

Lakeland Industry & Community Association

Maskwa Monitoring Site
Ambient Air Monitoring
Data Report
For
December 2010

Prepared By:



January 7, 2011

Lakeland Industry & Community Association

Ambient Air Monitoring

Maskwa

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Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Maskwa
Data Period: December 2010

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

Calibration Procedure

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

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

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

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

The calibrations conducted at the LICA - Maskwa Air Monitoring Stations conform to the following Maxxam Standard Operation Procedures:

- CAL SOP-00211
- CAL SOP-00209
- CAL SOP-00213
- CAL SOP-00214
- CAL SOP-00208

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

MONTHLY CONTINUOUS DATA SUMMARY

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – MASKWA

Continuous Ambient Monitoring – December 2010

LICA MASKWA SITE						MAXIMUM VALUES						OPERATIONAL TIME (PERCENT)	
						OBJECTIVES			EXCEEDENCES		MONTHLY AVERAGE		1-HOUR
PARAMETER	1-HR	24-HR	1-HR	24-HR	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING			DAY
SO2 (PPB)	172	57	0	0	1.18	16	8	21	6.3	297(WNW)	5.8	29	100.0
H2S (PPB)	10	3	0	0	0.01	1	VAR	VAR	VAR	VAR	0.3	14	100.0
THC (PPM)	-	-	-	-	2.22	3.1	6	VAR	VAR	VAR	2.7	5, 6	99.9
NOx (PPB)	-	-	-	-	5.72	38	16	9	1	113(ESE)	16.6	5	100.0
NO (PPB)	-	-	-	-	0.67	19	16	9	1	113(ESE)	3.4	16	100.0
NO ₂ (PPB)	212	106	0	0	4.86	22	5	18	1.4	239(WSW)	14.7	5	100.0
VECTOR WS (KPH)	-	-	-	-	4.73	11.1	27	11	-	284(WNW)	7.9	27	100.0
VECTOR WD (DEGREES)	-	-	-	-	101(E)	-	-	-	-	-	-	-	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	74.24	85	2	VAR	VAR	VAR	83.4	2	100.0
TEMPERATURE (DEG C)	-	-	-	-	-14.75	-3.8	25	13	4	124(ESE)	-7.1	2	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	939	955	16, 17	VAR	VAR	VAR	952.7	11	100.0
PRECIPITATION (MM)	-	-	-	-	0.02	0.9	14	20	6.4	81(E)	3.4	14	100.0

VAR-VARIOUS

General Monthly Summary

Equipment Operation

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

AQM STATION – LICA – Maskwa

Sulphur Dioxide (PPB)

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

No operational issue was observed during the month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration reading was invalidated due to a power failure on December 17th. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

No operational issue was observed during the month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration reading was invalidated due to a power failure on December 17th. Data was corrected using daily zero information.

Total HydroCarbon (PPM)

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

No operational issue was observed during the month. The inlet filter was changed before the monthly calibration was started. The Methane cylinder was replaced on December 21st. One hour of the maximum concentration reading was invalidated due to a power failure on December 17th. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – Maskwa

Nitrogen Dioxide (PPB)

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

No operational issue was observed during the month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration reading was invalidated due to a power failure on December 17th. Data was corrected using daily zero information.

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

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

The wind system is reported as vector wind speed and vector wind direction. The wind system worked well throughout the month.

Relative Humidity (PERCENT)

- System make / model - Met One 083

No operational issues observed during the month.

Precipitation (MM)

- System make / model - Met One 387

No operational issues observed during this month.

General Monthly Summary

AQM STATION – LICA – Maskwa

Barometric Pressure (MILLIBAR)

- System make / model - Met One 092

No operation issue was observed during the month.

Ambient Temperature (DEGC)

- System make / model - Met One 060

No operational issue was observed during the month.

Trailer Temperature (DEG C)

- System make / model – R&R 61

No operational issue was observed during the month.

Standard Deviation Wind Direction (DEG)

- System make / model –Met One 50.5H

No operational issue was observed during the month.

General Monthly Summary

AQM STATION – LICA – Maskwa

Datalogger

- System make / model - ESC 8832
- Software make/version - ESC v 5.51a

No operational issue was observed during the month.

Trailer

The manifold was cleaned on December 10th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
DECEMBER 2010
SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	HR START	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	AVG.	RDGS.		
1		2	1	1	1	0	0	0	0	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
2		0	0	0	0	0	0	0	0	0	IZS	0	0	2	1	1	2	1	0	0	0	0	0	0	0	2	0.3	24	
3		0	0	0	1	0	1	1	0	IZS	0	0	0	3	4	3	2	2	1	2	3	4	1	0	0	4	1.2	24	
4		0	0	0	0	0	0	0	IZS	0	1	1	1	1	1	1	0	0	0	1	0	0	0	0	1	1	0.3	24	
5		1	3	3	2	2	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.5	24	
6		0	0	0	0	0	IZS	0	0	0	1	1	1	1	2	2	1	1	1	0	0	0	0	0	0	2	0.5	24	
7		0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0.1	24	
8		0	0	0	IZS	1	0	2	3	2	3	2	1	1	0	0	0	0	0	0	0	2	16	2	1	16	1.6	24	
9		1	7	IZS	9	14	1	7	9	2	0	0	0	2	1	0	0	0	0	2	3	2	2	2	2	14	2.9	24	
10		1	IZS	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	1	0.1	24	
11		IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	IZS	1	0.0	24
12		0	0	0	0	0	0	0	0	0	1	1	2	2	1	1	3	4	5	4	2	0	0	IZS	0	5	1.1	24	
13		1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	IZS	0	0	1	0.6	24	
14		0	0	0	0	0	0	0	0	0	1	1	2	2	1	1	2	2	2	2	0	1	IZS	0	1	1	2	0.7	24
15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	1	0	IZS	0	0	0	0	4	0.2	24	
16		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	2	2	1	2	0.2	24	
17		0	0	1	0	0	0	0	0	0	0	2	4	0	1	0	0	0	IZS	1	0	0	3	3	2	4	0.7	24	
18		3	7	5	5	6	5	12	4	11	16	16	3	3	5	3	2	IZS	3	2	1	1	2	2	2	16	5.2	24	
19		1	3	3	6	3	7	6	6	6	2	12	9	11	3	5	IZS	5	0	0	0	0	0	0	0	12	3.8	24	
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	1	0	1	1	0	0	0	0	1	0.1	24	
21		0	0	0	0	0	0	0	0	0	3	1	2	2	IZS	3	2	2	6	5	4	0	0	0	0	6	1.3	24	
22		0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23		0	0	0	0	0	0	0	0	0	0	0	IZS	1	2	6	7	7	5	3	2	7	4	4	1	7	2.1	24	
24		1	2	1	3	3	1	3	2	1	1	IZS	0	0	0	0	0	0	1	1	2	2	1	2	1	3	1.2	24	
25		1	1	1	0	0	1	2	2	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	24	
26		0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	0.2	24	
27		6	3	5	3	4	1	2	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1.0	24	
28		0	0	0	0	0	0	IZS	0	0	0	2	3	14	1	1	0	2	0	3	8	0	1	7	9	14	2.2	24	
29		4	0	4	6	8	IZS	12	5	1	4	7	3	3	5	7	7	15	4	2	15	6	7	9	0	15	5.8	24	
30		1	0	2	8	IZS	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	8	0.9	24	
31		0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	2	1	1	1	1	2	0.5	24	
HOURLY MAX		6	7	5	9	14	7	12	9	11	16	16	9	14	5	7	7	15	6	5	15	7	16	9	9				
HOURLY AVG		0.8	0.9	0.9	1.6	1.4	0.8	1.8	1.1	0.9	1.2	1.6	1.1	1.6	1.0	1.4	1.0	1.5	1.0	0.9	1.5	0.9	1.4	1.2	0.8				

