Lakeland Industry & Community Association

Cold Lake Monitoring Site
Ambient Air Monitoring
Data Report
For
December 2008

Prepared By:

Maxxam Analytics Inc

Driven by Service and Science

January 15, 2009

Lakeland Industry & Community Association
Ambient Air Monitoring

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Introduction

The following Ambient Air Monitoring report was prepared for:

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T9N 2J5

Monitoring Location: Cold Lake
Data Period: December 2008

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

The monthly analytical report for passive monitoring:
Authorized by Levi Manchak

Calibration Procedure

The following calibration procedure applies to all calibrations conducted at the Lakeland Industry & Community Association Air Monitoring Station.

Calibration gas concentrations are generated using a dynamic mass flow controlled calibrator. EPA Protocol one gases are diluted with zero air generated on site. The Mass Flow Controllers in the calibrator are referenced using an NIST traceable flow meter once per month. All listed flows are reported as corrected to Standard Temperature and Pressure (STP).

Generated zero gas is introduced to the analyzer first. Three concentrations of calibration gas are then generated in order to introduce points at approximately 50-80%, 25-40% & 10-20% of the analyzer's full-scale range. An auto zero and span are then performed to validate the daily zero and span values recorded to the next multi-point calibration.

All indicated concentrations are taken from the ESC data logger used to collect the data for monthly reporting.

Conformance of each calibration to Alberta Environment regulations is outlined in the individual calibration reports. The slope and correlation coefficient are derived from the calculated and indicated analyzer responses. The percent change is calculated using the previous calibration correction factor and the current correction factor before adjustment. The calibration conforms to the procedure outlined in the *Air Monitoring Directive, Appendix A-10, Section 1.6.*

MONTHLY CONTINUOUS DATA SUMMARY
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

Continuous Ambient Monitoring – December 2008

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	57	0	0	0.56	5	12, 13	VAR	VAR	VAR	1.9	13	99.6
TRS (PPB)	-	-	-	-	0.00	0	ALL	ALL	VAR	VAR	0.0	ALL	95.7
NO_2 (PPB)	212	106	0	0	9.02	31	21	15, 16	0.9, 0.4	55(NE), 83(E)	21.2	21	99.3
NO (PPB)	-	-	-	-	3.90	48	24	10	0.7	283(W)	18.3	24	99.3
NOx (PPB)	-	-	-	-	13.53	70	28	8	4.8	289(WNW)	38.5	28	96.1
O_3 (PPB)	82	-	0	-	18.23	39	1, 2	13, 2	19, 23.3	265(W), 322(NW)	31.2	2	99.7
THC (PPM)	-	-	-	-	2.22	6.0	22	8	0.8	249(WSW)	3.5	22	98.9
PM 2.5 (UG/M^3)	-	30	-	0	3.51	44.9	11	13	4.3	235(SW)	8.6	22	98.7
TEMPERATURE (DEG C)	-	-	-	-	-20.17	6.7	1	12	18.5	264(W)	1.5	1	99.6
RELATIVE HUMIDITY (%)	-	-	-	-	73.28	93.3	12	1	6.3	224(SW)	83.4	7	99.6
VECTOR WS (KPH)	-	-	-	-	5.61	30.1	1	19	-	299(WNW)	13.5	2	99.6
VECTOR WD (DEGREES)	-	-	-	-	281(W)	-	-	-	-	-	-	-	99.6

VAR-VARIOUS

Monthly Non-Continuous Data Summary
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

Passive Ambient Monitoring Network – December 2008

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
NO_2	#28	8.9	3.7
SO_2	#27	1.5	0.6
H_2S	#26	0.28	0.17
O_3	#4	31.40	22.00

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 - TECO 43A replaced to Thermo 43i

No operational issues observed during the month. The monthly calibration was performed on December 1st. A removal calibration on the TECO 43A SO2 analyzer and an installation calibration on a new Thermo 43i SO2 analyzer were performed on December 31st. A new SO2 permeation tube was also installed on the same day. A power failure occurred on December 21st for three hours. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

Total Reduced Sulphur (PPB)

- Analyzer make / model -TEI 43A replaced to TEI 450i
- Converter - CD NOVA CDN 101

A removal calibration on the TEI 43A TRS analyzer was performed on December 18th. The AENV supplied TEI 450i analyzer was installed and calibrated on the same day, but the calibration was non-linear. On December 19th, the factory-supplied capillary was removed and the capillary from the TEI 43A was installed. The analyzer showed linear response. Then, a complete multi-point calibration was performed. A total of 28 hours of data was invalidated due to this issue. The daily span of TRS was stabilizing between on the 19th and the 25th as a new analyzer and new permeation tube device. A power failure occurred on December 21st for three hours. The inlet filter was changed before the monthly calibration was started.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

Total HydroCarbon (PPM)

- Analyzer make / model -TECO 51C-LT

No operational issues observed during the month. The calibration result shows slight linearity difference between the high and low point correction factors, but within allowable limits. Waiting on rebuild kit for FID. A power failure occurred on December 21st for three hours. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

- Analyzer make / model - TECO 42C

It was noticed on December 12th during the daily data review that the channels on the Nox analyzer did not add up. It was due to a loose wire NO output. The problem was fixed on December 13th. As a result, a total of 24 hours of data was invalided. A power failure occurred on December 21st for three hours. The inlet filter was changed before the monthly calibration was started. Data was corrected using daily zero information.

Ozone (PPB)

- Analyzer make / model - TECO 49I

No operational issues observed during the month. A power failure occurred on December 21st for three hours. The inlet filter was changed before the monthly calibration was started.

Particulate Matter 2.5 (ug/m^3)

- Analyzer make / model - TEOM 1400A

No operational issues observed during the month. A TEOM audit and a full calibration were performed on December 1st. Hardware calibrations, including analog in/out calibration, flows calibration, and a temperature sensor calibration, were conducted on the same day. After this, a post-calibration audit was performed, and all parameters were within tolerance. The filter was replaced due to noise issue. Will reschedule it later on. A power failure occurred on December 21st for three hours. One hour of data was invalidated as it was below –3.0 ug/m^3.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

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

- System make / model – Met One 50.5

No operational issues observed during the month. A spike of 95 km/hr showed on one reading of one-minute data for wind speed system on December 13th, at 21:37. It is likely due to electrical problem. A power failure occurred on December 21st for three hours. The wind system is reported as vector wind speed and vector wind direction.

Relative Humidity (PERCENT)

- System make / model - Rotronic Hygroclip-S3

No operational issues observed during the month. A power failure occurred on December 21st for three hours.

Ambient Temperature (DEGC)

- System make / model - Rotronic Hygroclip-S3

No operational issues observed during the month. A power failure occurred on December 21st for three hours.

Trailer Temperature (DEGC)

- System make / model - R&R 61

No operational issues observed during the month. A power failure occurred on December 21st for three hours.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

Datalogger

- System make / model - ESC 8832
- 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 operational issues observed during the month.

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. 2 hours of fair AQI values recorded in December, both were due to PM2.5. The highest hourly concentration of PM2.5 was 44.9 UG/M3 and an AQI value of 33 on December 11th.

Passive Network

SO2 sample at station#8 and NO2 sample at station #23 were missing.

Continuous Monitoring

Cold Lake

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ***COLD LAKE***

DECEMBER 2008

AIR QUALITY INDEX (AQI)

MST

HOUR START HOUR END	0:00 1:00	1:00 2:00	2:00 3:00	3:00 4:00	4:00 5:00	5:00 6:00	6:00 7:00	7:00 8:00	8:00 9:00	9:00 10:00	10:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 19:00	19:00 20:00	20:00 21:00	21:00 22:00	22:00 23:00	23:00 0:00	DAILY MAX.
DAY																									
1	12 O3_	12 O3_	- **NA**	12 O3_	13 O3_	12 O3_	11 O3_	11 O3_	9 O3_	- **NA**	- **NA**	- **NA**	- **NA**	- **NA**	- **NA**	- **NA**	17 O3_	- **NA**	18 O3_	15 O3_	14 O3_	15 O3_	16 O3_	18 O3_	20 O3_
2	19 O3_	19 O3_	19 O3_	**20** **O3_**	19 O3_	19 O3_	18 O3_	18 O3_	16 O3_	15 O3_	15 O3_	15 O3_	16 O3_	15 O3_	15 O3_	14 O3_	- **NA**	12 O3_	13 O3_	13 O3_	13 O3_	14 O3_	14 O3_	14 O3_	20 O3_
3	14 O3_	14 O3_	14 O3_	14 O3_	14 O3_	15 O3_	15 O3_	15 O3_	15 O3_	16 O3_	16 O3_	16 O3_	15 O3_	15 O3_	15 O3_	- **NA**	16 O3_	16 O3_	16 O3_	16 O3_	15 O3_	15 O3_	15 O3_	15 O3_	16 O3_
4	15 O3_	15 O3_	15 O3_	14 O3_	13 O3_	12 O3_	12 O3_	10 O3_	9 O3_	10 O3_	11 O3_	13 O3_	14 O3_	13 O3_	- **NA**	14 O3_	13 O3_	13 O3_	13 O3_	13 O3_	12 O3_	10 O3_	10 O3_	9 O3_	15 O3_
5	7 O3_	7 O3_	7 O3_	7 O3_	8 O3_	11 O3_	12 O3_	13 O3_	12 O3_	14 O3_	14 O3_	14 O3_	14 O3_	- **NA**	14 O3_	13 O3_	13 O3_	13 O3_	14 O3_	12 O3_	12 O3_	13 O3_	13 O3_	11 O3_	14 O3_
6	12 O3_	11 O3_	11 O3_	12 O3_	13 O3_	13 O3_	13 O3_	13 O3_	12 O3_	12 O3_	12 O3_	12 O3_	- **NA**	13 O3_	13 O3_	13 O3_	13 O3_	13 O3_	13 O3_	13 O3_	12 O3_	12 O3_	12 O3_	12 O3_	13 O3_
7	11 O3_	11 O3_	12 O3_	12 O3_	12 O3_	12 O3_	12 O3_	9 O3_	5 PM2	6 O3_	6 O3_	- **NA**	8 O3_	9 O3_	8 O3_	8 O3_	10 O3_	11 O3_	10 O3_	10 O3_	10 O3_	9 O3_	10 O3_	12 O3_	12 O3_
8	15 O3_	16 O3_	16 O3_	16 O3_	15 O3_	14 O3_	14 O3_	12 O3_	11 O3_	12 O3_	- **NA**	14 O3_	14 O3_	13 O3_	13 O3_	14 O3_	14 O3_	14 O3_	14 O3_	14 O3_	14 O3_	14 O3_	13 O3_	15 O3_	16 O3_
9	15 O3_	15 O3_	15 O3_	16 O3_	15 O3_	14 O3_	15 O3_	15 O3_	15 O3_	- **NA**	16 O3_	15 O3_	15 O3_	15 O3_	15 O3_	14 O3_	14 O3_	14 O3_	15 O3_	15 O3_	15 O3_	15 O3_	15 O3_	14 O3_	16 O3_
10	13 O3_	13 O3_	13 O3_	12 O3_	11 O3_	11 O3_	10 O3_	11 O3_	- **NA**	10 O3_	11 O3_	11 O3_	10 O3_	11 O3_	11 O3_	10 O3_	9 O3_	9 O3_	8 O3_	8 O3_	9 O3_	8 O3_	8 O3_	9 O3_	13 O3_
11	9 O3_	11 O3_	11 O3_	11 O3_	8 O3_	8 O3_	9 O3_	- **NA**	8 O3_	7 O3_	7 O3_	10 O3_	14 PM2	**33** **PM2**	**27** **PM2**	16 O3_	17 O3_	16 O3_	16 O3_	16 O3_	16 O3_	16 O3_	16 O3_	15 O3_	33 PM2
12	15 O3_	14 O3_	12 O3_	9 O3_	9 O3_	10 O3_	- **NA**	14 O3_	15 O3_	16 O3_	14 O3_	13 O3_	15 O3_	15 O3_	14 O3_	15 O3_	16 O3_	16 O3_	16 O3_	16 O3_	15 O3_	14 O3_	14 O3_	13 O3_	16 O3_
13	11 O3_	11 O3_	11 O3_	13 O3_	14 O3_	- **NA**	12 O3_	12 O3_	11 O3_	11 O3_	13 O3_	13 O3_	13 O3_	14 O3_	14 O3_	14 O3_	- **NA**	- **NA**	10 O3_	9 O3_	10 O3_	10 O3_	9 O3_	8 O3_	14 O3_
14	11 O3_	11 O3_	8 O3_	9 O3_	- **NA**	10 O3_	10 O3_	11 O3_	11 O3_	12 O3_	13 O3_	13 O3_	13 O3_	13 O3_	13 O3_	13 O3_	12 O3_	10 O3_	11 O3_	13 O3_	13 O3_	12 O3_	12 O3_	12 O3_	13 O3_
15	11 O3_	10 O3_	10 O3_	- **NA**	11 O3_	12 O3_	12 O3_	12 O3_	12 O3_	12 O3_	13 O3_	14 O3_	14 O3_	14 O3_	14 O3_	13 O3_	13 O3_	14 O3_	13 O3_	14 O3_	14 O3_	14 O3_	14 O3_	14 O3_	14 O3_
16	12 O3_	12 O3_	- **NA**	9 O3_	10 O3_	10 O3_	6 O3_	3 O3_	2 O3_	5 PM2	9 O3_	10 O3_	13 O3_	14 O3_	13 O3_	11 O3_	2 O3_	2 PM2	2 PM2	2 PM2	5 PM2	4 PM2	4 PM2	4 PM2	14 O3_
17	4 PM2	- **NA**	6 PM2	5 PM2	5 PM2	7 PM2	7 PM2	7 PM2	6 PM2	6 PM2	7 PM2	10 PM2	7 O3_	14 O3_	15 O3_	12 O3_	5 O3_	4 PM2	4 O3_	6 O3_	10 O3_	11 O3_	12 O3_	8 O3_	15 O3_
18	- **NA**	8 O3_	7 O3_	7 O3_	7 O3_	6 O3_	5 O3_	5 O3_	3 PM2	4 PM2	6 O3_	- **NA**	- **NA**	- **NA**	- **NA**	- **NA**	4 PM2	2 PM2	3 PM2	5 PM2	4 PM2	4 PM2	3 PM2	- **NA**	8 O3_
19	7 PM2	9 PM2	9 PM2	7 PM2	5 PM2	5 PM2	6 O3_	9 O3_	10 O3_	12 O3_	12 O3_	12 O3_	13 O3_	13 O3_	13 O3_	7 O3_	10 PM2	5 PM2	5 PM2	9 O3_	8 O3_	7 O3_	- **NA**	3 PM2	13 O3_
20	4 PM2	3 PM2	4 O3_	5 O3_	3 O3_	4 PM2	5 O3_	5 O3_	4 O3_	5 PM2	6 O3_	8 O3_	9 O3_	10 O3_	9 O3_	8 O3_	6 O3_	6 PM2	7 PM2	6 PM2	6 PM2	- **NA**	7 PM2	6 PM2	10 O3_
21	5 PM2	5 PM2	4 PM2	4 PM2	4 PM2	4 PM2	4 PM2	3 PM2	4 PM2	6 PM2	- **NA**	- **NA**	- **NA**	6 O3_	7 PM2	11 PM2	11 PM2	10 PM2	10 PM2	7 PM2	- **NA**	9 PM2	8 PM2	9 PM2	11 PM2
22	7 PM2	5 PM2	6 PM2	6 PM2	5 PM2	6 PM2	6 PM2	9 PM2	9 PM2	12 PM2	14 PM2	12 PM2	10 PM2	9 PM2	8 PM2	6 PM2	7 PM2	6 PM2	6 PM2	- **NA**	6 PM2	5 PM2	5 PM2	6 PM2	14 PM2
23	5 PM2	5 O3_	6 O3_	5 O3_	4 O3_	5 PM2	3 O3_	3 PM2	4 PM2	7 PM2	15 PM2	12 PM2	9 PM2	7 PM2	6 PM2	4 PM2	9 PM2	6 PM2	- **NA**	4 PM2	4 PM2	5 PM2	6 PM2	6 PM2	15 PM2
24	6 PM2	6 PM2	6 PM2	7 PM2	6 PM2	5 PM2	5 PM2	5 PM2	6 PM2	9 PM2	12 PM2	6 PM2	8 O3_	8 O3_	7 O3_	6 PM2	7 PM2	- **NA**	6 PM2	6 PM2	6 PM2	5 PM2	6 PM2	5 PM2	12 PM2
25	7 PM2	5 PM2	5 PM2	3 PM2	4 PM2	5 PM2	5 PM2	3 PM2	5 PM2	6 PM2	7 O3_	9 O3_	10 O3_	10 O3_	9 O3_	8 O3_	- **NA**	5 O3_	5 PM2	5 PM2	4 PM2	4 O3_	5 O3_	6 O3_	10 O3_
26	6 O3_	6 O3_	7 O3_	7 O3_	7 O3_	7 O3_	8 O3_	8 O3_	7 O3_	4 PM2	9 O3_	11 O3_	12 O3_	14 O3_	12 O3_	- **NA**	5 O3_	3 O3_	2 O3_	3 PM2	2 PM2	2 PM2	5 O3_	9 O3_	14 O3_
27	7 O3_	9 O3_	8 O3_	11 O3_	12 O3_	14 O3_	14 O3_	14 O3_	14 O3_	14 O3_	14 O3_	14 O3_	14 O3_	14 O3_	- **NA**	12 O3_	10 O3_	8 O3_	5 O3_	8 O3_	6 O3_	5 O3_	7 O3_	7 PM2	14 O3_
28	7 PM2	7 PM2	5 PM2	7 O3_	9 O3_	8 O3_	9 O3_	10 O3_	9 O3_	11 O3_	13 O3_	14 O3_	14 O3_	- **NA**	13 O3_	14 O3_	10 O3_	11 O3_	8 O3_	7 O3_	8 O3_	6 O3_	5 O3_	4 O3_	14 O3_
29	3 O3_	3 PM2	3 PM2	3 PM2	3 PM2	2 PM2	2 PM2	2 PM2	5 PM2	12 O3_	12 O3_	14 O3_	- **NA**	14 O3_	14 O3_	14 O3_	15 O3_	15 O3_	16 O3_	16 O3_	17 O3_	17 O3_	17 O3_	17 O3_	17 O3_
30	17 O3_	17 O3_	16 O3_	17 O3_	16 O3_	16 O3_	15 O3_	14 O3_	13 O3_	13 O3_	13 O3_	- **NA**	14 O3_	14 O3_	14 O3_	13 O3_	9 O3_	8 O3_	7 O3_	5 O3_	3 O3_	2 O3_	2 O3_	2 PM2	17 O3_
31	2 O3_	2 PM2	5 PM2	3 PM2	2 PM2	3 O3_	8 O3_	9 O3_	- **NA**	- **NA**	- **NA**	- **NA**	- **NA**	- **NA**	- **NA**	- **NA**	- **NA**	12 O3_	12 O3_	13 O3_	12 O3_	11 O3_	11 O3_	12 O3_	14 O3_
PEAK	19 O3_	19 O3_	19 O3_	20 O3_	19 O3_	19 O3_	18 O3_	18 O3_	16 O3_	16 O3_	16 O3_	16 O3_	16 O3_	33 O3_	27 O3_	16 O3_	17 O3_	16 O3_	18 O3_	16 O3_	17 O3_	17 O3_	17 O3_	18 O3_	

STATUS FLAG CODES	NA - NOT APPLICABLE

V - VARIOUS

AQI CLASS	OZONE (O_3)					PARTICULATE MATTER 2.5 (PM2)					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%	-	-	-	2	0.3%	33	13	11	0	0.0%	-	-	-	0	0.0%	-	-	-	2	0.3%
GOOD (1-25)	519	69.8%	20	3	2	165	22.2%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	684	91.9%
OVERALL	519	69.8%	-	-	-	167	22.4%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	744	100.0%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58	7.8%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

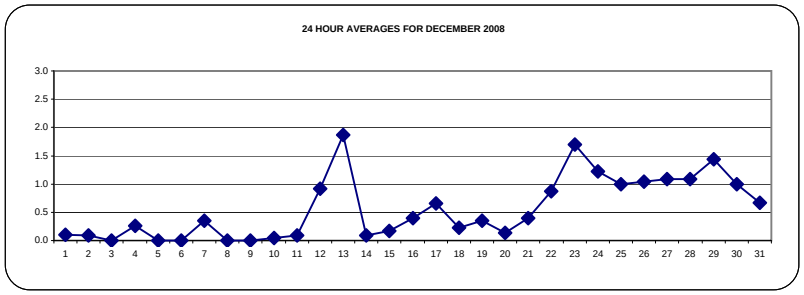
SULPHUR DIOXIDE (SO_2) hourly averages in ppb

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	1	1	0	0	0	0	**C**	**C**	**C**	**C**	0	0	0	0	**IZS**	0	0	0	0	0	0	1	0.1	24
2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	1	0.1	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0.0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	1	1	**IZS**	2	2	0	0	0	0	0	0	0	2	0.3	24
5	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
6	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
7	0	0	0	0	0	0	0	0	0	1	1	**IZS**	0	0	0	0	0	1	2	1	1	1	0	0	2	0.3	24
8	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
9	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
10	0	0	0	0	0	1	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
11	0	0	0	0	1	1	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
12	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	1	2	1	0	0	0	0	2	5	5	5	**5**	0.9	24
13	5	5	4	3	4	**IZS**	3	2	2	2	1	0	1	1	1	1	1	1	0	1	1	1	1	2	**5**	**1.9**	24
14	1	1	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
15	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0.2	24
16	0	0	**IZS**	0	1	1	1	0	0	0	1	1	1	1	1	0	0	0	0	0	1	0	0	0	1	0.4	24
17	0	**IZS**	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24
18	**IZS**	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0	0	**IZS**	1	0.2	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	**IZS**	1	1	0.3	24
20	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	**IZS**	0	0	1	0.1	24
21	0	0	0	0	0	0	0	0	0	0	**P**	**P**	**P**	1	1	1	1	1	0	1	**IZS**	1	1	0	1	0.4	21
22	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	0.9	24
23	1	1	1	1	1	1	1	1	1	1	2	3	4	4	4	4	2	1	**IZS**	1	1	1	1	1	4	1.7	24
24	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	**IZS**	1	1	1	1	1	1	2	1.2	24
25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1.0	24
26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	2	2	1.0	24
27	1	1	1	1	2	2	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	2	1.1	24
28	1	1	1	1	1	1	1	1	1	1	2	1	1	**IZS**	2	1	1	1	1	1	1	1	1	1	2	1.1	24
29	1	1	1	1	1	1	1	1	2	3	3	3	**IZS**	2	2	2	1	1	1	1	1	1	1	1	3	1.4	24
30	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
31	1	1	1	1	1	1	1	1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0	0	0	0	0	1	1	1	0.7	24
HOURLY MAX	5	5	4	3	4	2	NA	2	2	3	3	3	4	4	4	4	2	1	2	1	2	5	5	5			
HOURLY AVG	0.6	0.5	0.4	0.5	0.6	0.5	NA	0.4	0.4	0.5	0.7	0.6	0.7	0.7	0.8	0.7	0.6	0.4	0.4	0.4	0.6	0.7	0.6	0.7			

STATUS FLAG CODES

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

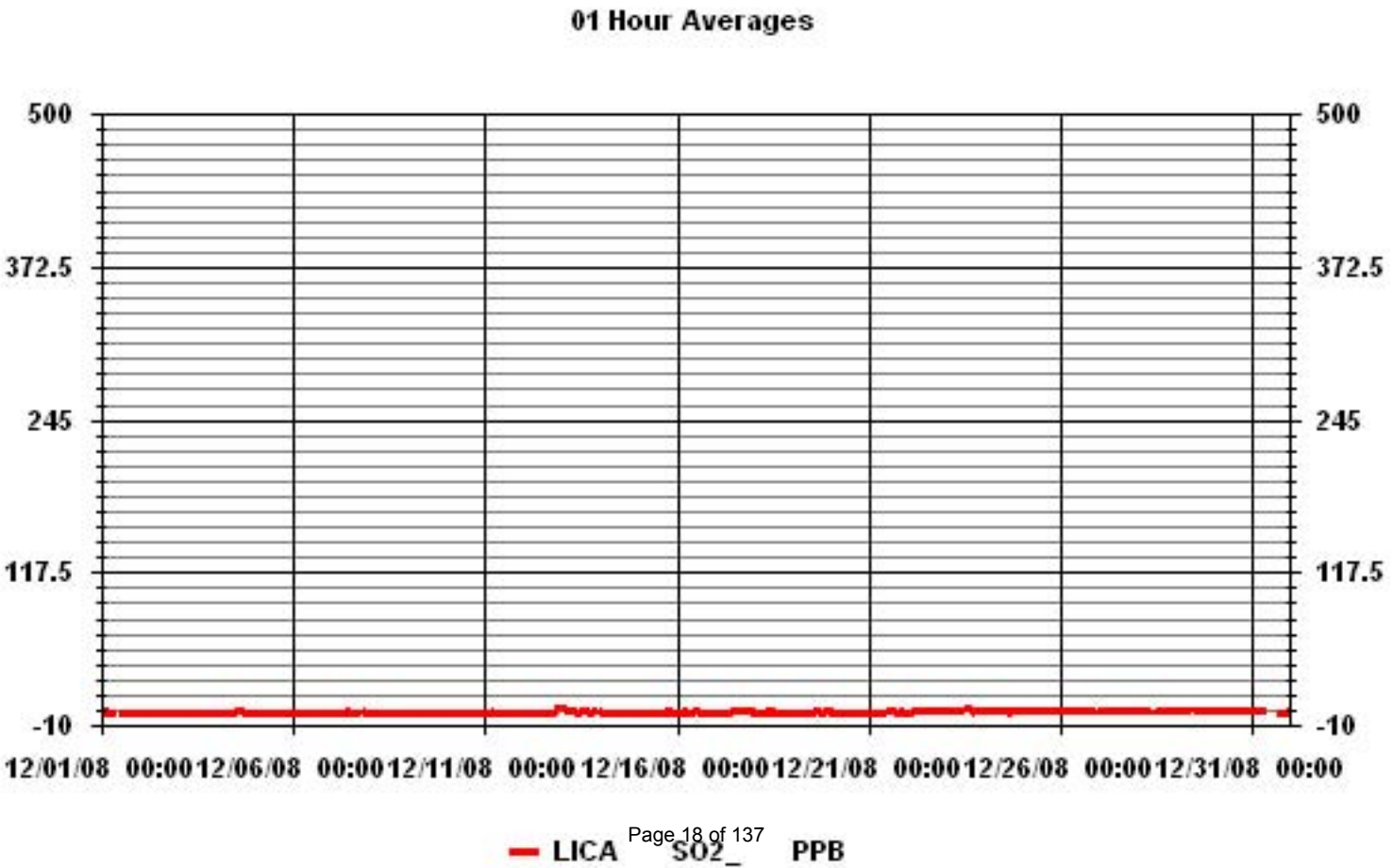


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB | 24-HR 57 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	314					
MAXIMUM 1-HR AVERAGE:	5	PPB	@ HOUR(S)	VAR	ON DAY(S)	12, 13
MAXIMUM 24-HR AVERAGE:	1.9	PPB			ON DAY(S)	13

IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	741	HRS
MONTHLY CALIBRATION TIME:	13	HRS	AMD OPERATION UPTIME:	99.6	%
STANDARD DEVIATION:	0.79		MONTHLY AVERAGE:	0.56	PPB


01 Hour Averages
500
372.5
245
117.5
-10
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA SO2_ PPB

LICA
SO2_ / WDR Joint Frequency Distribution (Percent)

December 2008

Distribution By % Of Samples

Logger Id : 01
Site Name : LICA
Parameter : SO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	2.15	1.29	2.00	4.73	6.74	7.60	4.87	1.43	2.15	2.72	15.06	20.80	7.46	5.73	11.47	3.73	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	2.15	1.29	2.00	4.73	6.74	7.60	4.87	1.43	2.15	2.72	15.06	20.80	7.46	5.73	11.47	3.73	

Calm : .00 %

Total # Operational Hours : 697

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	20	15	9	14	33	47	53	34	10	15	19	105	145	52	40	80	26	697
<	60																	
<	110																	
<	170																	
<	340																	
>=	340																	
	Totals	15	9	14	33	47	53	34	10	15	19	105	145	52	40	80	26	

Calm : .00 %

Total # Operational Hours : 697

Logger : 01 Parameter : SO2_

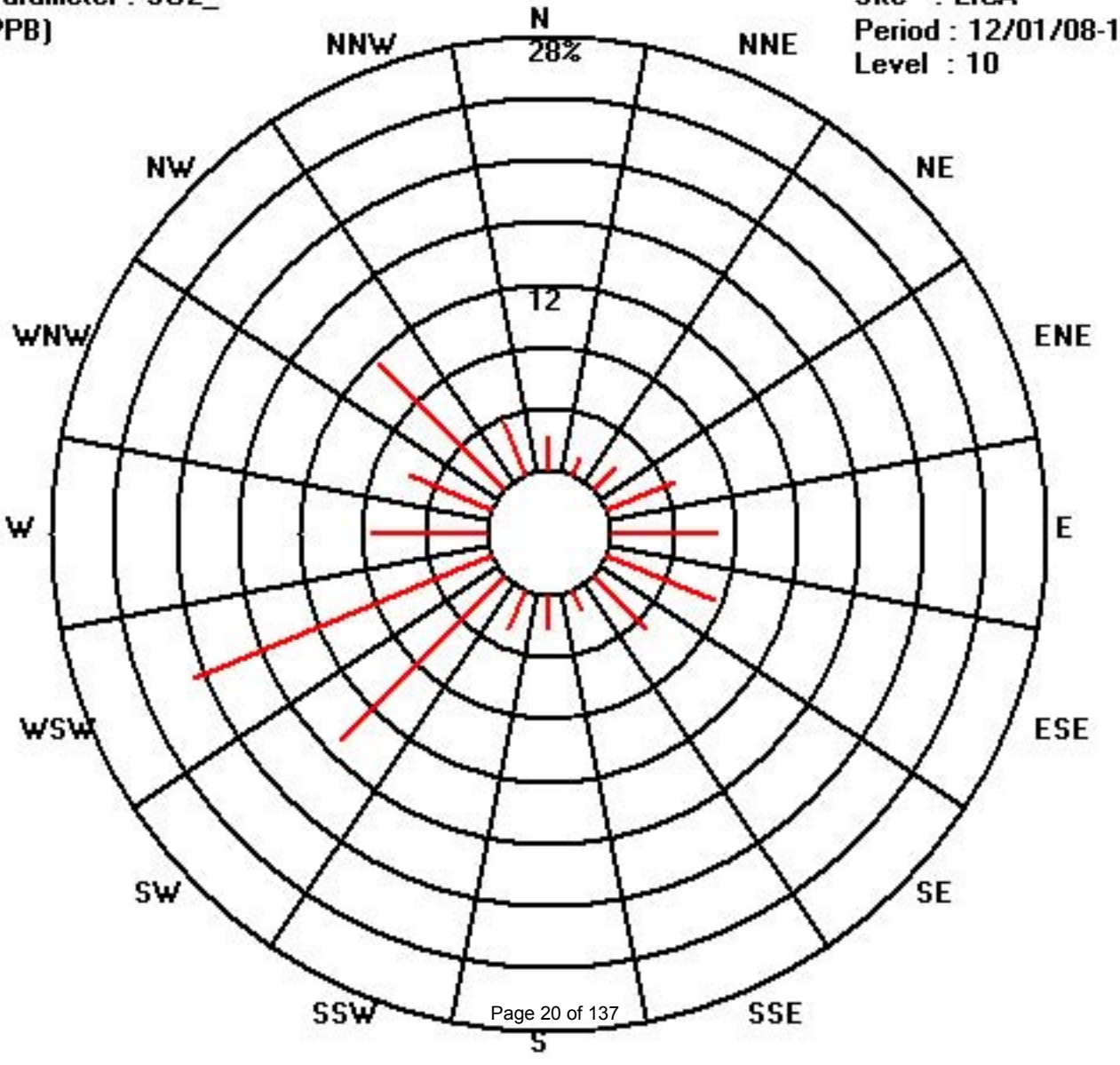
Class Limits (PPB)

- >= 340
- < 340
- < 170
- < 110
- < 60
- < 20

Site : LICA

Period : 12/01/08-12/31/08

Level : 10



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -*COLD LAKE*

DECEMBER 2008

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	3	2	1	1	1	1	**C**	**C**	**C**	**C**	**C**	0	0	0	**IZS**	0	0	0	0	0	0	3	0.5	24
2	0	0	0	2	1	1	2	1	1	1	0	1	0	1	1	0	**IZS**	1	1	1	0	0	0	1	2	0.7	24
3	1	0	0	1	0	1	1	0	1	0	0	1	1	1	0	**IZS**	1	1	1	1	1	1	0	1	1	0.7	24
4	0	0	0	0	0	0	0	0	0	0	1	1	2	2	**IZS**	2	3	1	1	1	1	1	1	0	3	0.7	24
5	1	1	1	1	1	0	0	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	0.9	24
6	0	1	1	1	1	0	0	0	0	1	0	0	**IZS**	0	0	0	1	0	1	0	0	1	0	1	1	0.4	24
7	0	0	0	0	1	0	0	0	1	1	2	**IZS**	1	1	1	1	0	2	3	2	2	1	1	1	3	0.9	24
8	1	0	1	0	1	0	0	1	1	0	**IZS**	0	1	1	1	0	0	1	0	1	0	0	0	0	1	0.4	24
9	1	0	0	0	0	1	1	1	0	**IZS**	1	1	0	0	0	1	1	0	0	0	1	0	0	0	1	0.4	24
10	0	0	1	1	1	1	1	1	**IZS**	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	3	1.0	24
11	1	1	1	1	2	2	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
12	1	1	1	1	1	1	**IZS**	1	1	1	1	1	1	2	3	2	1	1	1	1	4	**7**	6	6	**7**	2.0	24
13	6	6	6	5	5	**IZS**	4	3	3	2	2	1	1	1	1	1	2	2	1	1	1	2	2	2	6	2.6	24
14	2	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24
15	1	1	1	**IZS**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1.0	24
16	1	1	**IZS**	1	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1.1	24
17	1	**IZS**	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	2	2	1	1	2	1.3	24
18	**IZS**	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	**IZS**	2	1.1	24
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	2	**IZS**	2	2	1.2	24
20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**IZS**	1	1	2	1.0	24
21	1	1	1	1	1	1	1	1	1	1	**P**	**P**	**P**	3	1	2	1	1	1	1	**IZS**	2	1	1	3	1.2	21
22	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	**IZS**	2	2	2	2	2	1.6	24
23	2	2	2	1	2	2	1	1	1	2	3	4	5	5	5	5	3	2	**IZS**	2	2	2	1	1	5	2.4	24
24	1	1	1	1	1	1	2	1	1	1	2	3	3	3	3	3	2	**IZS**	2	2	2	1	2	1	3	1.7	24
25	1	1	1	1	1	1	2	1	2	1	2	2	2	2	2	2	**IZS**	2	2	2	2	2	2	2	2	1.7	24
26	2	2	1	2	1	2	1	1	1	1	2	1	2	2	2	**IZS**	1	1	1	1	2	1	2	2	2	1.5	24
27	2	2	2	2	2	2	2	2	2	2	2	2	2	2	**IZS**	2	2	2	2	2	2	2	2	2	2	2.0	24
28	2	2	2	2	2	1	1	1	2	2	2	2	2	**IZS**	4	2	1	1	1	1	1	1	1	2	4	1.7	24
29	1	1	1	1	2	1	1	1	5	4	3	3	**IZS**	3	3	3	2	2	2	2	2	2	2	1	5	2.1	24
30	2	1	1	2	1	1	1	1	1	2	1	**IZS**	1	1	1	1	1	1	1	1	2	1	1	1	2	1.2	24
31	1	1	1	1	2	1	1	2	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0	0	0	0	1	1	1	2	0.9	24
HOURLY MAX	6	6	6	5	5	2	4	3	5	4	3	4	5	5	5	5	3	2	3	2	4	7	6	6			
HOURLY AVG	1.2	1.0	1.1	1.2	1.3	1.0	1.1	1.0	1.2	1.2	1.4	1.3	1.4	1.6	1.6	1.5	1.3	1.2	1.1	1.1	1.3	1.4	1.2	1.3			

STATUS FLAG CODES

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

MONTHLY SUMMARY

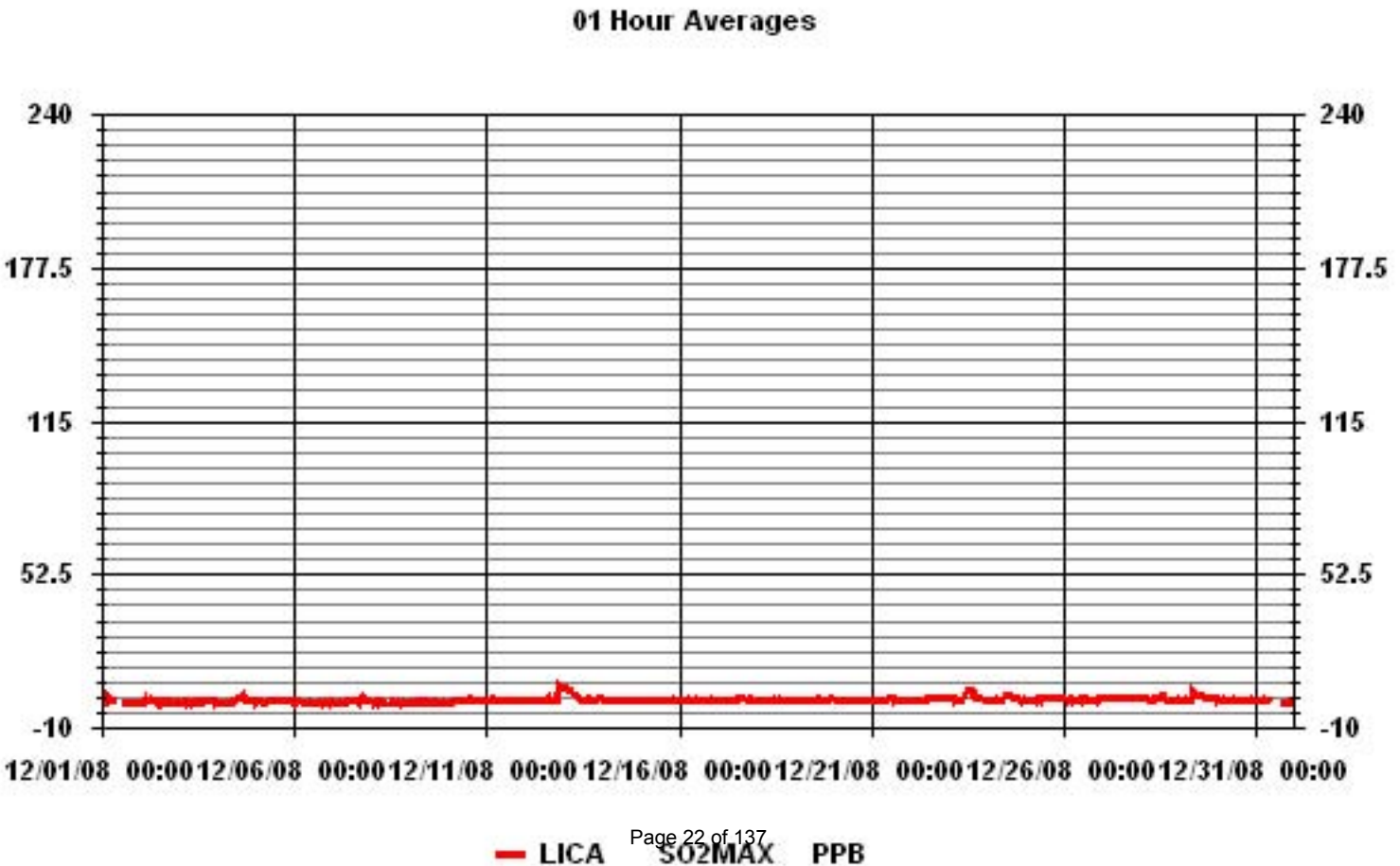
NUMBER OF NON-ZERO READINGS: 599

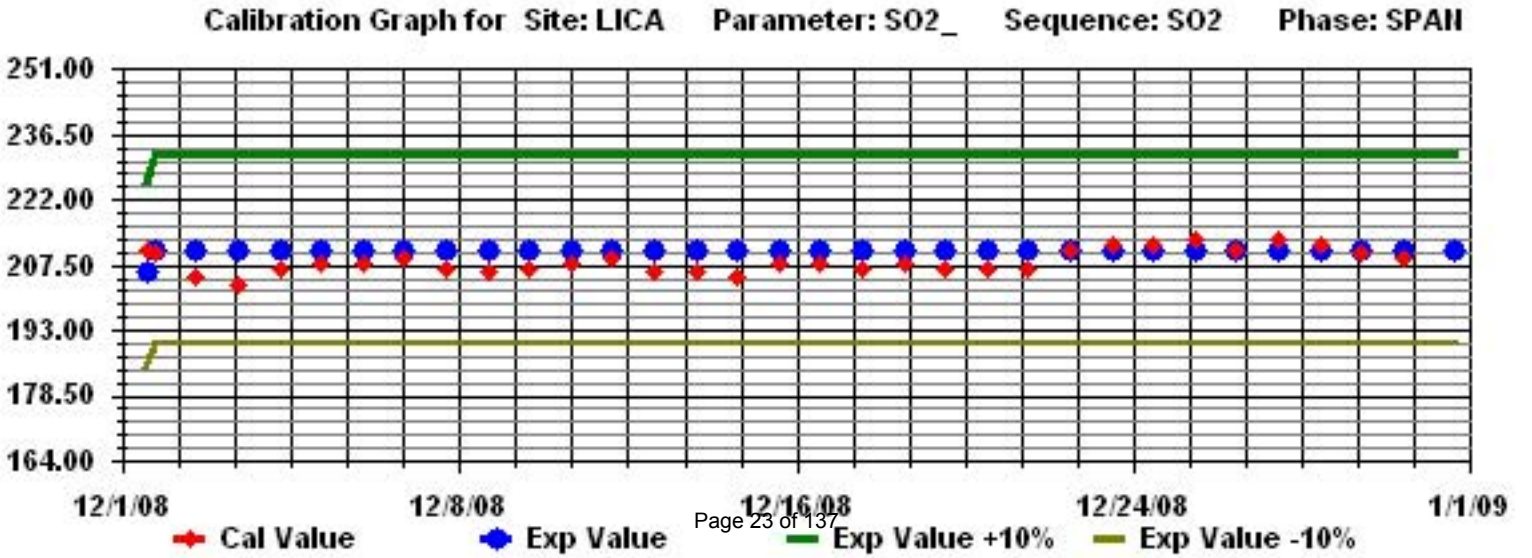
MAXIMUM INSTANTANEOUS VALUE: 7 PPB @ HOUR(S) 21 ON DAY(S) 12

IZS CALIBRATION TIME: 31 HRS OPERATIONAL TIME: 741 HRS

MONTHLY CALIBRATION TIME: 14 HRS

STANDARD DEVIATION: 0.93


01 Hour Averages
240
177.5
115
52.5
-10
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA SO2MAX PPB


Calibration Graph for Site: LICA Parameter: SO2_ Sequence: SO2 Phase: SPAN
251.00
236.50
222.00
207.50
193.00
178.50
164.00
12/1/08
12/8/08
12/16/08
12/24/08
1/1/09
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Reduced Sulphur

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

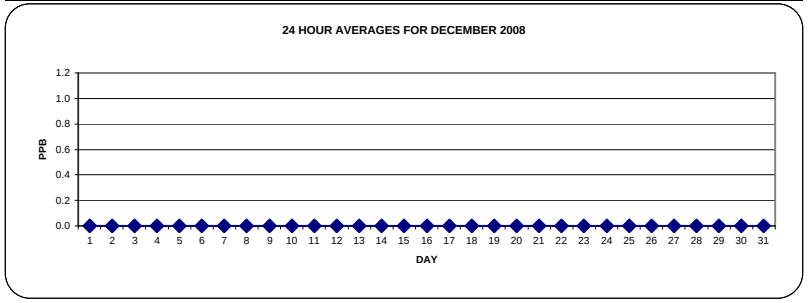
MST

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

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

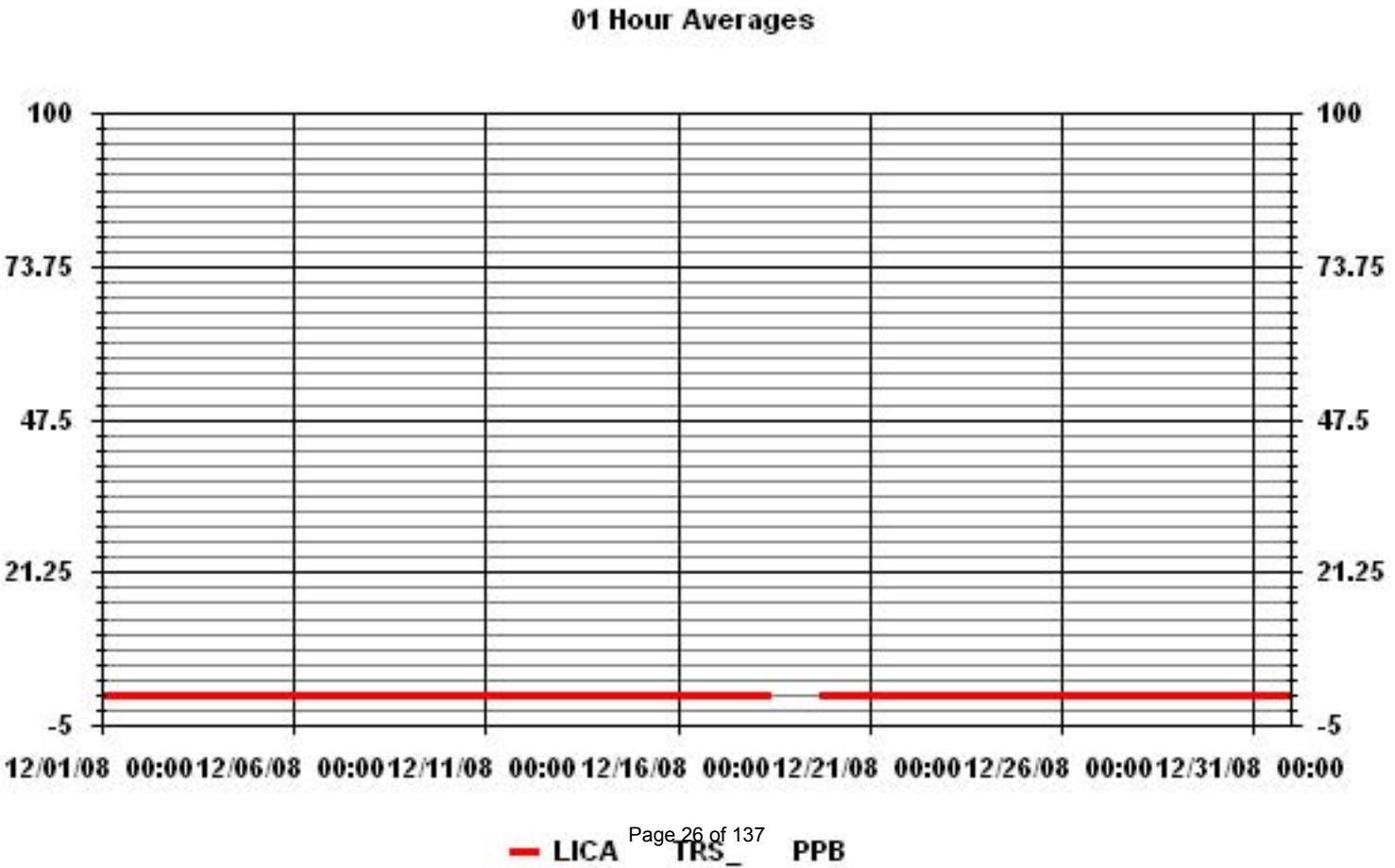
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 PPB 24-HR 57 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	0					
MAXIMUM 1-HR AVERAGE:	0	PPB	@ HOUR(S)	ALL	ON DAY(S)	ALL
MAXIMUM 24-HR AVERAGE:	0.0	PPB		VAR-VARIOUS	ON DAY(S)	ALL

IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	712	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	95.7	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	PPB


01 Hour Averages
100
73.75
47.5
21.25
-5
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA TRS_ PPB

LICA
TRS_ / WD Joint Frequency Distribution (Percent)

December 2008

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	1.77	1.33	2.07	5.18	7.11	7.70	4.88	1.33	1.77	2.66	15.55	20.29	7.55	5.77	11.25	3.70	100.00
<	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>=	50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	1.77	1.33	2.07	5.18	7.11	7.70	4.88	1.33	1.77	2.66	15.55	20.29	7.55	5.77	11.25	3.70	

Calm : .00 %

Total # Operational Hours : 675

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	3	12	9	14	35	48	52	33	9	12	18	105	137	51	39	76	25	675
<	10																	
<	50																	
>=	50																	
	Totals	12	9	14	35	48	52	33	9	12	18	105	137	51	39	76	25	

Calm : .00 %

Total # Operational Hours : 675

Logger : 01 Parameter : TRS_

Class Limits (PPB)

