-Perylene	%	136	150		2581977
D14-Dibenzo(a,h)anthracene	%	70	62		2581977
D14-Terphenyl (FS)	%	113	104		2581977
D8-Acenaphthylene	%	92	90		2581977
D8-Naphthalene	%	78	84		2581977

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 #: B1C1968
Report Date: 2011/08/24

GENERAL COMMENTS

PAHMS-F

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

Samples extracted with hold time expired.

Naphthalene, 1-methylphenanthrene and 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.

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 KN0495-01: Internal std (d12-benzo(e)pyrene) area response criteria was high.

Sample KN0496-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1C1968

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2581977 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/08/23		90	%	50 - 150
		D10-Fluoranthene	2011/08/23		100	%	50 - 150
		D10-Phenanthrene	2011/08/23		90	%	50 - 150
		D12-Benzo(a)anthracene	2011/08/23		82	%	50 - 150
		D12-Benzo(a)pyrene	2011/08/23		84	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/08/23		82	%	50 - 150
		D12-Benzo(ghi)perylene	2011/08/23		80	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/08/23		78	%	50 - 150
		D12-Chrysene	2011/08/23		78	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/08/23		80	%	50 - 150
		D12-Perylene	2011/08/23		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/08/23		82	%	50 - 150
		RPD	D8-Acenaphthylene	2011/08/23		82	%
	D8-Naphthalene		2011/08/23		88	%	50 - 150
	Spiked Blank	Acenaphthene	2011/08/23		81	%	60 - 130
		Acenaphthene	2011/08/23	3.2		%	50
	RPD	Acenaphthylene	2011/08/23		78	%	60 - 130
		Acenaphthylene	2011/08/23	0.3		%	50
	Spiked Blank	Anthracene	2011/08/23		75	%	60 - 130
		Anthracene	2011/08/23	1.0		%	50
	Spiked Blank	Benzo(a)anthracene	2011/08/23		69	%	60 - 130
		Benzo(a)anthracene	2011/08/23	1.8		%	50
	Spiked Blank	Benzo(a)pyrene	2011/08/23		62	%	60 - 130
		Benzo(a)pyrene	2011/08/23	2.0		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/08/23		72	%	60 - 130
		Benzo(b)fluoranthene	2011/08/23	6.4		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/08/23		70	%	60 - 130
		Benzo(g,h,i)perylene	2011/08/23	0.7		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/08/23		71	%	60 - 130
		Benzo(k)fluoranthene	2011/08/23	2.8		%	50
	Spiked Blank	Chrysene	2011/08/23		69	%	60 - 130
		Chrysene	2011/08/23	1.5		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/08/23		70	%	60 - 130
		Dibenz(a,h)anthracene	2011/08/23	1.1		%	50
	Spiked Blank	Fluoranthene	2011/08/23		86	%	60 - 130
		Fluoranthene	2011/08/23	2.6		%	50
	Spiked Blank	Fluorene	2011/08/23		81	%	60 - 130
		Fluorene	2011/08/23	3.5		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/08/23		69	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/08/23	0.7		%	50
Spiked Blank	Naphthalene	2011/08/23		94	%	60 - 130	
	Naphthalene	2011/08/23	11.6		%	50	
Spiked Blank	Phenanthrene	2011/08/23		82	%	60 - 130	
	Phenanthrene	2011/08/23	5.6		%	50	
Spiked Blank	Pyrene	2011/08/23		81	%	60 - 130	
	Pyrene	2011/08/23	0.3		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/08/23		82	%	50 - 150	
	D10-Fluoranthene	2011/08/23		88	%	50 - 150	
	D10-Phenanthrene	2011/08/23		82	%	50 - 150	
	D12-Benzo(a)anthracene	2011/08/23		78	%	50 - 150	
	D12-Benzo(a)pyrene	2011/08/23		78	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/08/23		78	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/08/23		74	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/08/23		74	%	50 - 150	
	D12-Chrysene	2011/08/23		68	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C1968

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2581977 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/08/23		74	%	50 - 150
		D12-Perylene	2011/08/23		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/08/23		74	%	50 - 150
		D8-Acenaphthylene	2011/08/23		80	%	50 - 150
		D8-Naphthalene	2011/08/23		82	%	50 - 150
		1-Methylnaphthalene	2011/08/23	<0.10		ug	
		1-Methylphenanthrene	2011/08/23	0.17, RDL=0.10		ug	
		2-Chloronaphthalene	2011/08/23	<0.10		ug	
		2-Methylanthracene	2011/08/23	<0.10		ug	
		2-Methylnaphthalene	2011/08/23	<0.10		ug	
		3-Methylcholanthrene	2011/08/23	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/08/23	<0.10		ug	
		9,10-Dimethylanthracene	2011/08/23	<0.40		ug	
		Acenaphthene	2011/08/23	<0.050		ug	
		Acenaphthylene	2011/08/23	<0.050		ug	
		Anthracene	2011/08/23	<0.050		ug	
		Benzo(a)anthracene	2011/08/23	<0.050		ug	
		Benzo(a)fluorene	2011/08/23	<0.10		ug	
		Benzo(a)pyrene	2011/08/23	<0.050		ug	
		Benzo(b)fluoranthene	2011/08/23	<0.050		ug	
		Benzo(b)fluorene	2011/08/23	<0.10		ug	
		Benzo(e)pyrene	2011/08/23	<0.10		ug	
		Benzo(g,h,i)perylene	2011/08/23	0.084, RDL=0.050		ug	
		Benzo(k)fluoranthene	2011/08/23	<0.050		ug	
		Biphenyl	2011/08/23	<0.10		ug	
		Chrysene	2011/08/23	<0.050		ug	
		Coronene	2011/08/23	<0.10		ug	
		Dibenz(a,h)anthracene	2011/08/23	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/08/23	<0.20		ug	
		Fluoranthene	2011/08/23	<0.050		ug	
		Fluorene	2011/08/23	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/08/23	<0.050		ug	
		m-Terphenyl	2011/08/23	<0.10		ug	
		Naphthalene	2011/08/23	0.086, RDL=0.072		ug	
		o-Terphenyl	2011/08/23	<0.10		ug	
		Perylene	2011/08/23	<0.10		ug	
		Phenanthrene	2011/08/23	<0.050		ug	
		p-Terphenyl	2011/08/23	<0.10		ug	
		Pyrene	2011/08/23	<0.050		ug	
		Quinoline	2011/08/23	<0.40		ug	
		Tetralin	2011/08/23	<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/Aug 13, 11