STATUS FLAG CODES

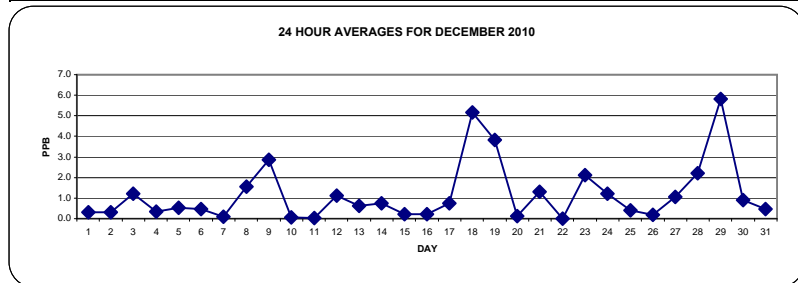
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

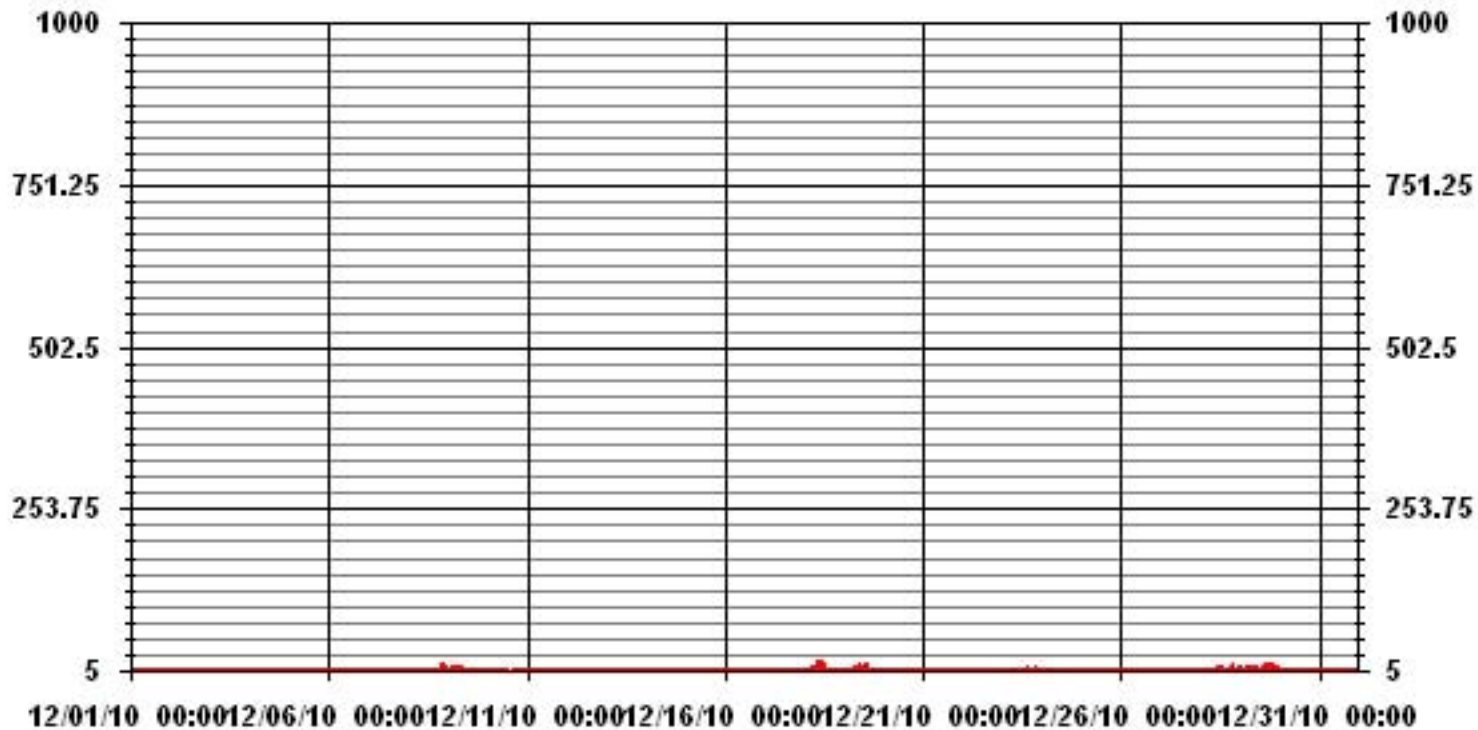
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	57	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	274					
MAXIMUM 1-HR AVERAGE:	16	PPB	@ HOUR(S)	21	ON DAY(S)	8
MAXIMUM 24-HR AVERAGE:	5.8	PPB			ON DAY(S)	29
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	2.40		MONTHLY AVERAGE:	1.18	PPB	