>= 50

< 50

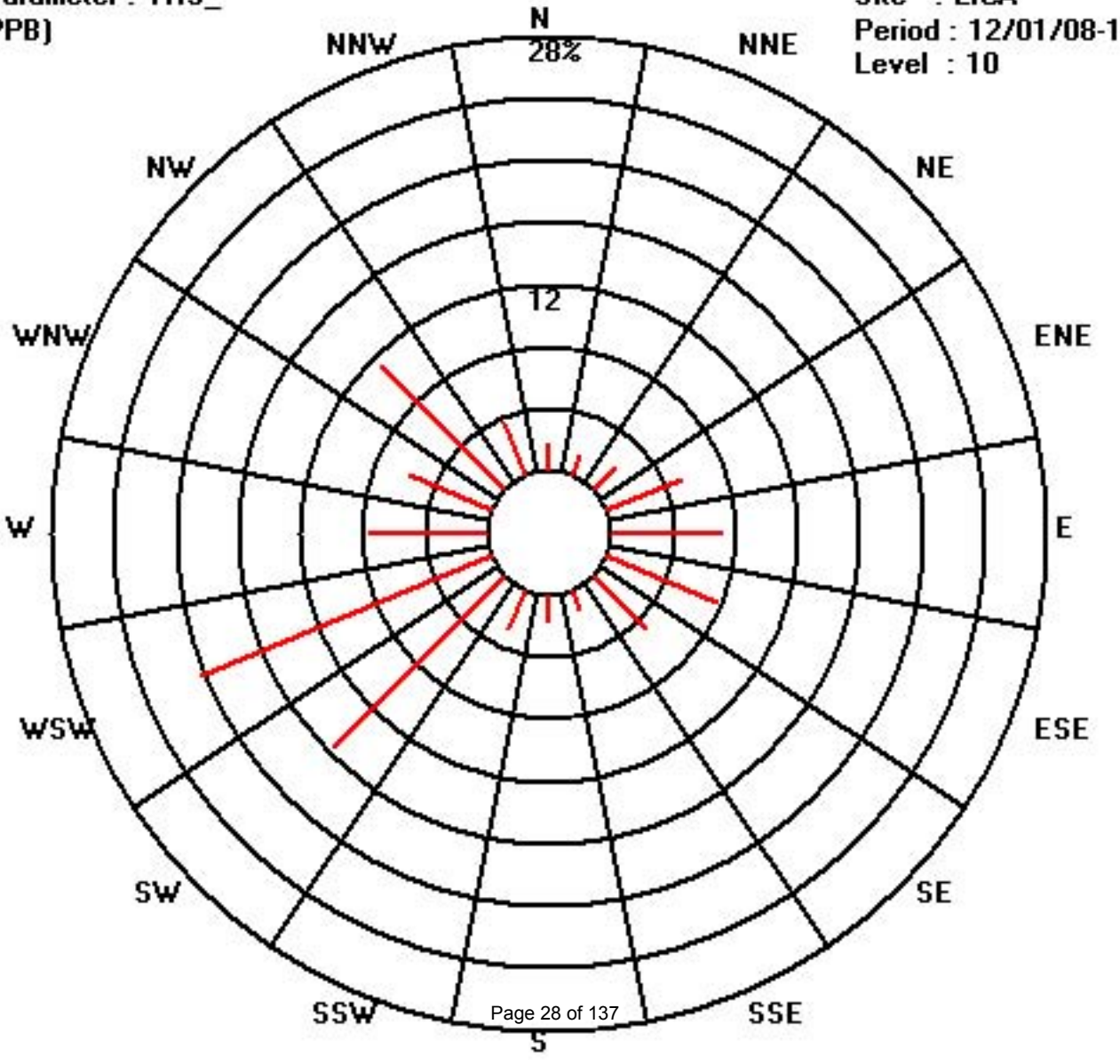
< 10

< 3

Site : LICA

Period : 12/01/08-12/31/08

Level : 10



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

MST

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

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 295

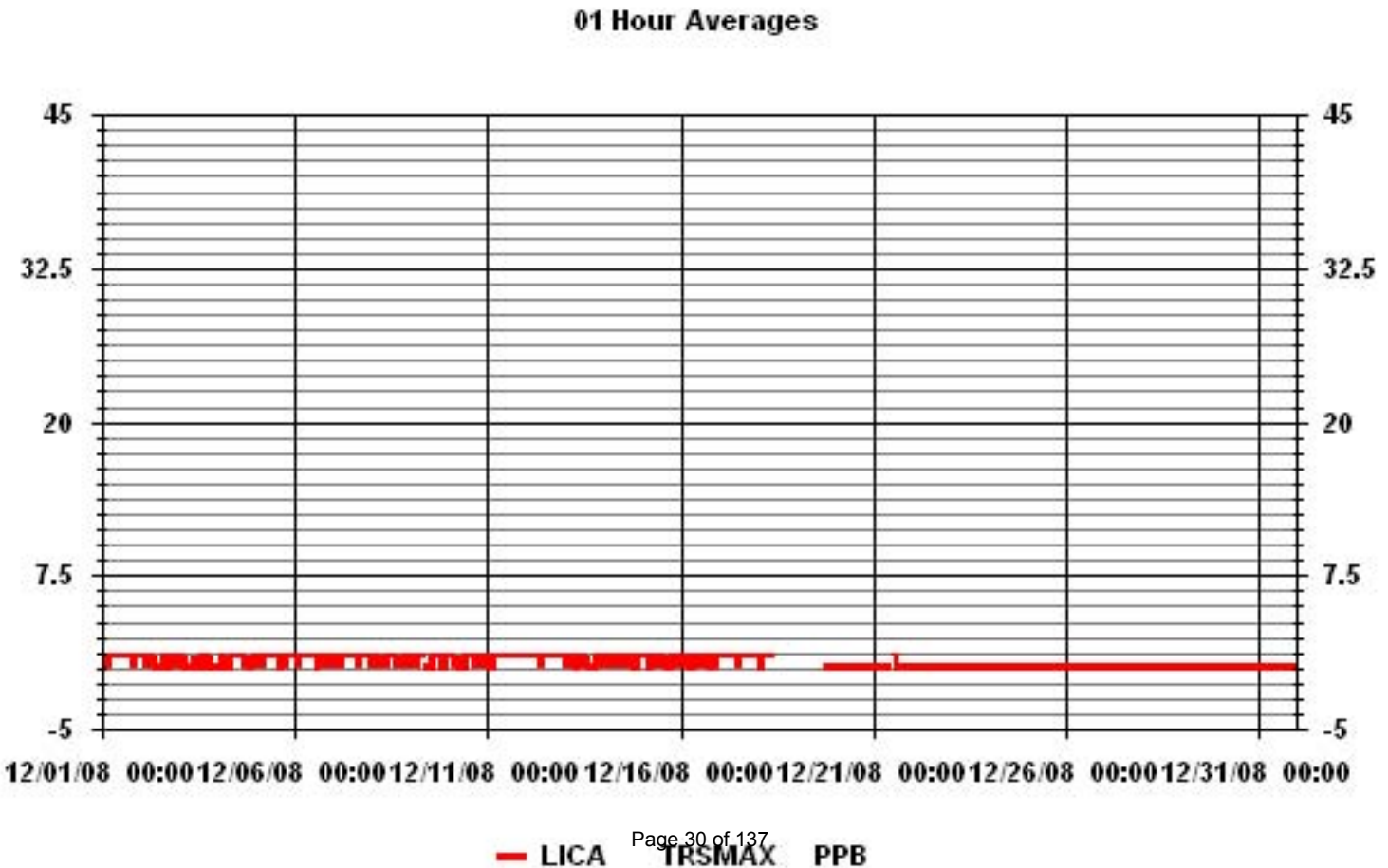
MAXIMUM INSTANTANEOUS VALUE: 1 PPB @ HOUR(S) VAR ON DAY(S) VAR

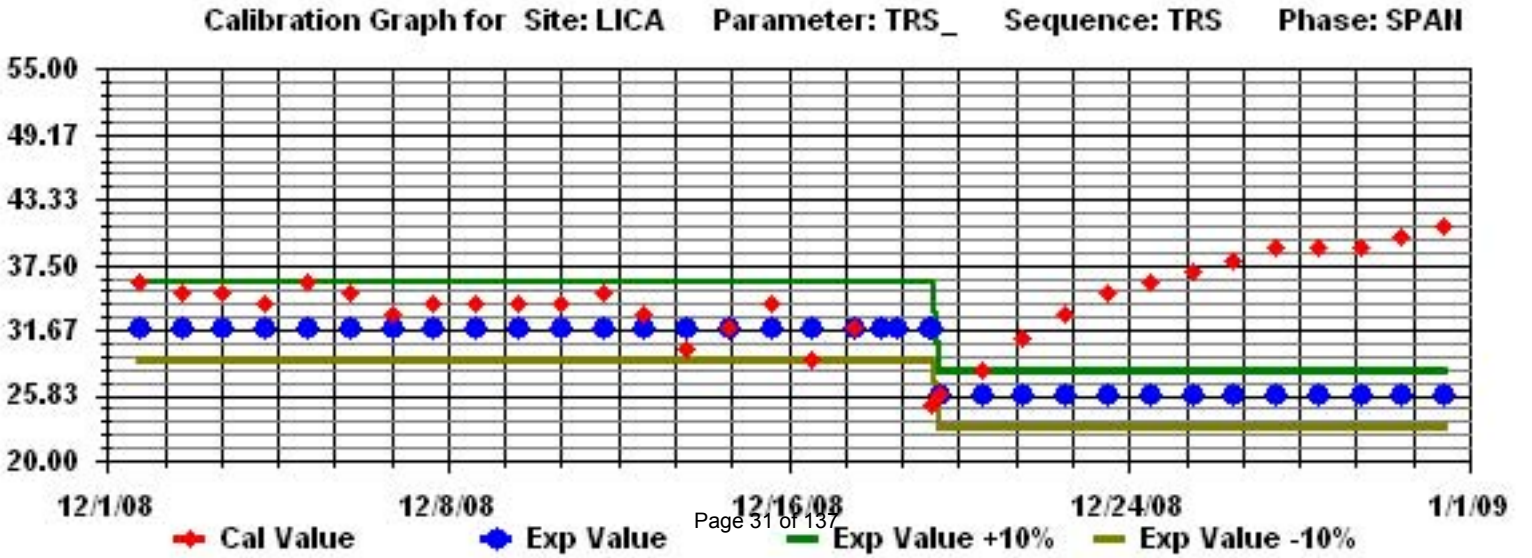
VAR - VARIOUS

IZS CALIBRATION TIME: 31 HRS OPERATIONAL TIME: 712 HRS

MONTHLY CALIBRATION TIME: 6 HRS

STANDARD DEVIATION: 0.50


01 Hour Averages
45
32.5
20
7.5
-5
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA TRSMAX PPB


Calibration Graph for Site: LICA Parameter: TRS_ Sequence: TRS Phase: SPAN
55.00
49.17
43.33
37.50
31.67
25.83
20.00
12/1/08
12/8/08
12/16/08
12/24/08
1/1/09
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

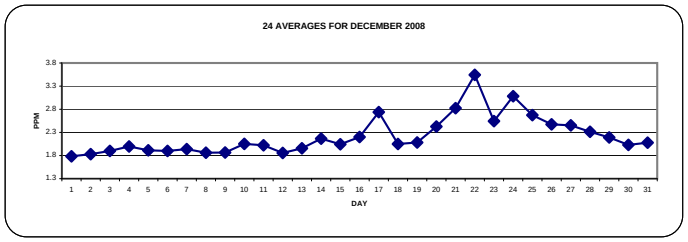
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	**C**	**C**	**C**	**C**	**C**	1.7	1.7	1.7	**IZS**	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.8	24
2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	**IZS**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	24
3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**IZS**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	24
4	1.9	1.9	1.9	1.9	2	2.1	2.1	2.2	2.2	2	2	2	2.1	2.1	**IZS**	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2.1	2.2	2.0	24
5	2.1	2	2	2.1	2.1	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	**IZS**	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	1.9	24
6	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**IZS**	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	24
7	1.9	1.9	1.9	1.9	1.8	1.8	1.8	2	2.2	2	2.2	**IZS**	2	2	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.8	2.2	1.9	24
8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	**IZS**	1.8	1.8	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	24
9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**IZS**	1.9	1.9	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	24
10	1.9	1.9	1.9	2	2	2.1	2.1	2.1	**IZS**	2	2	2	2.1	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.1	24
11	2.1	2	1.9	1.9	2	2	2.1	**IZS**	2.2	2.3	2.4	2.2	2.2	2.2	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.9	2.4	2.0	24
12	1.9	1.9	1.9	2	2	2	**IZS**	2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.0	1.9	24
13	1.9	1.9	1.9	1.9	1.9	**IZS**	1.9	1.9	1.9	2	2	1.9	2	1.9	1.9	1.9	2	2	2	2.1	2	2	2	2.1	2.1	2.0	24
14	2.1	2.3	2.5	2.6	**IZS**	2.4	2.4	2.2	2.2	2.1	2	2	2.1	2.1	2.1	2	2	2.1	2.1	2	2.1	2.1	2.1	2.2	2.6	2.2	24
15	2.3	2.3	2.4	**IZS**	2.3	2.2	2.2	2.1	2	2	2	2	2	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4	2.0	24
16	1.9	1.9	**IZS**	2	2	2	2.1	2.1	2.1	2.2	2.8	2.7	2.3	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.4	2.3	2.3	2.4	2.8	2.2	24
17	2.5	**IZS**	2.6	2.7	3.1	3.8	3.5	3.5	3.3	3.2	3.4	3.5	2.8	1.9	1.9	1.9	2.8	3.2	2.8	2.5	2.1	2	2	2	3.8	2.7	24
18	**IZS**	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	**M**	**M**	2	2	2.1	2	2	2	2	2	**IZS**	2.2	2.1	22
19	2.1	2.2	2.4	2.4	2.3	2.3	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.2	2.2	2.2	2	2	2.1	**IZS**	2.1	2.4	2.1	24
20	2.2	2.2	2.4	2.4	2.5	2.7	2.6	2.5	2.5	2.5	2.5	2.5	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	**IZS**	2.5	2.5	2.7	2.4	24
21	2.4	2.4	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.7	**P**	**P**	**P**	**M**	**N**	**M**	3.7	3.4	3.3	3.1	**IZS**	3	3	3	3.7	2.8	18
22	3	3.2	3.4	3.5	3.6	3.9	4	5.2	6	5.5	4.6	4.1	3.7	3.5	3.3	3.2	2.8	2.7	2.5	**IZS**	2.5	2.5	2.4	2.4	**6.0**	**3.5**	24
23	2.5	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.7	2.6	2.6	2.5	2.5	2.4	2.8	2.7	**IZS**	2.6	2.6	2.7	2.8	2.8	2.8	2.5	24
24	2.7	2.8	2.8	2.8	2.8	2.9	2.9	3.1	3.7	4.2	4.1	3.4	2.9	2.9	2.9	2.9	3	**IZS**	3	3.1	3	3	3	3	4.2	3.1	24
25	3	2.9	2.9	2.9	2.8	2.8	2.7	2.6	2.4	2.4	2.3	2.2	2.3	2.2	2.3	2.5	**IZS**	2.9	3.1	3.1	3	2.9	2.7	2.6	3.1	2.7	24
26	2.4	2.4	2.3	2.2	2.4	2.6	2.7	2.7	2.8	2.8	2.6	2.5	2.3	2.3	2.3	**IZS**	2.4	2.3	2.4	2.7	2.6	2.5	2.4	2.3	2.8	2.5	24
27	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.5	**IZS**	2.5	2.7	2.8	2.8	2.8	3.1	3	2.9	2.9	3.1	2.5	24
28	3	3.1	3.2	2.6	2.3	2.3	2.2	2.2	2.3	2.1	2.1	1.9	1.9	**IZS**	1.9	1.9	2	2.1	2.2	2.2	2.4	2.4	2.4	2.5	3.2	2.3	24
29	2.5	2.5	2.6	2.6	2.7	2.8	2.8	2.8	2.4	1.9	2	1.9	**IZS**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.8	2.2	24
30	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**IZS**	1.9	1.9	1.9	1.9	2	2.1	2.2	2.3	2.4	2.3	2.4	2.5	2.5	2.0	24
31	2.4	2.5	2.5	2.5	2.6	2.4	2.1	2	2	2	**IZS**	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.1	24
HOURLY MAX	3.0	3.2	3.4	3.5	3.6	3.9	4.0	5.2	6.0	5.5	4.6	4.1	3.7	3.5	3.3	3.2	3.7	3.4	3.3	3.1	3.1	3.0	3.0	3.0			
HOURLY AVG	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2			

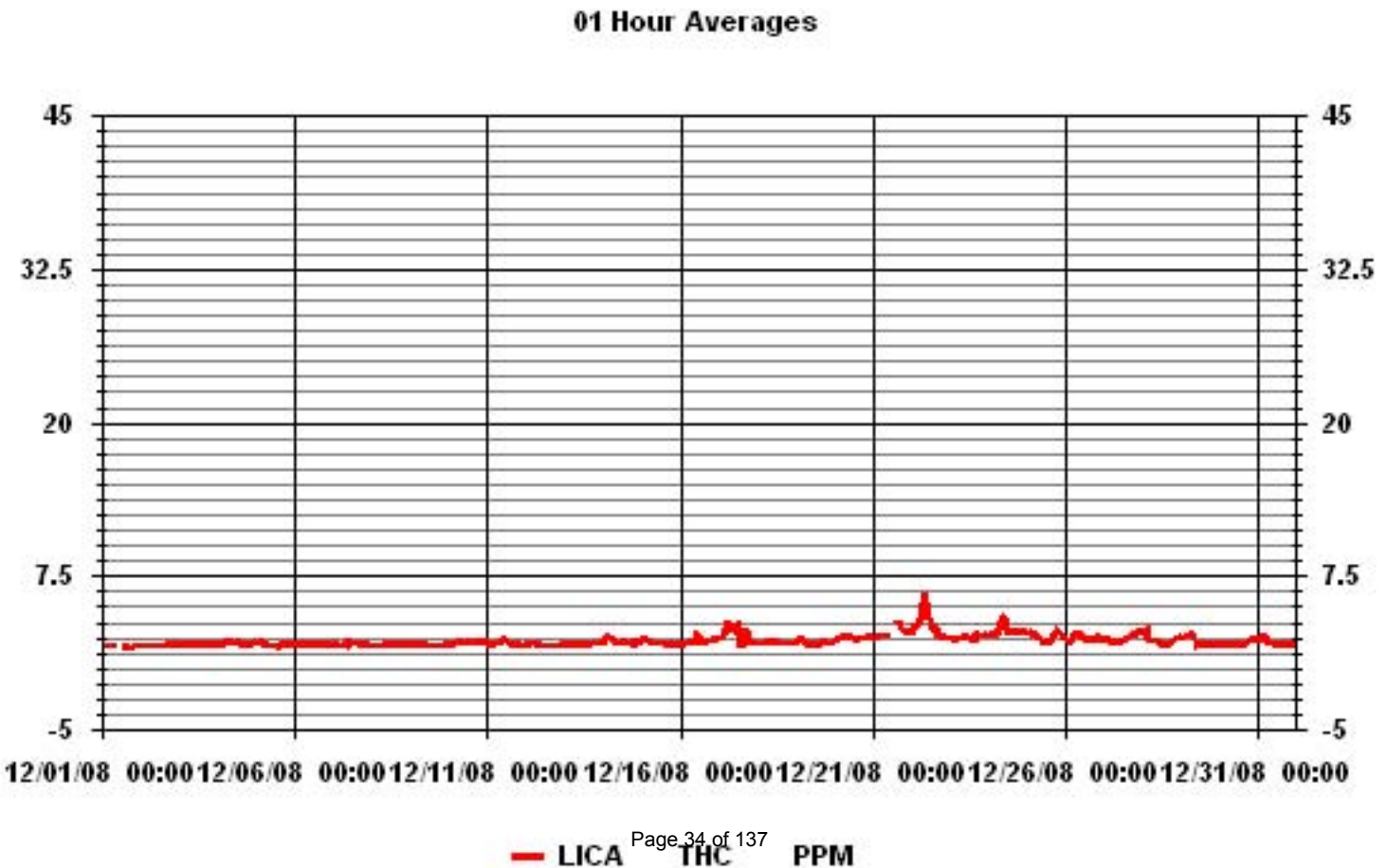
STATUS FLAG CODES

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:	699						
MAXIMUM 1-HR AVERAGE:	6.0	PPM	@ HOUR(S)	8	ON DAY(S)	22	
MAXIMUM 24-HR AVERAGE:	3.5	PPM			ON DAY(S)	22	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	736	HRS		
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	98.9	%		
STANDARD DEVIATION:	0.49		MONTHLY AVERAGE:	2.22	PPM		


01 Hour Averages
45
32.5
20
7.5
-5
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA THC PPM

LICA
THC / WD Joint Frequency Distribution (Percent)

December 2008

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	2.00	1.14	1.43	4.86	6.86	7.15	4.57	1.28	2.00	2.43	12.44	19.17	6.29	5.57	11.44	3.71	92.41
<	10.0	.14	.14	.42	.42	.14	.14	.28	.14	.14	.28	2.57	1.57	1.00	.14	.00	.00	7.58
<	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	2.14	1.28	1.85	5.29	7.01	7.29	4.86	1.43	2.14	2.71	15.02	20.74	7.29	5.72	11.44	3.71	

Calm : .00 %

Total # Operational Hours : 699

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	8	10	34	48	50	32	9	14	17	87	134	44	39	80	26	646
<	10.0	1	1	3	3	1	1	2	1	1	2	18	11	7	1			53
<	50.0																	
>=	50.0																	
	Totals	15	9	13	37	49	51	34	10	15	19	105	145	51	40	80	26	

Calm : .00 %

Total # Operational Hours : 699

Logger : 01 Parameter : THC

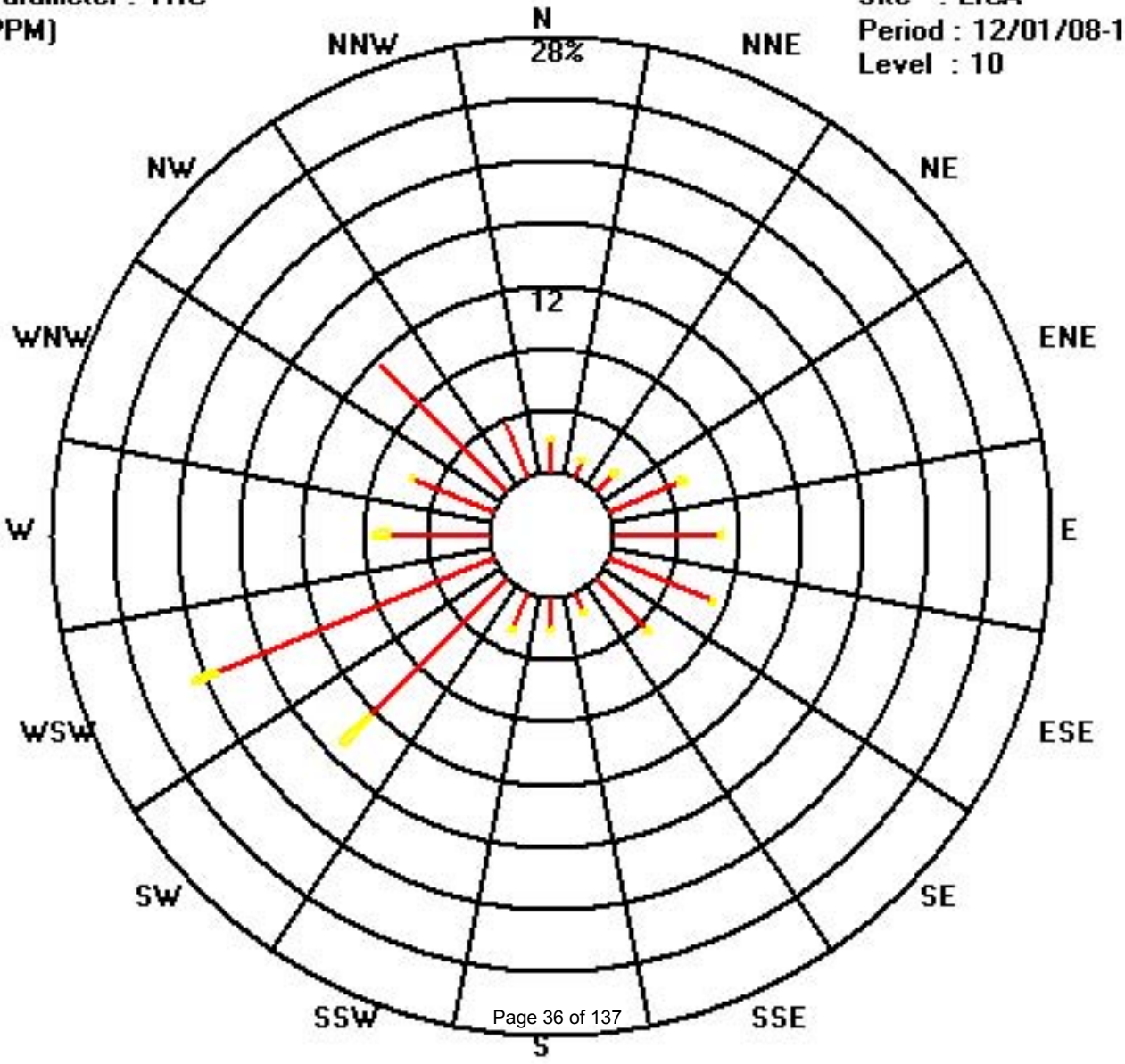
Class Limits (PPM)

- >= 50.0
- < 50.0
- < 10.0
- < 3.0

Site : LICA

Period : 12/01/08-12/31/08

Level : 10



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

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	1.8	2	2.1	1.9	1.8	1.8	1.8	1.8	2.4	**C**	**C**	**C**	**C**	**C**	1.7	1.7	1.7	**IZS**	1.7	1.8	1.8	1.8	1.8	1.8	2.4	1.8	24
2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	**IZS**	2	2	1.9	1.9	1.9	1.9	1.9	2	1.9	24
3	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	2	1.9	1.9	2	1.9	**IZS**	1.9	1.9	2	2	2	2	1.9	1.9	2	1.9	24
4	2	2	2	2	2.1	2.1	2.2	2.3	2.3	2.1	2	2.1	2.1	2.1	**IZS**	2	2	2	2	2	2	2	2.1	2.1	2.3	2.1	24
5	2.1	2.1	2.1	2.1	2.1	2	1.9	1.9	1.9	1.9	1.9	1.9	2	**IZS**	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.0	24
6	2	1.9	1.9	2	2	1.9	1.9	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	3.6	1.9	1.9	1.9	3.6	2.0	24
7	1.9	1.9	2.1	2.1	1.9	1.9	1.9	2.2	2.7	2.1	2.4	**IZS**	2	2.6	2.1	2.1	2.2	2	1.9	2	1.9	1.9	2	1.9	2.7	2.1	24
8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	1.9	2	**IZS**	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	1.9	2.1	1.9	24
9	1.9	1.9	1.9	1.9	1.9	1.9	2	2.1	1.9	**IZS**	1.9	1.9	1.9	1.9	1.9	2.6	2	1.9	2	2	2	2	1.9	2	2.6	2.0	24
10	1.9	1.9	2.1	2.1	2.1	2.2	2.2	2.2	**IZS**	2.2	2.1	2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.3	2.3	2.1	2.3	2.1	24
11	2.1	2	2	2	2.1	2.1	2.1	**IZS**	2.2	3.3	2.7	3.1	2.4	2.4	2.6	2	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	3.3	2.2	24
12	1.9	2	2	2.1	2	2.1	**IZS**	2.2	2	1.9	1.9	1.9	1.9	1.8	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	1.9	24
13	1.9	1.9	1.9	1.9	1.9	**IZS**	1.9	1.9	2	2.1	2.1	2	2	2	2	2	2.1	2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.0	24
14	2.2	2.5	2.5	2.6	**IZS**	2.6	2.5	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.1	2.2	2.2	2.2	2.3	2.6	2.3	24
15	2.4	2.4	2.5	**IZS**	2.5	2.5	2.3	2.3	2.1	2.1	2.1	2.1	2	2	2.1	2.1	2	2.1	2	2	2	1.9	1.9	1.9	2.5	2.1	24
16	2	2.2	**IZS**	2.2	2.1	2.1	2.1	2.1	2.3	2.2	3.3	3	2.6	2.5	2.2	2.2	2.5	2.3	2.4	2.6	5.1	2.5	2.4	2.4	5.1	2.5	24
17	2.7	**IZS**	2.8	2.7	4.3	4.2	3.6	3.6	3.5	3.3	3.5	3.6	3.4	1.9	1.9	2	3.4	3.5	3.1	2.9	2.3	2.1	2	2.1	4.3	3.0	24
18	**IZS**	2.1	2.1	2.1	2.1	2.2	2.2	3.2	2.2	2.1	2.3	2.3	2.5	**M**	**M**	2.2	2.1	2.3	2.1	2.1	2.1	2.1	2.1	**IZS**	3.2	2.2	21
19	2.2	2.3	2.7	2.5	2.4	2.4	2.3	2	2	1.9	1.9	1.9	1.9	1.9	1.9	2.4	2.3	3.2	2.5	2.2	2.1	2.5	**IZS**	2.2	3.2	2.2	24
20	2.3	2.3	2.5	2.5	2.6	2.8	2.7	2.6	2.6	2.6	2.7	2.5	2.5	2.4	2.4	2.6	2.5	2.5	2.5	2.5	2.7	**IZS**	2.6	2.6	2.8	2.5	24
21	2.5	2.5	2.6	2.6	2.6	2.6	2.7	2.6	2.7	2.7	**P**	**P**	**P**	**N**	**N**	**M**	3.8	4.1	3.5	3.4	**IZS**	3.1	3.1	3.1	4.1	3.0	18
22	3.1	3.5	3.6	3.7	3.8	4.1	4.3	**6.7**	6.6	6	5.1	4.4	3.8	3.7	3.4	3.3	3.3	2.9	2.6	**IZS**	2.6	2.7	2.5	2.5	**6.7**	3.8	24
23	2.5	2.5	2.5	2.4	2.5	2.6	2.6	2.6	2.6	2.7	2.9	2.7	2.7	2.6	2.5	2.5	4.5	3	**IZS**	2.7	2.9	3	3	3	4.5	2.8	24
24	2.8	3	2.9	3	2.9	2.9	3	3.7	4.6	4.6	4.5	4.4	3	3	3	3	3.1	**IZS**	3.5	3.6	3.1	3.1	3.2	3.2	4.6	3.4	24
25	3.1	3	3	3	2.9	2.9	2.8	2.7	2.5	2.5	2.8	2.3	2.5	2.3	2.4	2.6	**IZS**	3.1	3.2	3.2	3.1	3.1	2.8	2.7	3.2	2.8	24
26	2.5	2.5	2.5	2.4	2.5	2.8	2.8	2.8	3.5	3.4	2.7	2.5	2.5	2.4	3.3	**IZS**	3.2	2.7	2.7	4.3	5.3	2.6	2.5	3.6	5.3	3.0	24
27	3.9	2.5	2.4	2.4	2.3	2.2	2.1	2.3	2.3	2.1	2.2	2.2	2.4	2.6	**IZS**	2.8	2.9	2.8	2.9	3	3.3	3.2	3.2	3	3.9	2.7	24
28	3.1	3.2	3.3	3.1	2.5	2.6	2.6	2.4	2.4	2.1	2.3	2	2	**IZS**	2	2	2.4	2.2	2.4	2.3	2.5	2.5	2.6	2.5	3.3	2.5	24
29	2.6	2.6	2.7	2.7	2.9	2.9	2.9	3.5	3	2.1	2	2	**IZS**	2	2.6	2.1	1.9	1.9	1.9	1.9	2.4	2	1.9	1.9	3.5	2.4	24
30	2	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	**IZS**	2	2	2	2	2.1	2.2	2.2	2.4	2.7	2.6	2.7	2.8	2.8	2.1	24
31	2.5	2.6	2.6	2.6	2.6	2.6	2.2	2.2	2.1	2	**IZS**	2	1.9	2.2	1.9	1.9	4.7	2	1.9	1.9	2.5	1.9	1.9	2	4.7	2.3	24
HOURLY MAX	4	4	4	4	4	4	4	7	7	6	5	4	4	4	3	3	5	4	4	4	5	3	3	4			
HOURLY AVG	2.3	2.3	2.4	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.2	2.5	2.4	2.3	2.4	2.5	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

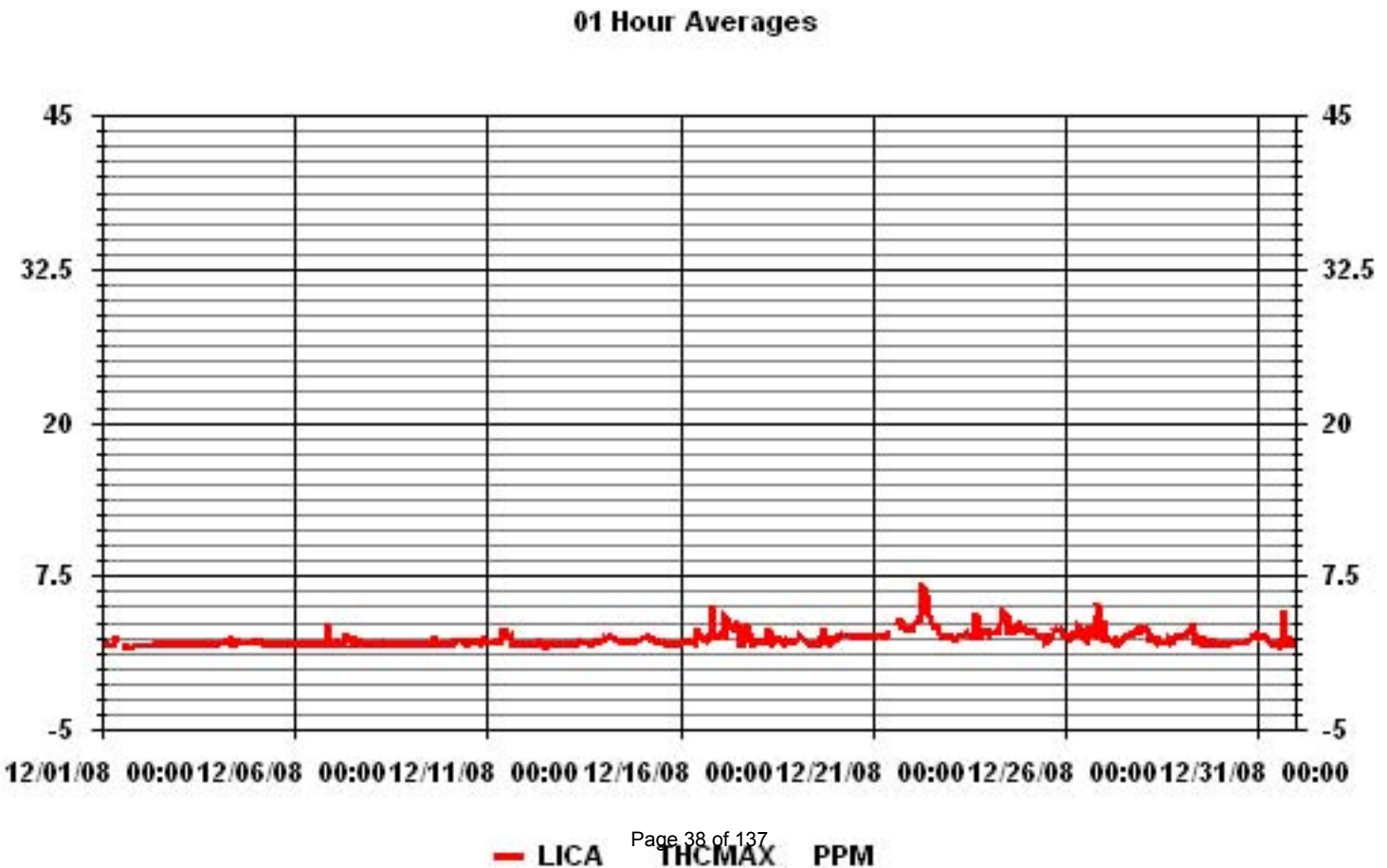
NUMBER OF NON-ZERO READINGS: 699

MAXIMUM INSTANTANEOUS VALUE: 6.7 PPM @ HOUR(S) 7 ON DAY(S) 22

IZS CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 735 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION: 0.62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32.5
20
7.5
-5
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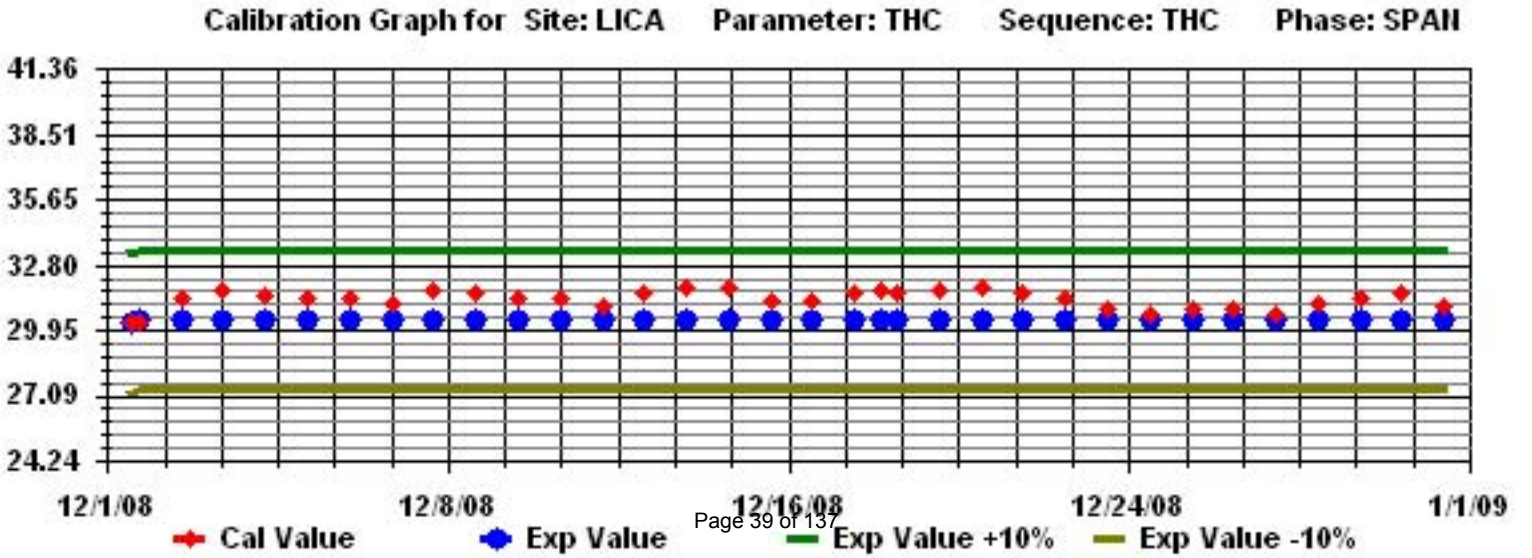
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA THCMAX PPM


Calibration Graph for Site: LICA Parameter: THC Sequence: THC Phase: SPAN
41.36
38.51
35.65
32.80
29.95
27.09
24.24
12/1/08
12/8/08
12/16/08
12/24/08
1/1/09
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

PARTICULATE MATTER 2.5 (PM2.5) hourly averages in ug/m^3

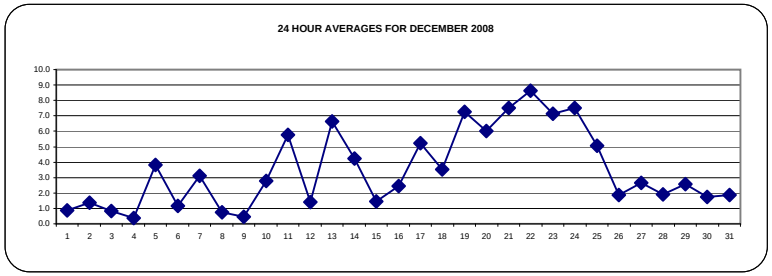
MST

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	**N**	0	0	0	0	0	0.2	**C**	**M**	**M**	**M**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	2.1	3.2	2.6	2.6	3.2	0.9	20
2	2.5	2.4	1.7	2.2	2	1.9	2.4	1.1	1.7	1.9	0.9	0.7	0.1	0	1	1.1	1.5	1.5	0.8	0.8	0.4	1.5	1.3	1.6	2.5	1.4	24
3	1.3	0.2	1	0.5	0.5	0.4	0.5	0.5	0.8	0.8	1.4	0.7	0.9	0.6	1.4	1.2	1.2	1	1.1	1.1	0.5	0.8	0.4	0.7	1.4	0.8	24
4	1	0.5	1.7	0	0	0	1.2	0	0	0.8	0.9	0	0	0	0	0	0	0	0	0.4	0	0	0.8	1.4	1.7	0.4	24
5	1	3.5	4.5	6.4	5.3	5	5.9	4.8	4.7	4.4	4.3	2.7	3.9	4.1	3.4	4.4	3.2	3.9	3.1	3.3	3.9	1.9	1.3	2.3	6.4	3.8	24
6	2.5	0.9	0.1	1.7	1	0.6	0.4	0.4	0.8	0.7	0	0	0.1	0.1	0.5	1.5	2.3	1.3	2.2	1.4	2.4	2.6	2.3	1.7	2.6	1.1	24
7	2.4	2.8	3	1.8	1.6	1.5	1.2	0.2	5.5	3.5	3.7	4.3	2.4	3.1	3	3.3	1.9	6.8	6.7	4	3.4	3.5	2.6	2.1	6.8	3.1	24
8	0.5	0.9	0.8	0.3	0.3	0.6	0.3	0.3	1.4	1.5	0.1	0.4	0.6	1.1	0.5	0.2	1.6	1.5	0.5	0.3	0.6	1.9	0.8	0.7	1.9	0.7	24
9	0.1	0.5	0.1	0	0.3	0.5	0	0	0	0	0	0	0	0	0	0	0	0	2.7	3.9	0	0	1	1.6	3.9	0.4	24
10	3.9	3.9	3.9	4.3	3.5	3.7	2.4	2.5	2.1	1.9	2.2	2.2	2.9	1.1	2.4	1.5	1.9	1.8	3.8	2.5	2.8	2.5	3.6	3.1	4.3	2.8	24
11	2.8	2.3	1.8	1.8	2.4	2	2.8	2.5	2.5	6.3	5.8	7.7	17.2	**44.9**	32.3	1	0	0	0	0	0	0.4	1.5	0.6	**44.9**	5.8	24
12	0.5	0.6	0	0	0	2.8	3.4	0	1.3	1.1	1.7	1.5	0.6	0	1.6	0.7	1.2	1.9	1.8	1.7	1.8	2.2	3.1	4	4.0	1.4	24
13	4	4.1	4.4	6.1	7.7	6.9	6.9	6.9	7.6	7.6	7.6	6.9	8.3	9.8	8.6	7.9	8	7.6	5.7	5.5	4	5.8	6.3	5.3	9.8	6.6	24
14	5.2	5.2	4.1	4	4.2	5.1	4.3	4.5	3.8	5.8	5.3	4.7	4.3	5.5	5.3	4.3	3.4	3.8	3.7	2.8	2.7	3.1	2.9	3.5	5.8	4.2	24
15	2.9	3.7	2.7	3	2.5	2.1	2.2	0.6	1.9	2.1	2.1	0	0	0	0	1	0.1	0	2.3	1.4	0.8	1.4	1.5	0.4	3.7	1.4	24
16	0.2	0	0.8	3.4	2.6	0.6	0.8	0.5	1.8	6.3	7	2	2.6	1.1	0.6	0	1	2.2	2.5	2.9	5.7	4.7	4.8	4.7	7.0	2.5	24
17	5	8.2	7.3	5.7	6.1	8.2	7.9	8.2	7	6.7	8.5	11.6	7.4	0.9	1.1	2.3	4	4.5	3.7	2.8	2.5	2	2.2	2.1	11.6	5.2	24
18	2.2	2.3	2.4	2.3	2.2	2.7	2.6	2.5	3.5	4.9	7.1	**N**	**N**	**N**	3.2	2	4.7	2.6	3.8	5.7	4.3	4.8	3.8	4.7	7.1	3.5	21
19	8.8	10.9	10.4	8.1	6.2	5.7	6.1	6.7	7.6	8.7	7.9	9.7	8.3	9.3	8.6	7.1	12.4	5.4	5.8	4.9	4.2	3.7	4.1	3.6	12.4	7.3	24
20	4.5	3.7	4.8	3.3	3.4	5.1	4.7	4.9	4	6.3	5.3	5.8	6.2	6.9	7	8.9	6.2	7.3	7.8	7.7	7.1	9.2	8.1	6.6	9.2	6.0	24
21	5.8	5.5	5	5	4.4	4.4	4.3	3.9	4.7	6.6	**P**	**P**	**P**	0	8.1	13.4	13.3	11.5	11.5	8.9	9.1	11.3	10.1	10.6	13.4	7.5	21
22	8.3	6.3	7	6.8	6.1	6.9	7.3	10.4	10.6	13.9	17.1	13.8	12.4	10.5	9.6	7.1	7.9	6.7	7	6.2	6.8	5.5	6.1	6.9	17.1	**8.6**	24
23	6.1	5.7	5.6	4.8	4.2	5.8	2.7	4.1	4.9	8.4	17.6	14.8	11	8.3	7.5	4.8	10.6	6.9	7.8	4.6	5.2	6.1	6.7	7	17.6	7.1	24
24	6.7	7.4	7.6	7.8	7.3	6.5	6.5	6.5	7.4	10.7	14	7.3	8.1	6.4	6.1	7.4	8.1	6.3	7.1	7.6	6.9	6	7.7	6.5	14.0	7.5	24
25	7.9	6.5	5.6	4	4.3	6.5	5.9	4	6.4	7.4	5.4	7.6	3.7	2.3	3.9	4.9	4.9	5.7	6.2	5.6	4.5	3.9	2.1	1.9	7.9	5.0	24
26	1.3	0.3	1.8	1.4	1.1	0.7	1.3	0.4	0	4.9	5.6	2.3	2.1	0	1	2.2	0.8	0	1.7	4.1	2.5	2.2	5.4	1.8	5.6	1.9	24
27	0.5	0.9	0.9	0	1.7	0	0	0.4	0.1	3.1	2.1	1.6	1.7	2.5	2.4	2.6	4.3	4.2	4.4	4.2	6.3	5.9	5.5	8.5	8.5	2.7	24
28	8.6	7.9	6.5	1.2	0	0	0.3	0	0.1	3.8	3	0	0	0.4	1	0.5	0.7	2.4	0	0.8	2.8	1.7	1.9	2.6	8.6	1.9	24
29	3	3.9	4.1	3.7	3.1	2.2	2.3	2.9	6.1	2.6	2.5	1.4	0	1	2.6	2.6	1.8	3.2	2	2	1.8	2.1	2.3	3	6.1	2.6	24
30	2.5	1.9	1	1.3	1.6	2.2	1.6	2	1.5	2.3	1.7	1.8	1.5	1.5	2.3	0.8	1.3	1.4	1.3	2.4	1.6	1.8	1.8	2.9	2.9	1.8	24
31	0.9	2.2	6	3.3	1.9	2.6	1.1	1	0.8	0.2	1.2	0	0	1.3	1.9	2.3	4.2	3.2	0.3	1.6	1.4	2.1	3.2	2.6	6.0	1.9	24
HOURLY MAX	9	11	10	8	8	8	8	10	11	14	18	15	17	45	32	13	13	12	12	9	9	11	10	11			
HOURLY AVG	3.3	3.4	3.6	3.0	2.8	3.0	2.9	2.7	3.3	4.5	4.9	4.0	3.8	4.2	4.2	3.2	3.8	3.5	3.6	3.4	3.2	3.3	3.5	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