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: Aug 12, 2011 @ 14:33 mst
 Removal Date/Time: Aug 16, 2011 @ 12:15 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
07-Aug-11	08/13/2011 0:00	08/14/2011 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
11-Aug-11	10-Aug-11	01-Sep-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-May-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
709	229	19.4	347.42

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# 5013

GB1B9185 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Aug 13, 11

Technician Signiture: Jacob Roch

Your C.O.C. #: 5013

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2011/08/29****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B1C8273****Received: 2011/08/23, 09:32**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/08/24	2011/08/26	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

THERESA STEPHENSON, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763=====
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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B1C8273
 Report Date: 2011/08/29

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

Maxxam ID		KQ3468	KQ3469		
Sampling Date		2011/08/13	2011/08/13		
COC Number		5013	5013		
	Units	LICA PUFF & QFF/CLS/AUG 13,11	LICA PUFF & QFF/PORT/AUG 13,11	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2592648
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2592648
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2592648
2-Methylantracene	ug	<0.10	<0.10	0.10	2592648
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2592648
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2592648
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2592648
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2592648
Acenaphthene	ug	<0.050	<0.050	0.050	2592648
Acenaphthylene	ug	<0.050	<0.050	0.050	2592648
Anthracene	ug	<0.050	<0.050	0.050	2592648
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2592648
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2592648
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2592648
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2592648
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2592648
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2592648
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2592648
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2592648
Biphenyl	ug	<0.10	<0.10	0.10	2592648
Chrysene	ug	<0.050	<0.050	0.050	2592648
Coronene	ug	<0.10	<0.10	0.10	2592648
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2592648
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2592648
Fluoranthene	ug	0.050	<0.050	0.050	2592648
Fluorene	ug	0.054	<0.050	0.050	2592648
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2592648
m-Terphenyl	ug	<0.10	<0.10	0.10	2592648
Naphthalene	ug	<0.072	<0.072	0.072	2592648
o-Terphenyl	ug	<0.10	<0.10	0.10	2592648
Perylene	ug	<0.10	<0.10	0.10	2592648

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

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

Maxxam ID		KQ3468	KQ3469		
Sampling Date		2011/08/13	2011/08/13		
COC Number		5013	5013		
	Units	LICA PUFF & QFF/CLS/AUG 13,11	LICA PUFF & QFF/PORT/AUG 13,11	RDL	QC Batch

Phenanthrene	ug	0.308	0.130	0.050	2592648
p-Terphenyl	ug	<0.10	<0.10	0.10	2592648
Pyrene	ug	<0.050	<0.050	0.050	2592648
Quinoline	ug	<0.40	<0.40	0.40	2592648
Tetralin	ug	<0.10	<0.10	0.10	2592648
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	66	64		2592648
D10-Fluoranthene	%	96	88		2592648
D10-Fluorene (FS)	%	11 (1)	7.8 (1)		2592648
D10-Phenanthrene	%	90	82		2592648
D12-Benzo(a)anthracene	%	84	84		2592648
D12-Benzo(a)pyrene	%	78	78		2592648
D12-Benzo(b)fluoranthene	%	82	78		2592648
D12-Benzo(ghi)perylene	%	80	78		2592648
D12-Benzo(k)fluoranthene	%	76	76		2592648
D12-Chrysene	%	76	76		2592648
D12-Indeno(1,2,3-cd)pyrene	%	80	80		2592648
D12-Perylene	%	78	78		2592648
D14-Dibenzo(a,h)anthracene	%	82	82		2592648
D14-Terphenyl (FS)	%	96	92		2592648
D8-Acenaphthylene	%	70	68		2592648
D8-Naphthalene	%	60	62		2592648

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 #: B1C8273
 Report Date: 2011/08/29

Test Summary

Maxxam ID	KQ3468	Collected	2011/08/13
Sample ID	LICA PUFF & QFF/CLS/AUG 13,11	Shipped	
Matrix	PUF AND FILTER	Received	2011/08/23

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2592648	2011/08/24	2011/08/26	JIE WU

Maxxam ID	KQ3469	Collected	2011/08/13
Sample ID	LICA PUFF & QFF/PORT/AUG 13,11	Shipped	
Matrix	PUF AND FILTER	Received	2011/08/23

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2592648	2011/08/24	2011/08/26	JIE WU

Maxxam Job #: B1C8273
Report Date: 2011/08/29

GENERAL COMMENTS

PAHMS-F

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

Samples received past hold time.

Low benzo(a)pyrene recovery in spike.

Chrysene is statistically out of control at 69.5% recovery in the spike:dup. Spike recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

Naphthalene, benzo(g,h,i)perylene and 1-methylphenanthrene positive found in blank. Samples should be considered to be possibly contaminated to the level found in the blank.

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

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

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

Sample KQ3468-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Internal standard area response criteria of d12-benzo(e)pyrene was high in sample.