01 Hour Averages



— LICA30 SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

DECEMBER 2010

SULPHUR DIOXIDE MAX instantaneous maximum in ppt

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	HR	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	AVG.	RDGS.		
1		3	2	2	3	1	1	1	1	2	3	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.8	24	
2		0	0	0	0	0	0	0	0	0	IZS	1	1	3	2	2	5	2	1	1	1	1	1	1	0	5	1.0	24	
3		1	1	1	1	1	3	2	1	IZS	0	0	1	15	5	4	4	4	2	3	5	13	1	0	1	15	3.0	24	
4		1	0	0	1	1	1	1	IZS	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
5		3	3	4	3	2	2	IZS	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	4	0.9	24	
6		0	0	0	0	0	IZS	0	0	1	1	1	2	2	2	2	1	1	1	1	1	1	1	0	0	2	0.8	24	
7		1	1	1	1	IZS	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	1	1	2	0.8	24	
8		1	1	1	IZS	2	1	6	6	4	5	5	2	2	1	2	1	0	0	0	1	19	24	8	2	24	4.1	24	
9		3	26	IZS	31	23	12	19	25	10	1	1	1	4	2	0	0	0	1	2	3	3	3	3	3	31	7.7	24	
10		1	IZS	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	1	1	0	0	0	0	1	0.2	24	
11		IZS	0	0	0	1	0	0	1	0	0	0	1	0	1	1	2	2	0	1	3	1	1	0	IZS	3	0.7	24	
12		1	3	0	0	0	0	0	0	1	3	3	4	5	4	2	6	7	7	6	4	1	1	IZS	1	7	2.6	24	
13		1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	IZS	0	0	2	0.9	24	
14		0	1	0	1	1	1	1	1	3	2	3	4	4	3	3	5	5	5	2	2	IZS	1	1	1	5	2.2	24	
15		1	1	1	1	1	0	0	0	0	1	0	0	0	4	9	1	1	1	1	IZS	0	0	0	0	9	1.0	24	
16		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	1	5	3	2	5	0.5	24	
17		1	1	1	1	1	1	1	1	P	1	7	11	1	7	1	1	1	IZS	4	1	1	9	9	3	11	3.0	23	
18		5	8	7	6	8	6	26	4	39	39	33	4	3	13	4	3	IZS	4	4	1	2	2	4	3	39	9.9	24	
19		3	10	4	7	5	18	14	16	14	4	37	18	19	12	14	IZS	10	1	0	0	0	1	0	0	37	9.0	24	
20		0	0	0	0	0	0	0	0	0	0	0	1	1	2	IZS	0	4	1	2	2	2	0	0	0	4	0.7	24	
21		0	0	0	0	0	0	0	0	2	7	7	7	6	IZS	6	6	9	9	7	7	1	1	1	1	9	3.3	24	
22		0	1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
23		0	0	0	0	0	0	0	0	0	0	0	0	IZS	2	4	10	12	11	8	5	5	10	8	9	2	12	3.7	24
24		2	3	2	7	4	7	7	4	2	1	IZS	1	1	1	1	1	1	1	2	4	3	2	4	4	7	2.8	24	
25		1	1	1	1	1	2	3	6	1	IZS	0	0	0	0	1	1	0	0	0	0	0	0	0	0	6	0.8	24	
26		0	0	0	0	0	0	0	0	IZS	0	0	0	0	2	0	1	0	0	0	0	0	3	7	7	7	0.9	24	
27		15	15	18	13	10	2	3	IZS	0	0	0	4	2	0	0	0	0	0	2	1	0	0	1	0	18	3.7	24	
28		0	0	0	0	0	1	IZS	1	1	1	3	15	22	5	5	0	7	0	8	27	8	5	18	18	27	6.3	24	
29		13	2	11	14	16	IZS	19	24	3	20	15	14	13	15	16	18	23	12	4	24	18	16	19	1	24	14.3	24	
30		3	1	4	22	IZS	13	14	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	22	2.7	24	
31		1	1	1	IZS	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	3	3	2	2	2	3	1.0	24	
HOURLY MAX		15	26	18	31	23	18	26	25	39	39	37	18	22	15	16	18	23	12	8	27	19	24	19	18				
HOURLY AVG		2.0	2.8	2.0	4.0	2.8	2.5	4.1	3.2	3.0	3.1	4.1	3.2	3.7	3.1	3.0	2.5	3.2	2.0	2.0	3.3	3.1	3.0	3.1	1.8				