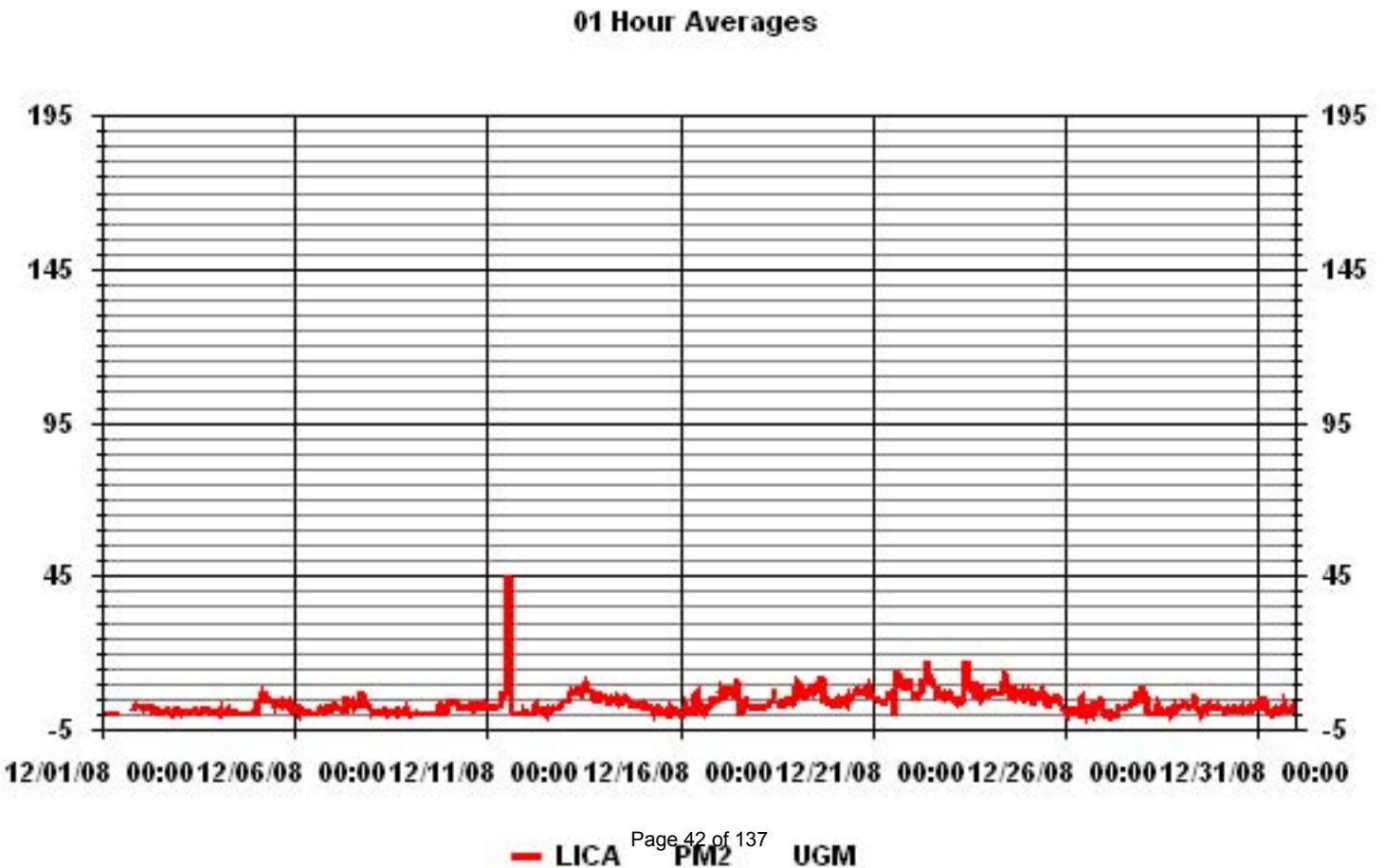
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR - PPB 24-HR 30 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-					
NUMBER OF 24-HR EXCEEDENCES:	0	PROPOSED CANADA WIDE GUIDELINE				
NUMBER OF NON-ZERO READINGS:	653					
MAXIMUM 1-HR AVERAGE:	44.9	UG/M^3	@ HOUR(S)	13	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	8.6	UG/M^3			ON DAY(S)	22

IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	734	HRS
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	98.7	%
STANDARD DEVIATION:	3.57		MONTHLY AVERAGE:	3.51	UG/M^3


01 Hour Averages
195
145
95
45
-5
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA PM2 UGM

LICA
PM2 / WD Joint Frequency Distribution (Percent)

December 2008

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30.0	2.06	1.23	2.20	4.95	7.30	7.57	4.68	1.65	2.06	2.89	15.15	20.38	6.61	5.78	11.29	3.85	99.72
<	60.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.13	.00	.00	.00	.00	.27
<	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	2.06	1.23	2.20	4.95	7.30	7.57	4.68	1.65	2.06	2.89	15.28	20.52	6.61	5.78	11.29	3.85	

Calm : .00 %

Total # Operational Hours : 726

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	30.0	15	9	16	36	53	55	34	12	15	21	110	148	48	42	82	28	724
<	60.0											1	1					2
<	80.0																	
<	120.0																	
<	240.0																	
>=	240.0																	
	Totals	15	9	16	36	53	55	34	12	15	21	111	149	48	42	82	28	

Calm : .00 %

Total # Operational Hours : 726

Logger : 01 Parameter : PM2

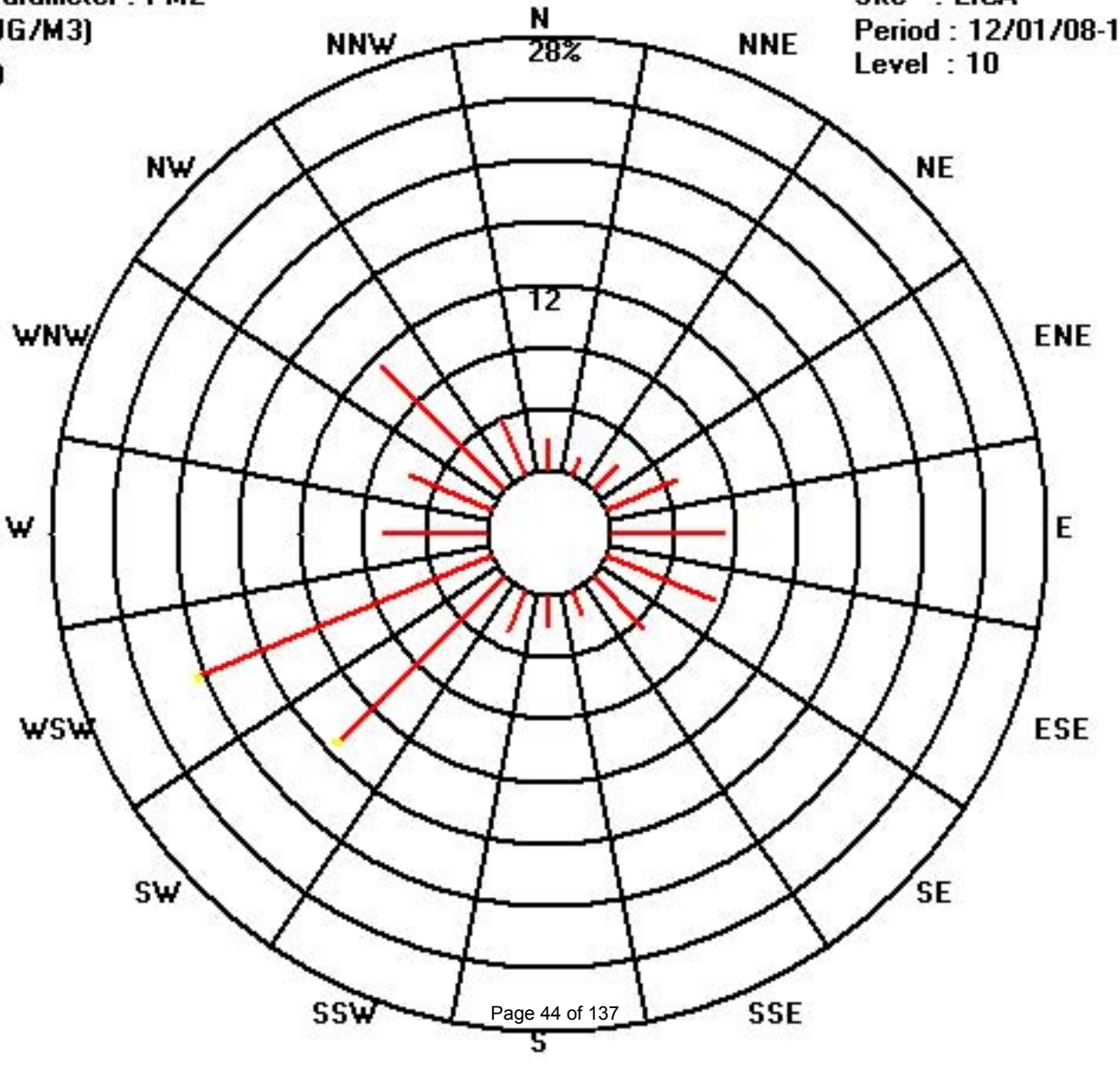
Class Limits (UG/M3)

- >= 240.0
- < 240.0
- < 120.0
- < 80.0
- < 60.0
- < 30.0

Site : LICA

Period : 12/01/08-12/31/08

Level : 10



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

PARTICULATE MATTER 2.5 MAX instantaneous maximum in ug/m^3

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	0.8	0	1	0.4	0	2.5	0.5	4.1	9.6	**C**	**M**	**M**	**M**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	5	5	4.9	9.6	2.8	21
2	5.4	5.3	3.6	4.1	5.2	4.4	4.5	4.1	3.6	4.2	4.1	3.9	2.2	1.8	3.6	3	4.1	3.6	4.1	3.1	3.6	3.5	2.9	4.3	5.4	3.8	24
3	3.6	2.2	3.4	3.4	2.6	2.7	3.1	2.7	3.3	2.6	3.1	2.9	4.6	2.8	4.9	3.4	4.6	3.5	3.6	3.9	2.4	4.1	2.6	3.6	4.9	3.3	24
4	4.6	2.7	4.6	4	3.6	1.9	4	2.8	2.3	3.6	3.8	2.2	2.4	1.5	0.7	2.8	2.9	0.6	3.9	5.4	5.7	4.2	4.8	5.2	5.7	3.3	24
5	5.4	7.6	9.6	9.4	11	9	9	7.8	8.1	7.2	8.5	6.3	7.1	7.1	6.1	7.6	6.2	7.1	7.2	6.5	6.6	4.4	4.4	6.8	11	7.3	24
6	6.2	4.3	3	4.8	3.6	4.3	3.1	3.3	4.8	2.7	2.7	2.7	2.8	3.3	3.4	3.9	5.1	4.1	3.8	5	6.2	5.2	5.2	5.7	6.2	4.1	24
7	7.8	5.3	5.9	5.2	4.5	3.9	4.1	3.6	10	6.8	7.7	7.7	4.1	5.4	5.1	6.4	4.9	15.9	12	7.1	5.7	6.3	5.5	5.4	15.9	6.5	24
8	3.1	3.1	3.2	3.9	3	2.9	3.3	3.8	5.1	4.6	3.1	3	3.9	4.4	2.7	2.3	4.9	4.5	3.3	3	4.5	4.8	3.6	3.6	5.1	3.7	24
9	4	4	3.1	2.9	3.5	5.1	3.5	2.8	1.9	1.7	1.1	0.5	1.6	1.5	1.7	1.9	2.6	1.8	8.9	11.2	3.3	4	4.3	5.1	11.2	3.4	24
10	7.6	8.1	7.2	7.7	6.7	7.1	5.6	4.9	7.1	5.6	7.6	5.5	6.7	4.6	5.9	4.6	5.4	5	10.4	6	5.6	6.3	7.1	5.6	10.4	6.4	24
11	5.7	5.4	4.8	6.2	5.4	5.2	6.6	6.1	6.5	9.4	8.1	32.2	36.6	66.3	**67.1**	9.1	2.3	0.9	2.1	2.7	2.4	3.3	4.4	3.8	**67.1**	12.6	24
12	3.3	3.1	2.3	0.7	6.3	8.1	8.1	2.8	4	3	4.8	4.4	3.6	2.8	4	3.9	5.1	5.2	4.6	4.1	4.6	4.5	5.2	6.6	8.1	4.4	24
13	6.3	7	7.1	9.6	10.6	11.3	10	9.7	11	12.1	10.5	10.2	11.8	12.6	12.6	10.5	11	10.2	8.3	8.2	6	9	9.1	8.2	12.6	9.7	24
14	9.4	8.7	8.4	7.8	7.4	8.4	8.4	7.3	7	8.3	8.9	8.4	9.1	8.1	7.9	7.4	6.1	5.9	6.2	5.6	5.6	5.5	5.7	6.8	9.4	7.4	24
15	5.8	6.6	5.6	6.5	5.4	5	6	4.1	4.9	5.1	5.6	3	2.5	3	3.5	3.3	3	1.9	5.1	4.4	3.5	4.6	4.9	2.9	6.6	4.4	24
16	2.4	2.9	3.4	7.9	6.5	4.1	4.1	3.9	8.2	11.6	11.4	9.2	11.7	4.4	3.4	2.6	4.1	4.8	4.9	7	11.2	8.4	9.4	8.3	11.7	6.5	24
17	8.1	11.8	12.2	8.5	9.9	11.1	10.3	11	9.2	9.1	11.8	14.4	11.2	2.7	3.6	4.6	7.1	7.1	6.1	5	4.8	4.5	4.5	4.3	14.4	8.0	24
18	4.1	4.3	4.9	4.9	6	5.5	4.6	5.5	6.3	8.1	10.6	**N**	**N**	**N**	7.2	3.9	12.2	10	6.5	8.4	7.2	7.3	6.8	8.2	12.2	6.8	21
19	18.3	16.7	16.2	11.1	8.9	8.4	8.4	9.4	10.3	18.7	18.8	12.7	10.6	16.5	11.6	10.9	16.8	13.2	8.6	7.8	6.7	6.6	7	7.6	18.8	11.7	24
20	7.1	6.6	7.8	6.2	6.5	9.6	8.8	8.2	7.1	9.1	8.4	8.6	9.7	10.2	9.2	12.2	9.4	10	11.5	11.8	10.6	15.4	11.7	9.9	15.4	9.4	24
21	8.9	8.6	8.4	8.3	7.4	8.6	7.4	7.1	7.4	11.9	**P**	**P**	**P**	8.4	13.2	18.1	15.5	14.8	13.5	11.2	14.9	17.2	12.6	13	18.1	11.3	21
22	10.9	7.5	9	8.4	8.2	8.4	9.3	13.6	13.9	18.4	19.6	16.7	14.1	14.1	11.2	10.4	10.6	9.4	9.6	7.8	8.5	7.5	7.8	8.9	19.6	11.0	24
23	7.5	7.7	7.3	6.2	6.7	8.6	4.1	6.2	6.2	13.2	20	19.6	13.9	13.1	9.5	7.6	15.1	11.8	13.4	6.8	6.5	7.9	10.5	8.8	20	9.9	24
24	8.7	9.1	9.2	9.3	9.5	7.8	8.1	8.5	13	12.5	19.8	11.5	14	10	9.2	9.1	9.5	8	11	11.4	9.6	7.8	17.9	17.6	19.8	10.9	24
25	12	10.5	11.8	6.7	5.6	11.7	10.6	6.1	10.1	12	9.9	10.5	7.1	4.8	5.9	6.2	7.2	7.9	7.9	7.3	6.7	5.2	3.8	3.8	12	8.0	24
26	3.8	2.4	4.6	5	4.6	3.3	2.8	2.4	2.5	7.2	7.8	6.5	5.4	5.6	4	3.4	4.4	1.3	3.6	5.9	4.6	6.2	9	5.2	9	4.6	24
27	1.8	2.9	3.1	2.2	4.3	4.1	1.3	2.3	1.8	6.2	4.9	3.7	6.7	6	5.1	5.2	6.5	5.9	6.3	6.4	13.7	12	7.2	12.6	13.7	5.5	24
28	11.4	10.7	8.3	4.4	1.5	1	3.6	2.5	3.3	6.6	7.8	4.8	2.2	2.3	3.7	1.9	2.3	4.6	1.3	2.8	7.5	3.5	4.1	4.6	11.4	4.4	24
29	5.2	6.5	6.1	7.2	8.3	3.9	4.1	5.1	8.5	5.7	6.1	3.8	1.1	3.4	5.1	5	3.8	4.8	3.8	4.8	4.1	4.1	3.5	4.6	8.5	4.9	24
30	4.4	3.8	2.8	2.7	3.9	4.3	3.3	4.5	2.9	4.8	4.3	3.1	2.8	3.5	7.2	2.8	2.3	3.3	3	4.3	2.9	3.8	3.6	5	7.2	3.7	24
31	2.5	4	9.9	5	4.3	4.8	3.6	3.4	2.8	3.6	3	1.2	2.2	2.8	5.6	5.4	6.8	6.5	2.5	3.4	4	3.8	5	4.4	9.9	4.2	24
HOURLY MAX	18	17	16	11	11	12	11	14	14	19	20	32	37	66	67	18	17	16	14	12	15	17	18	18			
HOURLY AVG	6.5	6.3	6.4	6.0	6.0	6.1	5.8	5.6	6.8	8.1	8.8	8.3	8.0	8.4	8.3	6.1	6.9	6.6	6.8	6.5	6.5	6.5	6.6	6.8			

STATUS FLAG CODES

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

MONTHLY SUMMARY

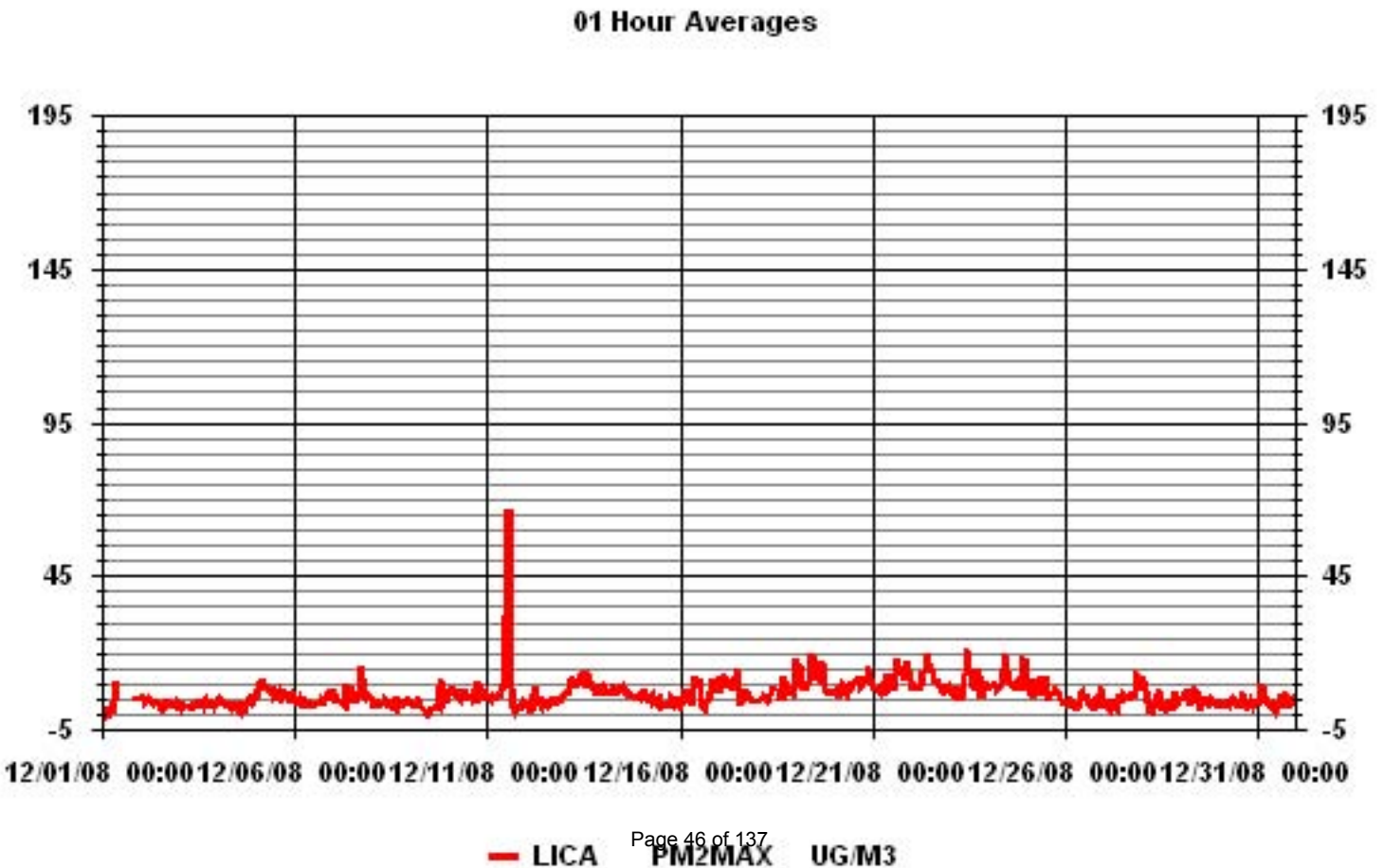
NUMBER OF NON-ZERO READINGS: 676

MAXIMUM INSTANTANEOUS VALUE: 67.1 UG/M^3 @ HOUR(S) 14 ON DAY(S) 11

IZS CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 687 HRS

MONTHLY CALIBRATION TIME: 9 HRS

STANDARD DEVIATION 5.09


01 Hour Averages
195
145
95
45
-5
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA PM2MAX UG/M3

Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

NITROGEN DIOXIDE hourly averages in ppb

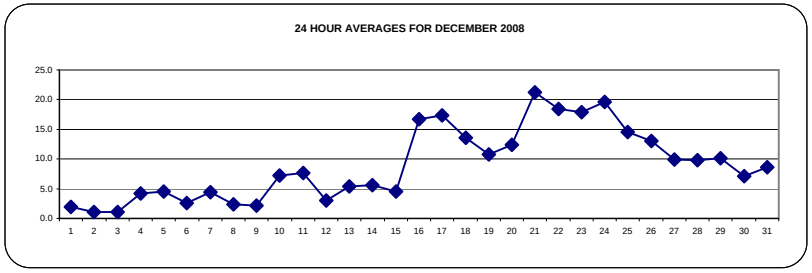
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	3	3	3	3	3	3	3	3	4	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1	**IZS**	0	0	0	0	1	1	4	1.9	24
2	1	0	0	0	1	1	1	1	2	1	1	1	1	1	1	1	**IZS**	4	1	1	1	1	1	1	4	1.0	24
3	1	1	1	1	0	1	1	1	2	1	1	1	1	1	1	**IZS**	1	1	1	2	2	1	1	1	2	1.1	24
4	1	1	1	1	3	2	3	6	9	8	5	4	4	6	**IZS**	5	6	4	4	4	4	5	5	6	9	4.2	24
5	8	10	11	11	9	6	4	3	9	4	1	1	1	**IZS**	2	2	2	2	2	2	3	3	4	5	11	4.6	24
6	3	6	5	2	1	1	1	1	3	2	2	2	**IZS**	2	2	2	2	2	3	3	3	3	4	5	6	2.6	24
7	5	4	3	1	0	1	1	4	13	10	11	**IZS**	7	5	7	6	3	2	3	3	4	4	3	1	13	4.4	24
8	0	0	0	1	2	1	1	4	7	4	**IZS**	1	1	3	3	2	4	4	4	2	2	3	3	2	7	2.3	24
9	2	2	2	2	2	6	4	4	2	**IZS**	1	1	1	1	2	3	2	1	2	2	1	2	2	2	6	2.1	24
10	5	4	4	5	4	5	6	5	**IZS**	6	5	6	13	11	5	9	12	8	11	9	8	10	8	6	13	7.2	24
11	5	2	2	2	6	7	6	**IZS**	7	10	11	8	22	22	24	7	5	5	4	5	4	4	4	4	24	7.7	24
12	5	5	7	6	5	8	**IZS**	4	2	1	3	4	2	1	2	1	0	0	1	1	2	3	3	4	8	3.0	24
13	5	6	6	3	2	**IZS**	4	4	5	5	3	2	2	2	2	2	**M**	**M**	10	11	9	10	9	12	12	5.4	22
14	6	6	11	9	**IZS**	7	8	6	7	5	3	2	2	3	3	4	5	11	7	3	4	5	5	6	11	5.6	24
15	6	8	8	**IZS**	6	5	4	5	6	5	4	3	3	3	4	4	4	4	5	4	4	3	3	4	8	4.6	24
16	7	6	**IZS**	10	10	9	18	23	24	21	13	13	7	5	8	10	27	27	23	26	26	24	25	23	27	16.7	24
17	23	**IZS**	29	27	25	25	26	27	26	22	19	20	15	2	1	8	18	25	21	16	8	5	4	8	29	17.4	24
18	**IZS**	6	6	5	5	6	9	12	19	18	17	9	10	7	16	12	22	23	21	19	18	18	20	**IZS**	23	13.5	24
19	20	19	20	19	19	16	10	4	5	3	2	3	1	0	1	12	20	16	15	7	7	10	**IZS**	19	20	10.8	24
20	20	17	13	11	12	12	11	12	13	12	10	6	6	6	7	9	13	14	16	17	16	**IZS**	16	17	20	12.4	24
21	16	15	18	17	18	18	17	17	17	12	**P**	**P**	**P**	20	23	**31**	**31**	28	27	26	**IZS**	25	24	24	**31**	**21.2**	21
22	22	20	20	21	19	19	20	22	21	19	20	16	14	13	14	17	20	21	21	**IZS**	19	17	15	14	22	18.4	24
23	14	14	13	15	15	15	15	18	20	15	16	16	15	15	17	20	26	24	**IZS**	22	22	21	21	22	26	17.9	24
24	21	22	23	23	23	23	22	22	21	20	21	13	10	11	12	18	21	**IZS**	22	21	21	20	21	20	23	19.6	24
25	20	20	20	19	19	19	19	19	17	13	8	7	5	5	7	9	**IZS**	14	17	19	17	16	14	12	20	14.6	24
26	12	10	9	10	11	9	8	8	9	15	7	6	5	4	7	**IZS**	17	22	23	26	25	25	18	14	26	13.0	24
27	17	12	15	9	7	4	3	4	4	4	3	4	4	5	**IZS**	7	11	14	20	14	18	19	14	16	20	9.9	24
28	17	18	17	13	9	10	9	8	9	8	5	2	3	**IZS**	6	3	8	8	12	12	10	12	13	13	18	9.8	24
29	14	14	19	18	23	23	22	22	23	7	6	4	**IZS**	5	5	4	4	4	3	3	3	3	2	2	23	10.1	24
30	2	2	2	2	2	2	3	4	5	4	4	**IZS**	2	1	1	4	9	13	13	17	21	18	17	16	21	7.1	24
31	15	18	21	21	24	19	10	10	7	6	**IZS**	4	3	4	4	5	5	8	3	2	2	2	3	2	24	8.6	24
HOURLY MAX	23	22	29	27	25	25	26	27	26	22	21	20	22	22	24	31	31	28	27	26	26	25	25	24			
HOURLY AVG	9.9	9.0	10.3	9.6	9.5	9.4	9.0	9.4	10.6	9.0	7.5	5.9	5.9	5.9	6.7	7.8	10.7	11.0	10.5	10.0	9.5	9.7	9.4	9.4			

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

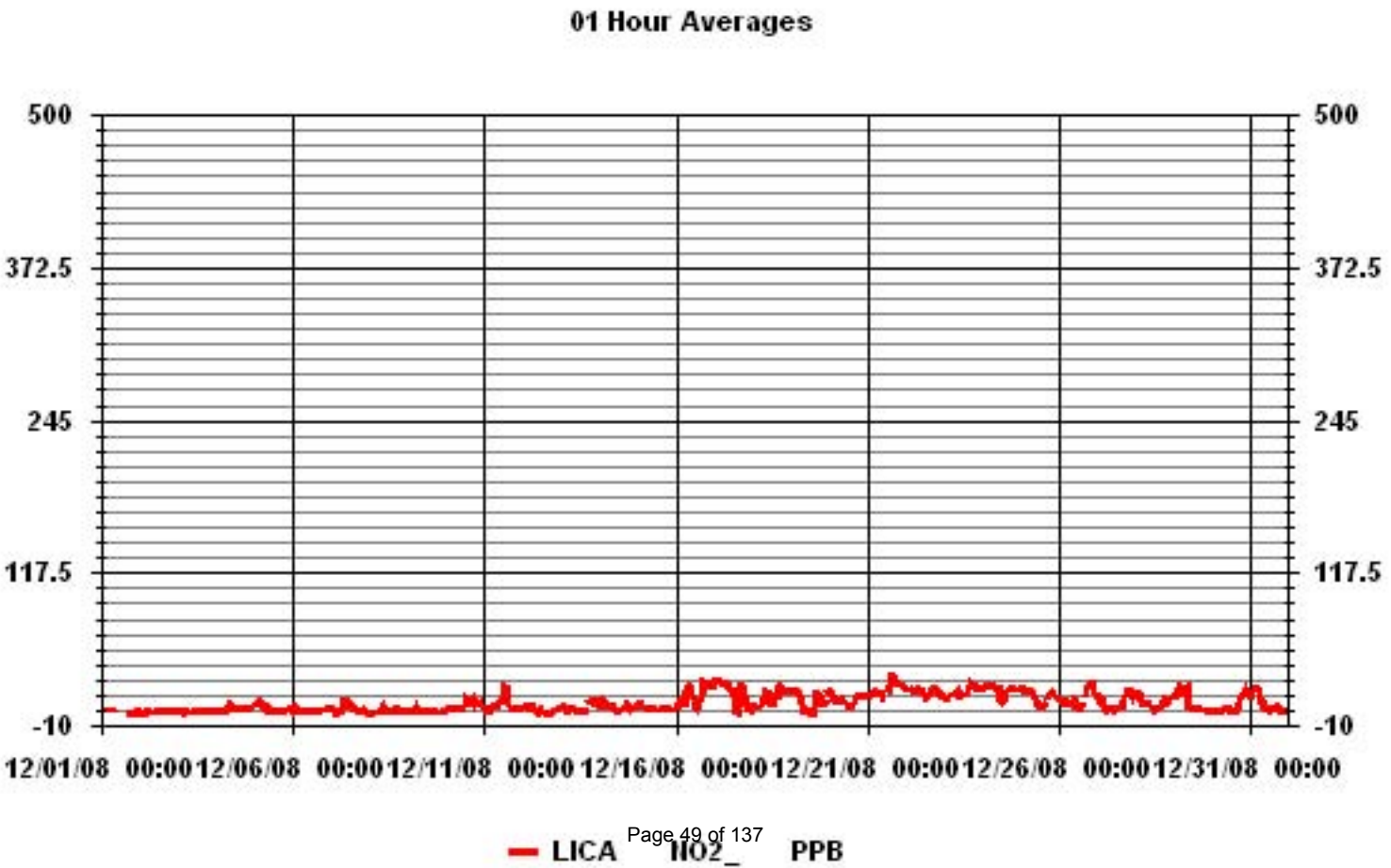
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 212 PPB 24-HR 106 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	685					
MAXIMUM 1-HR AVERAGE:	31	PPB	@ HOUR(S)	15,16	ON DAY(S)	21
MAXIMUM 24-HR AVERAGE:	21.2	PPB			ON DAY(S)	21

IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	739	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.3	%
STANDARD DEVIATION:	7.61		MONTHLY AVERAGE:	9.02	PPB


01 Hour Averages
500
372.5
245
117.5
-10
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA NO2_ PPB

LICA
NO2_ / WD Joint Frequency Distribution (Percent)

December 2008

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	2.14	1.28	2.14	5.42	7.00	7.57	4.85	1.42	2.14	2.71	15.00	20.71	6.71	5.71	11.42	3.71	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	2.14	1.28	2.14	5.42	7.00	7.57	4.85	1.42	2.14	2.71	15.00	20.71	6.71	5.71	11.42	3.71	

Calm : .00 %

Total # Operational Hours : 700

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	15	9	15	38	49	53	34	10	15	19	105	145	47	40	80	26	700
<	110																	
<	210																	
>=	210																	
	Totals	15	9	15	38	49	53	34	10	15	19	105	145	47	40	80	26	

Calm : .00 %

Total # Operational Hours : 700

Logger : 01 Parameter : NO2_

Class Limits (PPB)

>= 210

< 210

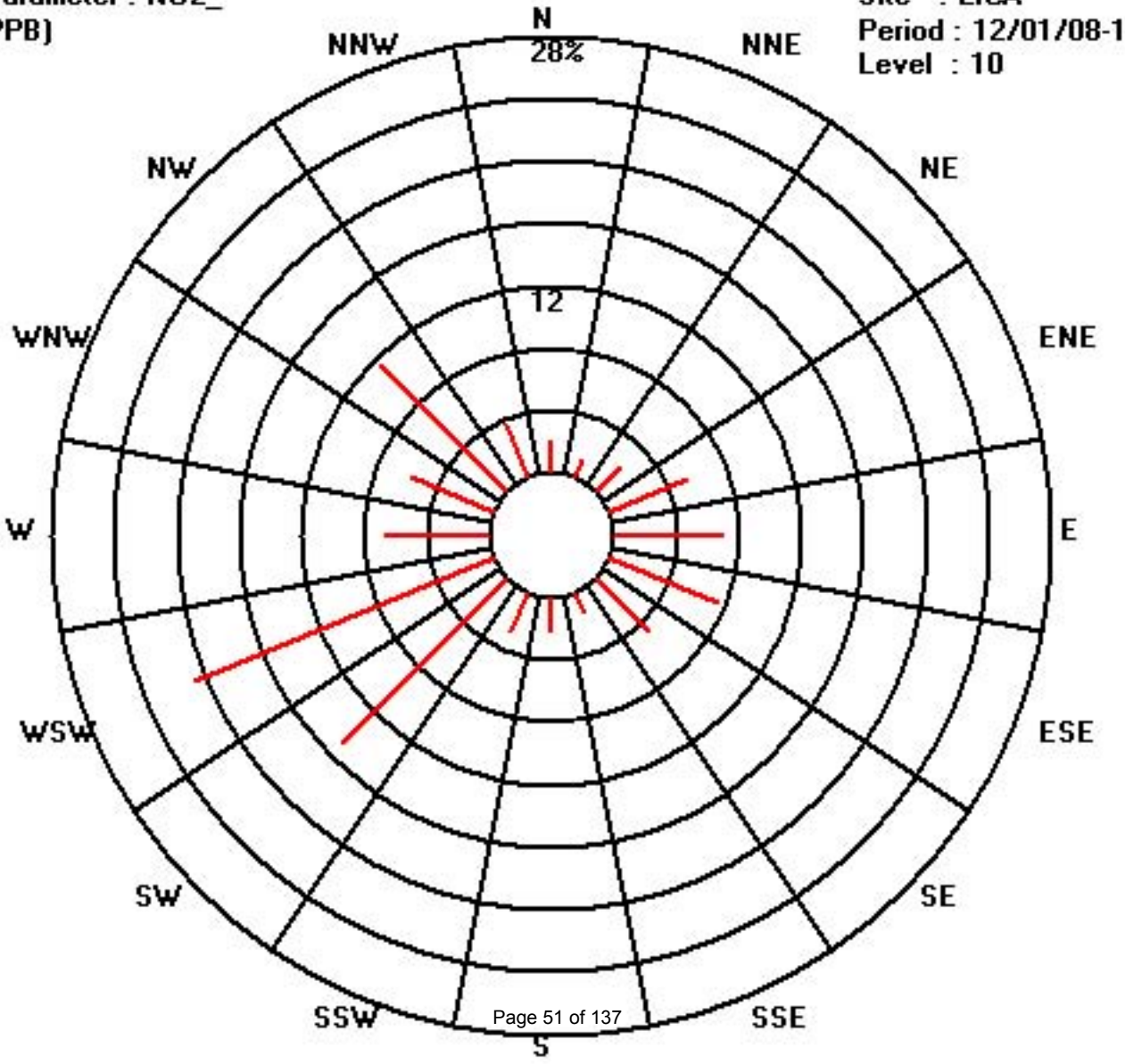
< 110

< 50

Site : LICA

Period : 12/01/08-12/31/08

Level : 10



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

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	4	5	4	3	3	5	5	7	**C**	**C**	**C**	**C**	**C**	**C**	**C**	3	**IZS**	1	1	1	1	1	1	7	3.0	24
2	1	1	0	1	1	1	2	2	3	5	1	2	1	1	4	1	**IZS**	4	3	2	2	1	1	1	5	1.8	24
3	2	1	1	1	1	1	2	2	2	2	2	1	2	1	1	**IZS**	2	1	3	3	2	1	1	1	3	1.6	24
4	2	2	2	2	8	4	5	9	18	13	9	8	8	10	**IZS**	9	7	5	4	4	4	6	6	7	18	6.6	24
5	11	14	15	12	10	8	6	4	42	16	10	12	5	**IZS**	9	3	3	3	2	3	5	5	8	8	42	9.3	24
6	9	8	7	5	3	2	2	7	5	5	4	5	**IZS**	3	4	6	5	4	4	5	6	7	8	10	10	5.4	24
7	8	5	4	3	1	1	1	9	19	13	12	**IZS**	9	7	11	11	4	4	9	6	7	9	16	2	19	7.4	24
8	1	1	2	3	5	4	3	9	11	9	**IZS**	6	5	6	5	6	11	8	7	5	4	6	7	4	11	5.6	24
9	4	4	3	3	3	9	7	7	11	**IZS**	4	3	3	3	3	4	3	4	3	6	3	2	3	3	11	4.3	24
10	7	7	12	11	5	6	11	7	**IZS**	8	13	38	137	98	46	67	37	12	14	12	11	13	14	7	137	25.8	24
11	7	4	4	3	11	10	7	**IZS**	21	33	34	67	89	56	54	10	7	8	9	8	6	5	4	5	89	20.1	24
12	5	7	10	8	10	13	**IZS**	5	5	3	6	5	4	2	3	4	1	1	1	1	3	3	4	5	13	4.7	24
13	6	6	7	5	3	**IZS**	4	5	6	7	5	3	3	3	2	3	**M**	**M**	14	15	13	12	12	15	15	7.1	22
14	12	10	17	12	**IZS**	8	11	7	8	7	5	3	3	4	5	7	8	17	13	4	8	8	9	8	17	8.4	24
15	8	14	11	**IZS**	7	7	5	6	9	7	5	4	4	4	10	5	6	4	6	4	6	4	4	5	14	6.3	24
16	12	11	**IZS**	15	13	16	24	27	36	26	21	16	12	8	13	20	32	32	27	31	31	27	26	26	36	21.8	24
17	28	**IZS**	39	30	27	28	27	28	33	25	21	21	21	2	3	14	25	29	26	19	14	6	5	12	39	21.0	24
18	**IZS**	6	9	7	6	8	13	31	37	22	55	46	28	11	**370**	17	25	31	39	24	23	21	23	**IZS**	**370**	38.7	24
19	22	20	21	21	20	18	13	6	6	6	3	16	2	1	1	21	25	22	18	11	8	15	**IZS**	22	25	13.8	24
20	24	21	16	14	14	14	15	14	17	16	20	8	12	14	8	11	16	16	18	20	18	**IZS**	19	22	24	16.0	24
21	19	18	19	19	20	20	21	18	18	14	**P**	**P**	**P**	27	42	38	35	32	30	29	**IZS**	29	27	27	42	25.1	21
22	25	26	22	23	20	21	22	24	24	21	22	21	16	15	15	21	21	22	23	**IZS**	20	19	16	15	26	20.6	24
23	15	15	15	15	16	16	16	23	26	18	18	18	16	20	24	25	31	26	**IZS**	27	28	24	29	26	31	21.2	24
24	24	25	25	27	26	25	24	25	24	24	25	18	13	16	18	24	23	**IZS**	27	26	26	23	25	23	27	23.3	24
25	23	23	23	21	21	21	22	21	20	20	11	8	7	7	11	10	**IZS**	17	19	22	19	17	20	14	23	17.3	24
26	15	12	13	12	14	10	10	9	17	32	9	7	7	4	11	**IZS**	25	35	29	32	32	29	25	20	35	17.8	24
27	22	16	19	13	12	4	5	6	6	9	10	6	5	6	**IZS**	11	14	16	22	18	22	20	17	18	22	12.9	24
28	25	21	20	17	11	22	22	11	19	10	7	4	6	**IZS**	8	6	14	11	19	43	13	19	20	16	43	15.8	24
29	17	17	23	21	27	26	24	28	31	10	8	6	**IZS**	7	14	7	5	5	5	5	4	4	4	4	31	13.1	24
30	4	3	3	3	3	4	4	9	12	5	32	**IZS**	3	4	2	7	14	21	19	20	68	21	20	20	68	13.1	24
31	22	22	24	24	28	25	12	12	9	8	**IZS**	7	5	20	7	8	17	22	7	4	6	3	3	7	28	13.1	24
HOURLY MAX	28	26	39	30	28	28	27	31	42	33	55	67	137	98	370	67	37	35	39	43	68	29	29	27			
HOURLY AVG	12.8	11.5	13.0	11.8	11.6	11.8	11.5	12.5	16.7	13.6	13.8	13.3	15.8	12.9	25.1	13.4	15.0	14.7	14.0	13.7	13.8	12.0	12.6	11.8			

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

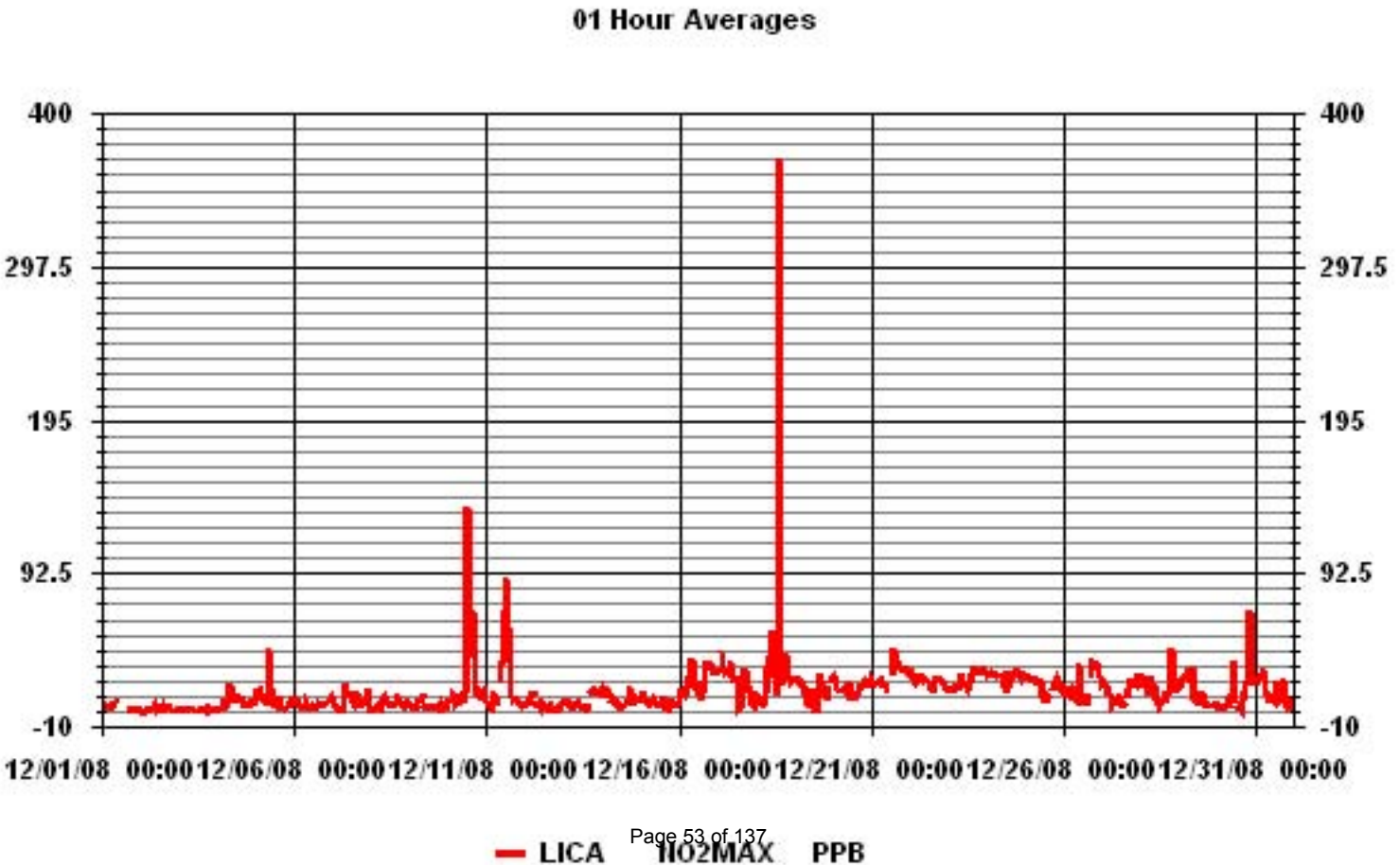
NUMBER OF NON-ZERO READINGS: 699

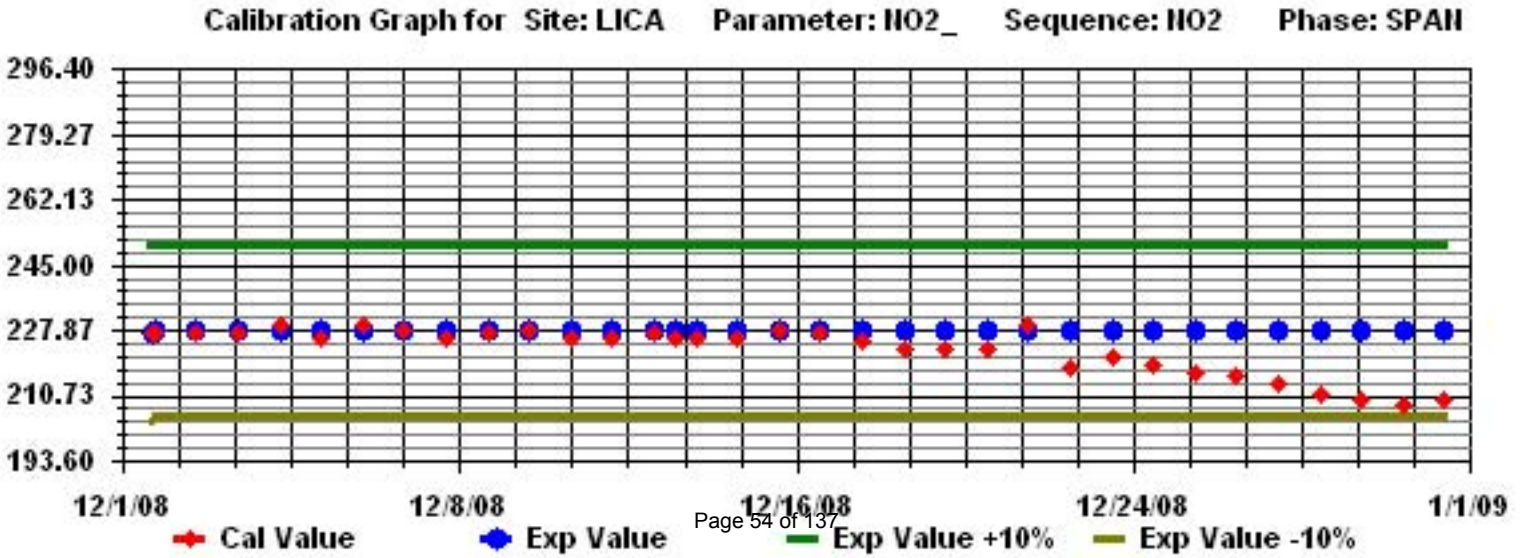
MAXIMUM INSTANTANEOUS VALUE: 370 PPB @ HOUR(S) 14 ON DAY(S) 18

IZS CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 739 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION 18.15


01 Hour Averages
400
297.5
195
92.5
-10
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA NO2MAX PPB


Calibration Graph for Site: LICA Parameter: NO2_ Sequence: NO2 Phase: SPAN
296.40
279.27
262.13
245.00
227.87
210.73
193.60
12/1/08
12/8/08
12/16/08
12/24/08
1/1/09
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

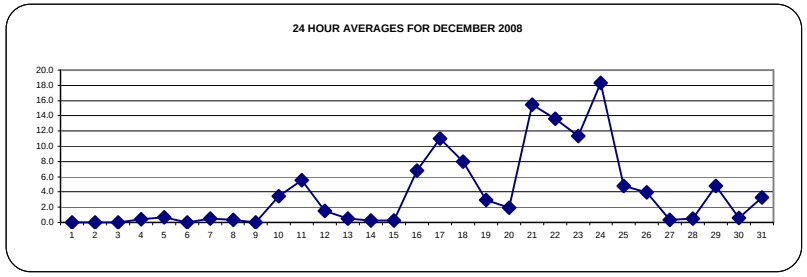
NITRIC OXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	0	0	0	0	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0	**IZS**	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	**IZS**	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	**IZS**	0	0	0	0	0	0	0	0	0	0.0	24
4	0	0	0	0	0	0	0	0	1	3	2	1	1	2	**IZS**	0	0	0	0	0	0	0	0	0	3	0.4	24
5	0	0	0	0	0	0	0	0	10	5	0	1	0	**IZS**	0	0	0	0	0	0	0	0	0	0	10	0.7	24
6	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
7	0	0	0	0	0	0	0	0	1	2	4	**IZS**	2	1	1	0	0	0	0	0	0	1	0	0	4	0.5	24
8	0	0	0	0	0	0	0	0	1	2	**IZS**	1	0	0	1	0	0	0	1	1	0	0	0	0	2	0.3	24
9	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
10	0	0	0	0	0	0	0	0	**IZS**	2	3	8	25	9	15	7	4	0	1	1	1	1	1	1	25	3.4	24
11	2	1	1	1	2	1	1	**IZS**	3	11	7	6	39	28	13	0	2	2	1	1	1	1	2	1	39	5.5	24
12	2	2	3	3	2	1	**IZS**	2	1	1	1	1	1	0	2	0	1	1	3	2	1	2	1	1	3	1.5	24
13	0	1	0	1	1	**IZS**	0	1	1	2	1	0	0	0	1	1	**M**	**M**	0	0	0	0	0	0	2	0.5	22
14	0	0	0	0	**IZS**	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.3	24
15	0	0	0	**IZS**	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.3	24
16	0	0	**IZS**	0	0	0	1	3	11	12	8	8	3	2	2	1	5	14	5	14	14	18	18	18	18	6.8	24
17	20	**IZS**	33	24	18	17	21	23	23	17	21	20	14	0	0	0	0	2	1	0	0	0	0	0	33	11.0	24
18	**IZS**	0	0	0	0	0	0	4	19	18	19	10	9	4	10	3	12	19	12	12	9	8	8	**IZS**	19	8.0	24
19	11	12	10	12	6	3	0	0	0	0	0	3	0	0	0	3	4	1	0	0	0	0	**IZS**	2	12	2.9	24
20	4	2	0	0	0	0	0	0	1	7	9	5	5	4	3	1	0	0	0	1	0	**IZS**	1	2	9	2.0	24
21	4	1	3	6	4	5	5	4	7	9	**P**	**P**	**P**	25	19	28	35	30	25	20	**IZS**	27	26	27	35	15.5	21
22	23	19	17	17	15	17	22	25	28	30	30	23	18	13	9	6	1	1	0	**IZS**	0	0	0	0	30	13.7	24
23	0	0	0	0	0	0	0	2	15	15	21	23	20	15	13	8	24	15	**IZS**	14	14	20	24	17	24	11.3	24
24	17	18	19	23	25	26	27	32	33	39	**48**	18	9	8	6	7	2	**IZS**	11	8	9	12	14	10	**48**	**18.3**	24
25	16	16	15	15	11	10	4	1	2	5	4	3	2	2	1	1	**IZS**	0	0	2	0	0	0	0	16	4.8	24
26	0	0	0	0	0	0	0	0	0	11	3	3	3	1	2	**IZS**	1	2	6	23	18	12	4	2	23	4.0	24
27	2	2	1	0	0	0	0	0	0	0	0	1	1	1	**IZS**	0	0	0	0	0	0	0	0	0	2	0.3	24
28	0	1	0	0	0	0	0	0	0	1	2	1	1	**IZS**	2	0	0	0	0	2	0	0	1	0	2	0.5	24
29	0	1	4	2	16	19	20	19	19	2	2	1	**IZS**	2	2	1	0	0	0	0	0	0	0	0	20	4.8	24
30	0	0	0	0	0	0	0	0	1	0	0	**IZS**	0	0	0	0	0	1	0	0	8	1	1	1	8	0.6	24
31	1	7	14	15	17	8	1	1	1	1	**IZS**	3	1	1	1	1	1	1	0	0	0	0	0	0	17	3.3	24
HOURLY MAX	23	19	33	24	25	26	27	32	33	39	48	23	39	28	19	28	35	30	25	23	18	27	26	27			
HOURLY AVG	3.4	2.8	4.0	4.0	3.9	3.6	3.4	3.9	5.9	6.8	6.9	5.3	5.8	4.3	3.8	2.4	3.3	3.2	2.2	3.4	2.5	3.4	3.4	2.7			