Sample KQ3469-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB1C8273

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2592648 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/08/26		84	%	50 - 150
		D10-Fluoranthene	2011/08/26		92	%	50 - 150
		D10-Phenanthrene	2011/08/26		92	%	50 - 150
		D12-Benzo(a)anthracene	2011/08/26		80	%	50 - 150
		D12-Benzo(a)pyrene	2011/08/26		74	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/08/26		82	%	50 - 150
		D12-Benzo(ghi)perylene	2011/08/26		76	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/08/26		76	%	50 - 150
		D12-Chrysene	2011/08/26		80	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/08/26		76	%	50 - 150
		D12-Perylene	2011/08/26		76	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/08/26		80	%	50 - 150
		D8-Acenaphthylene	2011/08/26		76	%	50 - 150
		D8-Naphthalene	2011/08/26		82	%	50 - 150
		RPD	Acenaphthene	2011/08/26		78	%
	Spiked Blank	Acenaphthene	2011/08/26	1.3		%	50
	RPD	Acenaphthylene	2011/08/26		73	%	60 - 130
	Spiked Blank	Acenaphthylene	2011/08/26	0		%	50
	RPD	Anthracene	2011/08/26		74	%	60 - 130
	Spiked Blank	Anthracene	2011/08/26	0.3		%	50
	RPD	Benzo(a)anthracene	2011/08/26		69	%	60 - 130
	Spiked Blank	Benzo(a)anthracene	2011/08/26	5.3		%	50
	RPD	Benzo(a)pyrene	2011/08/26		57 (1)	%	60 - 130
	Spiked Blank	Benzo(a)pyrene	2011/08/26	11.6		%	50
	RPD	Benzo(b)fluoranthene	2011/08/26		69	%	60 - 130
	Spiked Blank	Benzo(b)fluoranthene	2011/08/26	6.0		%	50
	RPD	Benzo(g,h,i)perylene	2011/08/26		67	%	60 - 130
	Spiked Blank	Benzo(g,h,i)perylene	2011/08/26	6.8		%	50
	RPD	Benzo(k)fluoranthene	2011/08/26		73	%	60 - 130
	Spiked Blank	Benzo(k)fluoranthene	2011/08/26	0.7		%	50
	RPD	Chrysene	2011/08/26		71	%	60 - 130
	Spiked Blank	Chrysene	2011/08/26	1.4		%	50
	RPD	Dibenz(a,h)anthracene	2011/08/26		71	%	60 - 130
	Spiked Blank	Dibenz(a,h)anthracene	2011/08/26	4.2		%	50
	RPD	Fluoranthene	2011/08/26		84	%	60 - 130
	Spiked Blank	Fluoranthene	2011/08/26	5.8		%	50
	RPD	Fluorene	2011/08/26		80	%	60 - 130
	Spiked Blank	Fluorene	2011/08/26	3.2		%	50
	RPD	Indeno(1,2,3-cd)pyrene	2011/08/26		69	%	60 - 130
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/08/26	4.6		%	50
RPD	Naphthalene	2011/08/26		95	%	60 - 130	
Spiked Blank	Naphthalene	2011/08/26	12.0		%	50	
RPD	Phenanthrene	2011/08/26		84	%	60 - 130	
Spiked Blank	Phenanthrene	2011/08/26	0.9		%	50	
RPD	Pyrene	2011/08/26		76	%	60 - 130	
Spiked Blank	Pyrene	2011/08/26	5.4		%	50	
RPD	D10-2-Methylnaphthalene	2011/08/26		88	%	50 - 150	
Method Blank	D10-Fluoranthene	2011/08/26		94	%	50 - 150	
	D10-Phenanthrene	2011/08/26		94	%	50 - 150	
	D12-Benzo(a)anthracene	2011/08/26		88	%	50 - 150	
	D12-Benzo(a)pyrene	2011/08/26		84	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/08/26		86	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/08/26		74	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/08/26		74	%	50 - 150	
	D12-Chrysene	2011/08/26		74	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C8273

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2592648 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/08/26		76	%	50 - 150
		D12-Perylene	2011/08/26		114	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/08/26		78	%	50 - 150
		D8-Acenaphthylene	2011/08/26		86	%	50 - 150
		D8-Naphthalene	2011/08/26		86	%	50 - 150
		1-Methylnaphthalene	2011/08/26	<0.10		ug	
		1-Methylphenanthrene	2011/08/26	0.26, RDL=0.10		ug	
		2-Chloronaphthalene	2011/08/26	<0.10		ug	
		2-Methylanthracene	2011/08/26	<0.10		ug	
		2-Methylnaphthalene	2011/08/26	<0.10		ug	
		3-Methylcholanthrene	2011/08/26	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/08/26	<0.10		ug	
		9,10-Dimethylanthracene	2011/08/26	<0.40		ug	
		Acenaphthene	2011/08/26	<0.050		ug	
		Acenaphthylene	2011/08/26	<0.050		ug	
		Anthracene	2011/08/26	<0.050		ug	
		Benzo(a)anthracene	2011/08/26	<0.050		ug	
		Benzo(a)fluorene	2011/08/26	<0.10		ug	
		Benzo(a)pyrene	2011/08/26	<0.050		ug	
		Benzo(b)fluoranthene	2011/08/26	<0.050		ug	
		Benzo(b)fluorene	2011/08/26	<0.10		ug	
		Benzo(e)pyrene	2011/08/26	<0.10		ug	
		Benzo(g,h,i)perylene	2011/08/26	0.082, RDL=0.050		ug	
		Benzo(k)fluoranthene	2011/08/26	<0.050		ug	
		Biphenyl	2011/08/26	<0.10		ug	
		Chrysene	2011/08/26	<0.050		ug	
		Coronene	2011/08/26	<0.10		ug	
		Dibenz(a,h)anthracene	2011/08/26	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/08/26	<0.20		ug	
		Fluoranthene	2011/08/26	<0.050		ug	
		Fluorene	2011/08/26	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/08/26	<0.050		ug	
		m-Terphenyl	2011/08/26	<0.10		ug	
		Naphthalene	2011/08/26	0.104, RDL=0.072		ug	
		o-Terphenyl	2011/08/26	<0.10		ug	
		Perylene	2011/08/26	<0.10		ug	
		Phenanthrene	2011/08/26	<0.050		ug	
		p-Terphenyl	2011/08/26	<0.10		ug	
		Pyrene	2011/08/26	<0.050		ug	
		Quinoline	2011/08/26	<0.40		ug	
		Tetralin	2011/08/26	<0.10		ug	

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

Spiked Blank: A blank matrix 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/Aug 19, 11

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: Aug 18, 2011 @ 14:33 mst
 Removal Date/Time: Aug 22, 2011 @ 10:35 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
19-Aug-11	08/19/2011 0:00	08/20/2011 0:00	23.9975

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
16-Aug-11	22-Aug-11	01-Sep-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-May-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
712	229	12.8	330.02

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# 05528

GB1C1943 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Aug 19, 11

Technician Signiture: Jacob Roch/ Ting Xu

Your C.O.C. #: 05528

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

Report Date: 2011/09/02

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1C9356**

Received: 2011/08/24, 09:06

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/08/26	2011/09/01	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