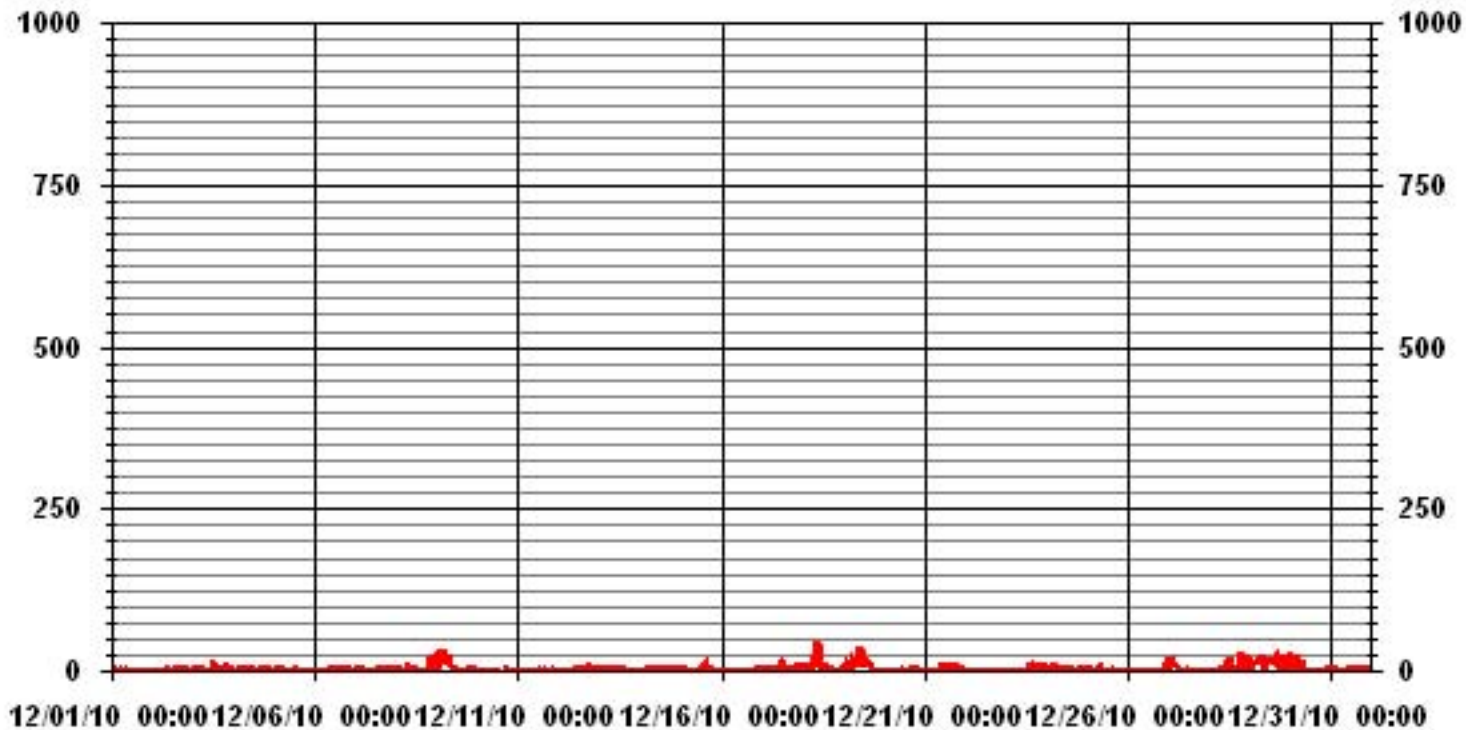
STATUS FLAG CODES

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:	446
MAXIMUM INSTANTANEOUS VALUE:	39 PPB @ HOUR(S) 8, 9 ON DAY(S) 18
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	5.49
OPERATIONAL TIME:	743 HRS

01 Hour Averages



— LICA30 SO2MAX PPB

LICA30
 SO2_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 30
 Site Name : LICA30
 Parameter : SO2_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	4.23	4.66	7.62	10.73	5.22	12.57	5.64	1.27	3.53	14.54	6.21	2.11	4.09	5.36	7.76	4.37	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.23	4.66	7.62	10.73	5.22	12.57	5.64	1.27	3.53	14.54	6.21	2.11	4.09	5.36	7.76	4.37	

Calm : .00 %

Total # Operational Hours : 708

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	30	33	54	76	37	89	40	9	25	103	44	15	29	38	55	31	708
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	30	33	54	76	37	89	40	9	25	103	44	15	29	38	55	31	

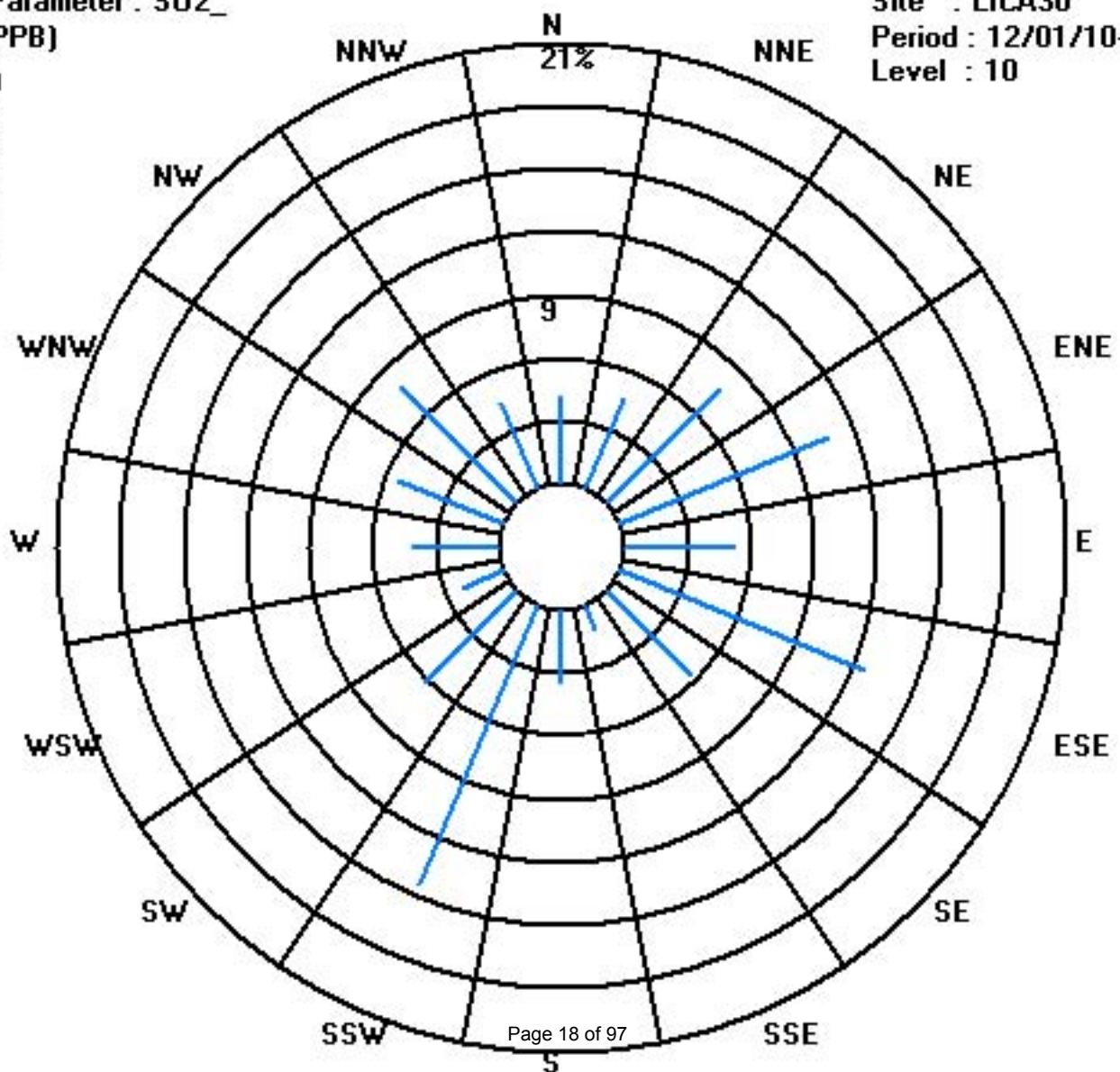
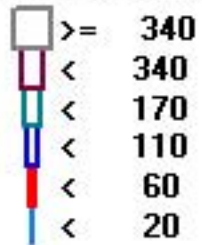
Calm : .00 %