STATUS FLAG CODES

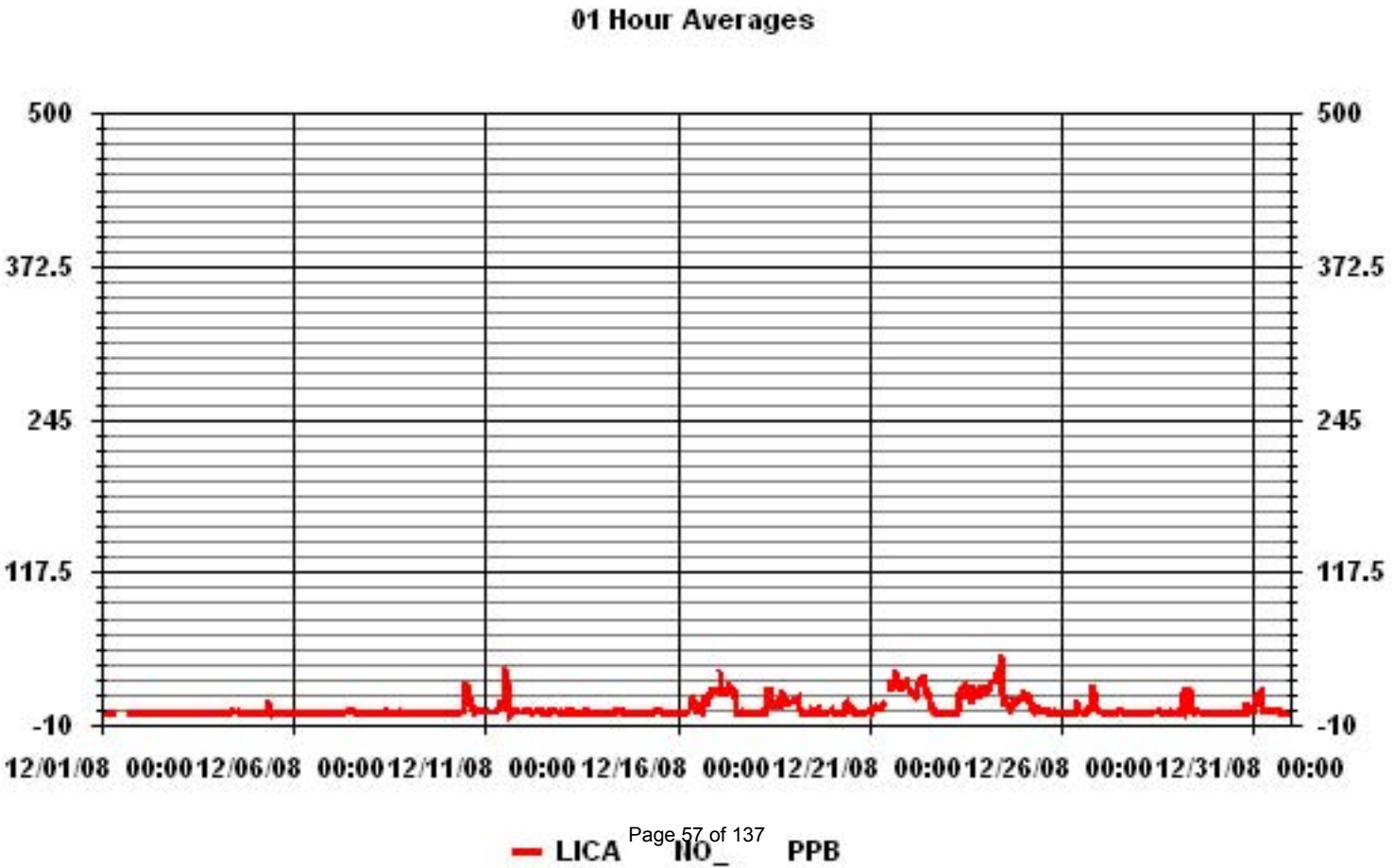
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	331					
MAXIMUM 1-HR AVERAGE:	48	PPB	@ HOUR(S)	10	ON DAY(S)	24
MAXIMUM 24-HR AVERAGE:	18.3	PPB			ON DAY(S)	24

IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	739	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.3	%
STANDARD DEVIATION:	7.46		MONTHLY AVERAGE:	3.90	PPB


01 Hour Averages
500
372.5
245
117.5
-10
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA NO_ PPB

LICA
NO_ / WD Joint Frequency Distribution (Percent)

December 2008

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	2.13	1.28	2.13	5.42	6.99	7.56	4.85	1.42	2.13	2.71	14.97	20.68	6.84	5.70	11.41	3.70	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	2.13	1.28	2.13	5.42	6.99	7.56	4.85	1.42	2.13	2.71	14.97	20.68	6.84	5.70	11.41	3.70	

Calm : .00 %

Total # Operational Hours : 701

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	15	9	15	38	49	53	34	10	15	19	105	145	48	40	80	26	701
<	110																	
<	210																	
>=	210																	
	Totals	15	9	15	38	49	53	34	10	15	19	105	145	48	40	80	26	

Calm : .00 %

Total # Operational Hours : 701

Logger : 01 Parameter : NO_

Class Limits (PPB)

>= 210

< 210

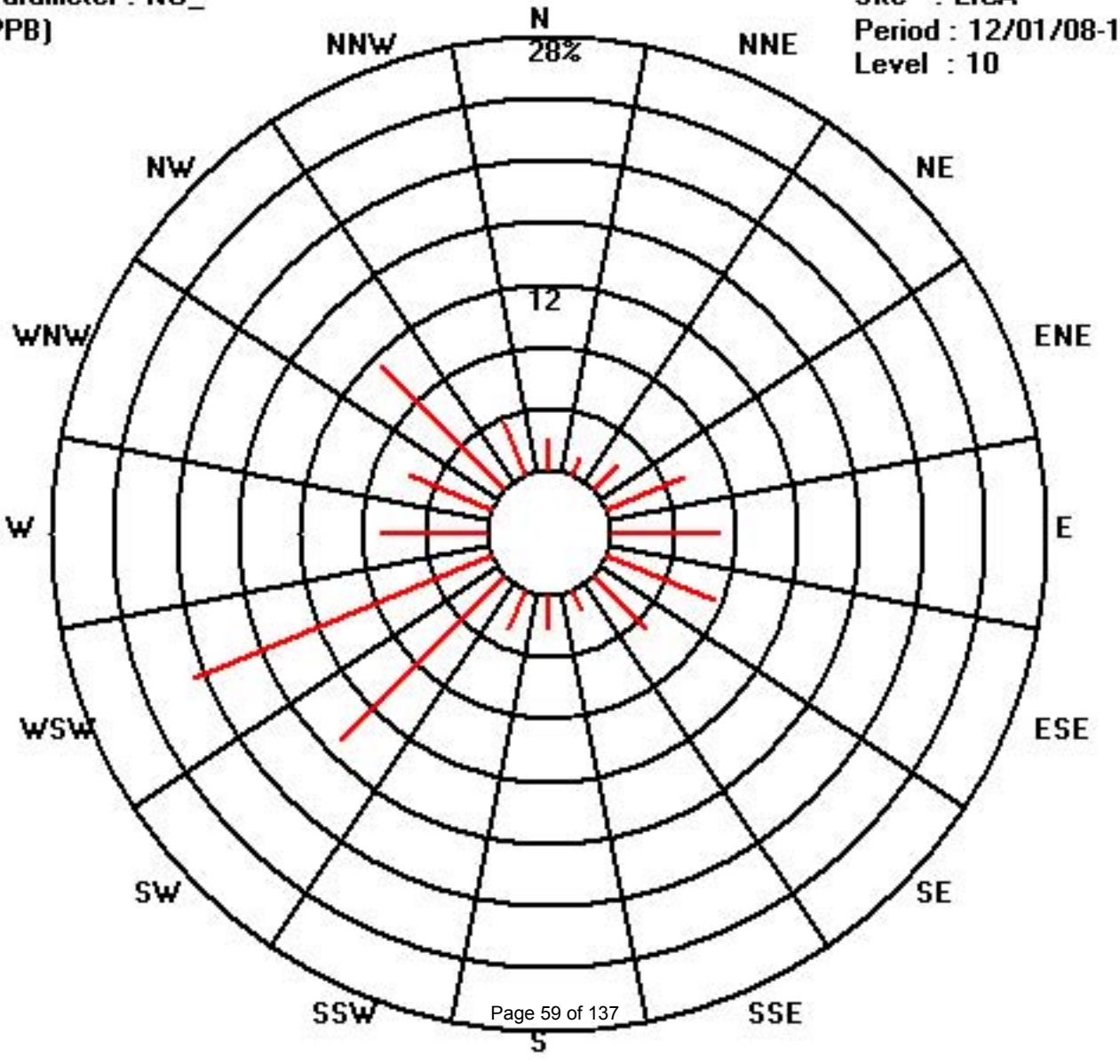
< 110

< 50

Site : LICA

Period : 12/01/08-12/31/08

Level : 10



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	0	0	0	0	0	0	0	0	13	**C**	**C**	**C**	**C**	**C**	**C**	**C**	0	**IZS**	0	0	0	0	0	0	13	0.8	24
2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	8	0	**IZS**	0	0	0	0	0	0	0	8	0.4	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**IZS**	0	0	0	0	0	0	0	0	0	0.0	24
4	0	0	0	0	0	0	0	0	9	6	5	3	3	4	**IZS**	2	1	0	2	0	0	0	0	0	9	1.5	24
5	13	1	0	0	0	1	0	0	48	26	7	9	8	**IZS**	8	0	0	0	0	0	2	1	2	0	48	5.5	24
6	1	4	14	0	0	0	0	5	4	1	2	1	**IZS**	1	1	2	3	1	1	1	3	3	13	15	15	3.3	24
7	0	0	0	1	0	0	0	1	2	5	6	**IZS**	4	2	1	1	0	1	4	3	1	9	10	0	10	2.2	24
8	0	0	0	1	0	0	1	5	3	80	**IZS**	16	3	3	11	0	4	5	21	19	6	1	2	1	80	7.9	24
9	0	1	0	1	1	1	2	1	2	**IZS**	1	4	6	1	1	2	1	1	2	2	1	2	0	0	6	1.4	24
10	1	2	0	0	0	0	0	0	**IZS**	10	16	119	195	65	**330**	149	25	9	10	11	11	10	10	10	**330**	42.7	24
11	10	10	10	10	10	10	10	**IZS**	21	123	55	33	122	69	39	12	12	12	13	12	11	12	11	12	123	27.8	24
12	13	13	14	14	14	13	**IZS**	14	13	13	14	14	13	13	14	14	14	14	14	15	15	16	16	16	16	14.0	24
13	16	17	16	16	17	**IZS**	17	16	16	16	15	16	16	15	15	16	**M**	0	1	0	0	1	0	6	17	11.3	23
14	1	0	0	1	**IZS**	0	0	0	0	1	1	1	3	2	2	1	0	1	0	0	0	0	0	0	3	0.6	24
15	0	0	0	**IZS**	0	0	0	0	1	1	2	2	1	2	3	0	0	0	0	0	0	0	0	0	3	0.5	24
16	0	0	**IZS**	4	1	0	4	8	40	18	20	11	7	4	5	3	11	35	9	23	41	27	22	25	41	13.8	24
17	39	**IZS**	51	32	23	29	23	28	35	23	25	24	27	1	0	1	1	8	3	0	0	0	0	0	51	16.2	24
18	**IZS**	0	2	0	0	0	1	139	190	35	84	145	25	8	133	9	38	38	27	28	18	16	15	**IZS**	190	43.2	24
19	18	15	13	14	10	6	2	0	0	13	1	18	0	0	0	8	8	3	1	0	0	1	**IZS**	5	18	5.9	24
20	9	10	0	1	2	1	2	3	4	13	17	7	8	8	3	2	1	0	2	3	3	**IZS**	3	8	17	4.8	24
21	21	4	6	11	8	14	12	6	9	14	**P**	**P**	**P**	38	60	38	49	48	35	29	**IZS**	33	39	29	60	25.2	21
22	28	24	21	20	17	19	31	29	33	31	33	27	22	16	11	11	6	3	0	**IZS**	0	1	0	0	33	16.7	24
23	0	0	0	0	0	1	2	13	30	23	24	26	22	18	21	16	48	47	**IZS**	28	44	38	55	27	55	21.0	24
24	21	20	28	32	31	29	30	35	37	52	57	34	25	10	10	25	4	**IZS**	39	17	17	17	23	16	57	26.5	24
25	23	22	23	29	18	15	9	4	5	7	5	4	3	3	3	2	**IZS**	0	1	6	1	0	10	2	29	8.5	24
26	2	0	2	1	0	0	2	0	7	34	5	5	5	1	5	**IZS**	18	20	15	46	31	47	13	5	47	11.5	24
27	8	8	6	2	4	0	0	0	0	2	7	1	4	2	**IZS**	1	0	1	0	0	3	0	0	0	8	2.1	24
28	6	6	3	0	0	7	7	4	3	1	2	2	2	**IZS**	2	1	8	0	4	46	1	4	10	3	46	5.3	24
29	1	5	11	5	30	28	28	38	43	3	6	2	**IZS**	6	21	4	2	1	4	8	1	1	3	1	43	11.0	24
30	3	1	1	1	1	1	1	3	4	1	5	**IZS**	4	2	0	3	2	6	2	1	160	4	8	6	160	9.6	24
31	12	17	24	22	25	17	3	3	2	2	**IZS**	65	3	7	4	2	5	10	1	0	4	1	0	4	65	10.1	24
HOURLY MAX	39	24	51	32	31	29	31	139	190	123	84	145	195	69	330	149	49	48	39	46	160	47	55	29			
HOURLY AVG	8.2	6.0	8.2	7.3	7.1	6.4	6.2	11.8	19.1	19.2	15.4	21.8	19.7	10.8	25.4	11.6	9.3	9.1	7.0	9.9	12.5	8.2	8.8	6.4			

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

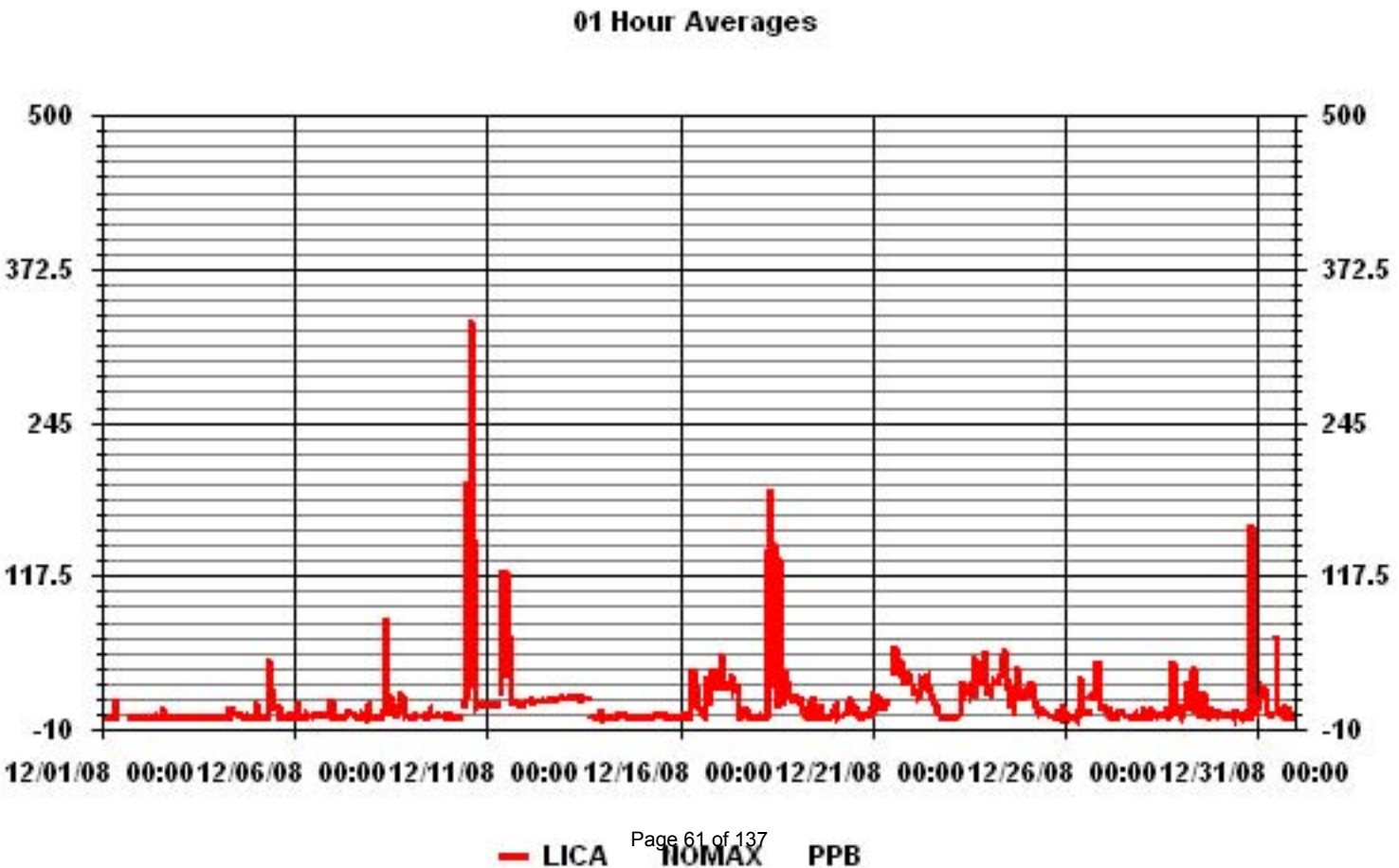
NUMBER OF NON-ZERO READINGS: 503

MAXIMUM INSTANTANEOUS VALUE: 330 PPB @ HOUR(S) 14 ON DAY(S) 10

IZS CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 740 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION 24.22


01 Hour Averages
500
372.5
245
117.5
-10
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA
NOMAX
PPB

Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

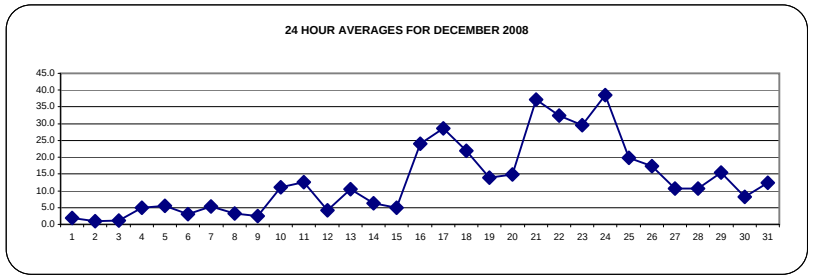
OXIDES OF NITROGEN hourly averages in ppb

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	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	3	3	3	3	3	3	3	5	**C**	**C**	**C**	**C**	**C**	**C**	**C**	1	**IZS**	0	0	0	0	1	1	5	2.0	24
2	1	0	0	0	1	1	1	1	2	1	1	1	1	1	2	1	**IZS**	4	1	1	1	1	0	1	4	1.0	24
3	1	1	1	1	0	1	1	1	2	1	1	1	1	1	1	**IZS**	1	1	1	2	2	1	1	1	2	1.1	24
4	1	1	1	1	3	2	4	7	10	11	8	6	6	8	**IZS**	6	6	4	4	4	4	5	5	6	11	4.9	24
5	8	10	11	11	9	6	4	3	19	10	2	3	2	**IZS**	3	2	2	2	2	2	3	3	4	6	19	5.5	24
6	3	6	6	2	2	1	1	2	3	2	3	2	**IZS**	2	3	3	3	3	3	4	4	4	5	5	6	3.1	24
7	5	4	3	1	1	1	1	4	14	13	15	**IZS**	10	7	8	7	3	2	4	4	5	5	4	1	15	5.3	24
8	1	0	1	1	3	1	1	5	8	6	**IZS**	2	2	4	4	3	4	5	6	3	3	4	4	2	8	3.2	24
9	2	3	2	2	3	6	5	4	3	**IZS**	2	2	2	2	2	3	2	2	2	2	2	2	2	2	6	2.6	24
10	5	5	4	5	4	5	6	5	**IZS**	8	8	15	43	24	24	16	16	8	11	9	8	10	8	6	43	11.0	24
11	5	2	2	2	7	7	6	**IZS**	9	22	18	15	61	50	41	9	5	5	4	5	4	4	4	4	61	12.7	24
12	5	5	7	6	5	9	**IZS**	4	2	1	4	5	3	2	3	2	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	9	4.2	16
13	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**M**	**M**	10	11	10	10	10	12	12	10.5	6
14	7	6	11	9	**IZS**	7	8	6	7	7	5	4	4	4	5	5	5	11	8	4	4	6	5	6	11	6.3	24
15	7	8	8	**IZS**	6	5	4	5	6	6	6	5	4	4	5	4	4	4	5	4	4	3	3	4	8	5.0	24
16	7	6	**IZS**	10	10	9	19	26	35	34	22	22	11	8	11	11	33	42	28	40	40	42	43	42	43	24.0	24
17	44	**IZS**	63	51	43	43	47	50	50	39	40	40	29	2	1	8	19	28	22	16	8	5	4	8	63	28.7	24
18	**IZS**	6	6	6	5	6	9	16	39	37	36	19	20	12	26	15	35	42	34	31	28	27	28	**IZS**	42	22.0	24
19	31	31	30	31	25	19	10	4	5	3	3	6	1	1	1	15	25	18	16	7	7	10	**IZS**	21	31	13.9	24
20	24	19	13	11	12	12	12	13	14	20	20	12	11	11	10	11	14	15	17	18	17	**IZS**	18	20	24	15.0	24
21	20	17	21	23	22	23	23	22	24	22	**P**	**P**	**P**	46	42	60	67	58	53	46	**IZS**	53	51	51	67	37.2	21
22	46	39	38	38	35	37	42	47	50	50	51	39	33	27	23	23	21	22	21	**IZS**	19	17	15	14	51	32.5	24
23	14	14	13	15	15	15	15	20	35	31	38	40	35	31	30	29	50	39	**IZS**	37	36	42	46	39	50	29.5	24
24	39	41	43	46	48	49	50	54	55	60	70	31	20	19	18	25	24	**IZS**	34	30	30	33	36	30	70	38.5	24
25	37	36	35	35	31	29	24	20	19	19	13	10	8	7	9	11	**IZS**	14	18	21	17	16	15	13	37	19.9	24
26	12	10	9	10	11	9	9	8	10	26	11	10	8	5	10	**IZS**	19	24	29	50	43	38	23	16	50	17.4	24
27	20	14	16	10	7	4	3	4	4	4	4	5	6	7	**IZS**	8	12	14	20	14	18	19	15	17	20	10.7	24
28	18	19	18	13	10	10	9	8	10	10	7	4	5	**IZS**	8	4	9	8	12	14	11	12	14	13	19	10.7	24
29	15	16	24	20	39	43	42	41	42	9	9	5	**IZS**	7	7	5	4	5	4	4	4	3	3	3	43	15.4	24
30	3	2	3	2	3	2	3	4	6	4	5	**IZS**	2	2	2	4	10	14	14	17	29	19	19	18	29	8.1	24
31	16	25	35	37	41	28	12	11	9	7	**IZS**	7	5	5	5	6	6	10	4	3	3	3	3	3	41	12.3	24
HOURLY MAX	46	41	63	51	48	49	50	54	55	60	70	40	61	50	42	60	67	58	53	50	43	53	51	51			
HOURLY AVG	13.8	12.0	14.7	13.9	13.9	13.1	12.9	13.7	17.1	16.5	15.5	12.0	12.8	11.1	11.3	11.0	14.8	15.0	13.3	13.9	12.6	13.7	13.4	12.6			

STATUS FLAG CODES

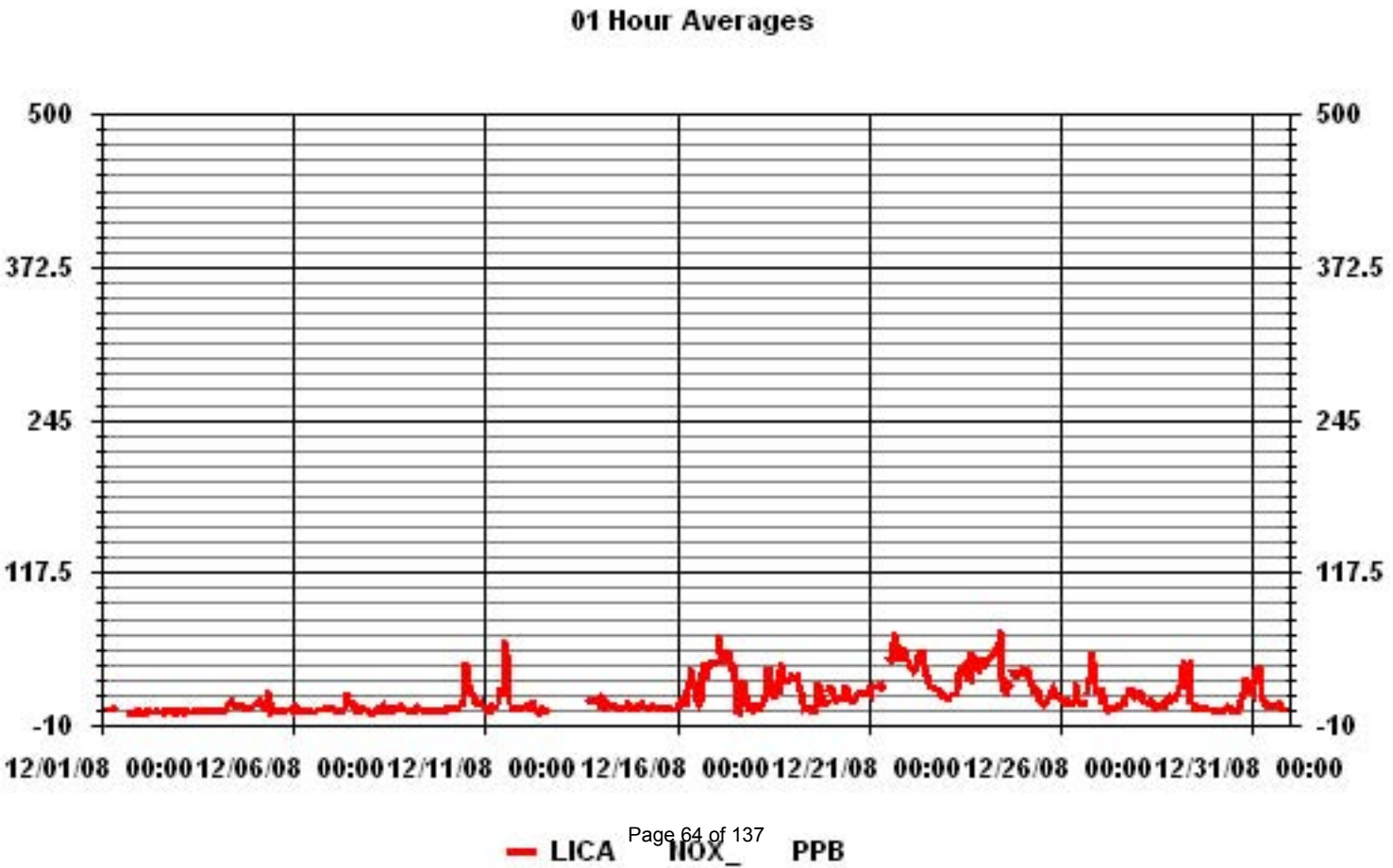
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	667					
MAXIMUM 1-HR AVERAGE:	70	PPB	@ HOUR(S)	8	ON DAY(S)	28
MAXIMUM 24-HR AVERAGE:	38.5	PPB			ON DAY(S)	28

IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	715	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	96.1	%
STANDARD DEVIATION:	14.23		MONTHLY AVERAGE:	13.53	PPB


01 Hour Averages
500
372.5
245
117.5
-10
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA NOX_ PPB

LICA
NOX_ / WD Joint Frequency Distribution (Percent)

December 2008

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	2.21	1.17	1.91	5.45	6.93	7.81	5.01	1.32	2.06	2.80	14.45	20.50	6.78	5.60	9.43	3.09	96.60
<	110	.00	.14	.29	.14	.29	.00	.00	.14	.14	.00	1.03	.88	.14	.14	.00	.00	3.39
<	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	2.21	1.32	2.21	5.60	7.22	7.81	5.01	1.47	2.21	2.80	15.48	21.38	6.93	5.75	9.43	3.09	

Calm : .00 %

Total # Operational Hours : 678

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	50	15	8	13	37	47	53	34	9	14	19	98	139	46	38	64	21	655
<	110		1	2	1	2			1	1		7	6	1	1			23
<	210																	
>=	210																	
	Totals	15	9	15	38	49	53	34	10	15	19	105	145	47	39	64	21	

Calm : .00 %

Total # Operational Hours : 678

Logger : 01 Parameter : NOX_

Class Limits (PPB)

>= 210

< 210

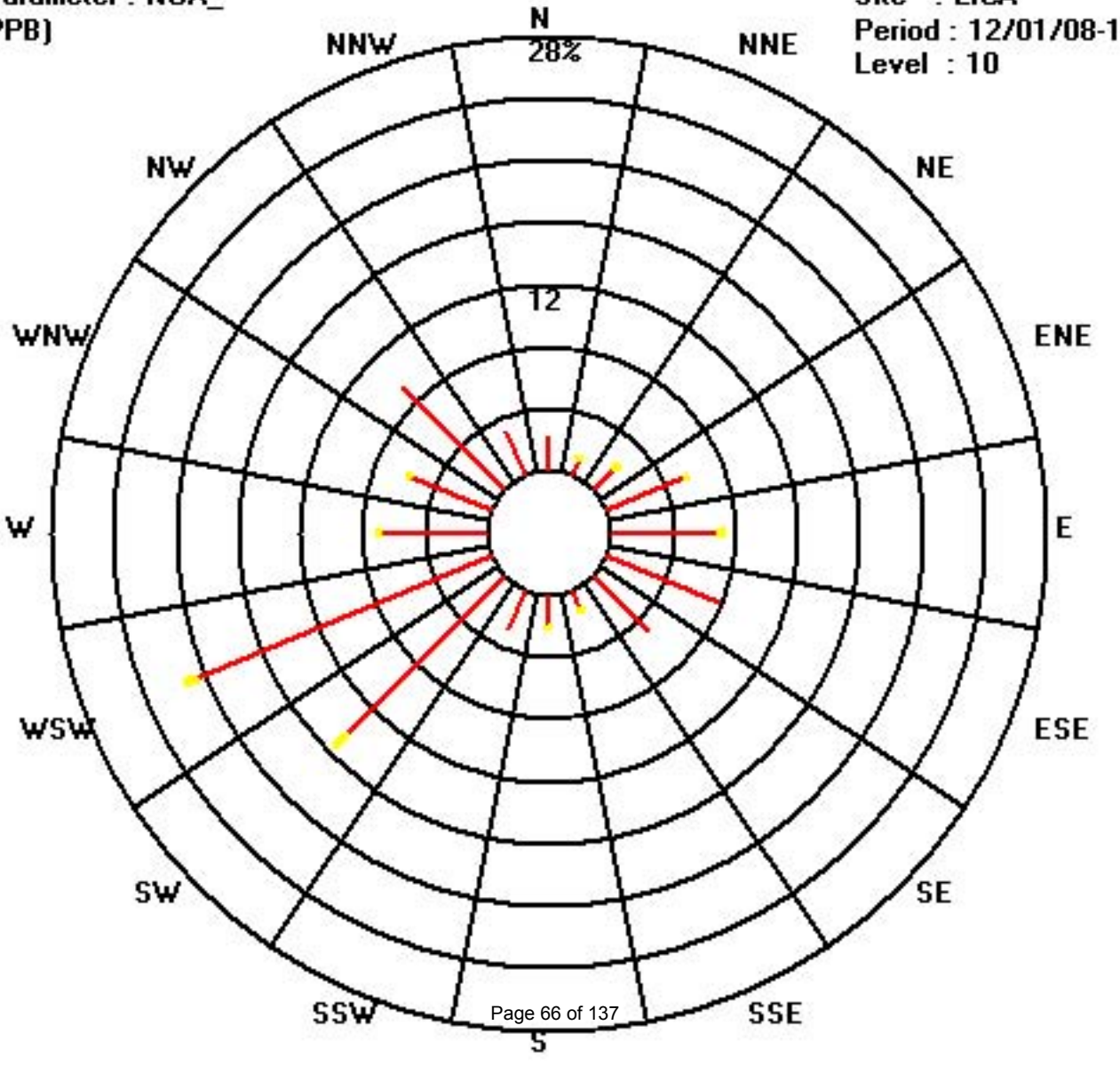
< 110

< 50

Site : LICA

Period : 12/01/08-12/31/08

Level : 10



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

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	5	5	4	3	4	5	5	8	**C**	**C**	**C**	**C**	**C**	**C**	**C**	3	**IZS**	1	1	1	1	1	1	8	3.3	24
2	1	1	0	1	1	1	2	2	3	7	1	2	1	2	9	1	**IZS**	4	3	2	2	2	1	1	9	2.2	24
3	2	2	2	1	1	1	2	2	2	2	2	1	2	2	1	**IZS**	2	1	3	3	2	2	1	2	3	1.8	24
4	2	2	2	2	8	5	5	10	28	20	14	12	12	14	**IZS**	11	9	6	7	5	5	6	6	8	28	8.7	24
5	22	14	16	13	11	9	7	4	82	42	16	17	9	**IZS**	12	3	3	4	3	4	7	6	10	9	82	14.0	24
6	9	12	10	5	3	2	3	8	8	7	6	6	**IZS**	5	5	8	8	5	5	6	9	11	19	25	25	8.0	24
7	9	5	4	3	1	1	2	11	21	18	19	**IZS**	13	10	13	13	4	5	14	7	8	14	25	3	25	9.7	24
8	2	2	2	5	6	5	3	15	14	26	**IZS**	15	8	9	15	6	15	10	19	10	9	7	9	5	26	9.4	24
9	5	5	4	4	5	9	9	8	13	**IZS**	5	7	7	5	4	7	4	6	5	8	4	3	3	3	13	5.8	24
10	9	9	12	11	5	6	12	7	**IZS**	10	24	130	232	176	305	155	58	12	16	13	15	13	14	7	305	54.4	24
11	7	5	4	4	11	10	7	**IZS**	36	130	73	88	178	114	77	14	7	8	9	8	6	5	4	5	178	35.2	24
12	5	9	10	8	10	14	**IZS**	6	5	3	7	6	5	3	5	5	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	14	6.7	16
13	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**M**	**M**	15	15	14	12	12	19	19	14.5	6
14	13	11	17	13	**IZS**	8	11	7	8	8	7	5	5	7	7	7	8	19	14	5	8	8	9	8	19	9.3	24
15	8	15	11	**IZS**	7	7	5	7	10	8	7	7	6	7	13	6	6	5	6	5	6	4	4	5	15	7.2	24
16	12	12	**IZS**	20	14	16	26	35	75	43	41	28	20	13	18	24	43	65	37	53	71	53	47	52	75	35.6	24
17	67	**IZS**	90	62	51	57	50	55	63	49	46	45	49	3	3	15	26	35	29	19	14	6	5	12	90	37.0	24
18	**IZS**	6	12	8	6	8	14	145	206	53	136	170	50	18	**476**	27	63	66	63	50	39	37	37	**IZS**	**476**	76.8	23
19	41	35	34	36	30	24	15	6	6	19	5	33	3	2	2	30	33	25	19	11	8	16	**IZS**	26	41	20.0	24
20	33	29	17	14	16	16	17	16	22	29	38	16	20	22	12	13	17	16	20	23	21	**IZS**	22	29	38	20.8	24
21	40	22	25	30	27	32	33	25	28	27	**P**	**P**	**P**	65	89	74	82	76	64	57	**IZS**	60	60	55	89	48.6	21
22	53	50	42	43	38	40	54	51	55	52	56	48	38	31	25	29	28	26	23	**IZS**	20	19	17	16	56	37.1	24
23	15	16	15	15	17	17	18	35	56	38	42	44	38	37	45	42	77	69	**IZS**	54	69	60	82	52	82	41.4	24
24	44	45	54	59	57	54	55	59	60	74	82	53	29	26	28	47	27	**IZS**	51	42	43	40	47	39	82	48.5	24
25	46	44	46	50	36	35	32	26	25	25	16	13	10	11	15	12	**IZS**	17	20	28	21	18	30	16	50	25.7	24
26	16	13	13	13	15	11	11	9	23	56	15	11	12	6	17	**IZS**	44	56	44	73	59	67	37	24	73	28.0	24
27	30	19	22	15	14	5	5	7	6	12	17	7	8	8	**IZS**	11	14	16	23	18	25	21	17	19	30	14.7	24
28	31	28	22	17	11	30	30	15	22	12	10	7	9	**IZS**	11	6	19	11	20	90	14	23	26	18	90	21.0	24
29	19	21	32	26	57	53	53	67	72	14	14	8	**IZS**	13	27	9	7	7	6	11	6	5	7	5	72	23.4	24
30	7	4	4	4	4	5	6	13	16	7	37	**IZS**	4	6	3	8	16	27	21	22	190	26	26	27	190	21.0	24
31	33	38	48	44	53	41	15	14	12	9	**IZS**	20	8	23	10	10	21	32	9	4	11	4	4	12	53	20.7	24
HOURLY MAX	67	50	90	62	57	57	55	145	206	130	136	170	232	176	476	155	82	76	64	90	190	67	82	55			
HOURLY AVG	20.2	16.5	19.8	18.3	17.9	17.5	17.5	23.1	34.0	28.6	28.3	30.7	29.8	23.6	46.2	22.0	23.9	23.3	19.6	22.3	24.4	18.9	20.1	17.3			

STATUS FLAG CODES

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

MONTHLY SUMMARY

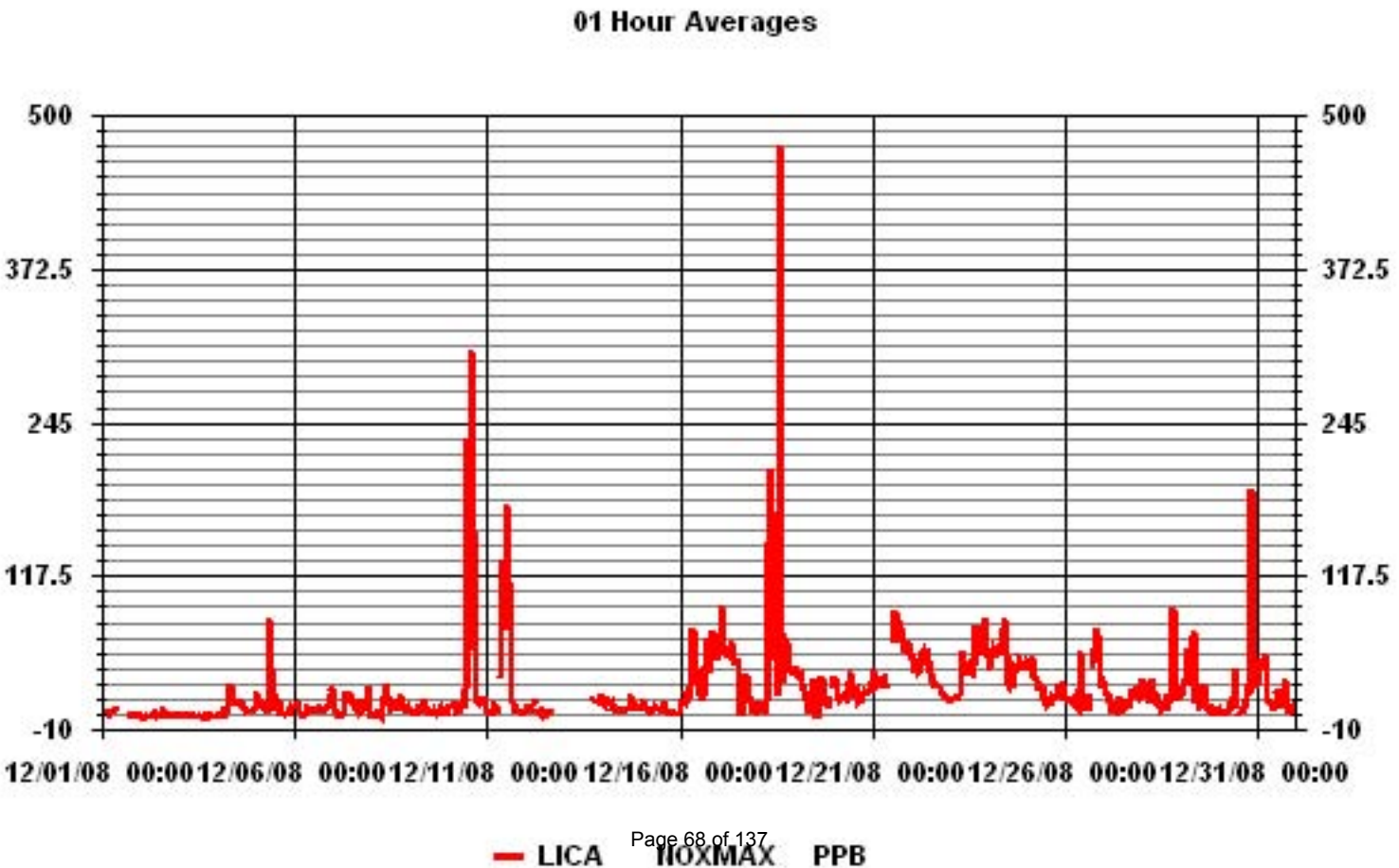
NUMBER OF NON-ZERO READINGS: 676

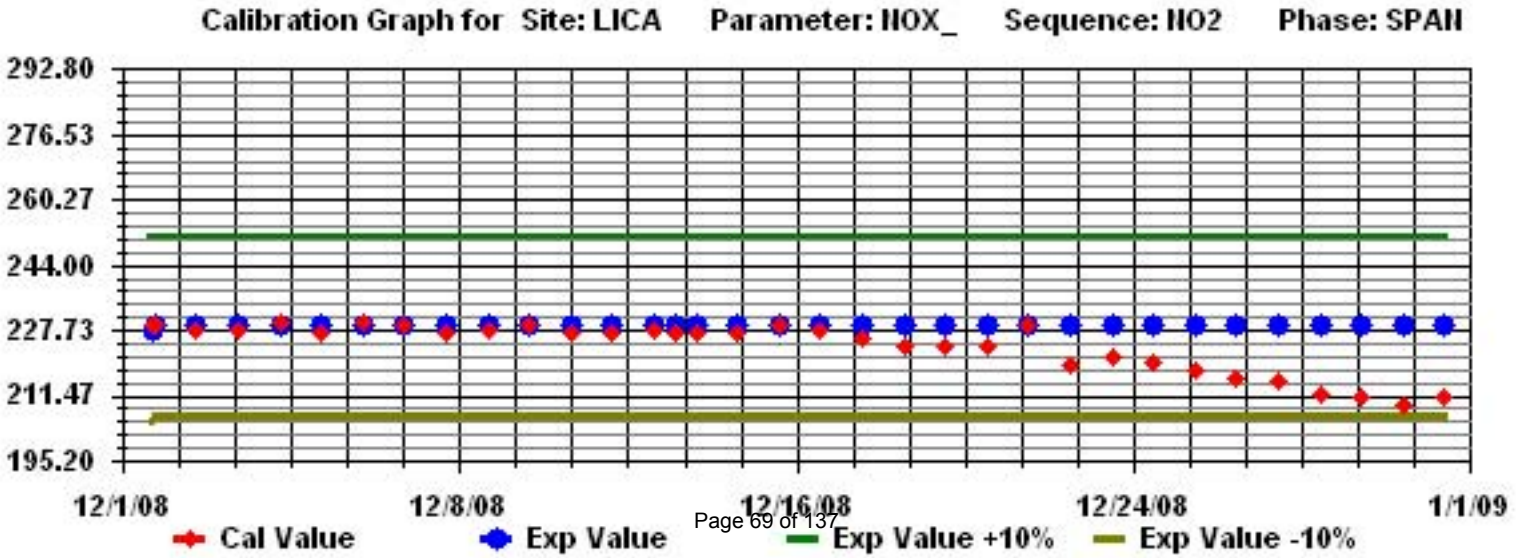
MAXIMUM INSTANTANEOUS VALUE: 476 PPB @ HOUR(S) 14 ON DAY(S) 18

IZS CALIBRATION TIME: 31 HRS OPERATIONAL TIME: 714 HRS

MONTHLY CALIBRATION TIME: 7 HRS

STANDARD DEVIATION 34.07


01 Hour Averages
500
372.5
245
117.5
-10
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA NOXMAX PPB


Calibration Graph for Site: LICA Parameter: NOX_ Sequence: NO2 Phase: SPAN
292.80
276.53
260.27
244.00
227.73
211.47
195.20
12/1/08
12/8/08
12/16/08
12/24/08
1/1/09
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

OZONE (O_3) hourly averages in ppb

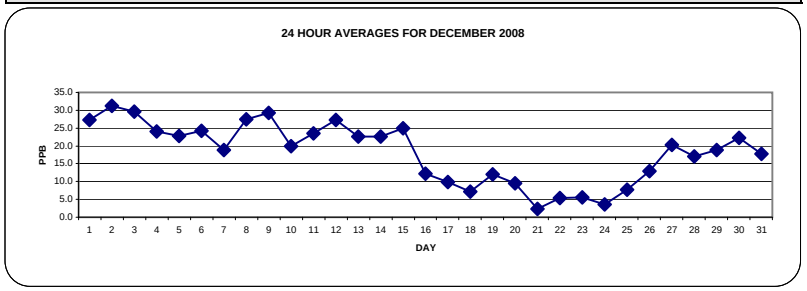
MST

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	24	23	23	24	25	24	22	22	18	12	17	23	36	**39**	37	35	34	**IZS**	36	29	28	29	31	36	**39**	27.3	24
2	37	38	38	**39**	38	37	36	35	32	30	29	29	31	30	29	28	**IZS**	24	26	25	26	27	27	27	**39**	**31.2**	24
3	27	27	27	28	28	29	29	30	30	31	31	31	30	29	30	**IZS**	31	31	32	31	30	30	30	30	32	29.7	24
4	29	29	29	28	25	24	23	20	18	19	22	26	28	26	**IZS**	27	25	25	26	25	23	20	19	17	29	24.0	24
5	14	13	13	14	16	21	24	26	24	27	27	27	27	**IZS**	27	26	26	26	27	24	23	25	25	22	27	22.8	24
6	23	22	22	24	25	26	25	25	24	24	24	24	**IZS**	25	25	25	25	26	25	25	24	24	23	23	26	24.3	24
7	22	22	23	23	24	23	23	18	9	11	12	**IZS**	16	17	16	16	19	21	20	20	19	18	19	24	24	18.9	24
8	30	32	32	31	29	28	27	24	21	24	**IZS**	28	27	26	26	27	27	28	28	28	28	27	26	29	32	27.5	24
9	30	29	30	31	30	27	29	29	30	**IZS**	31	30	30	29	29	28	28	28	29	30	30	29	29	28	31	29.3	24
10	26	26	25	24	22	21	20	21	**IZS**	20	21	21	20	21	21	19	18	18	15	16	17	15	16	17	26	20.0	24
11	18	21	22	21	16	16	17	**IZS**	15	13	14	19	20	23	23	32	33	32	31	31	31	32	31	30	33	23.5	24
12	29	28	24	18	18	19	**IZS**	27	30	32	27	26	29	29	28	29	32	32	31	31	29	28	27	25	32	27.3	24
13	22	22	22	26	27	**IZS**	24	23	22	21	25	26	26	27	28	28	23	19	19	18	19	19	18	16	28	22.6	24
14	21	21	16	17	**IZS**	20	19	21	21	23	25	26	26	26	26	25	24	19	22	26	25	24	24	23	26	22.6	24
15	22	19	19	**IZS**	21	23	24	23	23	24	26	27	27	27	27	26	26	27	26	27	27	28	28	28	28	25.0	24
16	24	24	**IZS**	18	19	20	11	5	4	8	18	19	26	27	25	22	4	1	4	1	1	1	0	0	27	12.3	24
17	0	**IZS**	1	0	0	0	0	0	1	3	6	9	14	28	30	23	10	3	8	12	19	22	23	16	30	9.9	24
18	**IZS**	15	13	13	14	12	10	9	3	4	12	15	**C**	**C**	**C**	**C**	2	1	2	2	1	1	1	**IZS**	15	7.2	24
19	0	0	0	0	1	2	11	18	19	23	24	24	25	26	25	13	4	7	8	17	16	13	**IZS**	2	26	12.1	24
20	2	4	8	9	6	8	10	9	7	8	12	16	18	19	18	16	12	10	7	6	6	**IZS**	5	2	19	9.5	24
21	2	2	1	0	0	0	0	0	1	6	P	P	P	12	12	5	1	1	0	0	**IZS**	1	1	1	12	2.3	22
22	0	0	0	0	0	0	0	0	1	3	7	11	13	13	13	9	7	5	6	**IZS**	7	9	10	10	13	5.4	24
23	10	10	11	9	7	8	6	2	1	4	9	11	11	12	10	7	1	0	**IZS**	0	0	0	0	0	12	5.6	24
24	0	0	0	0	0	0	0	0	1	3	5	11	15	15	14	8	4	**IZS**	1	1	1	0	1	1	15	3.5	24
25	1	1	1	0	0	1	1	2	5	7	13	18	19	19	18	16	**IZS**	10	6	3	6	8	10	11	19	7.7	24
26	12	12	13	14	13	14	16	16	13	8	18	22	24	27	24	**IZS**	10	6	4	1	1	1	10	18	27	12.9	24
27	14	18	16	21	24	27	27	27	27	27	28	27	27	27	**IZS**	24	20	16	10	15	12	10	13	10	28	20.3	24
28	7	5	8	14	18	16	18	19	17	21	25	28	28	**IZS**	26	28	20	22	15	14	16	12	9	8	28	17.1	24
29	6	5	2	2	1	0	0	0	7	23	24	28	**IZS**	27	27	28	30	30	31	32	33	33	33	33	33	18.9	24
30	33	33	32	34	32	31	29	28	26	26	26	**IZS**	28	28	28	25	18	15	14	10	5	3	3	3	34	22.2	24
31	4	1	1	0	0	6	16	17	19	21	**IZS**	24	27	28	27	27	27	23	24	25	24	22	22	23	28	17.7	24
HOURLY MAX	37	38	38	39	38	37	36	35	32	32	31	31	36	39	37	35	34	32	36	32	33	33	33	36			
HOURLY AVG	16.3	16.7	15.7	16.1	16.0	16.1	16.6	16.5	15.6	16.9	19.9	22.4	24.0	24.4	23.9	22.2	18.7	17.4	17.8	17.5	17.6	17.0	17.1	17.1			