=====

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B1C9356
 Report Date: 2011/09/02

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

Maxxam ID		KQ8590	KQ8591		
Sampling Date		2011/08/19	2011/08/19		
COC Number		05528	05528		
	Units	LICA PUFF&QFF/CLS/AUG 14, 11	LICA PUFF&QFF/PORT/AUG 14, 11	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.14	<0.10	0.10	2595190
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2595190
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2595190
2-Methylantracene	ug	<0.10	<0.10	0.10	2595190
2-Methylnaphthalene	ug	0.31	<0.10	0.10	2595190
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2595190
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2595190
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2595190
Acenaphthene	ug	0.070	<0.050	0.050	2595190
Acenaphthylene	ug	<0.050	<0.050	0.050	2595190
Anthracene	ug	<0.050	<0.050	0.050	2595190
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2595190
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2595190
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2595190
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2595190
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2595190
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2595190
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2595190
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2595190
Biphenyl	ug	<0.10	<0.10	0.10	2595190
Chrysene	ug	<0.050	<0.050	0.050	2595190
Coronene	ug	<0.10	<0.10	0.10	2595190
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2595190
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2595190
Fluoranthene	ug	<0.050	<0.050	0.050	2595190
Fluorene	ug	0.104	<0.050	0.050	2595190
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2595190
m-Terphenyl	ug	<0.10	<0.10	0.10	2595190
Naphthalene	ug	0.156	0.082	0.072	2595190
o-Terphenyl	ug	<0.10	<0.10	0.10	2595190
Perylene	ug	<0.10	<0.10	0.10	2595190

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

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

Maxxam ID		KQ8590	KQ8591		
Sampling Date		2011/08/19	2011/08/19		
COC Number		05528	05528		
	Units	LICA PUFF&QFF/CLS/AUG 14, 11	LICA PUFF&QFF/PORT/AUG 14, 11	RDL	QC Batch

Phenanthrene	ug	0.256	0.106	0.050	2595190
p-Terphenyl	ug	<0.10	<0.10	0.10	2595190
Pyrene	ug	<0.050	<0.050	0.050	2595190
Quinoline	ug	<0.40	<0.40	0.40	2595190
Tetralin	ug	<0.10	<0.10	0.10	2595190
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	84	80		2595190
D10-Fluoranthene	%	96	98		2595190
D10-Fluorene (FS)	%	14 (1)	21 (1)		2595190
D10-Phenanthrene	%	86	88		2595190
D12-Benzo(a)anthracene	%	106	114		2595190
D12-Benzo(a)pyrene	%	94	94		2595190
D12-Benzo(b)fluoranthene	%	94	98		2595190
D12-Benzo(ghi)perylene	%	82	84		2595190
D12-Benzo(k)fluoranthene	%	98	100		2595190
D12-Chrysene	%	102	104		2595190
D12-Indeno(1,2,3-cd)pyrene	%	92	94		2595190
D12-Perylene	%	98	100		2595190
D14-Dibenzo(a,h)anthracene	%	94	96		2595190
D14-Terphenyl (FS)	%	97	99		2595190
D8-Acenaphthylene	%	86	86		2595190
D8-Naphthalene	%	86	82		2595190

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 #: B1C9356
Report Date: 2011/09/02

GENERAL COMMENTS

PAHMS-F

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

Acenaphthylene is statistically out of control at 87% recovery in spike. Spike:dup recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

Naphthalene, 2-methylnaphthalene and phenanthrene positive found in blank. Samples should be considered to be possibly contaminated to the level found in the blank.

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

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

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

Sample KQ8590-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Sample KQ8591-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB1C9356

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2595190 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/09/01		92	%	50 - 150
		D10-Fluoranthene	2011/09/01		96	%	50 - 150
		D10-Phenanthrene	2011/09/01		84	%	50 - 150
		D12-Benzo(a)anthracene	2011/09/01		102	%	50 - 150
		D12-Benzo(a)pyrene	2011/09/01		100	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/09/01		94	%	50 - 150
		D12-Benzo(ghi)perylene	2011/09/01		84	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/09/01		98	%	50 - 150
		D12-Chrysene	2011/09/01		94	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/09/01		96	%	50 - 150
		D12-Perylene	2011/09/01		108	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/09/01		96	%	50 - 150
		RPD	D8-Acenaphthylene	2011/09/01		94	%
	D8-Naphthalene		2011/09/01		94	%	50 - 150
	Spiked Blank	Acenaphthene	2011/09/01		79	%	60 - 130
		Acenaphthene	2011/09/01	10.4		%	50
	RPD	Acenaphthylene	2011/09/01		87	%	60 - 130
		Acenaphthylene	2011/09/01	11.2		%	50
	Spiked Blank	Anthracene	2011/09/01		73	%	60 - 130
		Anthracene	2011/09/01	0.3		%	50
	Spiked Blank	Benzo(a)anthracene	2011/09/01		84	%	60 - 130
		Benzo(a)anthracene	2011/09/01	7.5		%	50
	Spiked Blank	Benzo(a)pyrene	2011/09/01		75	%	60 - 130
		Benzo(a)pyrene	2011/09/01	8.0		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/09/01		87	%	60 - 130
		Benzo(b)fluoranthene	2011/09/01	13.5		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/09/01		83	%	60 - 130
		Benzo(g,h,i)perylene	2011/09/01	10.1		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/09/01		87	%	60 - 130
		Benzo(k)fluoranthene	2011/09/01	0.9		%	50
	Spiked Blank	Chrysene	2011/09/01		83	%	60 - 130
		Chrysene	2011/09/01	1.8		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/09/01		81	%	60 - 130
		Dibenz(a,h)anthracene	2011/09/01	5.7		%	50
	Spiked Blank	Fluoranthene	2011/09/01		82	%	60 - 130
		Fluoranthene	2011/09/01	5.0		%	50
	Spiked Blank	Fluorene	2011/09/01		80	%	60 - 130
		Fluorene	2011/09/01	10.2		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/09/01		81	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/09/01	6.3		%	50
Spiked Blank	Naphthalene	2011/09/01		89	%	60 - 130	
	Naphthalene	2011/09/01	14.8		%	50	
Spiked Blank	Phenanthrene	2011/09/01		75	%	60 - 130	
	Phenanthrene	2011/09/01	9.1		%	50	
Spiked Blank	Pyrene	2011/09/01		79	%	60 - 130	
	Pyrene	2011/09/01	7.9		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/09/01		94	%	50 - 150	
	D10-Fluoranthene	2011/09/01		98	%	50 - 150	
	D10-Phenanthrene	2011/09/01		86	%	50 - 150	
	D12-Benzo(a)anthracene	2011/09/01		100	%	50 - 150	
	D12-Benzo(a)pyrene	2011/09/01		102	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/09/01		96	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/09/01		86	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/09/01		100	%	50 - 150	
	D12-Chrysene	2011/09/01		100	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1C9356