Total # Operational Hours : 708

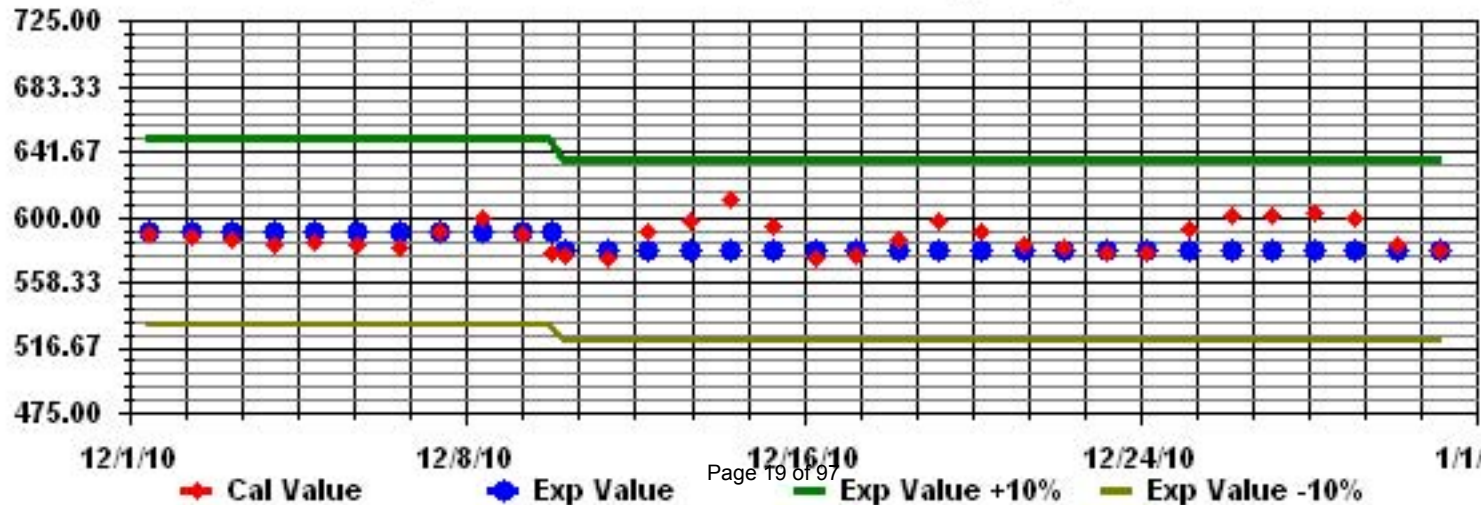
Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2010

HYDROGEN SULPHIDE (H₂S) hourly averages in ppb

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

STATUS FLAG CODES

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

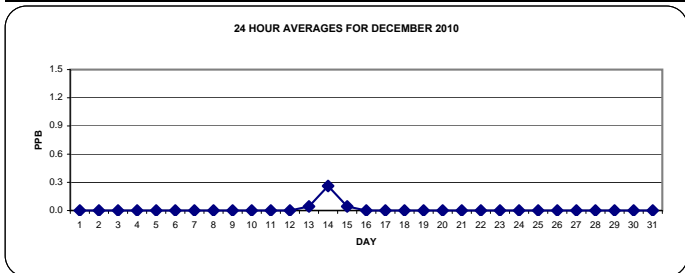
OBJECTIVE LIMIT:

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

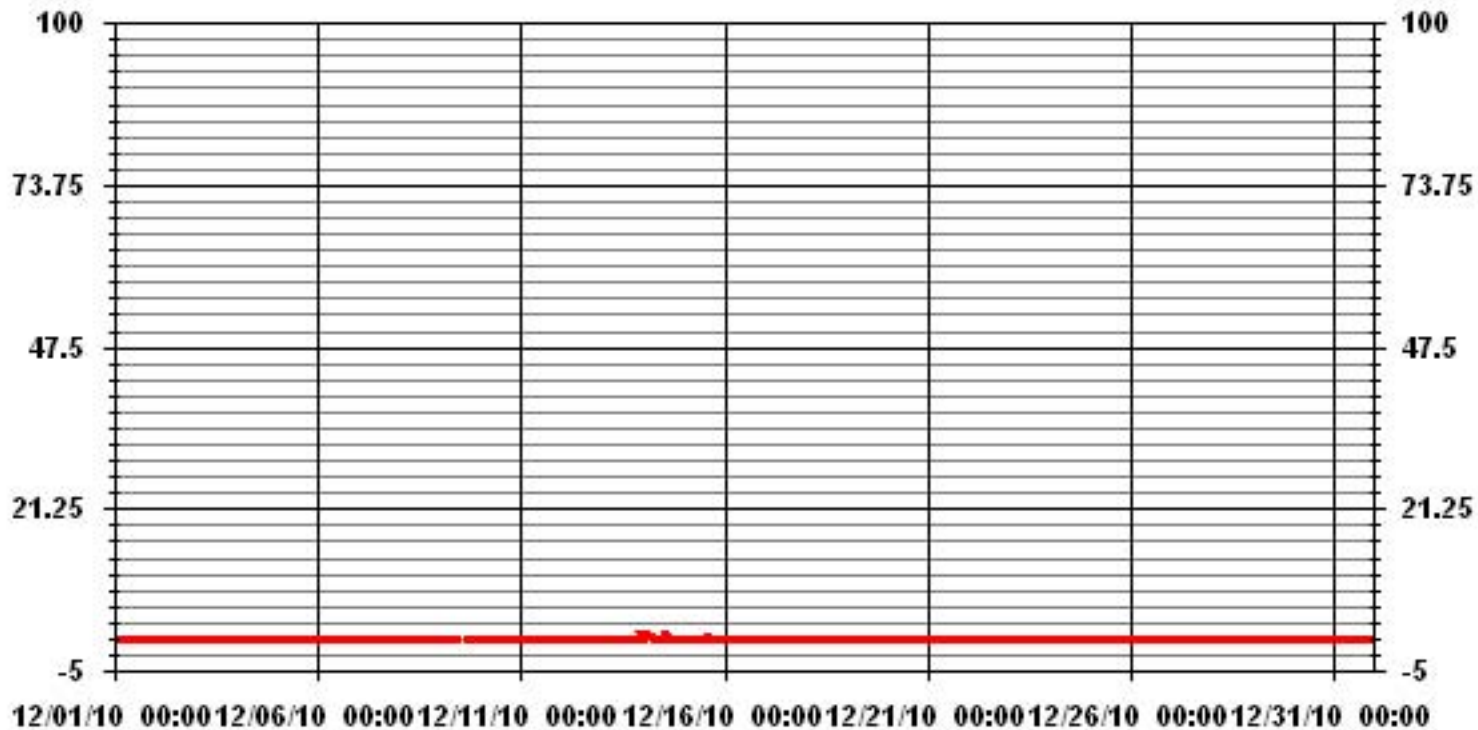
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF 24-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	8				
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	0.3	PPB			14
				VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.11		MONTHLY AVERAGE:	0.01	PPB