STATUS FLAG CODES

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

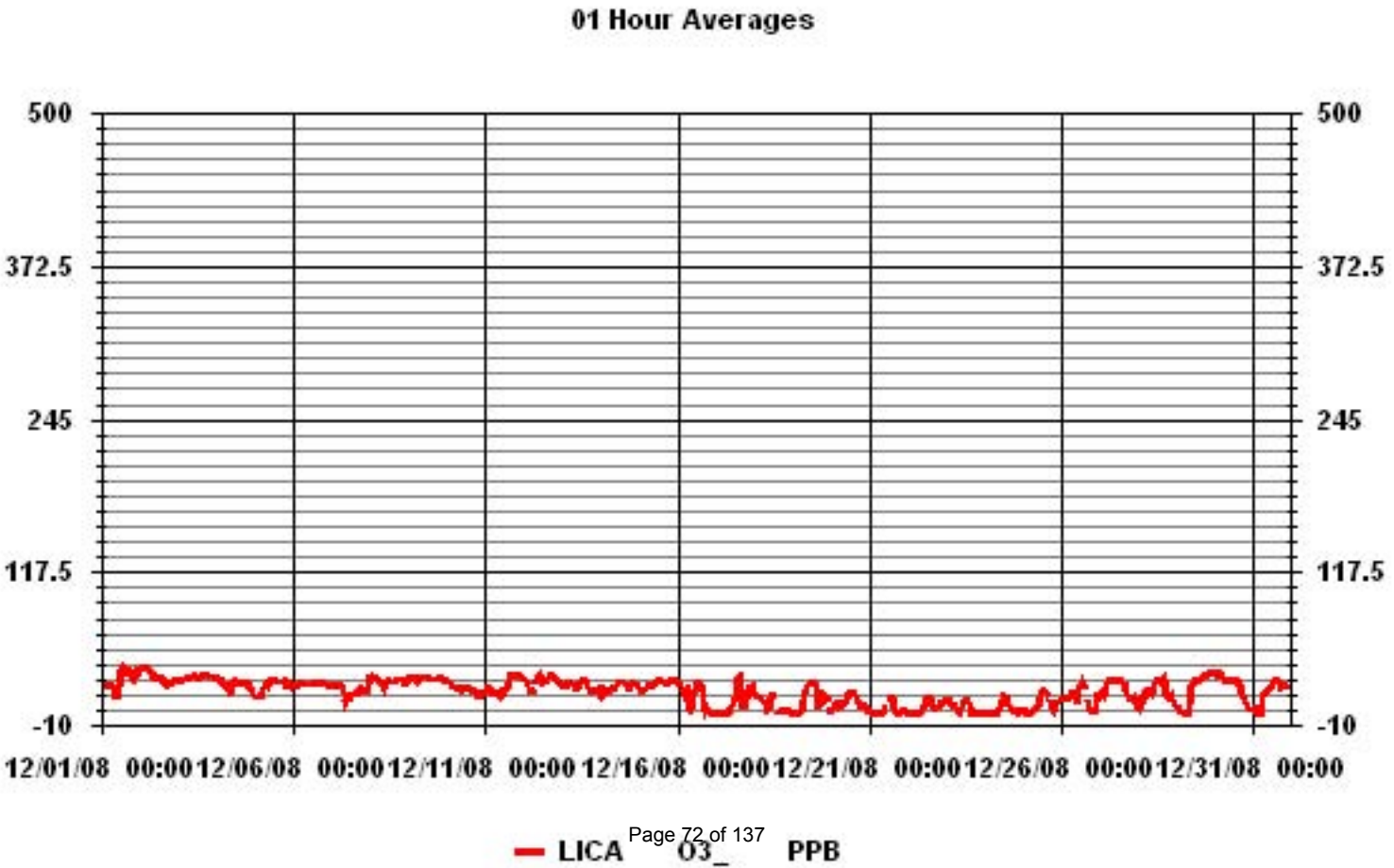
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 82 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	656					
MAXIMUM 1-HR AVERAGE:	39	PPB	@ HOUR(S)	13, 2	ON DAY(S)	1, 2
MAXIMUM 24-HR AVERAGE:	31.2	PPB			ON DAY(S)	2
					VAR-VARIOUS	

IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	742	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME	99.7	%
STANDARD DEVIATION	10.44		MONTHLY AVERAGE	18.23	PPB


01 Hour Averages
500
372.5
245
117.5
-10
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA O3_ PPB

LICA
O3_ / WD Joint Frequency Distribution (Percent)

December 2008

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	2.12	1.27	1.98	4.96	6.95	7.51	4.82	1.41	2.12	2.69	15.17	20.70	7.51	5.67	11.34	3.68	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	2.12	1.27	1.98	4.96	6.95	7.51	4.82	1.41	2.12	2.69	15.17	20.70	7.51	5.67	11.34	3.68	

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	15	9	14	35	49	53	34	10	15	19	107	146	53	40	80	26	705
<	110																	
<	210																	
>=	210																	
	Totals	15	9	14	35	49	53	34	10	15	19	107	146	53	40	80	26	

Calm : .00 %

Total # Operational Hours : 705

Logger : 01 Parameter : 03_

Class Limits (PPB)

>= 210

< 210

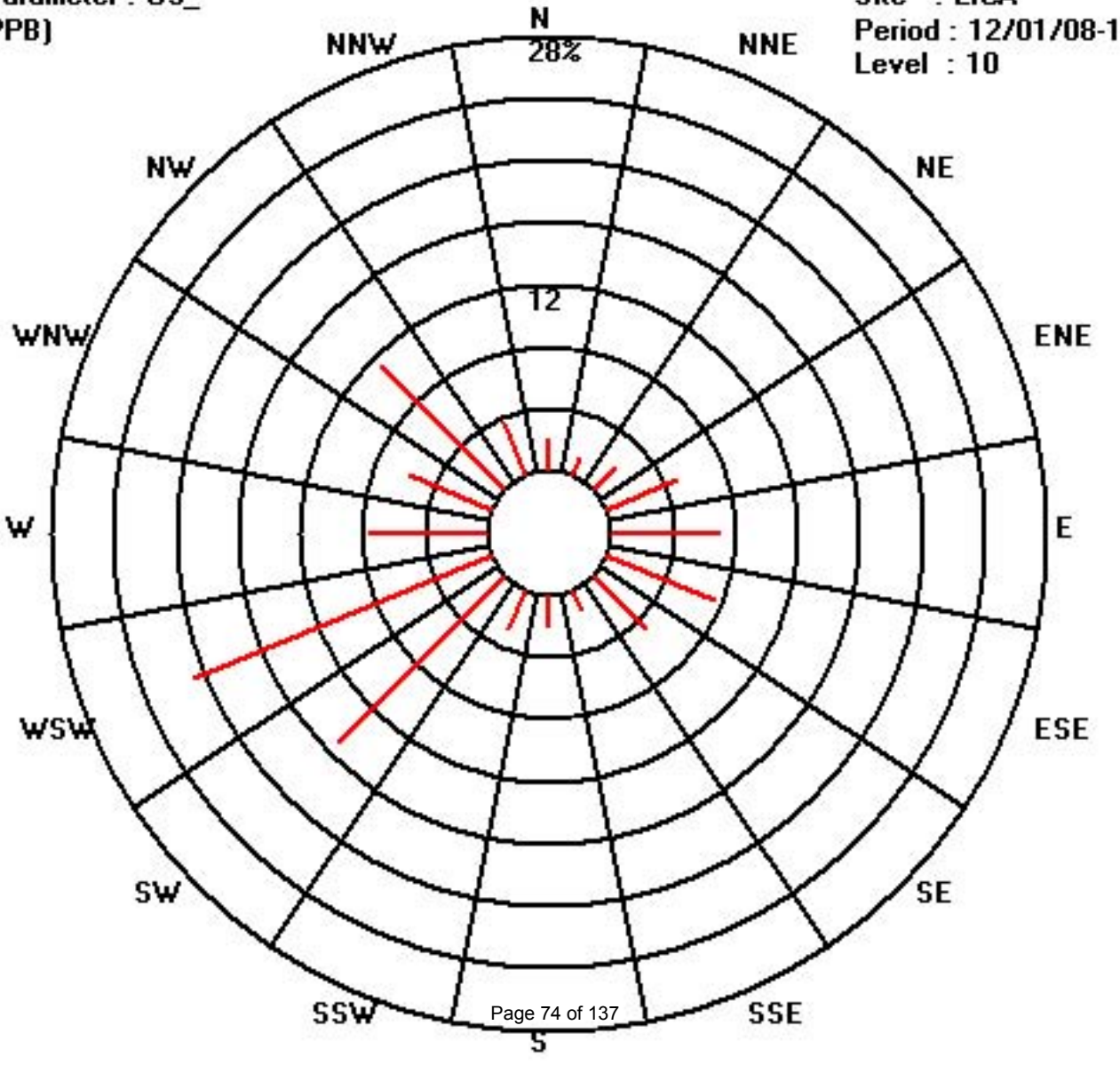
< 110

< 50

Site : LICA

Period : 12/01/08-12/31/08

Level : 10



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

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	24	24	25	26	26	25	23	23	21	18	21	28	40	40	37	36	35	**IZS**	36	35	29	30	34	37	40	29.3	24
2	37	38	38	40	39	38	36	36	34	31	30	32	32	31	29	29	**IZS**	25	27	26	27	27	28	28	40	32.1	24
3	28	28	28	28	29	29	30	31	31	32	31	32	31	30	31	**IZS**	32	33	33	32	31	31	30	30	33	30.5	24
4	30	29	30	29	28	26	24	22	23	23	26	29	30	28	**IZS**	28	26	26	26	26	24	22	20	18	30	25.8	24
5	16	14	14	15	18	24	27	27	27	31	29	28	28	**IZS**	28	26	27	27	27	26	25	26	26	25	31	24.4	24
6	25	25	23	25	26	26	26	25	25	25	24	25	**IZS**	25	25	26	26	26	26	25	26	25	24	25	26	25.2	24
7	23	23	23	24	25	24	24	23	14	13	13	**IZS**	17	19	19	21	20	23	21	21	20	19	21	28	28	20.8	24
8	32	32	33	33	30	29	29	27	25	26	**IZS**	29	29	27	28	28	28	31	30	30	29	28	29	31	33	29.3	24
9	30	30	32	32	31	30	31	30	31	**IZS**	32	31	30	30	30	29	29	29	32	31	31	30	29	29	32	30.4	24
10	28	28	27	25	24	22	22	22	**IZS**	23	23	24	24	23	24	22	20	20	18	18	18	16	18	18	28	22.0	24
11	20	22	22	21	21	18	18	**IZS**	16	16	17	24	24	26	30	33	35	34	33	33	32	33	33	31	35	25.7	24
12	30	29	29	20	21	23	**IZS**	29	32	33	30	28	29	30	29	31	33	32	32	32	32	29	28	26	33	29.0	24
13	24	23	24	27	27	**IZS**	25	24	23	23	26	27	26	27	28	28	26	22	23	22	23	22	21	18	28	24.3	24
14	23	23	19	19	**IZS**	20	20	22	21	24	26	26	26	26	26	27	25	21	25	26	26	26	25	24	27	23.7	24
15	23	22	21	**IZS**	22	24	24	24	25	25	27	28	28	28	28	27	27	28	27	28	28	29	29	29	29	26.1	24
16	28	27	**IZS**	20	22	22	14	8	10	11	21	21	29	29	27	26	12	2	9	2	8	1	1	2	29	15.3	24
17	1	**IZS**	1	1	0	0	0	0	1	5	9	9	28	29	31	29	24	6	11	14	22	23	23	23	31	12.6	24
18	**IZS**	18	16	16	16	15	14	12	6	6	17	**C**	**C**	**C**	**C**	**C**	12	3	5	8	3	3	1	**IZS**	18	10.1	24
19	1	0	0	0	2	8	16	20	20	25	26	25	26	26	26	25	8	11	13	18	17	16	**IZS**	4	26	14.5	24
20	4	6	11	12	8	11	12	10	8	11	15	17	19	19	19	17	14	12	9	9	9	**IZS**	7	3	19	11.4	24
21	3	4	2	1	1	1	1	1	3	8	P	P	P	16	15	8	3	2	1	1	**IZS**	2	1	1	16	3.8	21
22	1	0	0	0	0	0	0	1	2	5	9	12	14	14	13	12	8	7	7	**IZS**	7	10	10	11	14	6.2	24
23	11	11	11	10	9	9	8	5	2	7	11	11	12	13	12	9	4	2	**IZS**	0	1	1	1	1	13	7.0	24
24	0	1	1	1	0	1	0	0	4	6	7	15	17	16	16	11	7	**IZS**	3	2	1	1	9	1	17	5.2	24
25	3	2	3	1	1	3	2	3	10	10	16	20	20	21	21	17	**IZS**	12	7	4	7	9	11	13	21	9.4	24
26	15	13	15	15	15	16	17	17	16	13	21	**45**	27	28	28	**IZS**	17	10	10	3	8	2	20	21	**45**	17.0	24
27	18	23	20	24	27	28	28	27	27	28	28	28	28	27	**IZS**	26	22	18	14	17	18	13	14	11	28	22.3	24
28	9	9	10	19	20	21	26	26	22	24	28	29	30	**IZS**	28	29	26	25	23	16	20	14	12	10	30	20.7	24
29	9	9	6	4	3	1	0	1	23	24	27	29	**IZS**	28	29	30	31	32	32	33	34	34	34	33	34	21.1	24
30	34	33	33	34	33	32	31	29	28	28	28	**IZS**	28	28	28	28	23	21	17	13	8	5	4	7	34	24.0	24
31	6	3	2	1	2	16	18	18	20	22	**IZS**	26	29	29	29	28	36	26	26	25	25	23	23	23	36	19.8	24
HOURLY MAX	37	38	38	40	39	38	36	36	34	33	32	45	40	40	37	36	36	34	36	35	34	34	34	37			
HOURLY AVG	17.9	18.3	17.3	17.4	17.5	18.1	18.2	18.1	18.3	19.2	22.1	25.1	26.0	25.5	25.5	24.5	21.9	19.5	20.1	19.2	19.6	18.3	18.9	18.7			

STATUS FLAG CODES

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

MONTHLY SUMMARY

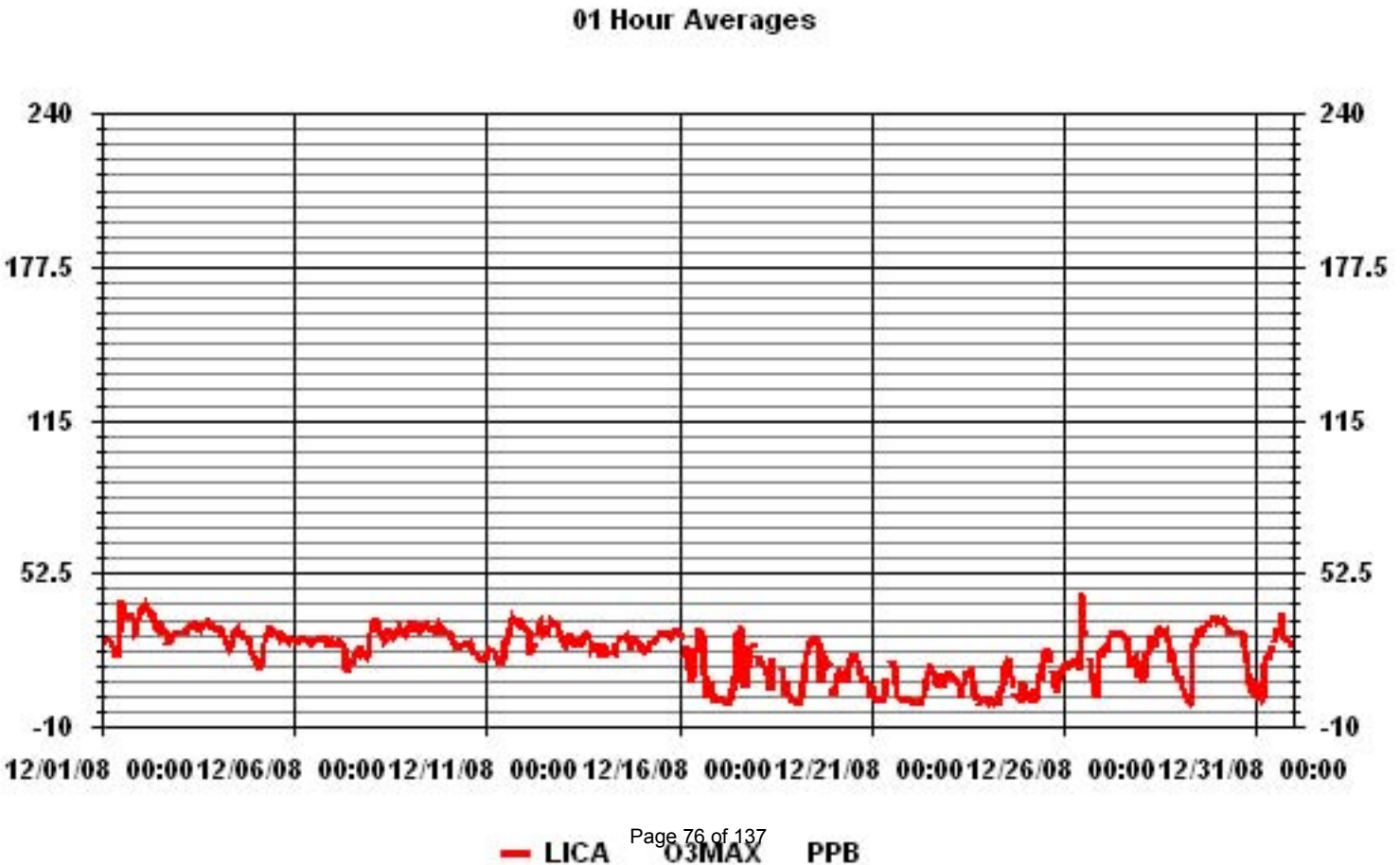
NUMBER OF NON-ZERO READINGS: 685

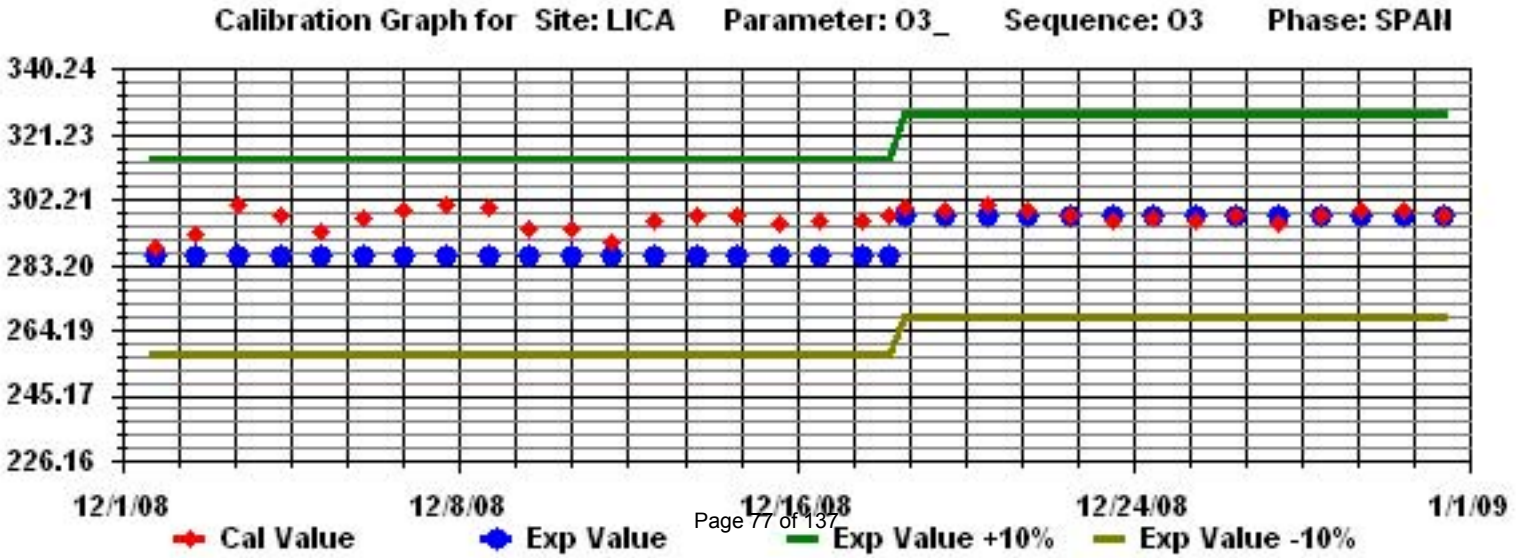
MAXIMUM INSTANTANEOUS VALUE: 45 PPB @ HOUR(S) 11 ON DAY(S) 26

IZS CALIBRATION TIME: 32 HRS OPERATIONAL TIME: 741 HRS

MONTHLY CALIBRATION TIME: 5 HRS

STANDARD DEVIATION 10.29


01 Hour Averages
240
177.5
115
52.5
-10
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA O3MAX PPB


Calibration Graph for Site: LICA Parameter: O3_ Sequence: O3 Phase: SPAN
340.24
321.23
302.21
283.20
264.19
245.17
226.16
12/1/08
12/8/08
12/16/08
12/24/08
1/1/09
Cal Value
Exp Value
Exp Value +10%
Exp Value -10%

Ambient Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

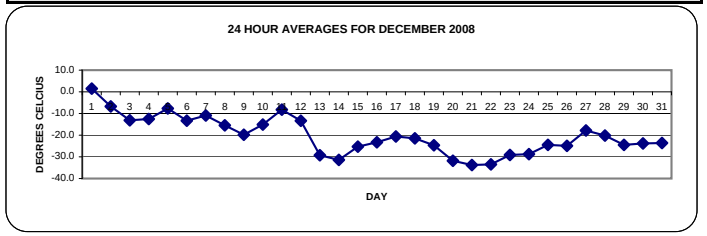
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	-0.3	-0.3	0	0.6	2	1.6	1.2	1.6	0.8	1.1	4.2	6	**6.7**	5.7	4.8	4	3.1	2.3	1.5	-1	-2.3	-2.6	-2.6	-2.7	**6.7**	**1.5**	24
2	-3.2	-3.9	-4.6	-5.4	-6.6	-7.3	-6.9	-6.3	-6	-5.6	-5.3	-5	-5.3	-5.5	-5.8	-6.5	-7.5	-7.4	-7.7	-8.1	-8.8	-10.2	-10.9	-11.9	-3.2	-6.7	24
3	-12.6	-12.7	-12.9	-13.1	-13.4	-13.5	-13.6	-13.5	-13.3	-13.1	-13	-12.8	-12.8	-12.5	-12.8	-13.1	-13.2	-13.4	-13.4	-13.3	-13.3	-13.3	-13.3	-13.2	-12.5	-13.1	24
4	-13.1	-13	-13.2	-14.3	-15.7	-16.7	-17.3	-17.4	-16.9	-16.2	-14.6	-13.4	-12.1	-11.6	-11.1	-10.8	-10.4	-10	-9.6	-9.4	-9.3	-8.8	-8.4	-7.8	-7.8	-12.5	24
5	-7.2	-5.7	-5.2	-4.6	-4.3	-3.8	-3.3	-3.3	-3.2	-4.1	-6.6	-7.3	-7.6	-7.8	-8.6	-9.4	-9.7	-10.1	-10.6	-10.7	-11	-11.9	-13.4	-14.8	-3.2	-7.7	24
6	-15.4	-15.5	-15.7	-15.9	-15.6	-15.6	-15.9	-16.1	-15.7	-15.6	-15	-14.3	-13.6	-12.5	-11.7	-11	-10.7	-10.8	-10.7	-10.6	-10.5	-10.4	-10.4	-10.5	-10.4	-13.3	24
7	-10.5	-10.1	-10.2	-10.2	-11.5	-12.4	-12.5	-14.1	-14.7	-13.2	-12.4	-11.4	-10.7	-9.7	-9.4	-9	-9	-8.8	-9.5	-9.8	-10.2	-10.7	-10.9	-11.5	-8.8	-10.9	24
8	-12.4	-12.9	-13.2	-13.4	-14.1	-14.3	-15	-15.6	-15.8	-15.7	-15.8	-15.7	-15.5	-15.4	-15.5	-15.8	-16	-16.1	-16.5	-16.6	-16.9	-17.2	-17.6	-18.2	-12.4	-15.5	24
9	-18.7	-19	-19.4	-19.8	-20.5	-21.1	-21.3	-21.4	-21.6	-21.6	-21.5	-21.3	-21	-20.7	-20.6	-20.4	-20.1	-19.9	-19.3	-18.5	-17.6	-17	-16.7	-16.4	-16.4	-19.8	24
10	-15.9	-15.5	-15.3	-15.7	-15.6	-16.1	-17.2	-17.6	-17	-16.6	-16.1	-15.6	-15	-14.4	-13.8	-14	-13.9	-14	-14.7	-14.2	-13.8	-13.7	-13.6	-13.3	-13.3	-15.1	24
11	-12.9	-13	-12.8	-12.7	-12.7	-12.5	-12.3	-12.1	-11.7	-10.8	-10.1	-8.8	-6.3	-4.5	-3.7	-3.7	-3.7	-5	-5.2	-4.8	-4.9	-4.7	-4	-4.7	-3.7	-8.2	24
12	-5.5	-6	-7.7	-11.4	-14.2	-13.8	-9.7	-8	-7.6	-7.7	-8.7	-10.9	-11.9	-12.8	-13.9	-15.4	-15.9	-16.4	-17.5	-18.6	-19.9	-21.3	-22.4	-23.4	-5.5	-13.4	24
13	-24.3	-25.3	-25.9	-26.8	-27.4	-28.1	-28.8	-29.4	-29.8	-29.8	-29.7	-29.3	-28.5	-27.7	-27.7	-28.3	-29.3	-30.3	-31	-31.8	-32.4	-33	-33.9	-33.6	-24.3	-29.3	24
14	-33.8	-34.6	-34.8	-35.5	-36	-35.8	-35.7	-35.3	-35	-33.5	-32	-30.6	-29.6	-28.7	-27.6	-27.5	-28.3	-28.7	-28.2	-28	-28.2	-28.3	-29.1	-29.1	-27.5	-31.4	24
15	-29.4	-29.5	-29.8	-30	-29.3	-28.7	-27.6	-28.3	-28.7	-28.2	-26.9	-25.8	-25.3	-24.9	-24.2	-23.8	-23.1	-22.7	-22.2	-21.4	-20.5	-19.6	-18.7	-18.4	-18.4	-25.3	24
16	-18.4	-19.9	-22.4	-22	-20.7	-21.4	-23.3	-25.4	-27.5	-26.3	-23.4	-21.5	-19.9	-18.9	-18.7	-19.9	-22.1	-24.1	-25.7	-26.5	-26.8	-27	-28	-28.7	-18.4	-23.3	24
17	-28.4	-27.3	-25.9	-25.4	-25.2	-24.2	-23.2	-22.2	-21.9	-21.7	-20.5	-19.3	-17.6	-16.8	-16.5	-16.5	-17.3	-17.7	-17.5	-17.3	-17.4	-17.4	-18.1	-19	-16.5	-20.6	24
18	-19.8	-20	-20.2	-20.6	-20.3	-20.3	-20.5	-20.7	-20.8	-20.8	-19.1	-18.9	-18.4	-18.2	-17.4	-18.8	-21.1	-23.3	-25.2	-26.6	-26.4	-25.7	-25.7	-26.5	-17.4	-21.5	24
19	-27.4	-26.4	-26.1	-25.6	-25.3	-25.2	-24.5	-23.8	-23.4	-22.5	-22.1	-21.5	-21.5	-21.7	-21.7	-22.2	-24.2	-25	-25.2	-25.6	-26.2	-26.8	-27.8	-29.9	-21.5	-24.7	24
20	-30.4	-30.8	-31.3	-32.1	-33.3	-33.3	-34	-34.3	-34.9	-34.2	-31.6	-30.6	-29	-28.6	-28.2	-28.9	-29.6	-30.3	-31.5	-32.1	-32.3	-33.5	-34	-34.6	-28.2	-31.8	24
21	-35.2	-35.8	-36.2	-35.8	-36.6	-36.3	-36.9	-36.8	-37.2	-35.8	**P**	**P**	**P**	-26.4	-25.5	-26	-28.9	-31.1	-32.9	-33.6	-34.7	-35.2	-35.9	-36.5	-25.5	-33.8	21
22	-37.2	-37.4	-38	-38	-38.4	-38.9	**-39.2**	-38.5	-38.5	-37.2	-34.3	-32.3	-29.8	-28.6	-28.4	-28.3	-28.8	-29.8	-29.4	-30	-30.4	-30.6	-30.6	-30.4	-28.3	-33.5	24
23	-30.4	-30.3	-30.4	-31	-32.1	-31.2	-34	-35	-35.2	-33.6	-29.5	-25.7	-24	-21.9	-21.1	-22	-25.3	-27.2	-28.4	-29.3	-29.4	-29.9	-30.6	-31.3	-21.1	-29.1	24
24	-31.7	-32.2	-32.7	-33	-33.2	-33.6	-33.6	-34	-34	-32.7	-28.3	-26.8	-24	-23.1	-23	-23.1	-23.6	-24.8	-25.6	-26.3	-26.8	-27.6	-27.9	-28.6	-23.0	-28.8	24
25	-28.8	-29.4	-29.3	-29.7	-29.4	-28.2	-26.9	-26.1	-25.1	-24.1	-23.5	-21.7	-20.1	-19.7	-19.9	-21.2	-22.4	-22.8	-22.8	-22.7	-22.7	-23	-23.4	-24.3	-19.7	-24.5	24
26	-25.2	-26.9	-27.6	-27.1	-27	-28	-27.9	-28.3	-29.6	-28.4	-24.6	-23	-20.6	-19.3	-18.5	-19	-22.1	-24.3	-25.1	-25.9	-26.2	-26.3	-24.8	-22.6	-18.5	-24.9	24
27	-23.2	-22.2	-21.6	-20.7	-19.7	-19.5	-20.3	-20.7	-20.4	-20.2	-19	-18.1	-17.1	-15.9	-15.1	-15.6	-16.7	-16.2	-15.5	-14.8	-14.5	-13.9	-13.5	-13.6	-13.5	-17.8	24
28	-14	-14.5	-14.9	-14.9	-16.3	-18	-19.1	-20.7	-21.6	-20.6	-19.2	-18.6	-17.6	-16.9	-16.7	-18.1	-21.4	-22	-23.7	-25.6	-25.6	-27.3	-28.4	-28.8	-14.0	-20.2	24
29	-29	-29.2	-29.1	-30.2	-29.9	-30.2	-30.6	-30.2	-26.2	-24	-23.4	-22.2	-21.9	-21.5	-21.7	-21.7	-21.4	-21.1	-20.9	-20.9	-20.4	-20.5	-20.5	-20.8	-20.4	-24.5	24
30	-20.9	-21.1	-21.3	-21.1	-21.7	-22.2	-22.7	-22.8	-22.9	-23.1	-22.9	-22.5	-22	-21.5	-21	-21	-23	-24.3	-25.4	-27.1	-28.8	-30	-30.9	-31.4	-20.9	-23.8	24
31	-31.9	-32.1	-32.2	-32.2	-30.9	-28.4	-25.8	-24.6	-24.4	-24.1	-22.7	-21.2	-19.9	-18.7	-18.5	-18.7	-18.5	-18.3	-19.1	-19.8	-20.5	-21.2	-21.4	-21.5	-18.3	-23.6	24
HOURLY MAX	-0.3	-0.3	0.0	0.6	2.0	1.6	1.2	1.6	0.8	1.1	4.2	6.0	6.7	5.7	4.8	4.0	3.1	2.3	1.5	-1.0	-2.3	-2.6	-2.6	-2.7			
HOURLY AVG	-20.9	-21.0	-21.3	-21.5	-21.8	-21.8	-21.9	-22.0	-21.9	-21.3	-19.6	-18.7	-17.7	-17.4	-17.2	-17.6	-18.5	-19.1	-19.6	-20.0	-20.3	-20.6	-20.9	-21.2			

STATUS FLAG CODES

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

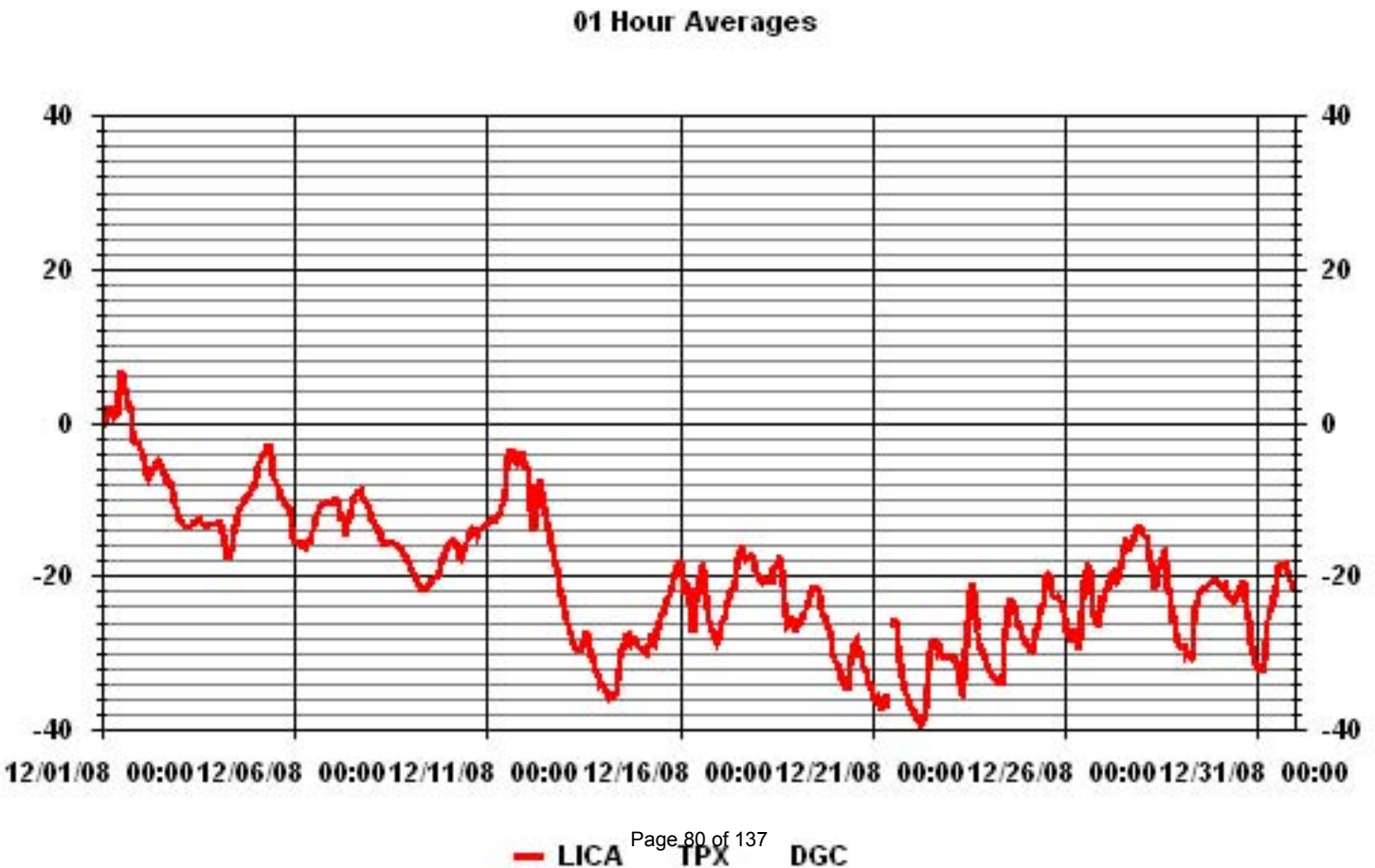


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-39.2	^{o}C	@ HOUR(S)	6	ON DAY(S)	22
MAXIMUM 1-HR AVERAGE:	6.7	^{o}C	@ HOUR(S)	12	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	1.5	^{o}C			ON DAY(S)	1
					VAR-VARIOUS	

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	741	HRS
			AMD OPERATION UPTIME:	99.6	%
STANDARD DEVIATION:	9.15		MONTHLY AVERAGE:	-20.17	^{o}C

*** Outside detection limits of sensor.**


01 Hour Averages
40
20
0
-20
-40
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA TPX DGC

Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

RELATIVE HUMIDITY hourly averages (%)

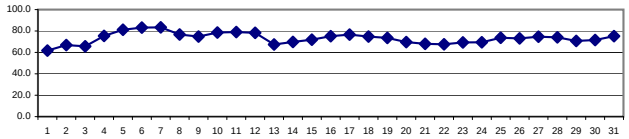
MST

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	72.4	72.9	71.1	66.9	61.2	64.6	69.1	67.7	82.3	79.6	65.3	59.6	48.0	45.5	46.6	45.7	45.2	51.0	57.7	55.1	58.0	67.2	69.3	58.8	82.3	61.7	24
2	58.4	60.2	63.0	62.6	64.4	69.3	68.8	68.9	70.6	70.8	68.6	67.8	66.2	65.8	69.1	68.4	74.0	76.0	65.0	68.1	66.7	67.1	62.5	61.9	76.0	66.8	24
3	61.8	62.4	63.7	65.0	65.2	66.3	67.0	68.1	69.3	69.5	69.2	68.0	68.1	62.0	62.4	62.1	62.8	63.3	64.2	65.3	66.8	67.8	68.4	68.3	69.5	65.7	24
4	69.3	70.6	71.6	76.1	79.9	81.9	81.8	81.7	80.2	79.6	76.9	72.0	64.4	62.9	62.8	64.0	65.9	68.0	70.0	79.7	86.1	86.5	88.4	89.5	89.5	75.4	24
5	90.3	91.3	91.7	92.0	91.0	89.7	88.7	89.3	84.2	81.7	74.6	68.8	69.6	71.7	73.3	74.4	75.7	76.8	77.1	80.7	80.0	78.0	77.2	80.4	92.0	81.2	24
6	82.7	81.6	81.4	81.9	82.0	82.0	80.8	80.7	79.9	80.5	80.7	80.3	81.4	82.3	84.0	85.6	86.5	86.9	87.0	86.1	84.9	86.0	86.0	85.3	87.0	83.2	24
7	85.3	85.4	86.5	86.7	86.4	85.9	84.4	83.7	84.7	83.1	83.1	81.6	81.2	81.5	82.5	82.8	83.8	84.2	81.0	81.3	80.9	81.5	82.8	81.7	86.7	**83.4**	24
8	81.0	81.6	79.5	79.2	77.6	78.8	77.1	74.3	75.1	73.6	72.3	70.1	72.7	77.1	79.8	80.2	80.3	79.2	78.1	75.3	73.9	73.2	75.0	76.8	81.6	76.7	24
9	76.7	76.3	75.6	74.7	72.6	72.3	72.7	74.4	74.5	71.6	70.3	70.0	71.2	71.4	72.3	74.0	73.8	75.4	76.2	78.3	80.0	79.6	79.9	80.9	80.9	74.8	24
10	81.7	80.6	80.3	80.5	77.1	75.8	76.9	75.7	74.3	71.9	72.0	75.8	75.9	74.4	74.8	80.1	81.8	82.5	83.8	82.4	81.4	81.1	81.8	82.9	83.8	78.6	24
11	82.3	79.9	78.1	78.2	80.3	78.9	82.1	83.7	84.5	85.5	85.7	83.2	75.1	70.4	70.3	72.2	71.8	74.9	75.9	74.8	74.8	78.5	85.2	89.5	89.5	79.0	24
12	92.5	**93.3**	92.8	88.0	85.4	87.2	89.6	86.9	84.8	83.1	83.1	79.1	71.9	67.4	68.9	70.0	70.0	69.7	70.9	71.2	68.6	66.8	67.9	69.8	**93.3**	78.3	24
13	70.8	70.7	68.0	66.5	66.0	66.8	68.0	68.7	69.6	68.3	65.4	63.5	61.5	60.0	60.8	62.2	66.6	69.7	70.5	71.0	71.2	70.5	70.7	70.2	71.2	67.4	24
14	70.0	69.4	69.3	68.5	68.7	69.1	69.1	69.3	69.4	69.6	69.6	68.9	67.2	67.8	66.2	68.6	70.8	71.9	71.5	71.1	71.4	71.9	72.5	72.7	72.7	69.8	24
15	72.5	72.4	71.9	72.2	72.1	72.5	72.6	72.7	73.0	71.7	70.1	68.6	68.3	69.6	69.2	68.4	68.0	70.7	72.8	72.6	73.4	75.0	76.9	78.4	78.4	71.9	24
16	78.5	78.4	77.2	77.5	77.7	77.2	77.0	75.8	74.6	74.3	74.4	74.4	74.9	72.2	71.8	74.9	76.6	76.5	75.0	74.0	73.9	73.4	72.2	71.9	78.5	75.2	24
17	72.9	73.3	74.4	73.6	73.7	76.0	76.6	76.3	76.1	75.1	74.2	74.3	75.8	76.2	76.6	77.8	79.6	79.7	80.2	79.1	80.5	79.9	79.6	78.1	80.5	76.7	24
18	77.3	78.1	77.1	77.2	76.1	76.5	76.7	77.9	76.4	75.4	73.3	72.4	JULY	69.5	66.0	72.3	77.6	77.2	75.7	74.2	74.0	73.5	73.2	72.6	78.1	74.8	24
19	72.9	73.6	73.5	73.8	73.2	73.2	75.0	75.6	76.1	76.0	74.8	72.9	71.6	72.2	72.8	73.4	75.3	74.7	73.8	73.1	72.9	72.4	71.4	70.8	76.1	73.5	24
20	72.0	71.8	72.0	71.0	68.8	70.8	70.4	69.7	68.8	68.0	67.4	67.6	67.6	67.4	66.4	69.3	71.1	71.7	71.0	70.6	70.4	69.3	69.6	69.2	72.0	69.7	24
21	68.2	67.6	67.6	68.2	67.2	67.9	66.6	67.0	65.8	65.5	**P**	**P**	**P**	66.2	66.6	70.8	71.9	70.8	69.3	69.8	68.5	68.7	67.8	66.8	71.9	68.0	21
22	66.0	66.0	66.1	66.0	65.1	65.2	65.2	65.9	65.7	65.2	66.0	67.0	64.6	63.3	64.2	66.3	71.3	71.9	72.5	71.9	71.8	71.9	71.7	71.6	72.5	67.6	24
23	71.4	71.6	71.4	70.1	70.2	71.3	68.3	67.9	67.6	66.2	68.8	66.5	65.5	62.5	61.7	66.1	74.3	74.1	72.5	72.0	71.9	71.4	71.3	69.7	74.3	69.3	24
24	69.2	68.8	68.5	68.8	68.4	68.1	68.7	67.4	69.0	66.5	64.3	67.2	65.3	66.1	67.5	69.8	72.6	74.2	74.3	73.2	72.7	71.9	73.2	71.5	74.3	69.5	24
25	72.6	73.0	73.0	72.2	71.4	72.0	73.7	73.2	74.4	73.0	72.6	72.9	70.3	70.3	70.8	73.7	74.7	74.6	74.8	76.3	77.3	77.3	76.9	77.0	77.3	73.7	24
26	76.1	72.6	73.3	74.6	73.6	73.4	74.3	74.0	73.0	70.0	69.2	71.3	66.6	67.3	66.6	70.6	76.7	76.1	75.8	75.4	75.2	75.1	76.7	77.2	77.2	73.1	24
27	77.4	77.3	77.4	77.5	77.6	77.2	77.1	77.4	77.0	76.5	75.3	72.9	69.8	66.8	65.0	69.0	72.8	73.0	74.4	73.9	75.3	77.1	76.0	78.4	78.4	74.7	24
28	80.2	82.2	83.6	82.9	82.3	79.1	78.9	77.5	77.9	75.2	71.8	68.3	63.9	60.6	60.0	64.6	72.5	75.2	75.6	73.3	75.7	73.3	72.4	71.3	83.6	74.1	24
29	72.3	71.0	73.0	71.1	74.1	73.1	71.6	72.2	75.7	73.7	73.6	70.3	70.3	69.8	70.4	70.5	69.1	68.7	68.5	68.3	66.4	66.9	67.9	68.8	75.7	70.7	24
30	67.9	67.5	68.4	66.9	68.8	70.0	71.1	72.3	74.3	74.5	73.4	73.6	73.6	72.2	70.8	70.1	74.9	74.7	74.3	73.2	72.2	71.2	70.7	71.0	74.9	71.6	24
31	70.0	70.5	70.1	70.2	73.3	75.4	76.9	76.8	76.5	76.3	76.4	74.4	72.8	74.6	76.3	77.9	77.7	79.5	78.7	77.3	76.3	75.9	75.5	75.6	79.5	75.2	24
HOURLY MAX	92.5	93.3	92.8	92.0	91.0	89.7	89.6	89.3	84.8	85.5	85.7	83.2	81.4	82.3	84.0	85.6	86.5	86.9	87.0	86.1	86.1	86.5	88.4	89.5			
HOURLY AVG	74.6	74.6	74.6	74.2	73.9	74.4	74.7	74.6	75.0	73.9	72.7	71.4	69.5	68.6	68.9	70.8	73.1	74.0	73.8	73.8	74.0	74.2	74.5	74.5			