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2595190 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/09/01		96	%	50 - 150
		D12-Perylene	2011/09/01		106	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/09/01		96	%	50 - 150
		D8-Acenaphthylene	2011/09/01		100	%	50 - 150
		D8-Naphthalene	2011/09/01		96	%	50 - 150
		1-Methylnaphthalene	2011/09/01	<0.10		ug	
		1-Methylphenanthrene	2011/09/01	<0.10		ug	
		2-Chloronaphthalene	2011/09/01	<0.10		ug	
		2-Methylanthracene	2011/09/01	<0.10		ug	
		2-Methylnaphthalene	2011/09/01	0.11, RDL=0.10		ug	
		3-Methylcholanthrene	2011/09/01	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/09/01	<0.10		ug	
		9,10-Dimethylanthracene	2011/09/01	<0.40		ug	
		Acenaphthene	2011/09/01	<0.050		ug	
		Acenaphthylene	2011/09/01	<0.050		ug	
		Anthracene	2011/09/01	<0.050		ug	
		Benzo(a)anthracene	2011/09/01	<0.050		ug	
		Benzo(a)fluorene	2011/09/01	<0.10		ug	
		Benzo(a)pyrene	2011/09/01	<0.050		ug	
		Benzo(b)fluoranthene	2011/09/01	<0.050		ug	
		Benzo(b)fluorene	2011/09/01	<0.10		ug	
		Benzo(e)pyrene	2011/09/01	<0.10		ug	
		Benzo(g,h,i)perylene	2011/09/01	<0.050		ug	
		Benzo(k)fluoranthene	2011/09/01	<0.050		ug	
		Biphenyl	2011/09/01	<0.10		ug	
		Chrysene	2011/09/01	<0.050		ug	
		Coronene	2011/09/01	<0.10		ug	
		Dibenz(a,h)anthracene	2011/09/01	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/09/01	<0.20		ug	
		Fluoranthene	2011/09/01	<0.050		ug	
		Fluorene	2011/09/01	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/09/01	<0.050		ug	
		m-Terphenyl	2011/09/01	<0.10		ug	
		Naphthalene	2011/09/01	0.166, RDL=0.072		ug	
		o-Terphenyl	2011/09/01	<0.10		ug	
		Perylene	2011/09/01	<0.10		ug	
		Phenanthrene	2011/09/01	0.056, RDL=0.050		ug	
		p-Terphenyl	2011/09/01	<0.10		ug	
		Pyrene	2011/09/01	<0.050		ug	
		Quinoline	2011/09/01	<0.40		ug	
		Tetralin	2011/09/01	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: 13-16-62-5 W4M
 Station ID: Lica 33 (Portable)
 Field Sample ID: LICA PUF/PORT/Aug 25, 11

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: Aug 24, 2011 @ 14:02 mst
 Removal Date/Time: Aug 26, 2011 @ 8:27 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
25-Aug-11	08/25/2011 0:00	08/26/2011 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
21-Aug-11	26-Aug-11	01-Sep-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-May-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
711	229	15.7	330.34

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

Comments: COC# 05789

GB1C1951 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Aug 25, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 05789

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

Report Date: 2011/09/12

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1D2440****Received: 2011/08/30, 09:18**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/09/01	2011/09/09	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B1D2440
 Report Date: 2011/09/12

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

Maxxam ID		KS2773	KS2774		
Sampling Date		2011/08/25	2011/08/25		
COC Number		05789	05789		
	Units	LICA PUFF+QFF/CLS/AUG 25,11	LICAPUFF+QFF/PORT/AUG 25,11	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2602175
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2602175
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2602175
2-Methylantracene	ug	<0.10	<0.10	0.10	2602175
2-Methylnaphthalene	ug	0.10	<0.10	0.10	2602175
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2602175
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2602175
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2602175
Acenaphthene	ug	0.074	<0.050	0.050	2602175
Acenaphthylene	ug	<0.050	<0.050	0.050	2602175
Anthracene	ug	<0.050	<0.050	0.050	2602175
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2602175
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2602175
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2602175
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2602175
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2602175
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2602175
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2602175
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2602175
Biphenyl	ug	<0.10	<0.10	0.10	2602175
Chrysene	ug	<0.050	<0.050	0.050	2602175
Coronene	ug	<0.10	<0.10	0.10	2602175
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2602175
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2602175
Fluoranthene	ug	0.060	<0.050	0.050	2602175
Fluorene	ug	0.138	<0.050	0.050	2602175
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2602175
m-Terphenyl	ug	<0.10	<0.10	0.10	2602175
Naphthalene	ug	0.080	<0.072	0.072	2602175
o-Terphenyl	ug	<0.10	<0.10	0.10	2602175
Perylene	ug	<0.10	<0.10	0.10	2602175

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1D2440
 Report Date: 2011/09/12

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

Maxxam ID		KS2773	KS2774		
Sampling Date		2011/08/25	2011/08/25		
COC Number		05789	05789		
	Units	LICA PUFF+QFF/CLS/AUG 25,11	LICAPUFF+QFF/PORT/AUG 25,11	RDL	QC Batch