24 HOUR AVERAGES FOR DECEMBER 2010

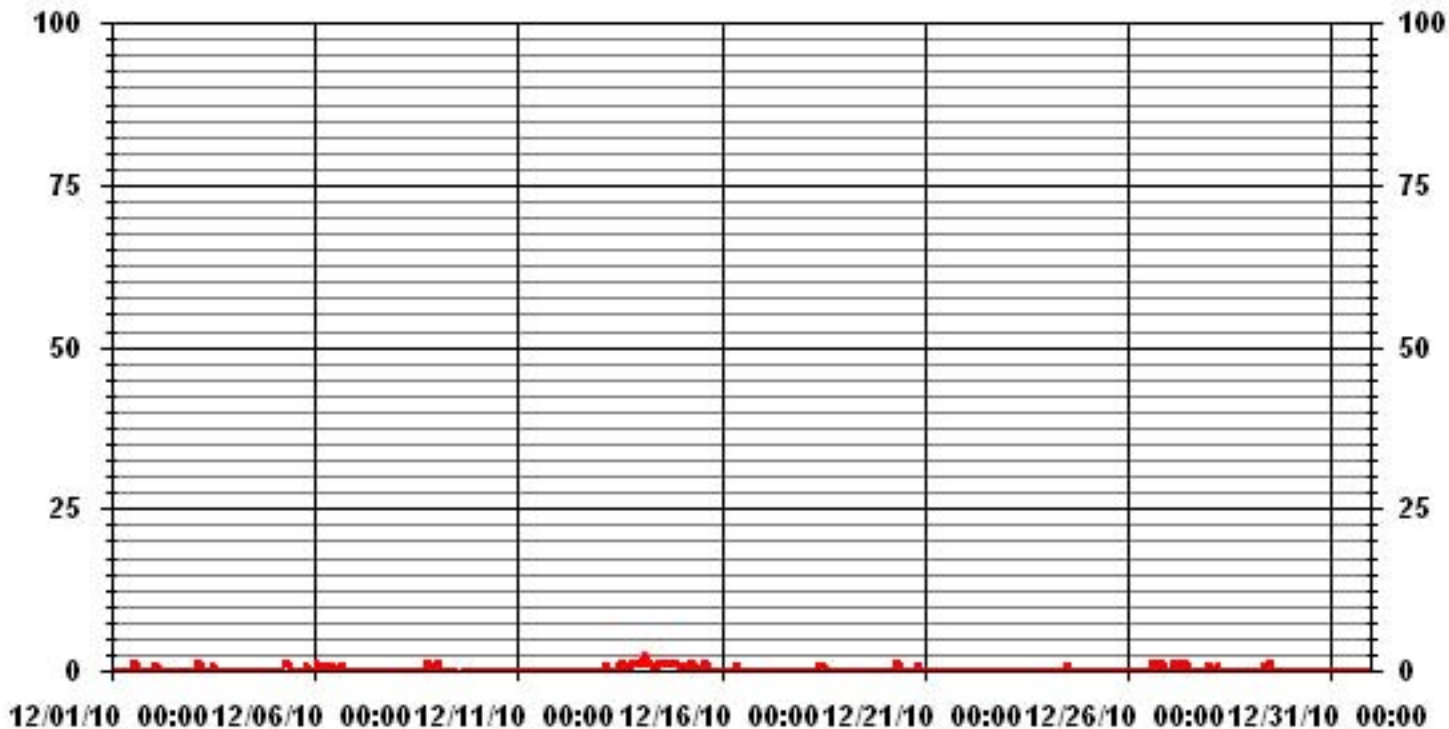


01 Hour Averages



— LICA30 H2S_ PPB

01 Hour Averages



— LICA30 H2S MAX PPB

LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : H2S_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	3.68	4.53	7.79	11.04	5.24	12.60	5.66	1.27	3.54	14.58	6.23	2.12	4.10	5.38	7.79	4.39	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.68	4.53	7.79	11.04	5.24	12.60	5.66	1.27	3.54	14.58	6.23	2.12	4.10	5.38	7.79	4.39	

Calm : .00 %

Total # Operational Hours : 706

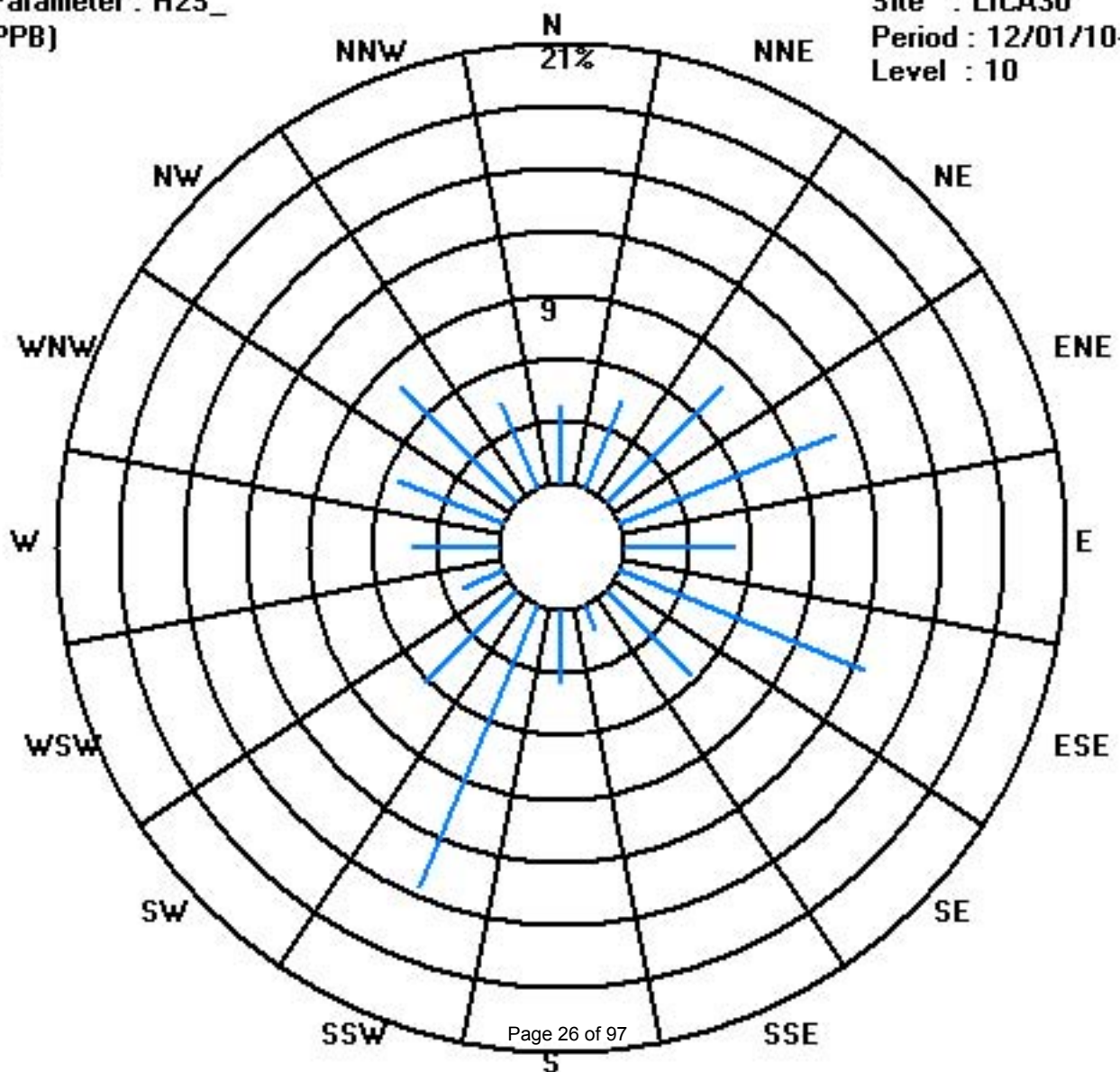
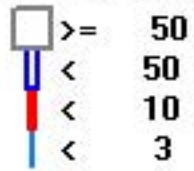
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	26	32	55	78	37	89	40	9	25	103	44	15	29	38	55	31	706
< 10																	
< 50																	
>= 50																	
Totals	26	32	55	78	37	89	40	9	25	103	44	15	29	38	55	31	