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

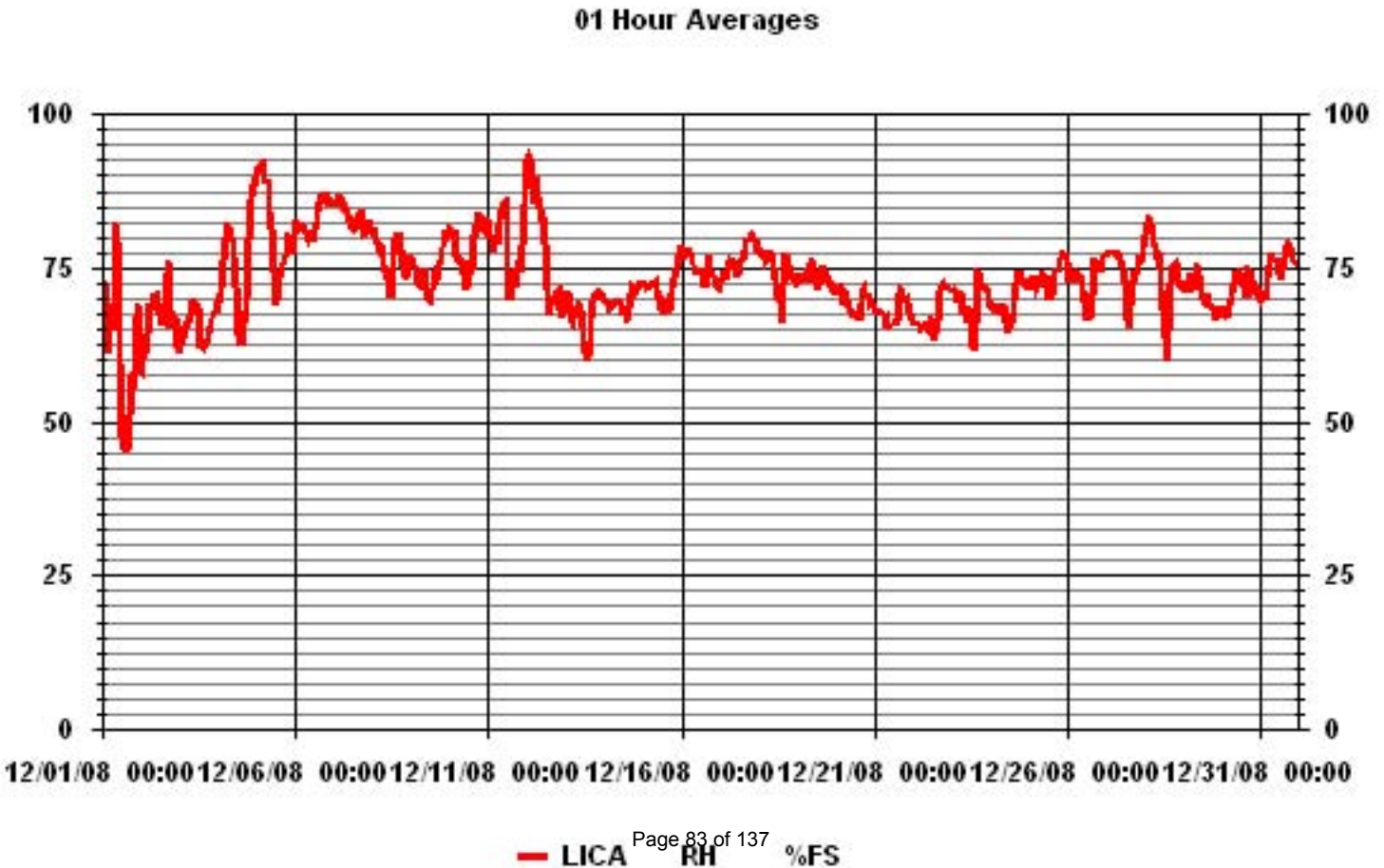
24 HOUR AVERAGES FOR DECEMBER 2008



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	93.3	%	@ HOUR(S)	1	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	83.4	%			ON DAY(S)	7

CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	741	HRS
			AMD OPERATION UPTIME:	99.6	%
STANDARD DEVIATION:	6.65		MONTHLY AVERAGE:	73.28	%


01 Hour Averages
100
75
50
25
0
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA RH %FS

Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

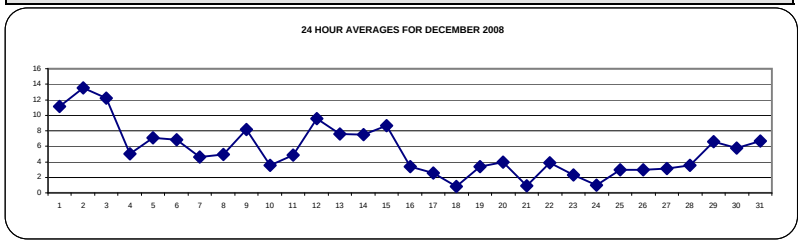
VECTOR WIND SPEED (WS) hourly averages (km/hr)

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	6.9	3.9	5.4	3	4.5	2.4	4.1	2.8	0.7	4.6	10.5	14.2	18.5	19	18.8	20.7	22.4	22.7	23.3	**30.1**	27.2	26.1	25.4	26.3	**30.1**	11.1	24
2	21.2	23.3	18.4	17	15	7.9	9.5	10.4	9.8	12.6	11.9	12.9	15.6	14.5	12.6	10.5	5.5	7.7	15.1	11.2	14.8	16.7	18.2	14.9	23.3	**13.5**	24
3	16.4	13.5	14.5	12.9	12.3	12.1	10.3	10.4	9.1	10.1	12.4	11.7	12.3	14.9	14.3	13.5	14.9	14.7	9	12.1	11.3	11.4	12.4	11	16.4	12.2	24
4	9	8.2	9.6	8.6	7.1	6.4	6	5.4	6.4	6.4	6.2	7	11.5	6	5.2	4.8	4.8	4.3	4.2	4.1	2.8	2.4	3.5	1.9	11.5	5	24
5	0.6	3.9	4.2	5.5	4.7	4.4	5.6	9.5	10.4	12.6	13.1	12.1	9.5	10.2	9.9	8.5	6.7	6.7	6.3	6.1	2.4	8.3	5.9	3.7	13.1	7.1	24
6	3.6	3.3	3.5	4.3	7.6	8.8	9.1	8.6	7.1	9.6	9.5	10.7	7.7	10	9.2	8.5	7.4	6.7	5.9	5.5	5.7	4.9	3.8	3.1	10.7	6.8	24
7	1.7	1.3	3	5.6	6.6	5.8	5.8	2.9	5.4	2.3	2.4	3.6	3.4	2.4	4.2	2.6	2.7	6.3	9	6.7	6.5	4.4	7.5	7.8	9.0	4.6	24
8	7.3	8.4	8.6	6.1	3.9	2	2.6	4	3.7	4.3	5.3	5.2	3.1	2.3	3	4.5	3.5	4.8	5.5	7.8	7.2	5.6	5.1	5.2	8.6	5.0	24
9	4.6	4.6	4.7	4.2	6.1	5.2	5.4	5.9	9.8	8.9	9.8	8.9	9.3	9.1	10.9	9.2	11.6	13.5	11.7	10.2	9.7	10.1	7.5	5.1	13.5	8.2	24
10	3.4	0.4	3.9	7.2	9.5	6.8	4.3	5.7	5.5	3.3	4.3	4.3	3.4	3	2.5	0.8	0.7	1.3	1.8	1.4	2.2	2.8	3.7	3.5	9.5	3.6	24
11	2.8	2.2	1.5	0.7	3.1	2	1.7	1.9	1.5	1.8	4.1	5.2	4.8	4.3	6.7	8.2	11.1	8.3	7.4	8.6	7.6	7.3	7.3	6	11.1	4.8	24
12	5.9	6.3	1.3	0.7	2.9	4.5	5.5	7.4	8.8	8.4	10.1	13.8	13.5	11.7	12.2	12.6	11.8	13.2	15.3	13.9	16.6	13.3	10.5	9.2	16.6	9.6	24
13	7.3	6.2	9	9.4	10	10.2	8.2	7.4	4.6	6.4	10.6	11.4	9.1	11.1	9.7	8.2	6.2	6.5	6.3	5.7	4.6	0.7	7.9	5.5	11.4	7.6	24
14	7.3	6	5.9	20.9	6	6.4	5.6	6.3	6.6	7.8	7.1	7.5	8.2	7.2	8	7.6	6.6	5.6	9.1	7	7	6.9	6.5	6.9	20.9	7.5	24
15	6.3	5.9	3	4.7	5	5.8	6.5	6.4	8.7	9.2	9.7	11.4	12	10.1	10.9	10.3	11.4	12.6	11.9	11.3	10.6	8.9	7.7	7.6	12.6	8.7	24
16	5.6	1.9	1.4	6.2	6	6.1	7.3	4.8	6	5.8	5.6	3.8	5.1	5	4.8	2.8	0.7	0.5	0.5	0.4	0.1	0.1	0.3	0.2	7.3	3.4	24
17	4.2	0.4	0.2	1.3	1.6	1.1	1.1	1.4	0.8	1.4	1.3	2.2	3.2	4.6	3.9	3.9	4	3.7	4.1	3.4	4.4	3.8	3.7	1.4	4.6	2.5	24
18	1.8	0.7	0.7	0.6	0.8	1	0.8	0.7	0.3	0.3	1.8	0.5	1.8	1.9	1.6	0.6	0.3	0.3	0.1	0.6	0.1	0.3	0.5	0.8	1.9	0.8	24
19	0.8	0.2	0.5	0.5	0.6	1.3	1.4	3.7	3.8	4.7	5.8	5	6.7	5.3	3.7	3.8	4.6	4.2	3.3	4.6	4.9	3.8	2.7	4.5	6.7	3.4	24
20	5.5	5.9	6	3.8	2.6	4.4	4.7	6	1.6	1.8	3.8	5	6.3	5.8	4.6	4.8	3.9	4.5	2	4.8	1.6	2.1	3.7	0.3	6.3	4.0	24
21	0	0.3	1.2	0.4	0.6	0.1	1.4	0.4	1.4	0.4	**P**	**P**	**P**	1.4	1.4	0.9	0.4	0.7	2.1	3.1	0.2	1.2	0.4	0.4	3.1	0.9	21
22	4.6	0.5	1.2	1	1.4	0.6	1.1	4.1	0.8	2.3	4.9	6.2	4.7	5.4	5.8	3.9	5.2	4.2	5.5	5.1	5.4	6.9	6.2	6.4	6.9	3.9	24
23	5.5	6.2	5.7	3.4	5.2	4.2	0.7	0.3	0.4	1	3.8	2.5	4.5	3.9	2.6	2.2	1	0.5	0.6	0.5	0.2	0.4	0.4	0.1	6.2	2.3	24
24	0	0.3	0.8	1.4	0.1	0.9	0.6	1.9	0.7	0.3	0.7	1.6	2	2.7	1.9	2.6	1.2	0.3	0.4	0.5	0.6	0.9	0.4	0.2	2.7	1.0	24
25	0.8	0.4	0	0.4	0.5	0.6	0.9	1.2	0.9	1.2	0.1	2.3	2.3	2.6	3.3	6	4	5.5	4.5	7.1	8.3	6.8	5.6	6	8.3	3.0	24
26	5.6	3.3	4.4	6.7	4.4	5.4	4.4	4.3	1.4	0.3	4.2	5.3	2.8	2.8	1.7	1	0.6	1.1	1.6	1.5	1.2	0.9	3.4	2.9	6.7	3.0	24
27	3.1	3.5	1.8	4.7	3.9	7	5.3	3.4	2.8	2.8	2.5	1.4	3.9	4.5	3.8	3.3	4.5	2.2	0.9	2.1	2	1.7	2.6	1.1	7.0	3.1	24
28	0.1	4	6.2	4.6	3.7	2.7	3.3	4.8	4.8	4.1	4.7	5.1	3.2	4.8	5.3	5	3.6	5.6	2	2.3	3.8	0.5	0.5	0.3	6.2	3.5	24
29	0.4	1	0.7	1	0.7	1	0.5	0.5	4	8.1	7.6	8.9	8.3	9.2	9.4	11.1	12.1	12.1	10.8	9.8	11.2	9.7	10.5	10	12.1	6.6	24
30	9.5	10.6	11.1	10.6	8.5	7.7	8.1	7.4	6.2	3.8	6.2	6	6.2	4.6	2.9	4.1	3.5	3.7	4	4.3	0.2	0.1	0.3	9.5	11.1	5.8	24
31	0.3	0.5	0.1	0.3	1.5	3.6	7.3	9.4	11.1	10.9	9.9	9.9	12.5	8.8	7.8	8.1	7.4	4.4	8.3	7.9	9.2	8.4	6.8	5.9	12.5	6.7	24
HOURLY MAX	21.2	23.3	18.4	20.9	15.0	12.1	10.3	10.4	11.1	12.6	13.1	14.2	18.5	19.0	18.8	20.7	22.4	22.7	23.3	30.1	27.2	26.1	25.4	26.3			
HOURLY AVG	4.9	4.4	4.5	5.1	4.7	4.5	4.5	4.8	4.7	5.1	6.3	6.9	7.2	6.7	6.5	6.3	5.9	6.1	6.2	6.4	6.1	5.7	5.8	5.4			

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

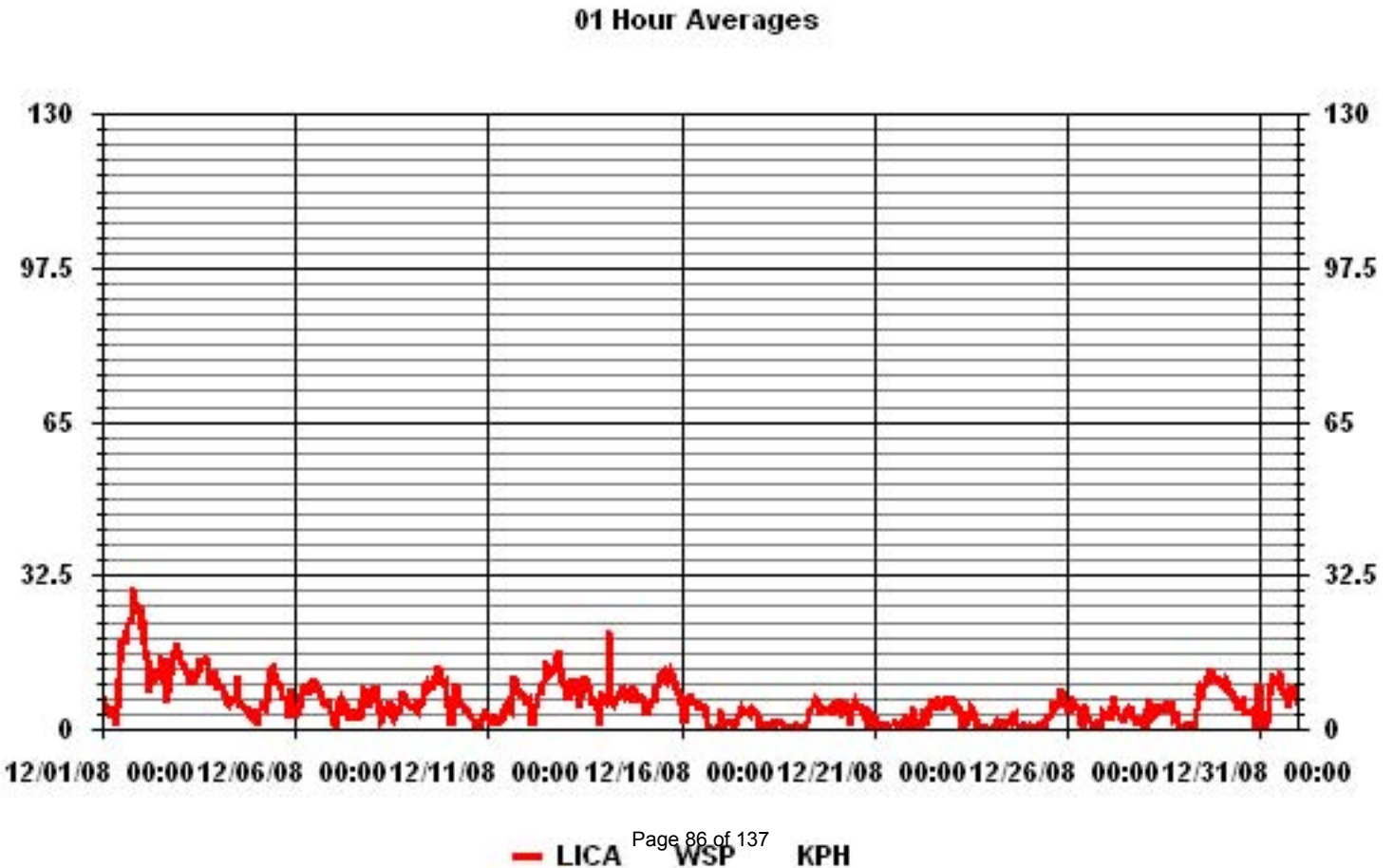


LAST CALIBRATION:	November 05, 2008

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	30.1	KPH	@ HOUR(S)	19	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	13.5	KPH			ON DAY(S)	2

CALMS (≤ 1 KPH)	5.11	%	OPERATIONAL TIME:	741	HRS
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME	99.6	%
STANDARD DEVIATION:	4.59		MONTHLY AVERAGE:	5.61	KPH


01 Hour Averages
130
97.5
65
32.5
0
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA WSP KPH

LICA
WSP / WD Joint Frequency Distribution (Percent)

December 2008

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	.94	.13	1.07	3.77	2.69	3.91	3.23	1.48	1.21	2.29	10.25	13.36	4.45	3.37	2.56	1.21	56.00
<	12.0	.67	.94	.80	.94	3.77	2.96	1.61	.00	.00	.13	4.31	5.39	1.75	1.07	4.85	1.21	30.49
<	20.0	.40	.00	.00	.13	.26	.13	.00	.00	.00	.00	.13	.26	.40	.67	2.96	1.34	6.74
<	29.0	.00	.00	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.53	.26	.53	.00	1.48
<	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.13
>=	39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	Totals	2.02	1.07	2.02	4.85	6.74	7.01	4.85	1.48	1.21	2.42	14.70	19.02	7.15	5.53	10.93	3.77	

Calm : 5.12 %

Total # Operational Hours : 741

Distribution By Samples

Direction

	Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
<	6.0	7	1	8	28	20	29	24	11	9	17	76	99	33	25	19	9	415
<	12.0	5	7	6	7	28	22	12			1	32	40	13	8	36	9	226
<	20.0	3			1	2	1					1	2	3	5	22	10	50
<	29.0			1										4	2	4		11
<	39.0														1			1
>=	39.0																	
	Totals	15	8	15	36	50	52	36	11	9	18	109	141	53	41	81	28	

Calm : 5.12 %

Total # Operational Hours : 741

Logger : 01 Parameter : WSP

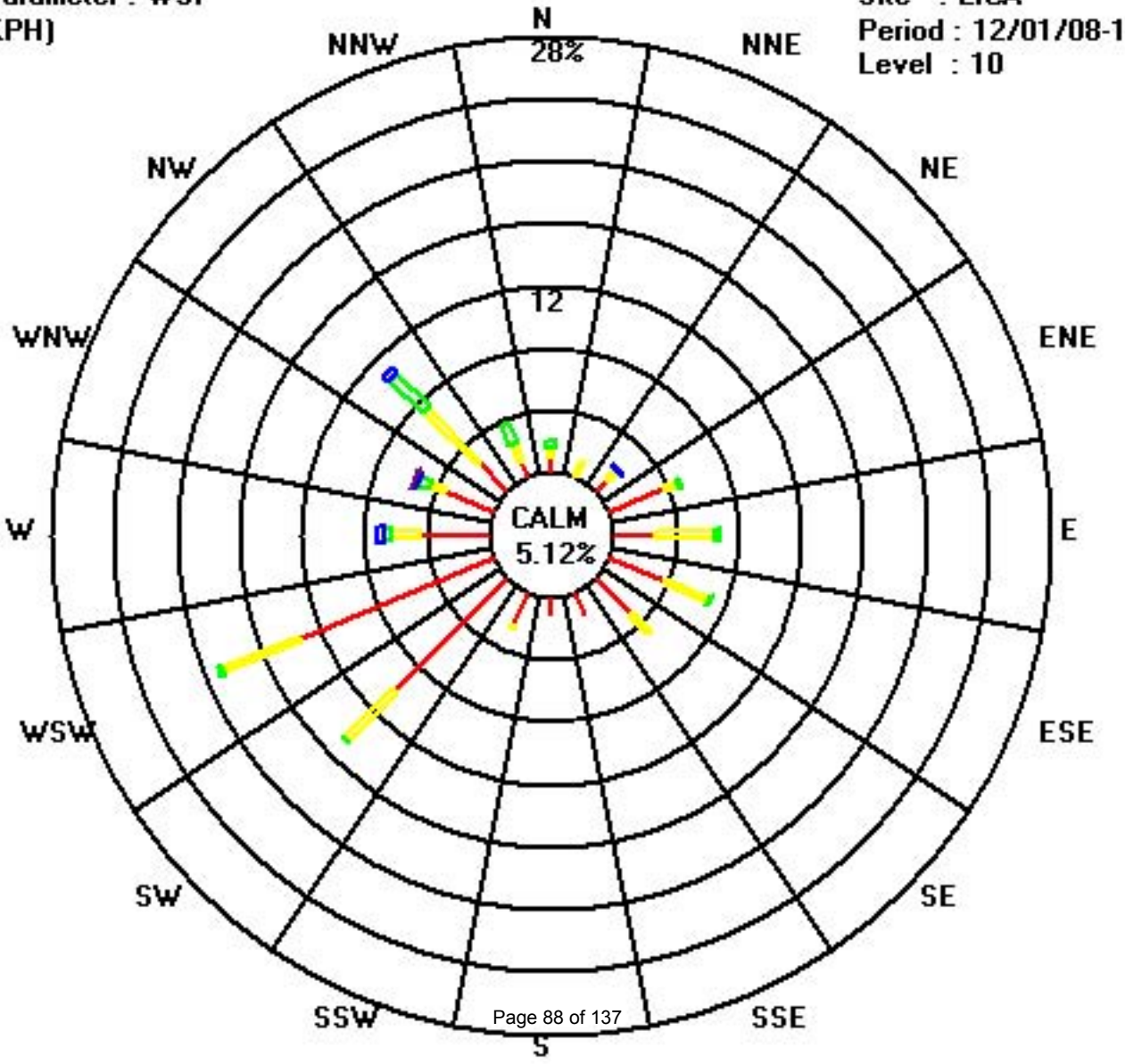
Class Limits (KPH)

>= 39.0
< 39.0
< 29.0
< 20.0
< 12.0
< 6.0

Site : LICA

Period : 12/01/08-12/31/08

Level : 10



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST

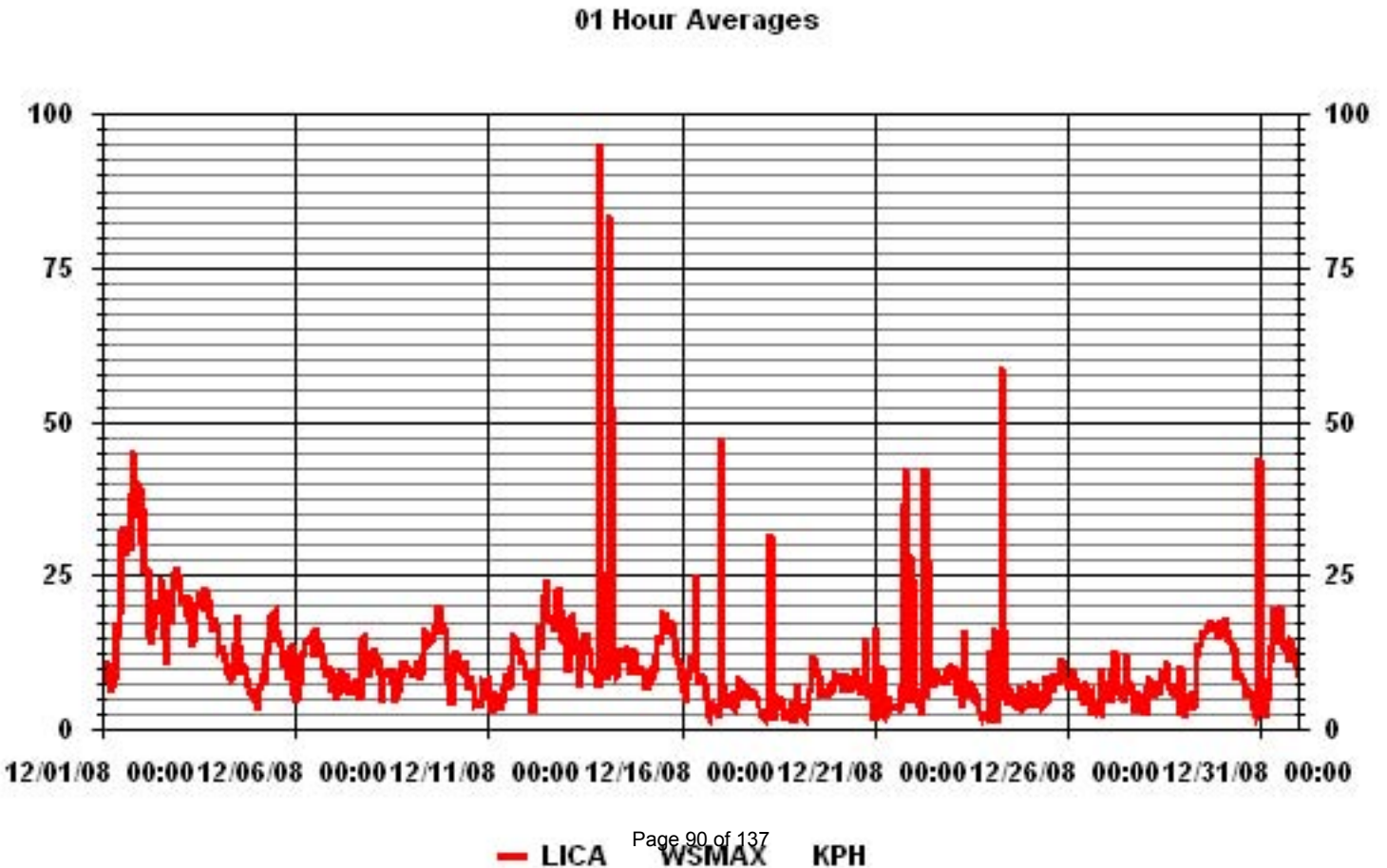
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.
DAY																									
1	9.4	7.6	10	11.2	8.5	5.8	10.5	6.8	8	17.3	15	18.6	32.1	32.8	30.7	28.3	30.3	30.1	38.1	45.1	35.2	34.4	40.2	39.5	45.1
2	30.3	36.2	25.8	25.8	26.2	15.3	13.5	16.5	16.8	20.8	18.5	20.7	24.7	20.8	16.9	14.9	10.4	22.1	22.2	17.1	24.9	25.5	26.2	22.9	36.2
3	25	20.8	20.7	21.3	18	21.7	17.3	20	13.5	14.3	19.5	20.3	20.5	22.1	21.2	19	23.2	20.4	17.6	21	18.2	15.9	18	17.2	25
4	12.5	12.7	12.9	12	12.5	9.5	9.2	7.9	10.8	8.4	8.7	13.8	18.6	14	8.9	9.4	10.4	9.6	8.4	7.1	6	5.2	6.7	4.8	18.6
5	2.9	6.3	7.3	8.2	7.8	7.4	12	14.5	16.1	18.3	18.8	19.1	13.9	16.1	14.1	14.3	9.8	12.8	12.1	11.2	8.1	13.3	14	6	19.1
6	4.7	4.8	6.5	7.2	11.9	12.7	14	14	14.8	15.3	13.8	15.9	11.7	16.5	13.3	14.3	13.1	12.1	9.9	8.4	9.6	9.6	6.5	6.4	16.5
7	6.8	4.9	5.5	9	9.8	7.6	7.9	5.8	9.2	6.3	6.5	7.8	6.3	6.5	8	5.5	5	14.6	14.9	10	11.6	8.3	12.9	11.5	14.9
8	11.1	13	12.1	11.7	9	5.1	5	8.2	9.3	8.3	9.5	9.6	7.4	4.1	5.1	6.8	5.8	9	9	11.2	10.6	10.3	9.8	9.6	13
9	8.2	9.7	8.7	8.7	10.9	8	8.9	11.8	16.4	15.7	15.2	14	14.3	14.5	16.9	15.2	18	20.3	17.1	15.5	16.2	15.6	12.5	7.9	20.3
10	7.1	3.8	10.2	10	12.9	10.9	9.2	9.7	9.1	9.4	11	8.1	6.1	8.5	7.3	4.3	4.6	4.7	4.3	3.3	4.5	7.6	7.3	7.6	12.9
11	5	4.4	2.8	3.4	6.1	5	3.8	3.7	4.8	4.8	7.1	9.1	6.9	7	10.3	15.5	15	13	12.5	12.5	13.2	10.5	11.2	9.1	15.5
12	8.1	9.3	7.4	2.6	6.5	7.1	9.9	13.1	16.8	12.7	18.5	21.6	24.1	17.9	17.6	18.7	15.9	18.6	22.7	21.2	23.1	19.9	14.5	14.2	24.1
13	10.6	9	18	18.2	14.6	16.8	12.8	12.4	6.5	9.6	14.3	15.8	13.5	15.4	13.6	12.5	9.7	9.3	9.2	9.5	6.5	**95**	10.7	25.6	**95**
14	9.3	8.6	8.1	83.8	52.7	8.6	10.3	9	9.4	10.8	13	10.6	12.6	11.6	13.5	11.9	9.4	9.3	13.1	11.5	10.1	9.8	8.9	9.9	83.8
15	9.8	9.7	6.1	8.3	7.2	8	10.4	9.3	11.8	15.4	13.9	14.5	19.5	17.4	17.8	15.4	17	16.4	17.2	17	14.6	11.9	10.6	11	19.5
16	8.4	6.3	4.1	9.3	8.1	9.3	12	10.2	10	25.1	9.4	7.1	8.2	9.1	7.8	4.9	2.6	2.1	3.4	4	3.8	2.4	4	1.7	25.1
17	47.5	3.6	7.2	3.5	4.5	3.3	5.6	5.8	3.8	3.4	4.8	5	8.1	7.9	6	7	6.9	5.6	5.4	4.8	6.4	5.5	5.1	4.9	47.5
18	3.8	2.5	2.2	1.8	3	2.1	2.7	31.8	2.4	1.3	4.2	4	5	4.6	5.4	3.2	1.5	2.4	1.5	3.4	4.6	1.2	1.2	3.6	31.8
19	7.3	3.4	2.5	2.3	1.9	3.4	3.4	6.4	6.5	9.3	12.1	9.9	9.9	8.8	5.3	5.8	6.4	6.2	5.1	6.3	6.9	6.1	6.5	9.3	12.1
20	8.5	8.1	8.6	8.5	6	7.4	8.1	8.9	5.7	8.4	6.1	7.6	9.7	9	7.8	7.5	5.5	7.1	15	7.9	5.6	5.7	6.9	1.3	15
21	3	16.6	4.5	2.6	3	10.5	2.8	2.2	2.7	4.8	P	P	P	3.7	3.6	3.4	2.9	7	36.7	42.4	4.2	23.3	28.4	23.6	42.4
22	24.9	6.8	4.7	3.5	4.2	2.2	13.3	42.6	4.9	27.6	7.9	9.6	6.8	8.3	10	8.1	8.1	7.5	8.6	7.5	7.5	9.8	10.1	8.7	42.6
23	8.8	9.1	10.2	5.6	8	8.1	3.4	9.1	16.2	5.1	6.9	7.4	7.4	6.8	5.1	5.3	4.2	2.9	2.2	2.9	1.8	2.6	1.6	12.6	16.2
24	1.1	3.5	16.4	10.2	0.9	5.1	5.1	58.7	16.4	7.5	3.7	7.1	4.1	5.2	4.1	5.9	3.9	3	4	6.8	3.4	3.6	5.4	4.5	58.7
25	8	4.1	4.2	3.3	7.4	6.3	5	3.8	4.1	3.7	8.8	4.4	5.8	6.4	6.4	9.1	7.1	8.2	7	11.2	11.1	9.5	8.4	8	11.2
26	7.1	6.3	7.3	10	7.4	8.1	6.5	7.3	5	3.9	6.5	7.9	6.6	5.6	5.9	2.3	3.4	2.9	3.6	3	2.8	10	5.7	6	10
27	4.7	7.9	4	9.3	9.3	12.6	7.9	6.1	6.1	6.8	5	4.6	12.3	8.2	7	5.6	7.4	4.6	2.8	4.1	6.3	4.1	3.9	3.1	12.6
28	2.1	7.1	8.4	6.8	6.3	4.9	7	7.3	7.4	5.4	9.1	8.8	7.4	11.1	10.1	6.7	6.3	7.5	6.3	4.9	6.4	2.2	10.3	3.1	11.1
29	1.9	4.2	3.3	5.4	5.6	2.9	3.9	4.1	11.8	14.1	13.3	16.2	14.7	15.5	16	16.4	16.7	17.6	16.8	15.8	16.5	14.5	17.6	15.1	17.6
30	15.7	17.9	18	16.5	14.7	14	14	13.2	12.8	7.8	9.4	9.1	8.5	7.9	5	7.1	5.8	5.9	5.4	5.7	3.5	1.8	2.2	44	44
31	2.7	5.4	2.8	1.9	4.4	8.4	10.9	13.5	19.7	17.9	14.9	14.8	20.3	14	13.6	14.1	14	10.6	14.4	14.1	13.2	12.9	10.4	9.1	20.3
PEAK	47.5	36.2	25.8	83.8	52.7	21.7	17.3	58.7	19.7	27.6	19.5	21.6	32.1	32.8	30.7	28.3	30.3	30.1	38.1	45.1	35.2	95.0	40.2	44.0	

STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	95	KPH	@ HOUR(S)	21
			ON DAY(S)	13


01 Hour Averages
100
75
50
25
0
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA WSMAX KPH

Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *COLD LAKE*

DECEMBER 2008

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST

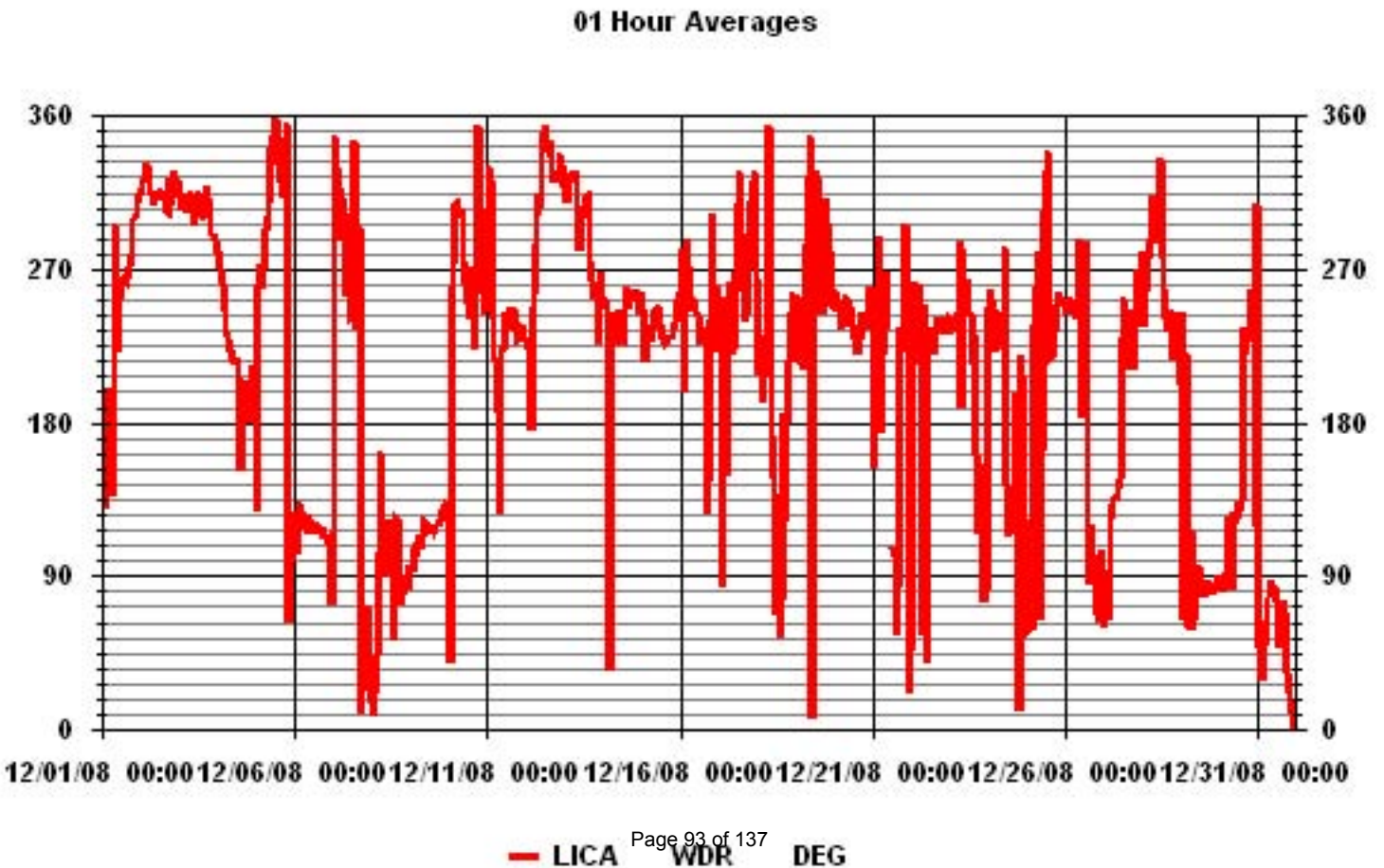
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUANDRANT	RDGS.
DAY																											
1	132	129	133	181	200	163	137	186	296	221	235	252	264	265	263	262	264	271	278	299	301	301	309	314	275	W	24
2	317	322	322	328	332	322	317	314	307	314	315	312	317	312	312	315	305	304	323	308	311	327	323	322	317	NW	24
3	315	309	304	313	303	313	313	316	309	295	300	313	315	305	301	299	314	318	308	312	291	290	289	287	305	WNW	24
4	281	272	271	262	246	234	232	229	223	217	216	216	218	208	152	175	193	191	194	205	179	199	213	210	226	SW	24
5	128	261	273	266	258	270	293	301	308	341	349	336	358	336	337	322	322	311	347	356	62	87	98	117	329	NNW	24
6	128	111	103	134	124	127	122	123	114	124	116	121	115	120	115	118	116	117	114	113	111	112	95	73	117	ESE	24
7	87	348	286	329	319	302	312	259	254	258	302	242	243	345	235	258	295	9	40	38	68	72	25	24	341	NNW	24
8	17	7	21	43	104	163	151	113	89	95	100	123	102	52	121	125	124	85	73	81	79	87	86	97	80	E	24
9	94	94	107	109	101	114	106	114	124	117	122	117	118	117	120	117	119	121	121	122	128	132	131	124	118	ESE	24
10	76	38	259	273	307	308	300	304	306	276	262	250	270	241	272	248	222	326	354	300	255	271	244	287	284	WNW	24
11	305	331	323	242	218	217	187	126	171	226	222	244	239	235	244	243	247	233	240	228	229	230	237	231	236	SW	24
12	229	224	217	175	247	255	284	301	314	305	341	350	354	342	343	336	321	328	326	321	327	338	332	320	323	NW	24
13	320	309	326	322	323	327	323	327	307	281	305	306	300	312	313	305	275	264	252	259	259	225	269	262	301	WNW	24
14	251	251	248	42	34	242	242	229	230	239	246	228	229	228	253	259	247	253	253	255	256	256	244	257	250	WSW	24
15	253	248	215	226	232	227	237	234	246	247	248	247	239	230	226	227	230	230	230	230	235	239	252	254	236	SW	24
16	257	281	198	265	288	273	260	245	251	251	246	243	226	236	234	227	236	126	146	240	303	221	261	255	250	WSW	24
17	223	246	83	238	254	148	254	262	220	223	268	259	308	328	292	258	239	243	249	270	310	321	327	317	275	W	24
18	266	207	228	192	231	206	249	354	218	173	149	140	69	68	53	76	185	122	180	216	243	244	257	215	178	S	24
19	249	255	247	215	211	250	284	325	320	349	6	11	328	325	318	260	243	247	273	312	298	282	250	249	301	WNW	24
20	257	256	251	247	235	237	252	254	249	251	249	238	230	221	221	230	230	244	237	243	237	235	257	257	242	WSW	24
21	153	212	245	228	289	174	231	219	235	267	**P**	**P**	**P**	105	102	55	83	236	230	221	296	228	175	21	223	SW	21
22	46	235	263	213	224	261	249	55	249	39	236	232	235	222	220	231	242	239	239	236	232	242	232	241	236	SW	24
23	240	235	236	238	244	241	286	189	282	256	262	264	243	245	213	233	161	115	157	154	84	75	101	81	238	SW	24
24	247	258	253	247	221	240	243	222	245	237	283	144	113	116	136	115	121	197	134	11	219	209	75	57	165	SSE	24
25	58	65	123	58	237	84	259	280	64	163	304	328	295	339	251	218	219	237	234	251	256	254	250	250	249	WSW	24
26	248	244	251	254	244	247	240	247	287	182	243	242	240	286	85	96	120	99	103	69	64	64	106	90	239	WSW	24
27	59	67	64	93	124	131	135	136	134	142	147	230	253	228	228	210	228	246	210	230	251	270	236	251	171	S	24
28	280	236	257	259	276	287	313	287	289	286	319	335	277	241	258	244	233	246	217	226	245	220	232	203	266	W	24
29	64	245	122	221	61	59	117	58	64	83	81	97	85	81	77	83	83	87	84	79	81	86	83	90	83	E	24
30	82	85	80	91	92	125	93	84	84	128	120	124	133	128	134	236	220	227	235	236	258	235	118	308	107	ESE	24
31	47	61	28	64	49	62	77	85	87	82	82	76	74	47	64	72	76	69	34	23	14	15	0	7	58	ENE	24
HOURLY AVG	320	348	326	329	332	327	323	354	320	349	349	350	358	345	343	336	322	328	354	356	327	338	332	322			

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 05, 2008
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	741	HRS
STANDARD DEVIATION	87.12		AMD OPERATION UPTIME	99.6	%
			MONTHLY AVERAGE	281	DEG


01 Hour Averages
360
270
180
90
0
12/01/08 00:00
12/06/08 00:00
12/11/08 00:00
12/16/08 00:00
12/21/08 00:00
12/26/08 00:00
12/31/08 00:00
LICA WDR DEG

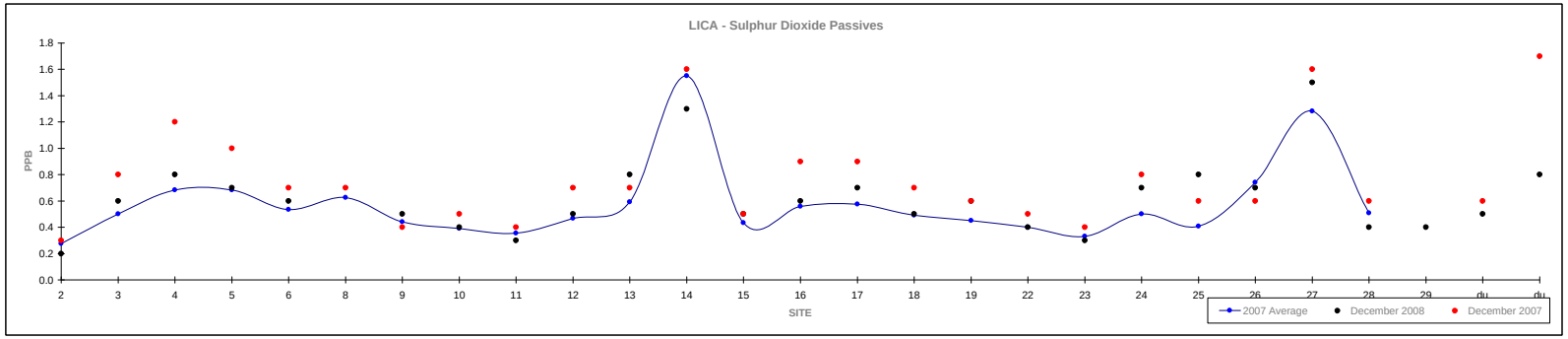
Non-Continuous Monitoring

Passive Summary Results for December 2008

Lakeland Industry & Community Association

Sulphur Dioxide
ppb

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Reading	Site
													2007													2008	
Mean	0.3	0.5	0.7	0.7	0.5	0.6	0.4	0.4	0.4	0.5	0.6	1.6	0.4	0.6	0.6	0.5	0.5	0.4	0.3	0.5	0.4	0.7	1.3	0.5	0.4	0.6	-
Minimum	0.1	0.3	0.4	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.8	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.2	0.0	0.2	#2
Maximum	0.4	1.0	1.3	1.1	1.0	1.1	0.8	0.7	0.7	0.8	1.6	2.6	0.8	1.1	1.1	1.0	0.8	0.6	0.5	0.8	0.8	1.2	2.1	0.8	0.0	1.5	#27

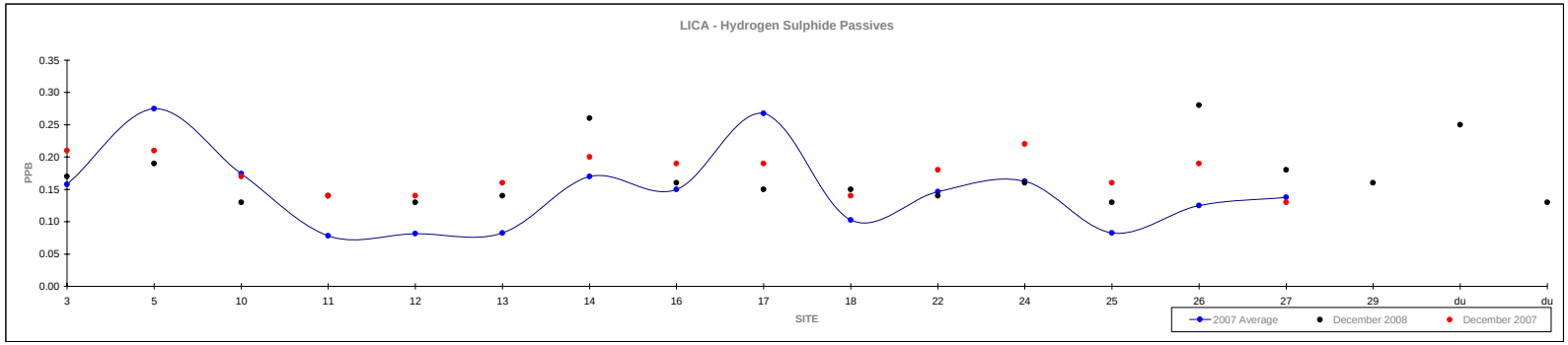


Passive Summary Results for December 2008

Lakeland Industry & Community Association

Hydrogen Sulphide
ppb

	2007															2008	
	3	**5**	**10**	**11**	**12**	**13**	**14**	**16**	**17**	**18**	**22**	**24**	**25**	**26**	**27**	**Reading**	**Site**
Mean	0.2	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.17	-
Minimum	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.13	VARIOUS
Maximum	0.5	0.7	0.5	0.1	0.1	0.2	0.4	0.4	0.9	0.2	0.4	0.4	0.2	0.2	0.4	0.28	#26

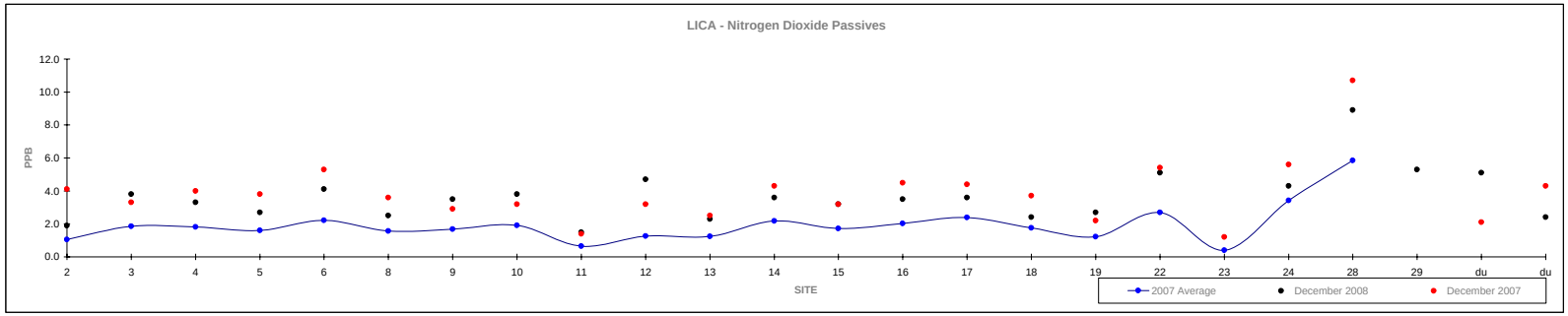


Passive Summary Results for December 2008

Lakeland Industry & Community Association

Nitrogen Dioxide
ppb

	2007																					2008	
	2	**3**	**4**	**5**	**6**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**22**	**23**	**24**	**28**	**Reading**	**Site**
Mean	1.1	1.9	1.8	1.6	2.2	1.6	1.7	1.9	0.7	1.3	1.2	2.2	1.7	2.0	2.4	1.8	1.2	2.7	0.4	3.4	5.8	3.7	-
Minimum	0.2	0.8	0.2	0.3	1.2	0.5	0.6	0.4	0.3	0.3	0.6	0.8	0.8	0.7	0.8	0.6	0.2	1.2	0.1	2.1	3.3	1.5	#11
Maximum	4.1	3.5	4.0	3.8	5.3	3.6	3.8	3.9	1.4	3.2	2.5	5.3	3.4	4.5	4.8	3.9	3.0	5.8	1.2	6.4	10.7	8.9	#28