Phenanthrene	ug	0.440	0.088	0.050	2602175
p-Terphenyl	ug	<0.10	<0.10	0.10	2602175
Pyrene	ug	0.062	<0.050	0.050	2602175
Quinoline	ug	<0.40	<0.40	0.40	2602175
Tetralin	ug	<0.10	<0.10	0.10	2602175
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	78	86		2602175
D10-Fluoranthene	%	110	106		2602175
D10-Fluorene (FS)	%	26 (1)	29 (1)		2602175
D10-Phenanthrene	%	100	96		2602175
D12-Benzo(a)anthracene	%	122	112		2602175
D12-Benzo(a)pyrene	%	116	110		2602175
D12-Benzo(b)fluoranthene	%	112	108		2602175
D12-Benzo(ghi)perylene	%	122	116		2602175
D12-Benzo(k)fluoranthene	%	100	96		2602175
D12-Chrysene	%	96	92		2602175
D12-Indeno(1,2,3-cd)pyrene	%	122	118		2602175
D12-Perylene	%	108	104		2602175
D14-Dibenzo(a,h)anthracene	%	124	116		2602175
D14-Terphenyl (FS)	%	108	107		2602175
D8-Acenaphthylene	%	96	100		2602175
D8-Naphthalene	%	76	84		2602175

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 #: B1D2440
 Report Date: 2011/09/12

Test Summary

Maxxam ID	KS2773	Collected	2011/08/25
Sample ID	LICA PUFF+QFF/CLS/AUG 25,11	Shipped	
Matrix	PUF AND FILTER	Received	2011/08/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2602175	2011/09/01	2011/09/09	JIE WU

Maxxam ID	KS2774	Collected	2011/08/25
Sample ID	LICAPUFF+QFF/PORT/AUG 25,11	Shipped	
Matrix	PUF AND FILTER	Received	2011/08/30

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2602175	2011/09/01	2011/09/09	JIE WU

Maxxam Job #: B1D2440
Report Date: 2011/09/12

GENERAL COMMENTS

PAHMS-F

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

Acenaphthylene is statistically out of control at 99% recovery in spike and 97% recovery in spike:dup. Acceptance criteria met for both spike and dup. Data reported and flagged.

Phenanthrene is statistically out of control at 93% recovery in the spike:dup. Spike recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

Pyrene is statistically out of control at 98% recovery in the spike:dup. Spike recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

Chrysene is statistically out of control at 88% recovery in the spike:dup. Spike recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

Naphthalene and 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.

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 KS2773-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Sample KS2774-01: Low d10-fluorene field spike recovery. Suspect sample matrix as cause due to acceptable recovery of d14-terphenyl field spike.

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB1D2440

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2602175 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/09/09		90	%	50 - 150
		D10-Fluoranthene	2011/09/09		108	%	50 - 150
		D10-Phenanthrene	2011/09/09		98	%	50 - 150
		D12-Benzo(a)anthracene	2011/09/09		112	%	50 - 150
		D12-Benzo(a)pyrene	2011/09/09		112	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/09/09		102	%	50 - 150
		D12-Benzo(ghi)perylene	2011/09/09		114	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/09/09		102	%	50 - 150
		D12-Chrysene	2011/09/09		92	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/09/09		116	%	50 - 150
		D12-Perylene	2011/09/09		106	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/09/09		116	%	50 - 150
		RPD	D8-Acenaphthylene	2011/09/09		104	%
	D8-Naphthalene		2011/09/09		88	%	50 - 150
	RPD	Acenaphthene	2011/09/09		88	%	60 - 130
		Acenaphthene	2011/09/09	3.2		%	50
	Spiked Blank	Acenaphthylene	2011/09/09		99	%	60 - 130
		Acenaphthylene	2011/09/09	2.3		%	50
	Spiked Blank	Anthracene	2011/09/09		87	%	60 - 130
		Anthracene	2011/09/09	5.0		%	50
	Spiked Blank	Benzo(a)anthracene	2011/09/09		94	%	60 - 130
		Benzo(a)anthracene	2011/09/09	2.4		%	50
	Spiked Blank	Benzo(a)pyrene	2011/09/09		86	%	60 - 130
		Benzo(a)pyrene	2011/09/09	4.0		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/09/09		90	%	60 - 130
		Benzo(b)fluoranthene	2011/09/09	2.5		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/09/09		101	%	60 - 130
		Benzo(g,h,i)perylene	2011/09/09	2.4		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/09/09		93	%	60 - 130
		Benzo(k)fluoranthene	2011/09/09	3.2		%	50
	Spiked Blank	Chrysene	2011/09/09		87	%	60 - 130
		Chrysene	2011/09/09	0.9		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/09/09		102	%	60 - 130
		Dibenz(a,h)anthracene	2011/09/09	3.1		%	50
	Spiked Blank	Fluoranthene	2011/09/09		100	%	60 - 130
		Fluoranthene	2011/09/09	4.9		%	50
	Spiked Blank	Fluorene	2011/09/09		91	%	60 - 130
		Fluorene	2011/09/09	2.0		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/09/09		102	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/09/09	2.4		%	50
Spiked Blank	Naphthalene	2011/09/09		97	%	60 - 130	
	Naphthalene	2011/09/09	11.7		%	50	
Spiked Blank	Phenanthrene	2011/09/09		92	%	60 - 130	
	Phenanthrene	2011/09/09	1.9		%	50	
Spiked Blank	Pyrene	2011/09/09		92	%	60 - 130	
	Pyrene	2011/09/09	5.5		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/09/09		84	%	50 - 150	
	D10-Fluoranthene	2011/09/09		110	%	50 - 150	
	D10-Phenanthrene	2011/09/09		96	%	50 - 150	
	D12-Benzo(a)anthracene	2011/09/09		108	%	50 - 150	
	D12-Benzo(a)pyrene	2011/09/09		108	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/09/09		98	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/09/09		108	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/09/09		94	%	50 - 150	
	D12-Chrysene	2011/09/09		82	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D2440