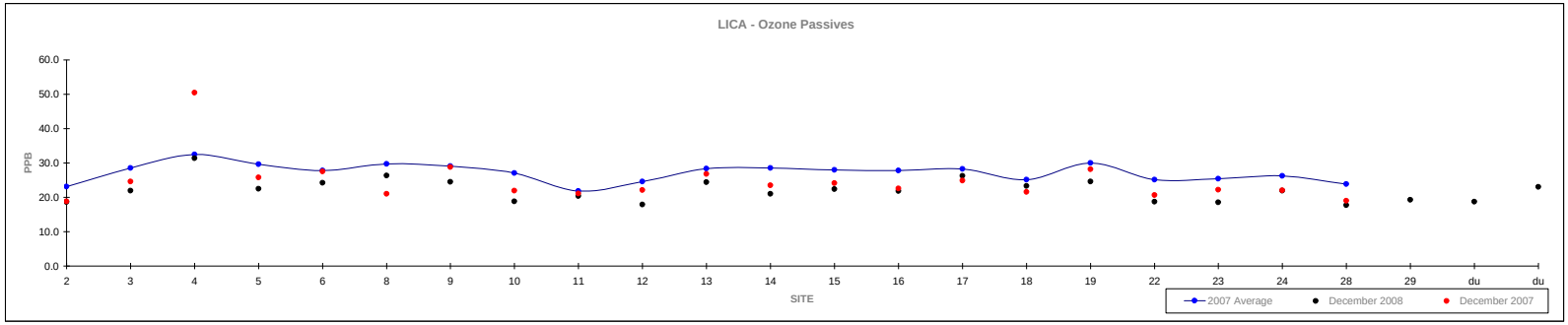


Passive Summary Results for December 2008

Lakeland Industry & Community Association

Ozone ppb

	2007																					2008	
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	28	Reading	Site
Mean	23.1	28.5	32.5	29.6	27.8	29.7	29.0	27.0	21.9	24.6	28.3	28.5	28.0	27.8	28.3	25.2	30.0	25.2	25.5	26.2	23.8	22.0	-
Minimum	12.9	18.6	20.6	19.3	17.6	19.5	18.7	16.2	12.2	15.3	16.8	19.9	19.0	18.9	17.4	14.7	19.4	15.8	10.9	17.7	16.9	17.7	#28
Maximum	37.3	41.1	51.4	48.0	46.3	42.3	44.1	44.6	29.5	33.6	41.2	38.6	39.9	41.6	44.7	38.6	46.5	39.2	39.0	41.6	33.2	31.4	#4



Calibration Reports

Cold Lake

Sulphur Dioxide

SO_2 Calibration Report

Station Information

Calibration Date	December 1, 2008	Previous Calibration	November 4, 2008
Company	+		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	9:00	End Time (MST)	13:15
Reason:	Monthly Calibration		
Barometric Pressure	695 mmHg	Station Temperature	24 Deg C
Cal Gas	52.2 ppm	Cal Gas Expiry date	March 12, 2010
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	TECO 43A	S/N :	43A-4468-272	Method:	Fluorescent
Converter Make / Model:	-	S/N :	-		
Calibrator Make / Model:	Environics 2000	S/N :	1991	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	263		
Flow Meter:	Environics 2000	S/N :	1991		

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 500 ppb			
Sample Flow / Box Temp	700 ccm	OK Deg C	700 ccm	OK Deg C
HVPS / Lamp Setting	OK	836	OK	833
PMT / RxCell Temp	OK Deg C	OK Deg C	OK Deg C	OK Deg C
Converter / IZS Temp	NA Deg C	OK Deg C	NA Deg C	OK Deg C
Offset / Slope	108	892	108	915

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5005.7	0	0	0	N/A
4970.7	38.9	405	400	1.0133
4970.7	38.9	405	404	1.0033
4989.5	24.3	253	252	1.0039
4997.6	14.6	152	153	0.9938
5013.8	0	0	1	N/A
			Sum of Least Squares	1.0026
			New Correction Factor	1.0033

	Before Calibration	After Calibration
Auto Zero	-0.3	-0.3
Auto Span	204.4	211.3
Sample Lines Connected		**YES**
Percent Change from Previous Calibration		0.3%

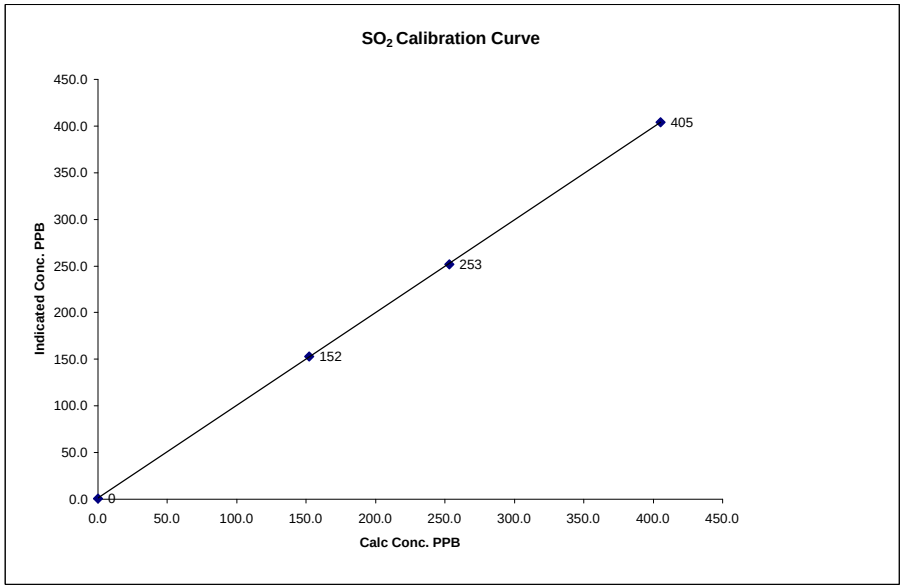
Calibration Performed by: Shea Beaton

SO_2 Calibration Curve

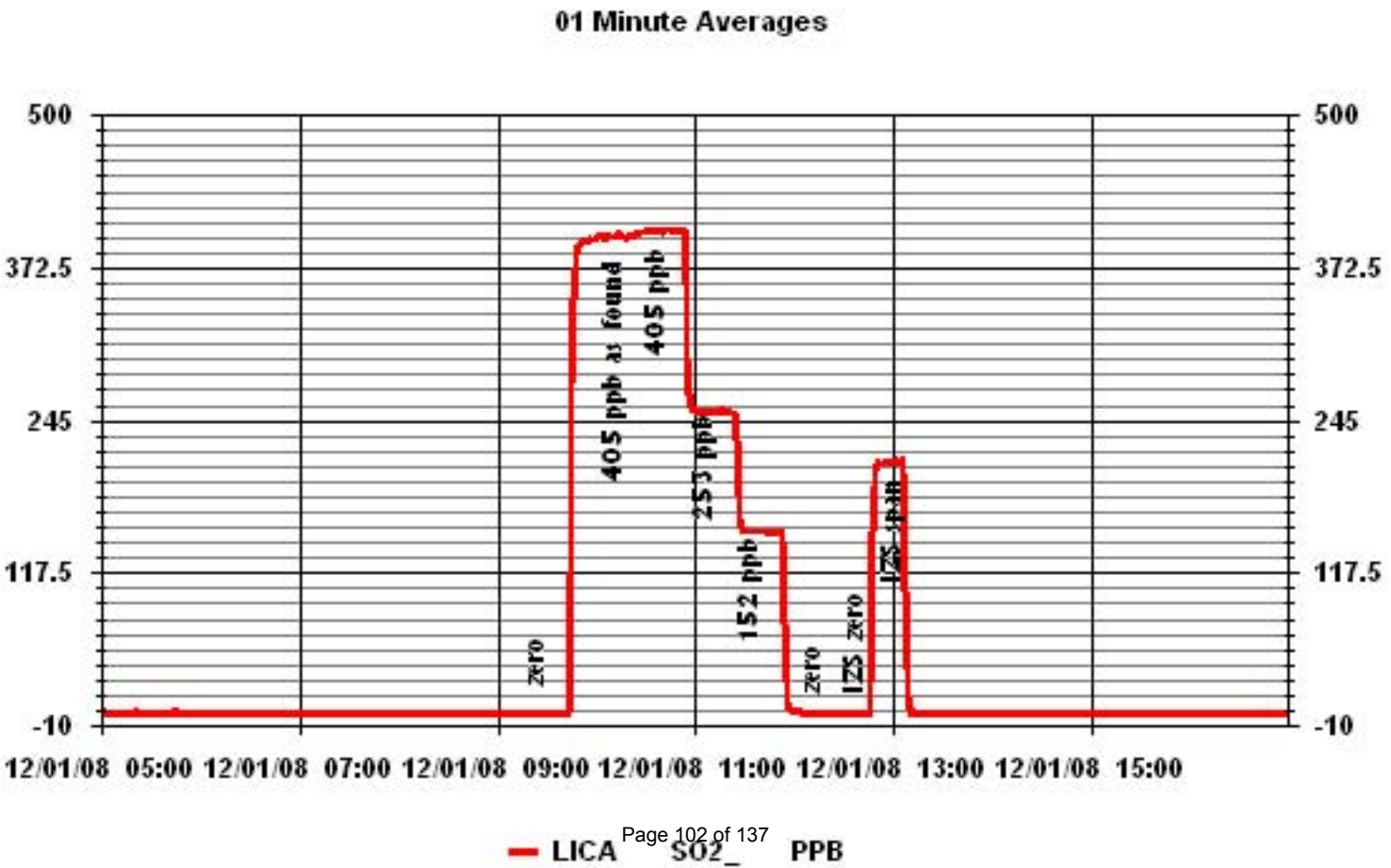
Calibration Date	December 1, 2008		
Company	+		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	9:00	End Time (MST)	13:15

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	1	n/a
152	153	0.9938
253	252	1.0039
405	404	1.0033

Correlation Coefficient	(≥ 0.995)	0.999990
Slope	(0.85 to 1.15)	0.993446
Intercept	(± 3% F.S.)	1.231612



Notes:


01 Minute Averages
500
372.5
245
117.5
-10
zero
405 ppb as found
405 ppb
253 ppb
152 ppb
zero
IZS zero
IZS span
12/01/08 05:00
12/01/08 07:00
12/01/08 09:00
12/01/08 11:00
12/01/08 13:00
12/01/08 15:00
LICA SO2_ PPB

SO_2 Calibration Report

Station Information

Calibration Date	December 31, 2008	Previous Calibration	December 1, 2008
Company	+		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	8:00	End Time (MST)	10:40
Reason:	Removal Calibration		
Barometric Pressure	710 mmHg	Station Temperature	23 Deg C
Cal Gas	52.2 ppm	Cal Gas Expiry date	March 12, 2010
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	TECO 43A	S/N :	43A-4468-272	Method:	Fluorescent
Converter Make / Model:	-	S/N :	-		
Calibrator Make / Model:	Environics 2000	S/N :	1991	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	263		
Flow Meter:	Environics 2000	S/N :	1991		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range	0 - 500 ppb							
Sample Flow / Box Temp	700	ccm	OK	Deg C	700	ccm	OK	Deg C
HVPS / Lamp Setting	OK		842		OK		841	
PMT / RxCell Temp	OK	Deg C	OK	Deg C	OK	Deg C	OK	Deg C
Converter / IZS Temp	NA	Deg C	OK	Deg C	NA	Deg C	OK	Deg C
Offset / Slope	108		915		108		915	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5008.5	0	0	1	N/A
4970.7	38.4	400	404	0.9905
4992.3	19.2	200	203	0.9852
5003.1	9.6	100	103	0.9706
5008.5	0	0	2	N/A
			Sum of Least Squares	0.2352
			New Correction Factor	0.9905

	Before Calibration	After Calibration
Auto Zero	0.8	-
Auto Span	209.2	-
Sample Lines Connected		**YES**
Percent Change from Previous Calibration		-

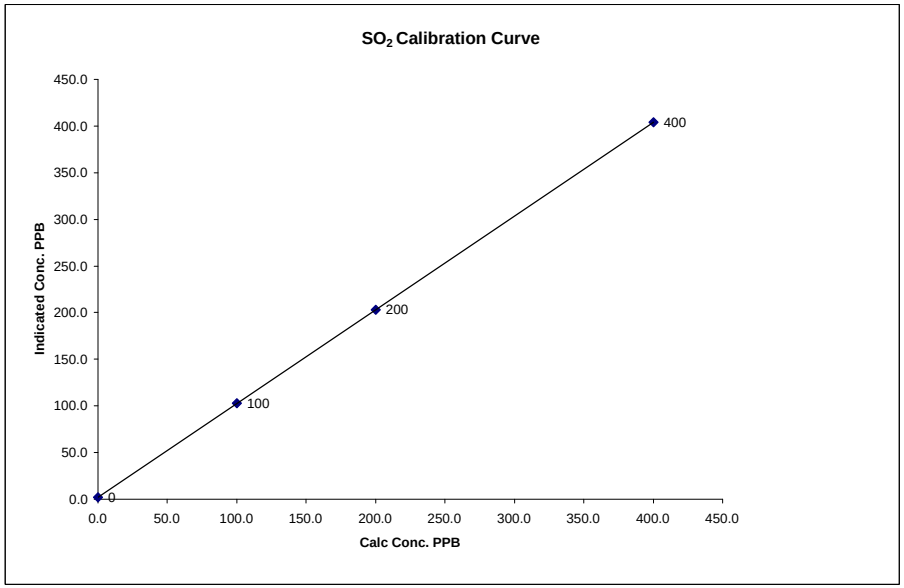
Calibration Performed by: Shea Beaton

SO_2 Calibration Curve

Calibration Date	December 31, 2008		
Company	+		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	8:00	End Time (MST)	10:40

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	2	n/a
100	103	0.9706
200	203	0.9852
400	404	0.9905

Correlation Coefficient	(≥ 0.995)	0.999998
Slope	(0.85 to 1.15)	1.004116
Intercept	(± 3% F.S.)	2.248142



Notes: At 08:55 the cal gas flow was briefly interupted causing a slight dpike in concentration. Allowed the analyzer to return to the prior reading then repeated the point.

SO_2 Calibration Report

Station Information

Calibration Date	December 31, 2008	Previous Calibration	-
Company	+		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	13:06	End Time (MST)	16:20
Reason:	Removal Calibration		
Barometric Pressure	710 mmHg	Station Temperature	23 Deg C
Cal Gas	52.2 ppm	Cal Gas Expiry date	March 12, 2010
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	TECO 43i	S/N :	806528242	Method:	Fluorescent
Converter Make / Model:	-	S/N :	-		
Calibrator Make / Model:	Environics 2000	S/N :	1991	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	263		
Flow Meter:	Environics 2000	S/N :	1991		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range	0 - 500 ppb							
Sample Flow / Box Temp	442	ccm	29.7	Deg C	443	ccm	29.9	Deg C
HVPS / Lamp Setting	-630.9		812		-630.9		809	
PMT / RxCell Temp	OK	Deg C	45	Deg C	OK	Deg C	44.9	Deg C
Converter / IZS Temp	NA	Deg C	45	Deg C	NA	Deg C	45	Deg C
Offset / Slope	5.7		1.064		5.8		1.086	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4999.6	0	0	0	N/A
4961.9	38.3	400	402	0.9946
4986.2	19.2	200	203	0.9864
4991.6	9.6	100	102	0.9824
5002.3	0	0	0	N/A
			Sum of Least Squares	0.2369
			New Correction Factor	0.9946

	Before Calibration	After Calibration
Auto Zero	-	-0.5
Auto Span	-	386.2
Sample Lines Connected		**YES**
Percent Change from Previous Calibration		-

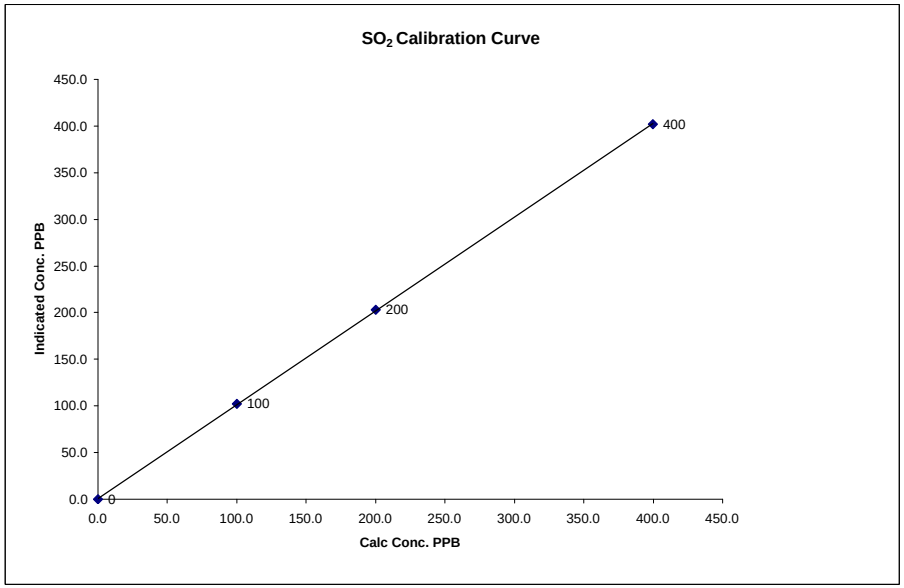
Calibration Performed by: Shea Beaton

SO_2 Calibration Curve

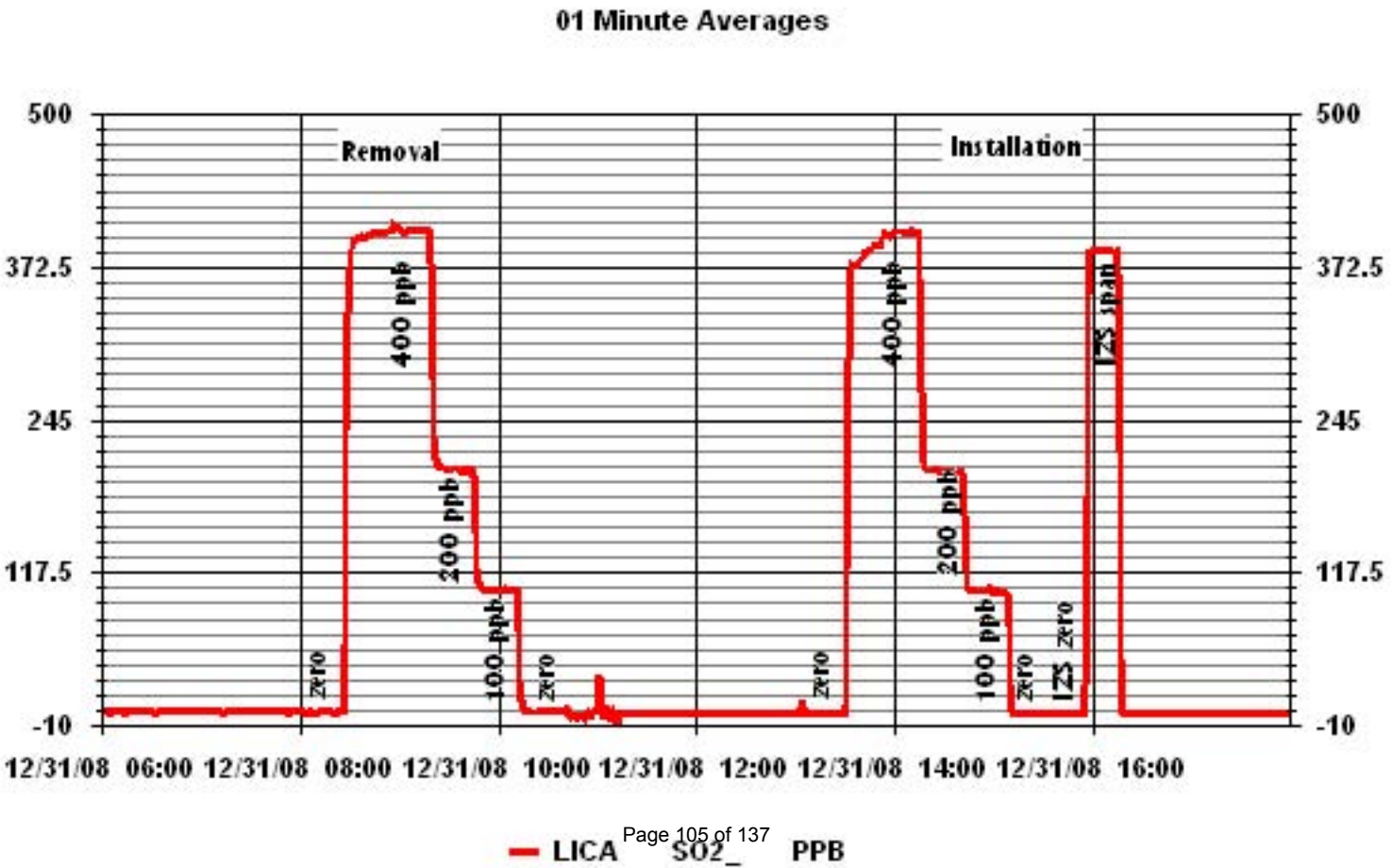
Calibration Date	December 31, 2008		
Company	+		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	13:06	End Time (MST)	16:20

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
100	102	0.9824
200	203	0.9864
400	402	0.9946

Correlation Coefficient	(≥ 0.995)	0.999975
Slope	(0.85 to 1.15)	1.004820
Intercept	(± 3% F.S.)	0.839268



Notes: Pressure=665.0, Lamp intensity 74%


01 Minute Averages
500
372.5
245
117.5
-10
Removal
Installation
zero
400 ppb
200 ppb
100 ppb
zero
zero
400 ppb
200 ppb
100 ppb
zero
IZS zero
IZS span
12/31/08 06:00
12/31/08 08:00
12/31/08 10:00
12/31/08 12:00
12/31/08 14:00
12/31/08 16:00
LICA SO2_ PPB

Total Reduced Sulphur

TRS Calibration Report

Station Information

Calibration Date	December 18, 2008	Previous Calibration	November 4, 2008
Company	**Lakeland Industry & Community Association**		
Plant / Location	**LICA 1 - Cold Lake South**		
Start Time (MST)	9:20	End Time (MST)	11:50
Reason:	Removal Calibration		
Barometric Pressure	710 mm Hg	Station Temperature	23 Deg C
Cal Gas	10.6 ppm	Cal Gas Expiry date	April 3, 2009
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	TECO 43A	S/N :	43A-35786-254	Method:	Fluorescent
Converter Make / Model:	CD Nova CDN 101	S/N :	250		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	263		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range	0 -100 ppb							
Sample Flow / Box Temp	425	ccm	OK	Deg C	425	ccm	OK	Deg C
HVPS / Lamp Setting	OK		892		OK		893	
PMT / RxCell Temp	OK	Deg C	OK	Deg C	OK	Deg C	OK	Deg C
Converter / IZS Temp	850	Deg C	OK	Deg C	850	Deg C	OK	Deg C
Offset / Slope	951		844		951		844	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	N/A
4960	37.8	80	81	0.9898
4975	21.2	45	45	0.9995
4987	11.8	25	25	1.0009
5000	0	0	0	N/A
			Sum of Least Squares	0.9927
			New Correction Factor	0.9898

	Before Calibration	After Calibration
Auto Zero	-0.1	-
Auto Span	33.0	-
Sample Lines Connected		YES
Percent Change from Previous Calibration		-

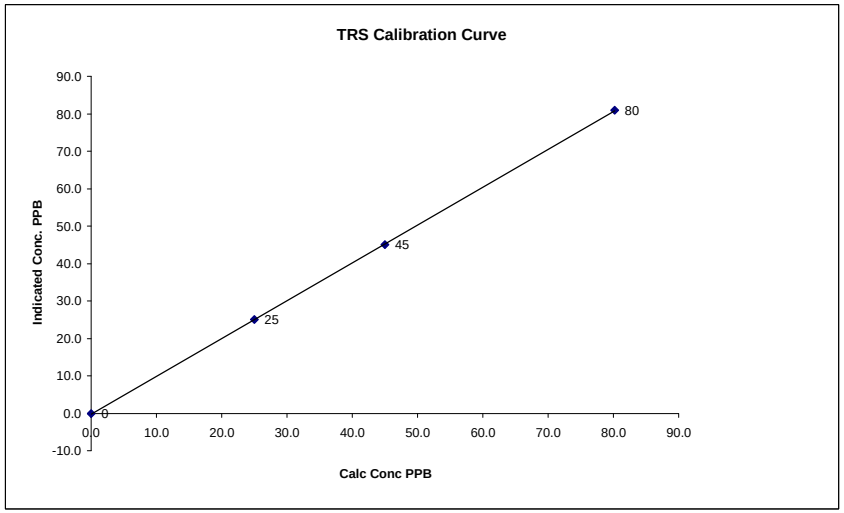
Calibration Performed by: Shea Beaton

TRS Calibration Curve

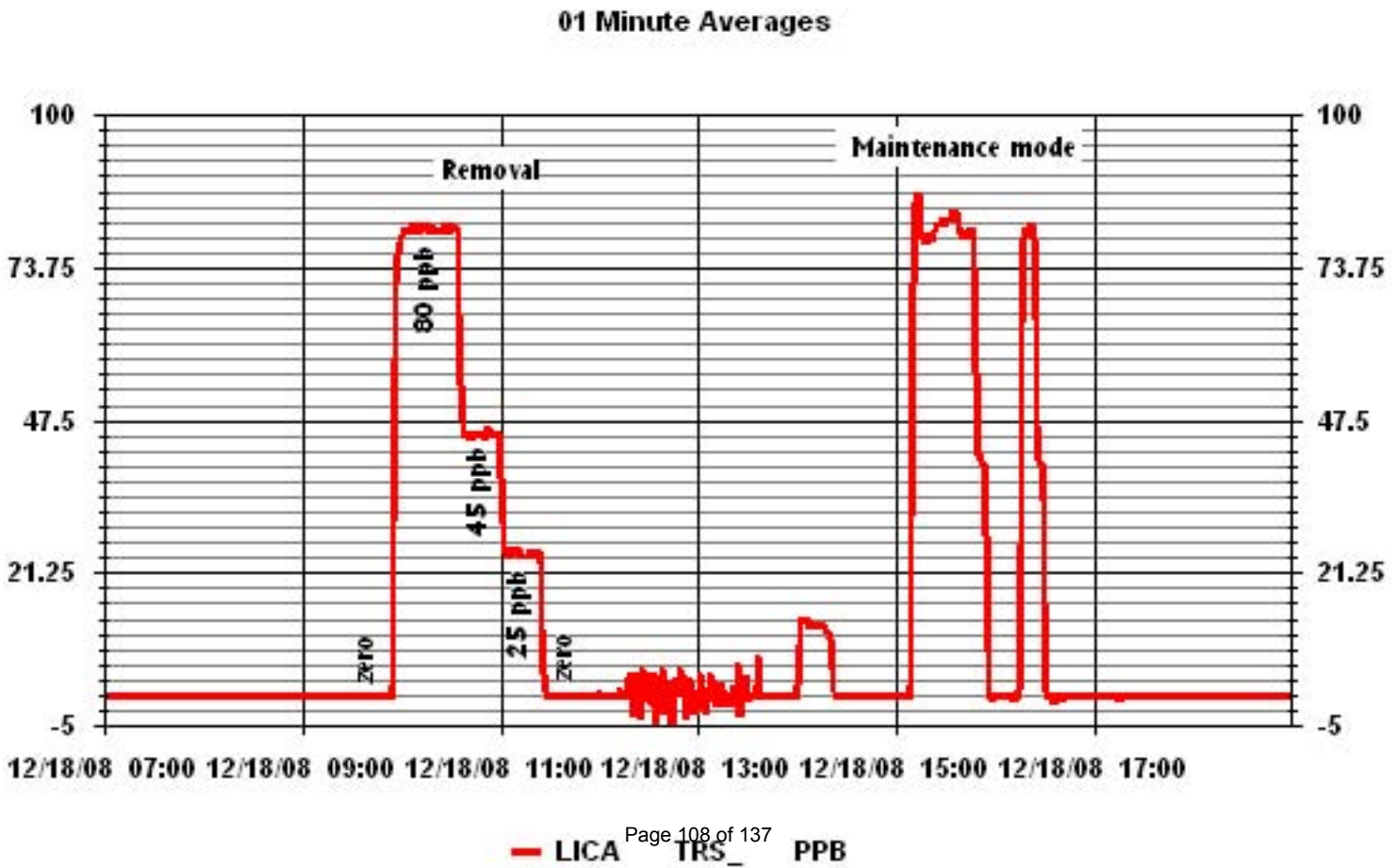
Calibration Date	December 18, 2008		
Company	**Lakeland Industry & Community Association**		
Plant / Location	**LICA 1 - Cold Lake South**		
Start Time (MST)	9:20	End Time (MST)	11:50

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
25	25	1.0009
45	45	0.9995
80	81	0.9898

Correlation Coefficient	(≥ 0.995)	0.999959
Slope	(0.85 to 1.15)	1.010401
Intercept	(± 3% F.S.)	-0.183338



Notes:


01 Minute Averages
100
73.75
47.5
21.25
-5
Removal
Maintenance mode
zero
80 ppb
45 ppb
25 ppb
zero
12/18/08 07:00
12/18/08 09:00
12/18/08 11:00
12/18/08 13:00
12/18/08 15:00
12/18/08 17:00
LICA TRS_ PPB

TRS Calibration Report

Station Information

Calibration Date	December 19, 2008		Previous Calibration	-	
Company	Lakeland Industry & Community Association				
Plant / Location	LICA 1 - Cold Lake South				
Start Time (MST)	9:20		End Time (MST)	18:55	
Reason:	Installation Calibration				
Barometric Pressure	721	mm Hg	Station Temperature	25	Deg C
Cal Gas	10.6	ppm	Cal Gas Expiry date	April 3, 2009	
DAS Output Voltage	0 - 10	Volts			

Equipment Information

Analyzer Make / Model:	TEI 450i	S/N :	812728560	Method:	Fluorescent
Converter Make / Model:	CD Nova CDN 101	S/N :	250		
Calibrator Make / Model:	Environics 2000	S/N :	1991	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	263		
Flow Meter:	Environics 2000	S/N :	1991		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range	0 -100				ppb			
Sample Flow / Box Temp	1013	ccm	33.8	Deg C	358	ccm	32.1	Deg C
HVPS / Lamp Setting	-622.3		792		-622		793	
PMT / RxCell Temp	OK	Deg C	45	Deg C	OK	Deg C	45	Deg C
Converter / IZS Temp	850	Deg C	44	Deg C	850	Deg C	45	Deg C
Offset / Slope	16.2		1.331		11.9		1.2	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4999.4	0	0	0	N/A
4962	37.7	80	80	0.9991
4981.9	18.9	40	41	0.9771
4991.6	9.5	20	20	1.0068
4999.4	0	0	0	N/A
			Sum of Least Squares	0.9952
			New Correction Factor	0.9991

	Before Calibration	After Calibration
Auto Zero	-	0.0
Auto Span	-	26.0
Sample Lines Connected		YES
Percent Change from Previous Calibration		-

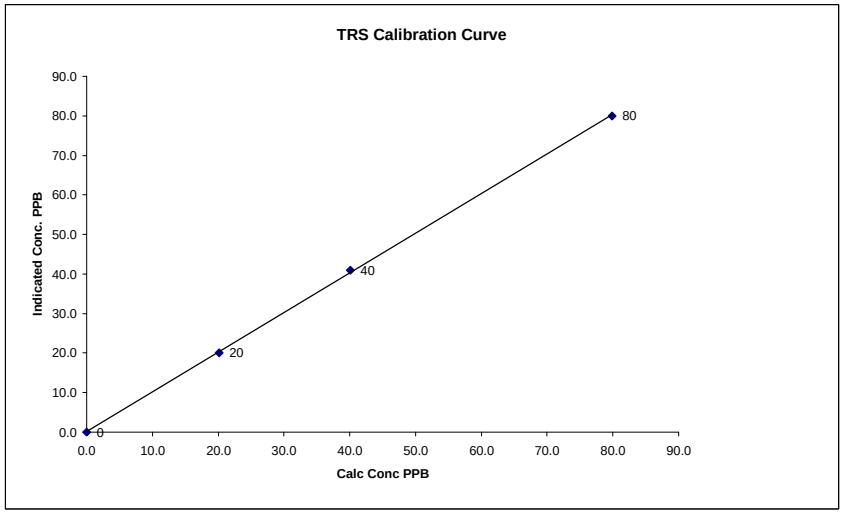
Calibration Performed by: Shea Beaton

TRS Calibration Curve

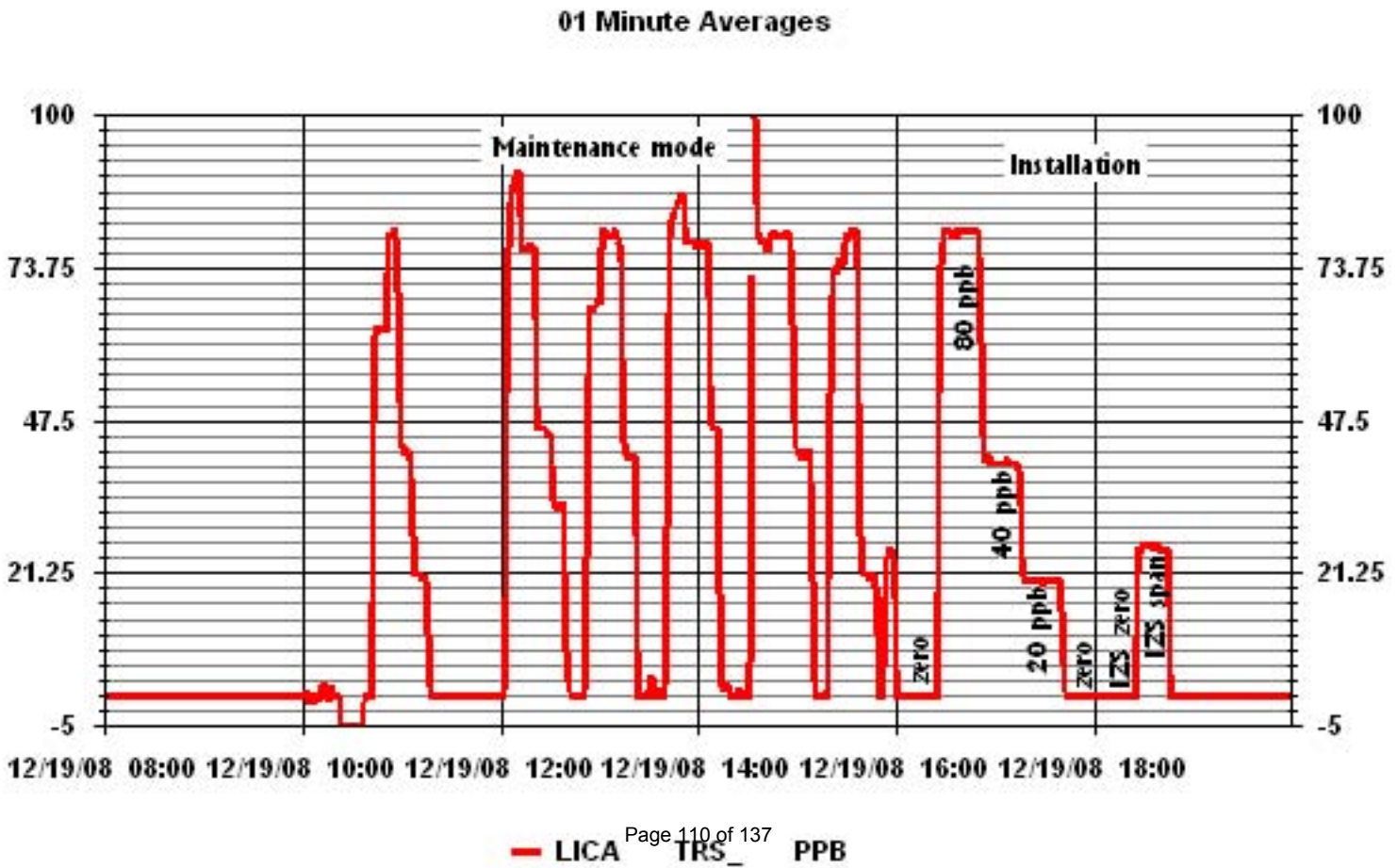
Calibration Date	December 19, 2008		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	9:20	End Time (MST)	18:55

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
20	20	1.0068
40	41	0.9771
80	80	0.9991

Correlation Coefficient	(≥ 0.995)	0.999805
Slope	(0.85 to 1.15)	1.002847
Intercept	(± 3% F.S.)	0.118775



Notes: New analyzer, configured for TRS. Had to trplace the flow capillery to reduce the analyzer sample flow. The flow as it was from factory did not allow enough residence time in the TRS converter causing a non-linear calibration.


01 Minute Averages
100
73.75
47.5
21.25
-5
Maintenance mode
Installation
80 ppb
40 ppb
20 ppb
zero
zero
LZS zero
LZS span
12/19/08 08:00
12/19/08 10:00
12/19/08 12:00
12/19/08 14:00
12/19/08 16:00
12/19/08 18:00
LICA TRS_ PPB

Total Hydrocarbons

THC Calibration Report

Station Information

Calibration Date:	December 1, 2008	Previous Calibration	November 5, 2008
Company:	**Lakeland Industry and Community Association**		
Plant / Location:	**LICA1/Cold Lake**		
Start Time (MST)	9:45	End Time (MST)	13:45
Reason:	Monthly Calibration		
Barometric Pressure:	695 mmHg	Station Temperature:	23 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	1000 ppm	Cal Gas Expiry Date:	2/22/2011
DAS make & Model:	ESC 8832	S/N :	263
Output Voltage Range:	0 - 10 VDC		

Analyzer Information

Make / Model	TECO 51C-LT	S/N :	51CLT-42740-8718	Method	Flame Ionization

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 50	ppm	0 - 50	ppm
Sample Pressure	6.5	psi	6.5	psi
Hydrogen Pressure	8	psi	8	psi
Air Pressure	17.5	psi	17.5	psi

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2002.0	0	0.0	-0.1	N/A
2002.0	0	0.0	0.0	N/A
2002.0	80.0	38.4	37.2	1.0329
2002.0	80.0	38.4	38.5	0.9980
2002.0	40.0	19.6	19.6	0.9994
2002.0	20.0	9.9	9.7	1.0197
2002.0	0	0.0	0.0	N/A
			Correction Factor:	0.9980

Percent Change

Previous Calibration Correction Factor:	0.9919
Current Correction Factor Before Span Adjust:	0.9980
Percent Change:	-0.6%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-0.1	0.0
Auto Span	30.1	30.4
Sample Lines Connected		**YES**

Cylinder Pressures			
Span	1350	psi	
Hydrogen	1500	psi	
Zero Air	unlimited	psi	Maxxam-owned API 701 zero air supply with catalytic oxidizer

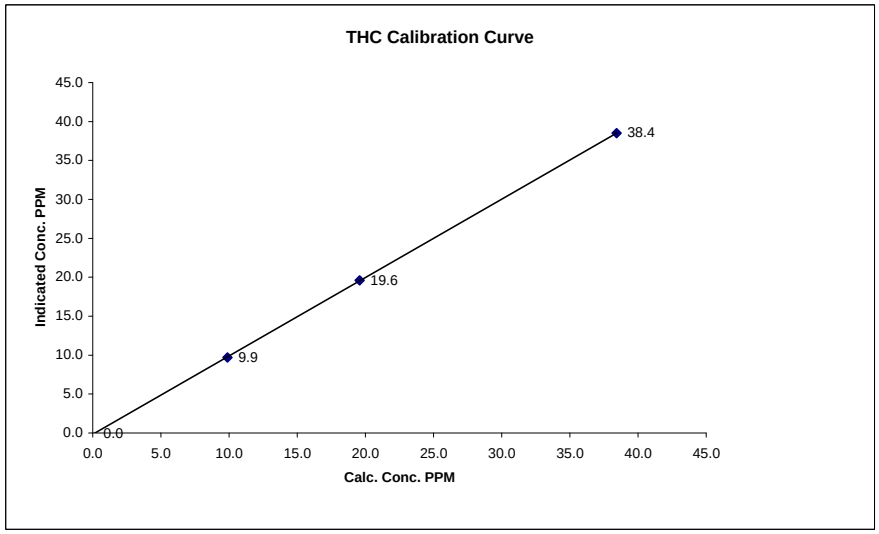
Calibration Performed by: Shea Beaton

THC Calibration Curve

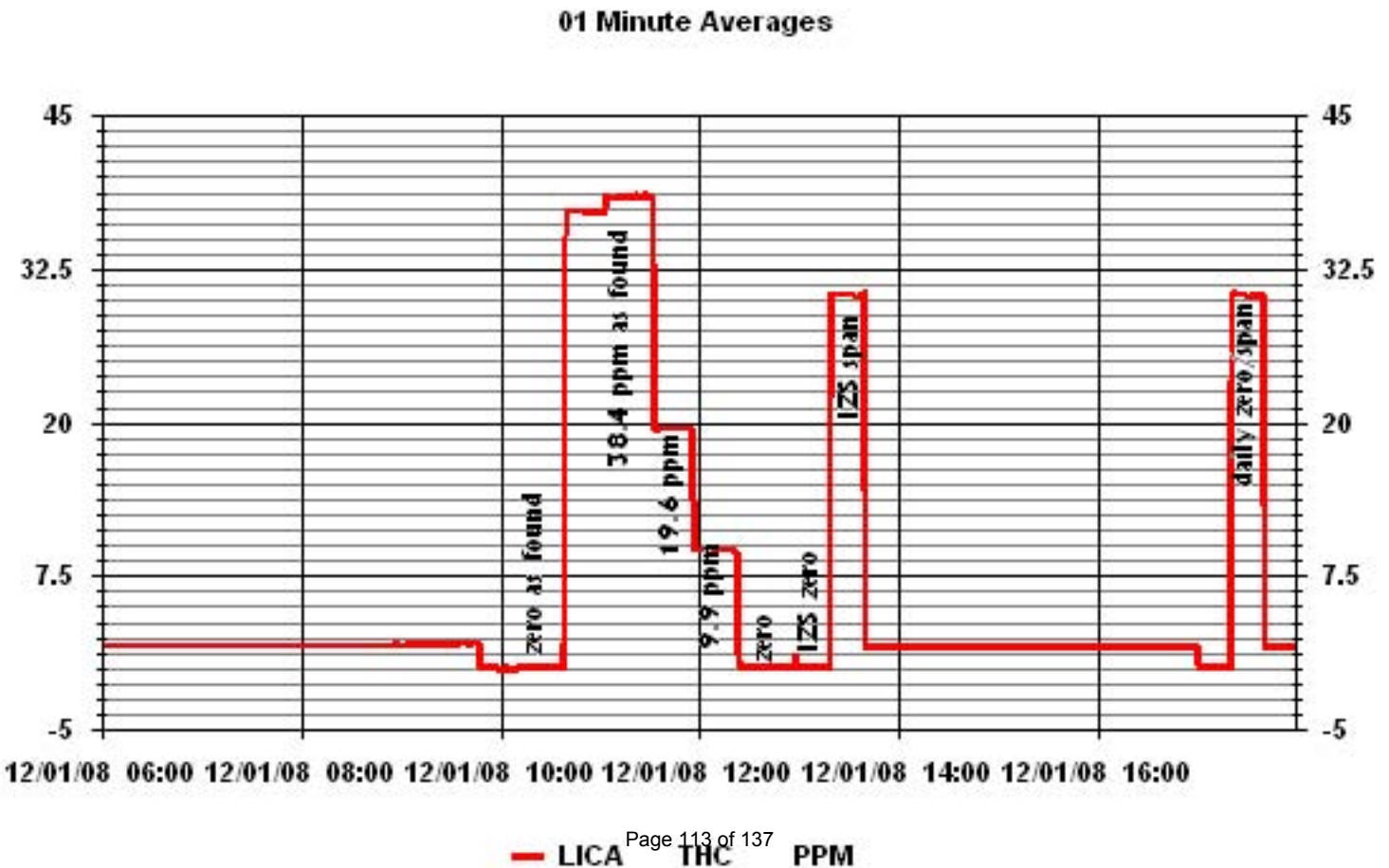
Calibration Date	December 1, 2008		
Company	**Lakeland Industry and Community Association**		
Plant / Location	**LICA1/Cold Lake**		
Start Time (MST)	9:45	End Time (MST)	13:45

Calculated Conc. ppm	Indicated Response ppm	Correction Factor
0.0	-0.1	
9.9	9.7	1.0197
19.6	19.6	0.9994
38.4	38.5	0.9980

Correlation Coefficient	(≥ 0.995)	0.999982
Slope	(0.85 to 1.15)	1.005836
Intercept	(± 3% F.S.)	-0.150177



Notes:


01 Minute Averages
45
32.5
20
7.5
-5
zero as found
38.4 ppm as found
19.6 ppm
9.9 ppm
zero
IZS zero
IZS span
daily zero/span
12/01/08 06:00
12/01/08 08:00
12/01/08 10:00
12/01/08 12:00
12/01/08 14:00
12/01/08 16:00
LICA THC PPM

Particulate Matter 2.5

TEOM® Calibration

Station		Transfer Standard	
Date:	December 1, 2008	Make/Model:	Bios DC-2
Station Name:	LICA 1	Serial Number:	1193
Location:	Cold Lake - South	Cell s/n:	2272
Operator:	LICA	Thermometer s/n:	2178

Sampler		Set-up and current Sampler readings	
Make/Model	R & P Series 1400 a TEOM	F-Main Set Pt (l/min)	3.00
Unit #	AMU 1494	F-Aux Set Pt (l/min)	13.67
Control unit s/n	140AB229030002	Filter Load (%)	40%
Transducer s/n	140AB229030002	K_o Factor	13319
Parameter	PM 2.5	Temp (^oC)	2.6
		Press (ATM)	0.916

Note: Tolerances are noted as BOLD in Brackets

Calibration

Zero flow

	Pump Off		Pump On (Time to reach set points)	
F-Main (l/min)	0.11		**(45-60 Sec)**	38
F-Aux (l/min)	0.08		**(45-60 Sec)**	52

Temperature/Pressure

Measured Temp **(± 1 ^oC)**	2.9	**Δ ^oC**	0.3
Measured Press **(± 1.5% ATM)**	0.915	**Δ % ATM**	-0.1%

Flow Audit

			Δ % from Set-pt
Indicated Main/Aux Flow (l/min)	2.99 / 13.63	**(± 2%)**	0.3% / 0.3%
Total Flow = Main + Aux (l/min)	16.62	**(± 2%)**	0.3%
Measured Total Flow (l/min)	16.82	**(± 1.0 l/min. (5.65%))**	-1.2%
Measured Main Flow (l/min)	3.02	**(± 0.2 l/min. (6.25%))**	-1.0%

Leak Check

		Actual leakage = Pump On - Pump Off
Main **(< 0.15 l/min)**	-	-
Aux **(< 0.15 l/min)**	-	-

K_o Factor

Measured	-
K_o Difference **(± 2.5%)**	-

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

Sample Inlet Cleaned: YES **Sample Inlet Connected:** YES

Comments:

Calibrator/s: Shea Beaton

TEOM® Calibration

Station		Transfer Standard	
Date:	December 1, 2008	Make/Model:	Bios DC-2
Station Name:	LICA 1	Serial Number:	1193
Location:	Cold Lake - South	Cell s/n:	2272
Operator:	LICA	Thermometer s/n:	2178

Sampler		Set-up and current Sampler readings	
Make/Model	R & P Series 1400 a TEOM	F-Main Set Pt (l/min)	3.00
Unit #	AMU 1494	F-Aux Set Pt (l/min)	13.67
Control unit s/n	140AB229030002	Filter Load (%)	30%
Transducer s/n	140AB229030002	K_o Factor	13319
Parameter	PM 2.5	Temp (^oC)	6.2
		Press (ATM)	0.916

Note: Tolerances are noted as BOLD in Brackets

Calibration

Zero flow

	Pump Off		Pump On (Time to reach set points)	
F-Main (l/min)	0.09		**(45-60 Sec)**	43
F-Aux (l/min)	0.09		**(45-60 Sec)**	48

Temperature/Pressure

Measured Temp **(± 1 ^oC)**	6.3	**Δ ^oC**	0.1
Measured Press **(± 1.5% ATM)**	0.915	**Δ % ATM**	-0.1%

Flow Audit

			Δ % from Set-pt
Indicated Main/Aux Flow (l/min)	2.99 / 13.63	**(± 2%)**	0.3% / 0.3%
Total Flow = Main + Aux (l/min)	16.62	**(± 2%)**	0.3%
Measured Total Flow (l/min)	16.82	**(± 1.0 l/min. (5.65%))**	-1.2%
Measured Main Flow (l/min)	3.02	**(± 0.2 l/min. (6.25%))**	-1.0%

Leak Check

		Actual leakage = Pump On - Pump Off
Main **(< 0.15 l/min)**	0.02	0.02=0.11-0.09
Aux **(< 0.15 l/min)**	0.04	0.04=0.13-0.09

K_o Factor

Measured	-
K_o Difference **(± 2.5%)**	-

Start Time: **13:00** **Finish Time:** **19:55**

Sample Inlet Cleaned: **YES** **Sample Inlet Connected:** **YES**

Comments: Audit done post calibration. Floww adjust factors now at Faj Main-0.960, Faj Aux is at 0.965. Will recheck flows latter this month.