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2602175 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/09/09		110	%	50 - 150
		D12-Perylene	2011/09/09		114	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/09/09		110	%	50 - 150
		D8-Acenaphthylene	2011/09/09		100	%	50 - 150
		D8-Naphthalene	2011/09/09		82	%	50 - 150
		1-Methylnaphthalene	2011/09/09	<0.10		ug	
		1-Methylphenanthrene	2011/09/09	<0.10		ug	
		2-Chloronaphthalene	2011/09/09	<0.10		ug	
		2-Methylanthracene	2011/09/09	<0.10		ug	
		2-Methylnaphthalene	2011/09/09	<0.10		ug	
		3-Methylcholanthrene	2011/09/09	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/09/09	<0.10		ug	
		9,10-Dimethylanthracene	2011/09/09	<0.40		ug	
		Acenaphthene	2011/09/09	<0.050		ug	
		Acenaphthylene	2011/09/09	<0.050		ug	
		Anthracene	2011/09/09	<0.050		ug	
		Benzo(a)anthracene	2011/09/09	<0.050		ug	
		Benzo(a)fluorene	2011/09/09	<0.10		ug	
		Benzo(a)pyrene	2011/09/09	<0.050		ug	
		Benzo(b)fluoranthene	2011/09/09	<0.050		ug	
		Benzo(b)fluorene	2011/09/09	<0.10		ug	
		Benzo(e)pyrene	2011/09/09	<0.10		ug	
		Benzo(g,h,i)perylene	2011/09/09	0.058, RDL=0.050		ug	
		Benzo(k)fluoranthene	2011/09/09	<0.050		ug	
		Biphenyl	2011/09/09	<0.10		ug	
		Chrysene	2011/09/09	<0.050		ug	
		Coronene	2011/09/09	<0.10		ug	
		Dibenz(a,h)anthracene	2011/09/09	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/09/09	<0.20		ug	
		Fluoranthene	2011/09/09	<0.050		ug	
		Fluorene	2011/09/09	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/09/09	<0.050		ug	
		m-Terphenyl	2011/09/09	<0.10		ug	
		Naphthalene	2011/09/09	0.118, RDL=0.072		ug	
		o-Terphenyl	2011/09/09	<0.10		ug	
		Perylene	2011/09/09	<0.10		ug	
		Phenanthrene	2011/09/09	<0.050		ug	
		p-Terphenyl	2011/09/09	<0.10		ug	
		Pyrene	2011/09/09	<0.050		ug	
		Quinoline	2011/09/09	<0.40		ug	
		Tetralin	2011/09/09	<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/Aug 31, 11

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: Aug 29, 2011 @ 14:34 mst
 Removal Date/Time: Sept 01, 2011 @ 10:14 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
31-Aug-11	08/31/2011 0:00	09/01/2011 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
25-Aug-11	01-Sep-11	15-Sep-11	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 25-May-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
710	229	10.7	330.34

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

Comments: COC# 05820

GB1C7366 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Aug 31, 11

Technician Signiture: Ting Xu

Your C.O.C. #: 05820

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

Report Date: 2011/09/20

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B1D5741****Received: 2011/09/03, 11:15**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/09/07	2011/09/20	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B1D5741
 Report Date: 2011/09/20

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

Maxxam ID		KT8197	KT8198		
Sampling Date		2011/08/31	2011/08/31		
COC Number		05820	05820		
	Units	LICA PUFF+QFF/CLS/AUG 31,2011	LICA PUFF+QFF/PORT/AUG 31,2011	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2605899
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2605899
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2605899
2-Methylantracene	ug	<0.10	<0.10	0.10	2605899
2-Methylnaphthalene	ug	0.14	<0.10	0.10	2605899
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2605899
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2605899
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2605899
Acenaphthene	ug	0.066	<0.050	0.050	2605899
Acenaphthylene	ug	<0.050	<0.050	0.050	2605899
Anthracene	ug	<0.050	<0.050	0.050	2605899
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2605899
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2605899
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2605899
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2605899
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2605899
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2605899
Benzo(g,h,i)perylene	ug	0.060	0.056	0.050	2605899
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2605899
Biphenyl	ug	<0.10	<0.10	0.10	2605899
Chrysene	ug	<0.050	<0.050	0.050	2605899
Coronene	ug	<0.10	<0.10	0.10	2605899
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2605899
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2605899
Fluoranthene	ug	<0.050	<0.050	0.050	2605899
Fluorene	ug	0.098	0.050	0.050	2605899
Indeno(1,2,3-cd)pyrene	ug	0.052	0.052	0.050	2605899
m-Terphenyl	ug	<0.10	<0.10	0.10	2605899
Naphthalene	ug	0.126	0.102	0.072	2605899
o-Terphenyl	ug	<0.10	<0.10	0.10	2605899
Perylene	ug	<0.10	<0.10	0.10	2605899

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B1D5741
 Report Date: 2011/09/20

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

Maxxam ID		KT8197	KT8198		
Sampling Date		2011/08/31	2011/08/31		
COC Number		05820	05820		
	Units	LICA PUFF+QFF/CLS/AUG 31,2011	LICA PUFF+QFF/PORT/AUG 31,2011	RDL	QC Batch

Phenanthrene	ug	0.214	0.096	0.050	2605899
p-Terphenyl	ug	<0.10	<0.10	0.10	2605899
Pyrene	ug	<0.050	<0.050	0.050	2605899
Quinoline	ug	<0.40	<0.40	0.40	2605899
Tetralin	ug	<0.10	<0.10	0.10	2605899
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	78	88		2605899
D10-Fluoranthene	%	100	100		2605899
D10-Fluorene (FS)	%	28 (1)	36 (1)		2605899
D10-Phenanthrene	%	94	96		2605899
D12-Benzo(a)anthracene	%	108	108		2605899
D12-Benzo(a)pyrene	%	92	96		2605899
D12-Benzo(b)fluoranthene	%	96	98		2605899
D12-Benzo(ghi)perylene	%	98	100		2605899
D12-Benzo(k)fluoranthene	%	96	98		2605899
D12-Chrysene	%	88	86		2605899
D12-Indeno(1,2,3-cd)pyrene	%	98	100		2605899
D12-Perylene	%	90	92		2605899
D14-Dibenzo(a,h)anthracene	%	98	100		2605899
D14-Terphenyl (FS)	%	102	108		2605899
D8-Acenaphthylene	%	84	90		2605899
D8-Naphthalene	%	74	86		2605899

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 #: B1D5741
Report Date: 2011/09/20

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.

Pyrene is statistically out of control at 89.0% and 88.5% recovery in the spike and spike:dup. Phenanthrene is statistically out of control at 88.8% and 86.8% recovery in the spike and spike:dup. Acenaphthylene is statistically out of control at 88.5% and 85.3% recovery in the spike and spike:dup. Data reported and flagged.