Calibrator/s: Shea Beaton

Nitrogen Dioxide

NOx - NO- NO_2 Calibration Report

Station Information

Calibration Date	December 1, 2008	Previous Calibration	November 14, 2008
Company	**Lakeland Ind & Comm. Assoc.**	Plant/Location	**LICA 1 - Cold Lake South**
Start Time (MST)	9:00	End Time (MST)	15:55
Reason:		Monthly Calibration	
Barometric Pressure	695 mmHg	Station Temperature	23.0 Deg C
Cal Gas Concentration	NOx 52.0 ppm NO	51.5 ppm	Cal Gas Expiry date 03/12/2010
DAS Output Voltage	0 - 5 Volts	Chart Rec. Output	N/A Volts

Equipment Information

Analyzer Make / Model:	TECO 42C	S/N :	42-7408-716	Method:	Chemiluminescent
Calibrator Make / Model:	Environics 2000	S/N:	1991		
DAS Make / Model:	ESC 8832	S/N :	263		
Flow Meter:	Environics 2000	S/N :	1991		

Analyzer Settings

	Before Calibration				After Calibration			
Concentration Range			0 - 500	ppb				
Sample Flow/Conv. Temp	750	ccm	318	Deg C	744	ccm	317	Deg C
Ozone Flow / Vacuum	OK	ccm	164.0	mmHg	OK	ccm	162.6	mmHg
HVPS	-821		Volts		-821		Volts	
Rx/ Temp / PMT Temp	49.7	Deg C	-2.5	Deg C	49.6	Deg C	-2.5	Deg C
Box Temp / IZS Temp	28.3	Deg C	OK	Deg C	29.4	Deg C	OK	Deg C
Offset	3.3	NOx	3.2	NO	3.3	NOx	3.1	NO
Slope	1.008	NOx	0.839	NO	1.009	NOx	0.831	NO

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration NOx	Calculated Concentration NO	Indicated Concentration NOx	Indicated Concentration NO	Indicated Concentration NO2	Correction Factor NOx	Correction Factor NO
5005.7	0.0	N/A	0	0	0	0	0	N/A	N/A
4970.7	38.9	N/A	404	400	408	405	3	0.9897	0.9874
4970.7	38.9	N/A	404	400	403	400	3	1.0019	0.9998
4989.5	24.3	N/A	252	250	252	249	2	1.0001	1.0024
4997.6	14.6	N/A	151	150	152	150	2	0.9965	1.0001
5013.8	0.0	N/A	0	0	0	0	0	N/A	N/A
								Converter Efficiency	
4973.4	38.9	N/A	404	400	402	399	3	N/A	
4976.1	38.9	300	403	399	400	131	269	99%	
4976.1	38.9	200	403	399	401	211	190	99%	
4976.1	38.9	100	403	399	402	304	98	100%	
4976.1	38.9	N/A	403	399	403	400	3	N/A	
5011.0	0	N/A	0	0	0	1	0	N/A	N/A
Linearity OK?			**Yes**	No	Sum of Least Squares			1.0010	1.0005
Flows Checked on-site?			**Yes**	No	New Correction Factor			1.0019	0.9998
					Average Converter Efficiency			100%	

	Before Calibration				After Calibration			
Auto Zero	0.5	NOx	0.2	NO2	0.6	NOx	0.4	NO2
Auto Span	230.5	NOx	229.3	NO2	229.0	NOx	227.9	NO2
Sample Lines Connected					YES			
Percent Change from Previous Calibration					*NOx*	-0.1%	*NO*	-0.1%

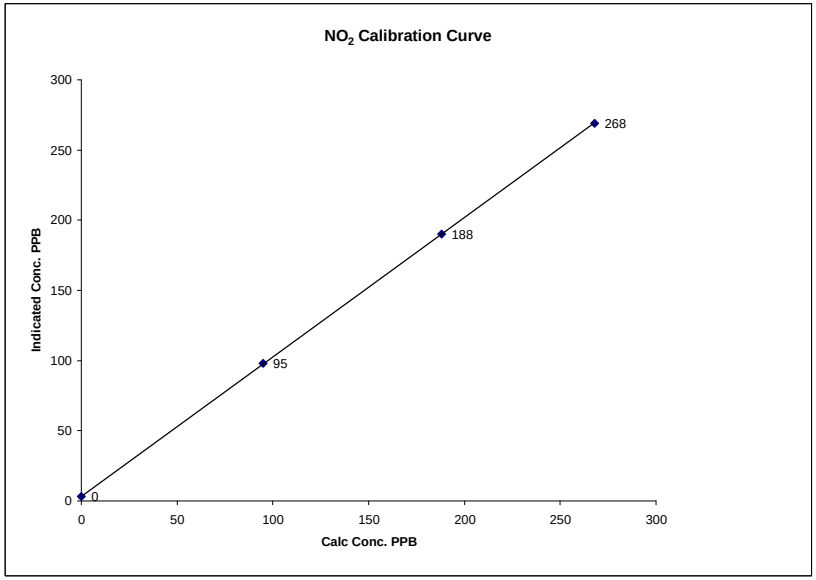
Calibration Performed by: Shea Beaton

NO_2 Calibration Curve

Calibration Date	December 1, 2008		
Company	**Lakeland Ind & Comm. Assoc.**		
Plant / Location	**LICA 1 - Cold Lake South**		
Start Time (MST)	9:00	End Time (MST)	15:55

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	3	N/A
95	98	0.9694
188	190	0.9895
268	269	0.9963

Correlation Coefficient	(≥ 0.995)	0.999991
Slope	(0.85 to 1.15)	0.992288
Intercept	(± 3% F.S.)	3.31237



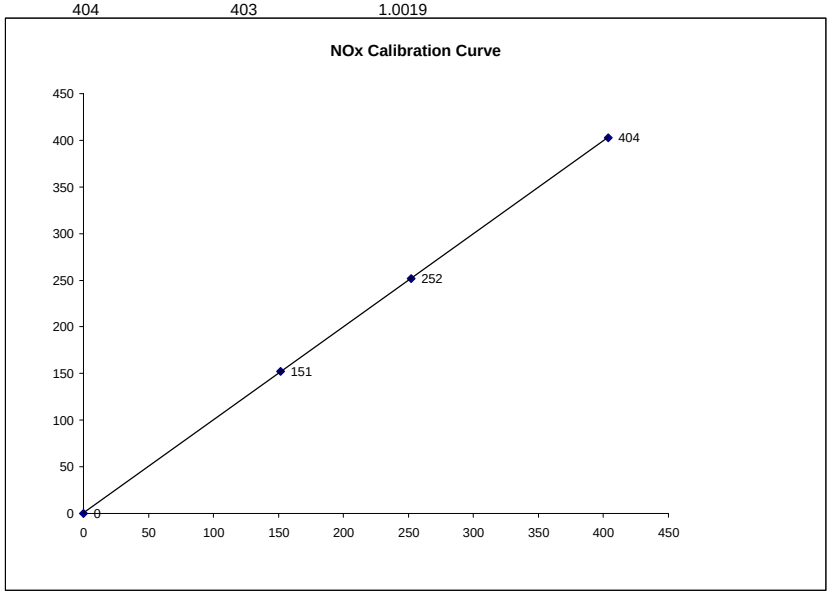
Notes:

NOx Calibration Curve

Calibration Date	December 1, 2008			
Company	**Lakeland Ind & Comm. Assoc.**			
Plant / Location	**LICA 1 - Cold Lake South**			
Start Time (MST)	9:00	End Time (MST)	15:55	

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	N/A
151	152	0.9965
252	252	1.0001
404	403	1.0019

Correlation Coefficient	(≥ 0.995)	0.999994
Slope	(0.85 to 1.15)	0.997847
Intercept	(± 3% F.S.)	0.36458

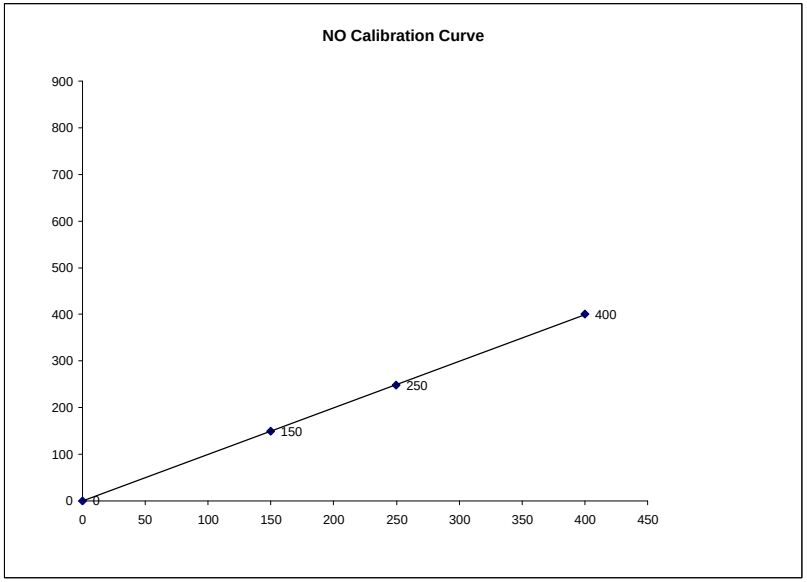


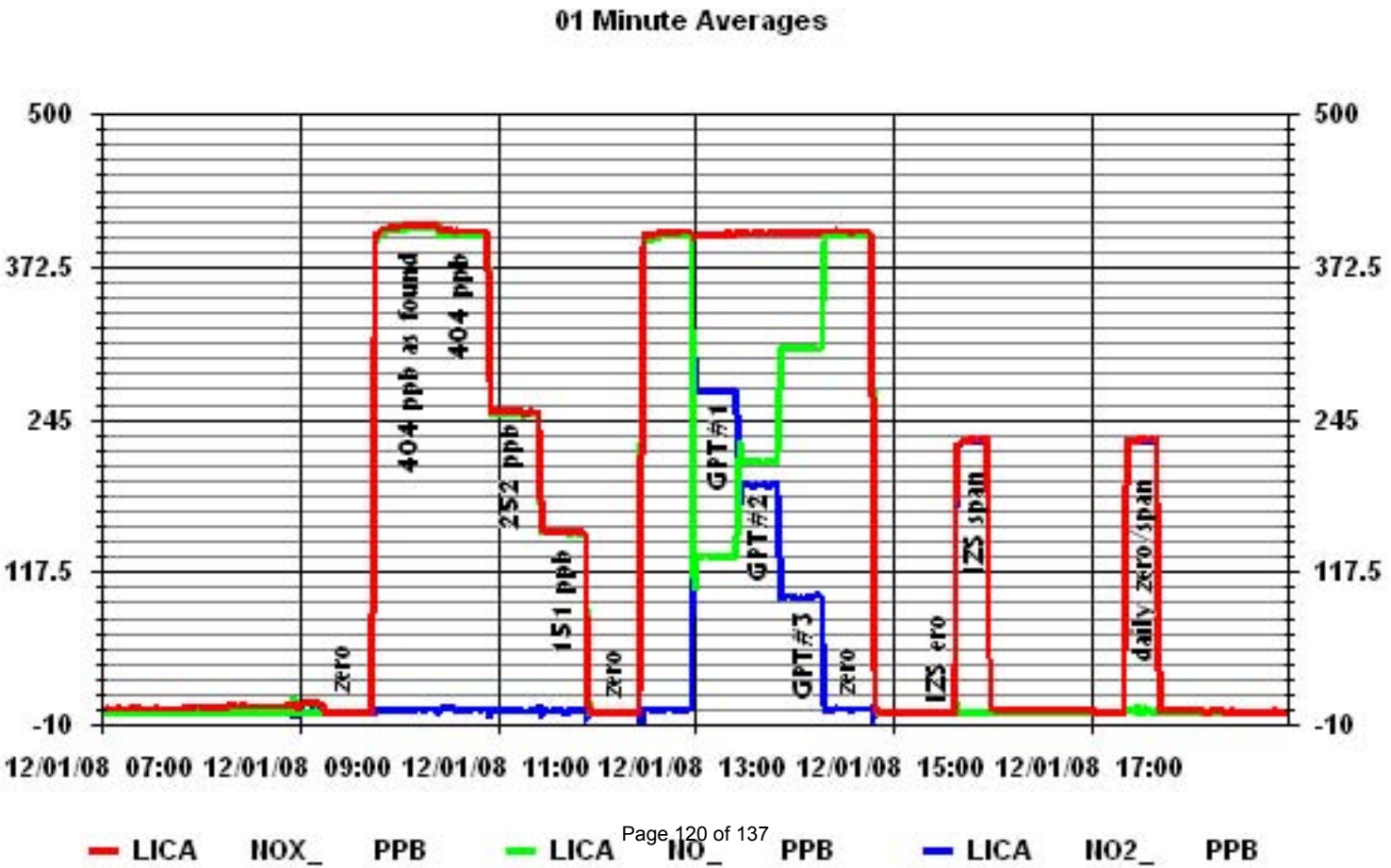
NO Calibration Curve

Calibration Date	December 1, 2008			
Company	**Lakeland Ind & Comm. Assoc.**			
Plant / Location	**LICA 1 - Cold Lake South**			
Start Time (MST)	9:00	End Time (MST)	15:55	

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	N/A
150	150	1.0001
250	249	1.0024
400	400	0.9998

Correlation Coefficient	(≥ 0.995)	0.999996
Slope	(0.85 to 1.15)	1.000785
Intercept	(± 3% F.S.)	-1.7618




01 Minute Averages
500
372.5
245
117.5
-10
zero
404 ppb as found
404 ppb
252 ppb
151 ppb
zero
GPT#1
GPT#2
GPT#3
zero
LZS zero
LZS span
daily zero/span
12/01/08 07:00
12/01/08 09:00
12/01/08 11:00
12/01/08 13:00
12/01/08 15:00
12/01/08 17:00
LICA NOX_ PPB
LICA NO_ PPB
LICA NO2_ PPB

Ozone

O_3 Calibration Report

Station Information

Calibration Date	December 18, 2008	Previous Calibration	November 5, 2008
Company	**Lakeland Industry & Community Association**		
Plant / Location	**LICA 1 - Cold Lake South**		
Start Time (MST)	11:55	End Time (MST)	14:50
Reason:		Monthly Calibration	
Barometric Pressure	718 mm Hg	Station Temperature	23 Deg C
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	TEI 49i	S/N :	700419951	Method:	Fluorescent
Calibrator Make / Model:	Environics 2000	S/N :	1991	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	263		

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 500 ppb			
Bench Temp/ Pressure	29.4	Deg C	29.6	Deg C
O_3 Set Level	29%		29%	
Bench Lamp/O3 Lamp				
Sample Flow A/B	0.744 LPM	0.757 LPM	0.747 LPM	0.761 LPM
Offset / Slope	0.7	1.046	0.7	1.041

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	0	N/A
4600	400	400	395	N/A
4600	400	400	401	0.9975
4800	200	198	201	0.9851
4900	100	93	98	0.9490
5000	0	0	0	N/A
			Sum of Least Squares	N/A
			New Correction Factor	0.9975

	Before Calibration	After Calibration
Auto Zero	0.0	-0.1
Auto Span	296.9	298.1
Sample Lines Connected		YES
Percent Change from Previous Calibration		1.0%

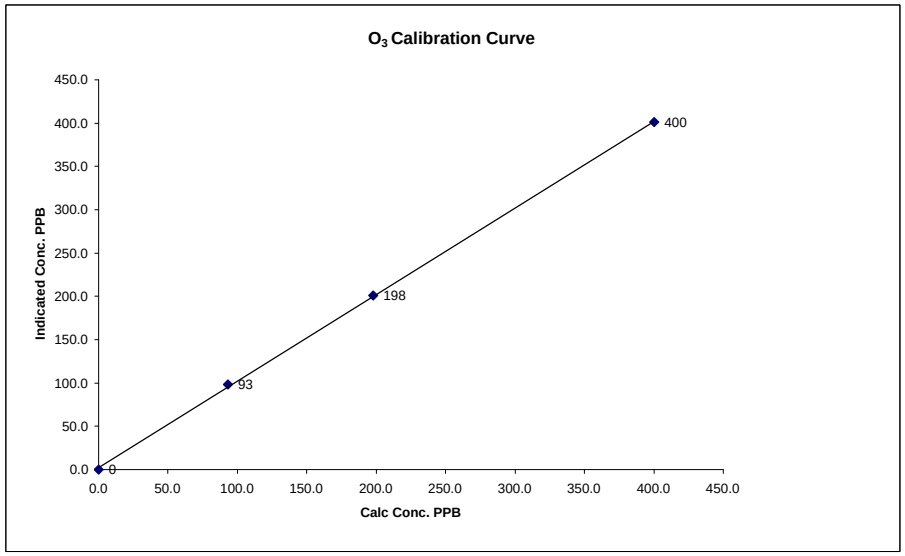
Calibration Performed by: Shea Beaton

O_3 Calibration Curve

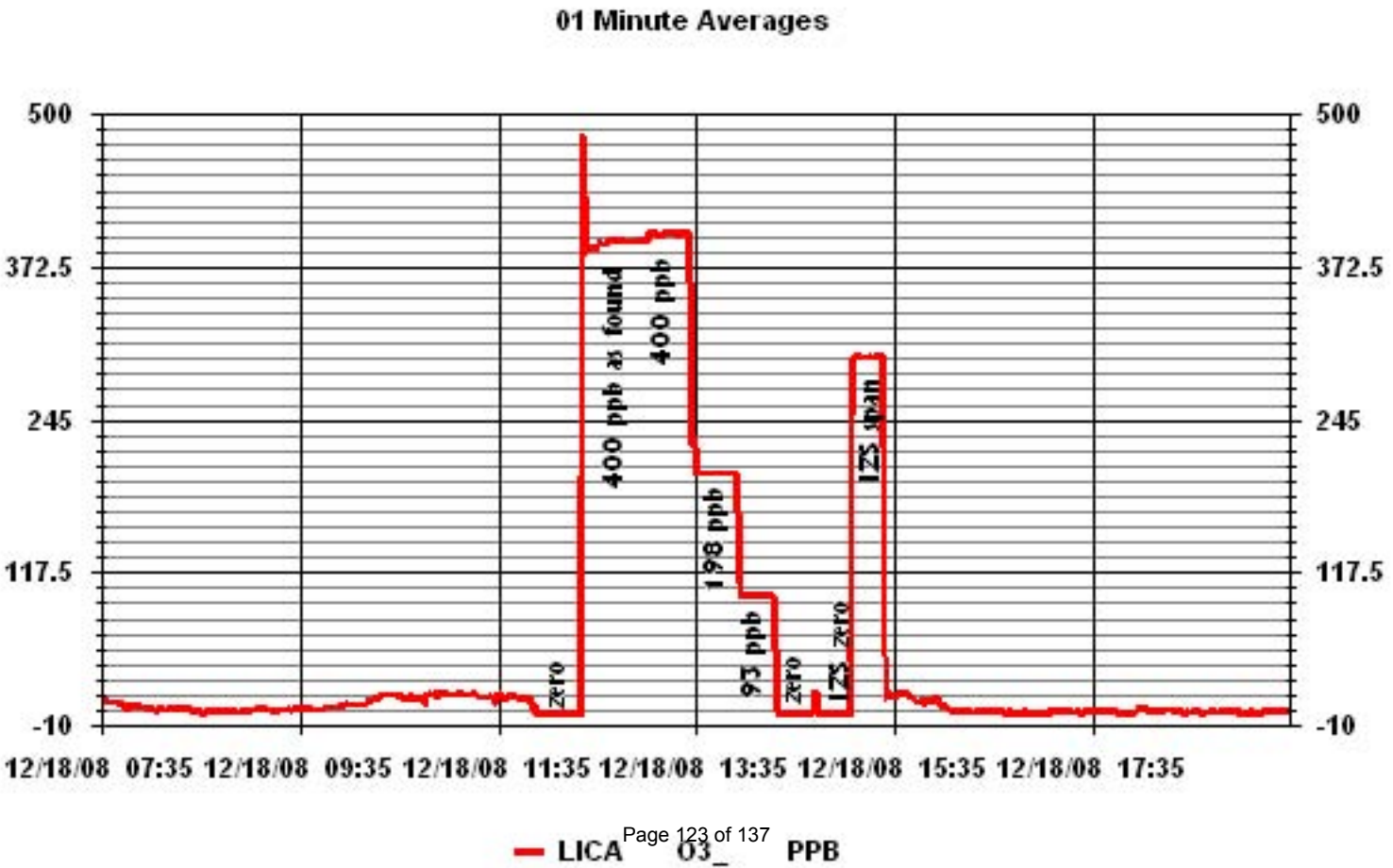
Calibration Date	December 18, 2008		
Company	**Lakeland Industry & Community Association**		
Plant / Location	**LICA 1 - Cold Lake South**		
Start Time (MST)	11:55	End Time (MST)	14:50

Calculated Conc. ppb	Indicated Response ppb	Correction Factor
0	0	n/a
93	98	0.9490
198	201	0.9851
400	401	0.9975

Correlation Coefficient	(≥ 0.995)	0.999834
Slope	(0.85 to 1.15)	0.998918
Intercept	(± 3% F.S.)	2.436938



Notes: pressure =711.3 mmHg , Bench Lamp = 53.6, O3 Lamp = 67.6


01 Minute Averages
500
372.5
245
117.5
-10
zero
400 ppb as found
400 ppb
198 ppb
93 ppb
zero
IZS zero
IZS span
12/18/08 07:35
12/18/08 09:35
12/18/08 11:35
12/18/08 13:35
12/18/08 15:35
12/18/08 17:35
LICA O3_ PPB

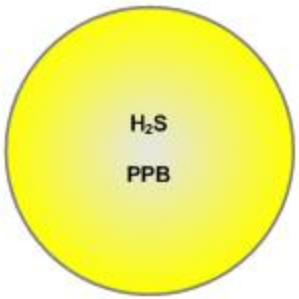
Passive Bubble Maps

Lakeland Industry & Community Association
H_2S Passive Bubble Map

DECEMBER 2008

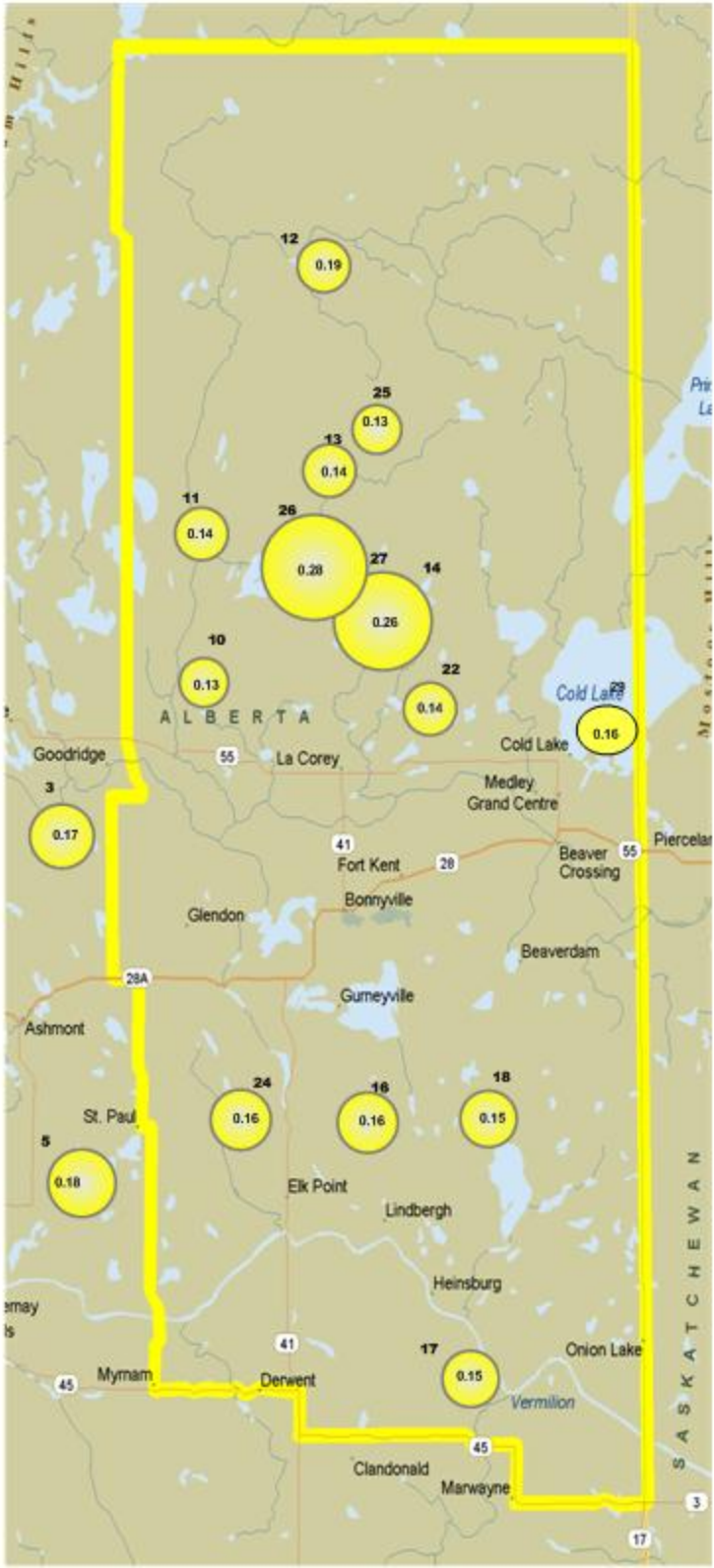
PASSIVE STATIONS

3 – Therien	0.17 PPB
5 – Lake Eliza	0.18 PPB
10 – La Corey	0.13 PPB
11 – Wolf Lake	0.14 PPB
12 – Foster Creek	0.13 PPB
12A – Foster Creek	0.25 PPB
13 – Primrose	0.14 PPB
13A – Primrose	0.13 PPB
14 – Maskwa	0.26 PPB
16 – Frog Lake	0.16 PPB
17 – Clear Range	0.15 PPB
18 – Fishing Lake	0.15 PPB
22 – Cold Lake South	0.14 PPB
24 – Fort George	0.16 PPB
25 – Burnt Lake	0.13 PPB
26 – Mahihkan	0.28 PPB
27 – Hilda Lake	0.18 PPB
29 – Cold Lake South 2	0.16 PPB



Summary

Minimum : 0.13PPB – Various
Maximum: 0.28 PPB –Mahihkan
Average: 0.17 PPB *Includes Duplicates

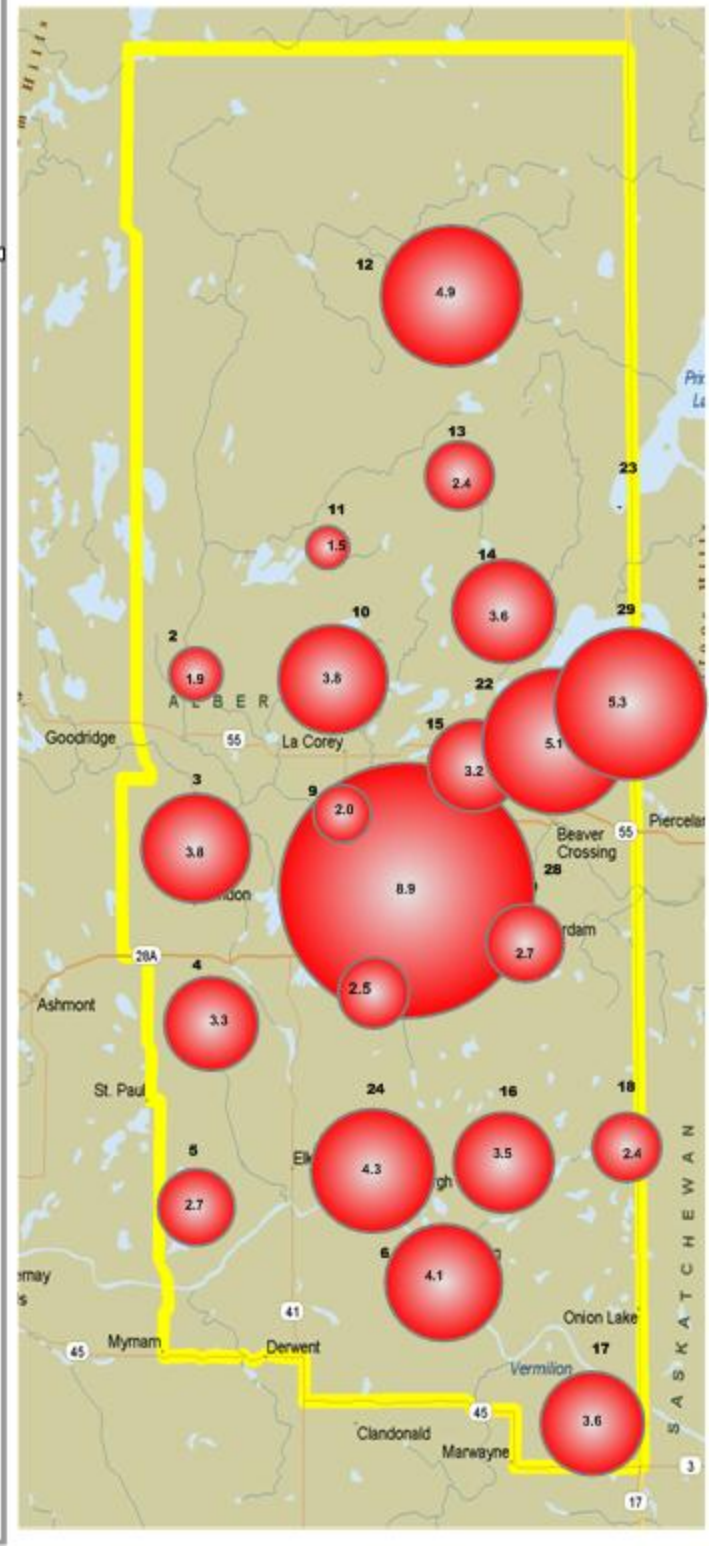


Lakeland Industry & Community Association
NO_2 Passive Bubble Map

DECEMBER 2008

PASSIVE STATIONS

2 – Sand River	1.9 PPB
3 – Therien	3.8 PPB
4 – Flat Lake	3.3 PPB
5 – Lake Eliza	2.7 PPB
6 – Telegraph Creek	4.1 PPB
8 – Muriel-Kehewin	2.5 PPB
9 – Dupre	3.5 PPB
10 – La Corey	3.8 PPB
11 – Wolf Lake	1.5 PPB
12 – Foster Creek	4.7 PPB
12A – Foster Creek	5.1 PPB
13 – Primrose	2.3 PPB
13A – Primrose	2.4 PPB
14 – Maskwa	3.6 PPB
15 – Ardmore	3.2 PPB
16 – Frog Lake	3.5 PPB
17 – Clear Range	3.6 PPB
18 – Fishing Lake	2.4 PPB
19 – Beaverdam	2.7 PPB
22 – Cold Lake South	5.1 PPB
23 – Medley-Martineau	MISSING
24 – Fort George	4.3 PPB
28 – Town of Bonnyville	8.9 PPB
29 – Cold Lake South 2	5.3 PPB



Summary

Minimum : 1.5 PPB – Wolf Lake
Maximum: 8.9 PPB – Town of Bonnyville
Average: 3.7 PPB *Includes Duplicates
Note: Sample at station # 23 was missing.

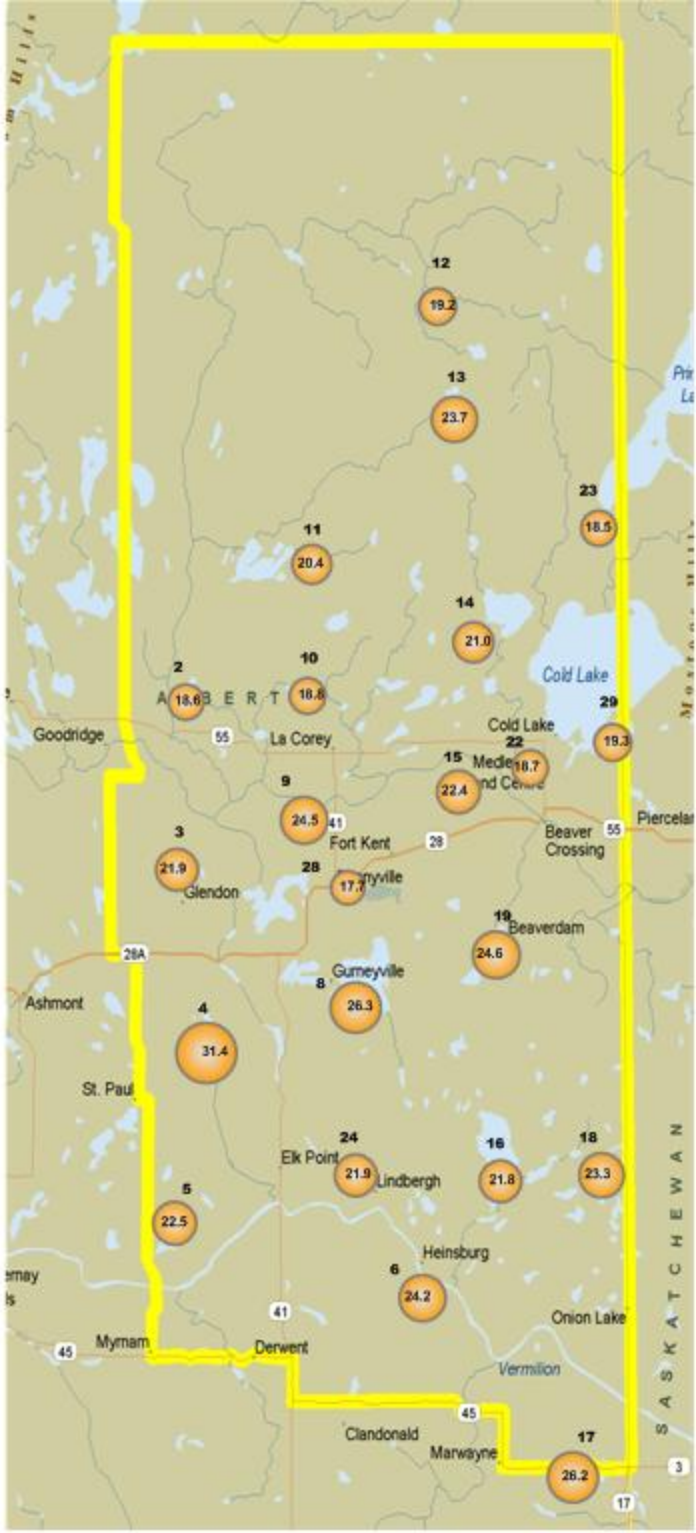
Lakeland Industry & Community Association
O_3 Passive Bubble Map

DECEMBER 2008

PASSIVE STATIONS

2 – Sand River	18.6 PPB
3 – Therien	21.9 PPB
4 – Flat Lake	31.4 PPB
5 – Lake Eliza	22.5 PPB
6 – Telegraph Creek	24.2 PPB
8 – Muriel-Kehewin	26.3 PPB
9 – Dupre	24.5 PPB
10 – La Corey	18.8 PPB
11 – Wolf Lake	20.4 PPB
12 – Foster Creek	17.9 PPB
12A – Foster Creek	18.7 PPB
13 – Primrose	24.4 PPB
13A – Primrose	23.0 PPB
14 – Maskwa	21.0 PPB
15 – Ardmore	22.4 PPB
16 – Frog Lake	21.8 PPB
17 – Clear Range	26.2 PPB
18 – Fishing Lake	23.3 PPB
19 – Beaverdam	24.6 PPB
22 – Cold Lake South	18.7 PPB
23 – Medley-Martineau	18.5 PPB
24 – Fort George	21.9 PPB
28 – Town of Bonnyville	17.7 PPB
29 – Cold Lake South 2	19.3 PPB

O_3
PPB



Summary

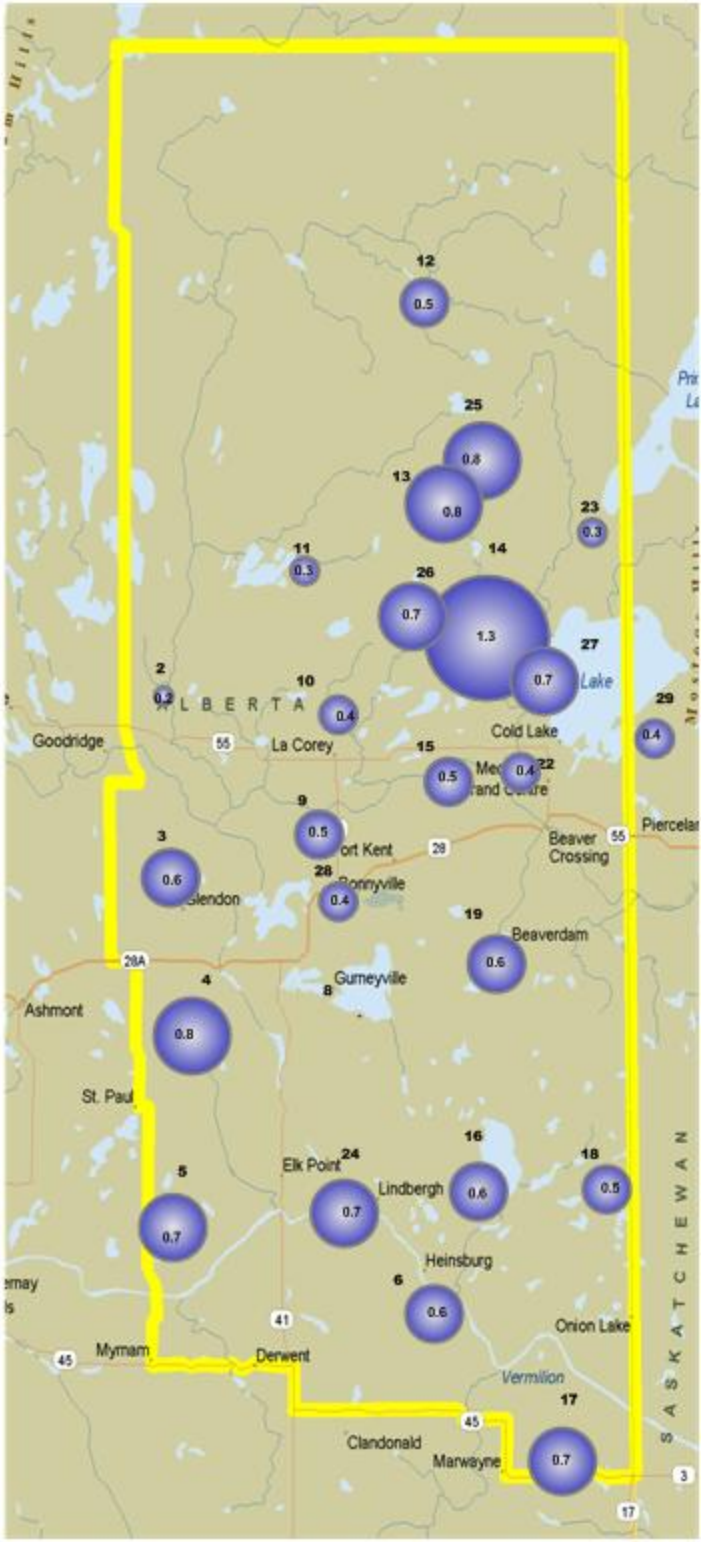
Minimum : 17.7 PPB –Town of Bonnyville
Maximum: 31.4 PPB –Flat Lake
Average: 22.00 PPB *Includes Duplicates

Lakeland Industry & Community Association
SO_2 Passive Bubble Map

DECEMBER 2008

PASSIVE STATIONS

2 – Sand River	0.2 PPB
3 – Therien	0.6 PPB
4 – Flat Lake	0.8 PPB
5 – Lake Eliza	0.7 PPB
6 – Telegraph Creek	0.6 PPB
8 – Muriel-Kehewin	MISSING
9 – Dupre	0.5 PPB
10 – La Corey	0.4 PPB
11 – Wolf Lake	0.3 PPB
12 – Foster Creek	0.5 PPB
12A – Foster Creek	0.5 PPB
13 – Primrose	0.8 PPB
13A – Primrose	0.8 PPB
14 – Maskwa	1.3 PPB
15 – Ardmore	0.5 PPB
16 – Frog Lake	0.6 PPB
17 – Clear Range	0.7 PPB
18 – Fishing Lake	0.5 PPB
19 – Beaverdam	0.6 PPB
22 – Cold Lake South	0.4 PPB
23 – Medley-Martineau	0.3 PPB
24 – Fort George	0.7 PPB
25 – Burnt Lake	0.8 PPB
26 – Mahihkan	0.7 PPB
27 – Hilda Lake	1.5 PPB
28 – Town of Bonnyville	0.4 PPB
29 – Cold Lake South 2	0.4 PPB



Summary

Minimum : 0.2 PPB – Sand River
Maximum: 1.5 PPB – Hilda Lake
Average: 0.6 PPB *Includes Duplicates

Passive Network Laboratory Analysis

Your Project #: 2008/11/27 - 2008/12/29
Site:LICA

Attention: MICHAEL BISAGA
LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
PO BOX 8237
5006 - 50TH AVENUE
BONNYVILLE, AB
CANADA T9N 2J5

Report Date: 2009/01/09

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A900118
Received: 2009/01/05, 09:26

Sample Matrix: Air
Samples Received: 27

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis (1)	18	2009/01/06	2009/01/09		EDM SOP-0320
NO2 Passive Analysis (1)	23	2009/01/08	2009/01/09		EDM SOP-0318
O3 Passive Analysis (1)	24	2009/01/08	2009/01/09		EDM SOP-0317
SO2 Passive Analysis (1)	27	2009/01/09	2009/01/09		EDM SOP-0319

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

Encryption Key

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

LEVI MANCHAK,
Email:
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. SCC and CALA have approved this reporting process and electronic report format.

Total cover pages: 1

Maxxam Job #: A900118
Report Date: 2009/01/09

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2008/11/27 - 2008/12/29
Site Reference: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		N28092	N28093	N28094	N28095		
Sampling Date		2008/11/27 09:40	2008/11/27 09:00	2008/11/28 15:15	2008/11/28 14:35		
	Units	**1**	**2**	**3**	**4**	**RDL**	**QC Batch**
Passive Monitoring							
Calculated H2S	ppb		0.17		0.18	0.02	2839773
Calculated NO2	ppb	1.9	3.8	3.3	2.7	0.1	2844972
Calculated O3	ppb	18.6	21.9	31.4	22.5	0.1	2845889
Calculated SO2	ppb	0.2	0.6	0.8	0.7	0.1	2846755

RDL = Reportable Detection Limit

Maxxam ID		N28096	N28097	N28098	N28099		
Sampling Date		2008/11/28 13:25	2008/11/28 16:05	2008/11/27 08:25	2008/11/27 10:30		
	Units	**5**	**7**	**8**	**9**	**RDL**	**QC Batch**
Passive Monitoring							
Calculated H2S	ppb				0.13	0.02	2839773
Calculated NO2	ppb	4.1	2.5	3.5	3.8	0.1	2844972
Calculated O3	ppb	24.2	26.3	24.5	18.8	0.1	2845889
Calculated SO2	ppb	0.6	MISSING	0.5	0.4	0.1	2846755

RDL = Reportable Detection Limit

Maxxam ID		N28100	N28101	N28102	N28103		
Sampling Date		2008/11/27 11:10	2008/11/27 12:40	2008/11/27 14:15	2008/11/27 15:00		
	Units	**10**	**11**	**12**	**13**	**RDL**	**QC Batch**
Passive Monitoring							
Calculated H2S	ppb	0.14	0.13	0.14	0.26	0.02	2839773
Calculated NO2	ppb	1.5	4.7	2.3	3.6	0.1	2844972
Calculated O3	ppb	20.4	17.9	24.4	21.0	0.1	2845889
Calculated SO2	ppb	0.3	0.5	0.8	1.3	0.1	2846755

RDL = Reportable Detection Limit

Maxxam Job #: A900118
Report Date: 2009/01/09

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2008/11/27 - 2008/12/29
Site Reference: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		N28104	N28105	N28106	N28107		
Sampling Date		2008/11/27 07:40	2008/11/28 10:00	2008/11/28 12:40	2008/11/28 09:10		
	Units	**14**	**15**	**16**	**17**	**RDL**	**QC Batch**
Passive Monitoring							
Calculated H2S	ppb		0.16	0.15	0.15	0.02	2839773
Calculated NO2	ppb	3.2	3.5	3.6	2.4	0.1	2844972
Calculated O3	ppb	22.4	21.8	26.2	23.3	0.1	2845889
Calculated SO2	ppb	0.5	0.6	0.7	0.5	0.1	2846755

RDL = Reportable Detection Limit

Maxxam ID		N28108	N28109	N28110	N28111		
Sampling Date		2008/11/28 08:25	2008/11/27 17:05	2008/11/27 16:15	2008/11/28 13:55		
	Units	**18**	**19**	**20**	**21**	**RDL**	**QC Batch**
Passive Monitoring							
Calculated H2S	ppb		0.14		0.16	0.02	2839773
Calculated NO2	ppb	2.7	5.1		4.3	0.1	2844972
Calculated O3	ppb	24.6	18.7	18.5	21.9	0.1	2845889
Calculated SO2	ppb	0.6	0.4	0.3	0.7	0.1	2846755

RDL = Reportable Detection Limit

Maxxam ID		N28120	N28121	N28122	N28123		
Sampling Date		2008/11/27 13:45	2008/11/27 14:45	2008/11/27 15:20	2008/11/27 08:10		
	Units	**22**	**23**	**24**	**25**	**RDL**	**QC Batch**
Passive Monitoring							
Calculated H2S	ppb	0.13	0.28	0.18		0.02	2839773
Calculated NO2	ppb				8.9	0.1	2844972
Calculated O3	ppb				17.7	0.1	2845889
Calculated SO2	ppb	0.8	0.7	1.5	0.4	0.1	2846755

RDL = Reportable Detection Limit

Maxxam Job #: A900118
Report Date: 2009/01/09

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2008/11/27 - 2008/12/29
Site Reference: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		N28124	N28125	N28126		
Sampling Date		2008/11/27 17:10	2008/11/27 12:40	2008/11/27 14:15		
	Units	**26**	**11A**	**12A**	**RDL**	**QC Batch**
Passive Monitoring						
Calculated H2S	ppb	0.16	0.25	0.13	0.02	2839773
Calculated NO2	ppb	5.3	5.1	2.4	0.1	2844972
Calculated O3	ppb	19.3	18.7	23.0	0.1	2845889
Calculated SO2	ppb	0.4	0.5	0.8	0.1	2846755

RDL = Reportable Detection Limit

General Comments

Results relate only to the items tested.

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Attention: MICHAEL BISAGA
Client Project #: 2008/11/27 - 2008/12/29
P.O. #:
Site Reference: LICA

Quality Assurance Report

Maxxam Job Number: PA900118

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2839773 TM5	Calibration Check	Calculated H2S	2009/01/06		102	%	80 - 120
	SPIKE	Calculated H2S	2009/01/06		99	%	N/A
2844972 DF4	Calibration Check	Calculated NO2	2009/01/08		99	%	76 - 118
	SPIKE	Calculated NO2	2009/01/08		98	%	N/A
	BLANK	Calculated NO2	2009/01/08	<0.1		ppb	
2845889 OZ	Calibration Check	Calculated O3	2009/01/08		96	%	91 - 107
	SPIKE	Calculated O3	2009/01/08		100	%	N/A
	BLANK	Calculated O3	2009/01/08	<0.1		ppb	
2846755 SS6	Calibration Check	Calculated SO2	2009/01/09		99	%	95 - 105
	SPIKE	Calculated SO2	2009/01/09		103	%	N/A
	BLANK	Calculated SO2	2009/01/09	<0.1		ppb	

N/A = Not Applicable

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 9331 - 48th Street T6B 2R4 Telephone(780) 468-3500 FAX(780) 466-3332

Passive Field Data

Field Notes

SAMPLER	SITE	ID	START		END		NOTES
			DATE	TIME	DATE	TIME	
$SO_2/NO_2/O_3$		2	11/27/08	09:40	12/29/08	07:10	
$H_2S/SO_2/NO_2/O_3$		3	11/27/08	09:00	12/29/08	06:25	
$SO_2/NO_2/O_3$		4	11/28/08	15:15	12/30/08	12:15	
$H_2S/SO_2/NO_2/O_3$		5	11/28/08	14:35	12/30/08	11:40	
$SO_2/NO_2/O_3$		6	11/28/08	13:25	12/30/08	10:15	
$SO_2/NO_2/O_3$		8	11/28/08	16:05	12/30/08	13:10	SO2 missing
$SO_2/NO_2/O_3$		9	11/27/08	08:25	12/29/08	16:45	
$H_2S/SO_2/NO_2/O_3$		10	11/27/08	10:30	12/29/08	08:10	
$H_2S/SO_2/NO_2/O_3$		11	11/27/08	11:10	12/29/08	08:50	
$H_2S/SO_2/NO_2/O_3$		12	11/27/08	12:40	12/29/08	10:10	
$H_2S/SO_2/NO_2/O_3$		13	11/27/08	14:15	12/29/08	11:50	
$H_2S/SO_2/NO_2/O_3$		14	11/27/08	15:00	12/29/08	12:50	
$SO_2/NO_2/O_3$		15	11/27/08	07:40	12/29/08	16:15	
$H_2S/SO_2/NO_2/O_3$		16	11/28/08	10:00	12/30/08	08:45	
$H_2S/SO_2/NO_2/O_3$		17	11/28/08	12:40	12/30/08	09:30	
$H_2S/SO_2/NO_2/O_3$		18	11/28/08	09:10	12/30/08	07:55	
$SO_2/NO_2/O_3$		19	11/28/08	08:25	12/30/08	06:55	
$H_2S/SO_2/NO_2/O_3$		22	11/27/08	17:05	12/29/08	15:10	
$SO_2/NO_2/O_3$		23	11/27/08	16:15	12/29/08	14:20	
$H_2S/SO_2/NO_2/O_3$		24	11/28/08	13:55	12/30/08	10:55	
H_2S/SO_2		25	11/27/08	13:45	12/29/08	11:25	
H_2S/SO_2		26	11/27/08	14:45	12/29/08	12:30	
H_2S/SO_2		27	11/27/08	15:20	12/29/08	13:20	
$SO_2/NO_2/O_3$		28	11/27/08	08:10	12/30/08	13:50	
$H_2S/SO_2/NO_2/O_3$		29	11/27/08	17:10	12/29/08	15:30	
$H_2S/SO_2/NO_2/O_3$		10A	11/27/08	10:30	12/29/08	10:10	
$H_2S/SO_2/NO_2/O_3$		11A	11/27/08	11:10	12/29/08	11:50	