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 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 KT8197-01: PAHMS-F

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

Sample KT8198-01: 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. #:
 Site Location:

Quality Assurance Report

Maxxam Job Number: GB1D5741

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2605899 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/09/20		92	%	50 - 150
		D10-Fluoranthene	2011/09/20		102	%	50 - 150
		D10-Phenanthrene	2011/09/20		96	%	50 - 150
		D12-Benzo(a)anthracene	2011/09/20		114	%	50 - 150
		D12-Benzo(a)pyrene	2011/09/20		106	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/09/20		102	%	50 - 150
		D12-Benzo(ghi)perylene	2011/09/20		102	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/09/20		98	%	50 - 150
		D12-Chrysene	2011/09/20		90	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/09/20		104	%	50 - 150
		D12-Perylene	2011/09/20		100	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/09/20		104	%	50 - 150
		RPD	D8-Acenaphthylene	2011/09/20		92	%
	D8-Naphthalene		2011/09/20		92	%	50 - 150
	Spiked Blank	Acenaphthene	2011/09/20		87	%	60 - 130
		Acenaphthene	2011/09/20	4.7		%	50
	RPD	Acenaphthylene	2011/09/20		89	%	60 - 130
		Acenaphthylene	2011/09/20	3.7		%	50
	Spiked Blank	Anthracene	2011/09/20		82	%	60 - 130
		Anthracene	2011/09/20	1.8		%	50
	Spiked Blank	Benzo(a)anthracene	2011/09/20		95	%	60 - 130
		Benzo(a)anthracene	2011/09/20	3.8		%	50
	Spiked Blank	Benzo(a)pyrene	2011/09/20		85	%	60 - 130
		Benzo(a)pyrene	2011/09/20	2.7		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/09/20		94	%	60 - 130
		Benzo(b)fluoranthene	2011/09/20	1.6		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/09/20		93	%	60 - 130
		Benzo(g,h,i)perylene	2011/09/20	0.5		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/09/20		91	%	60 - 130
		Benzo(k)fluoranthene	2011/09/20	4.2		%	50
	Spiked Blank	Chrysene	2011/09/20		86	%	60 - 130
		Chrysene	2011/09/20	3.0		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/09/20		94	%	60 - 130
		Dibenz(a,h)anthracene	2011/09/20	0.5		%	50
	Spiked Blank	Fluoranthene	2011/09/20		96	%	60 - 130
		Fluoranthene	2011/09/20	3.5		%	50
	Spiked Blank	Fluorene	2011/09/20		88	%	60 - 130
		Fluorene	2011/09/20	3.2		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/09/20		95	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/09/20	0.3		%	50
Spiked Blank	Naphthalene	2011/09/20		99	%	60 - 130	
	Naphthalene	2011/09/20	1.5		%	50	
Spiked Blank	Phenanthrene	2011/09/20		89	%	60 - 130	
	Phenanthrene	2011/09/20	2.3		%	50	
Spiked Blank	Pyrene	2011/09/20		89	%	60 - 130	
	Pyrene	2011/09/20	0.6		%	50	
Method Blank	D10-2-Methylnaphthalene	2011/09/20		90	%	50 - 150	
	D10-Fluoranthene	2011/09/20		100	%	50 - 150	
	D10-Phenanthrene	2011/09/20		94	%	50 - 150	
	D12-Benzo(a)anthracene	2011/09/20		106	%	50 - 150	
	D12-Benzo(a)pyrene	2011/09/20		100	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/09/20		98	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/09/20		100	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/09/20		94	%	50 - 150	
	D12-Chrysene	2011/09/20		86	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB1D5741

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2605899 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/09/20		102	%	50 - 150
		D12-Perylene	2011/09/20		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/09/20		102	%	50 - 150
		D8-Acenaphthylene	2011/09/20		92	%	50 - 150
		D8-Naphthalene	2011/09/20		90	%	50 - 150
		1-Methylnaphthalene	2011/09/20	<0.10		ug	
		1-Methylphenanthrene	2011/09/20	<0.10		ug	
		2-Chloronaphthalene	2011/09/20	<0.10		ug	
		2-Methylanthracene	2011/09/20	<0.10		ug	
		2-Methylnaphthalene	2011/09/20	0.14, RDL=0.10		ug	
		3-Methylcholanthrene	2011/09/20	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/09/20	<0.10		ug	
		9,10-Dimethylanthracene	2011/09/20	<0.40		ug	
		Acenaphthene	2011/09/20	<0.050		ug	
		Acenaphthylene	2011/09/20	<0.050		ug	
		Anthracene	2011/09/20	<0.050		ug	
		Benzo(a)anthracene	2011/09/20	<0.050		ug	
		Benzo(a)fluorene	2011/09/20	<0.10		ug	
		Benzo(a)pyrene	2011/09/20	<0.050		ug	
		Benzo(b)fluoranthene	2011/09/20	<0.050		ug	
		Benzo(b)fluorene	2011/09/20	<0.10		ug	
		Benzo(e)pyrene	2011/09/20	<0.10		ug	
		Benzo(g,h,i)perylene	2011/09/20	<0.050		ug	
		Benzo(k)fluoranthene	2011/09/20	<0.050		ug	
		Biphenyl	2011/09/20	<0.10		ug	
		Chrysene	2011/09/20	<0.050		ug	
		Coronene	2011/09/20	<0.10		ug	
		Dibenz(a,h)anthracene	2011/09/20	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/09/20	<0.20		ug	
		Fluoranthene	2011/09/20	<0.050		ug	
		Fluorene	2011/09/20	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/09/20	<0.050		ug	
		m-Terphenyl	2011/09/20	<0.10		ug	
		Naphthalene	2011/09/20	0.248, RDL=0.072		ug	
		o-Terphenyl	2011/09/20	<0.10		ug	
		Perylene	2011/09/20	<0.10		ug	
		Phenanthrene	2011/09/20	0.056, RDL=0.050		ug	
		p-Terphenyl	2011/09/20	<0.10		ug	
		Pyrene	2011/09/20	<0.050		ug	
		Quinoline	2011/09/20	<0.40		ug	
		Tetralin	2011/09/20	<0.10		ug	

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

Spiked Blank: A blank matrix 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.