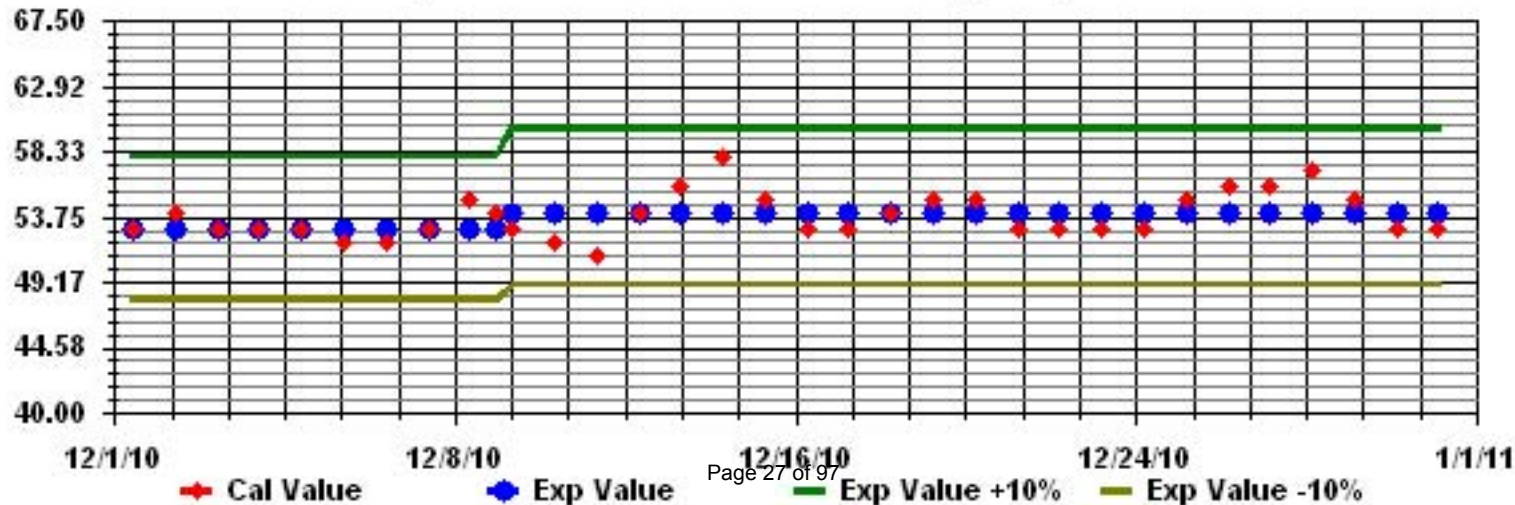
Calm : .00 %

Total # Operational Hours : 706

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

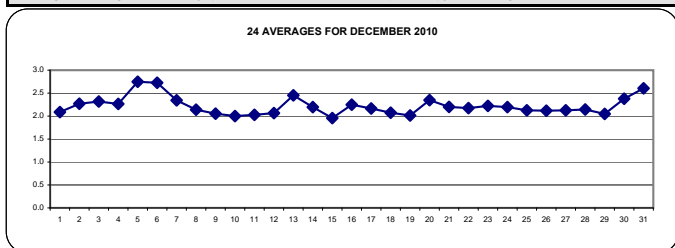
DECEMBER 2010

TOTAL HYDROCARBONS hourly averages in ppm

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

STATUS FLAG CODES

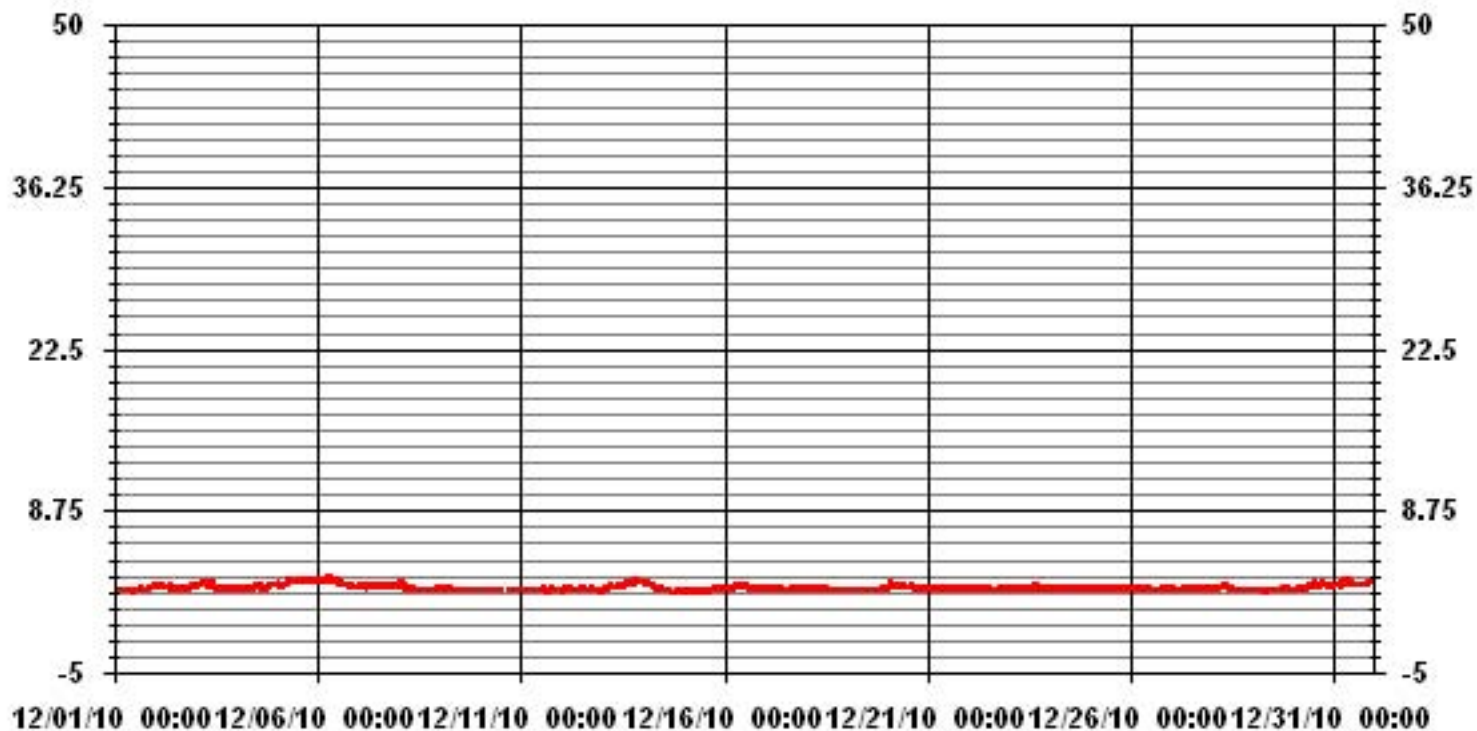
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706					
MAXIMUM 1-HR AVERAGE:	3.1	PPM	@ HOUR(S)	VAR	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	2.7	PPM			ON DAY(S)	5, 6
					VAR- VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	0.24		MONTHLY AVERAGE:	2.22	PPM	

01 Hour Averages



— LICA30 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2010

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

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

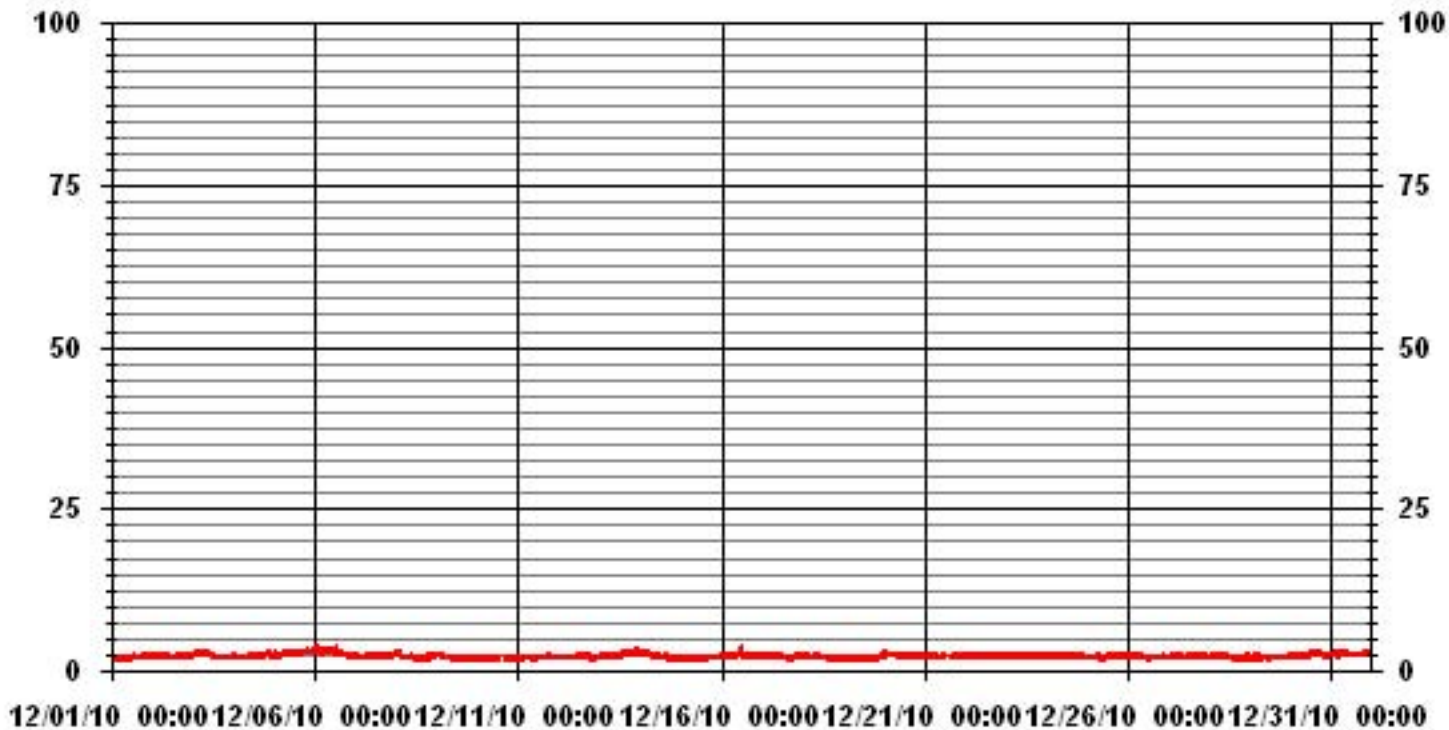
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	703					
MAXIMUM INSTANTANEOUS VALUE:	3.6	PPM	@ HOUR(S)	1, 2	ON DAY(S)	6
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	0.26					

01 Hour Averages



— LICA30 THCMAX PPM

LICA30
 THC / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 30
 Site Name : LICA30
 Parameter : THC
 Units : PPM

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	4.24	4.67	7.50	10.62	5.09	12.32	5.66	1.13	3.54	14.44	6.09	2.12	4.10	5.38	7.79	4.39	99.15
< 10.0	.00	.00	.14	.14	.00	.14	.00	.14	.00	.14	.14	.00	.00	.00	.00	.00	.84
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.24	4.67	7.64	10.76	5.09	12.46	5.66	1.27	3.54	14.58	6.23	2.12	4.10	5.38	7.79	4.39	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	30	33	53	75	36	87	40	8	25	102	43	15	29	38	55	31	700
< 10.0			1	1		1		1		1	1						6
< 50.0																	
>= 50.0																	
Totals	30	33	54	76	36	88	40	9	25	103	44	15	29	38	55	31	

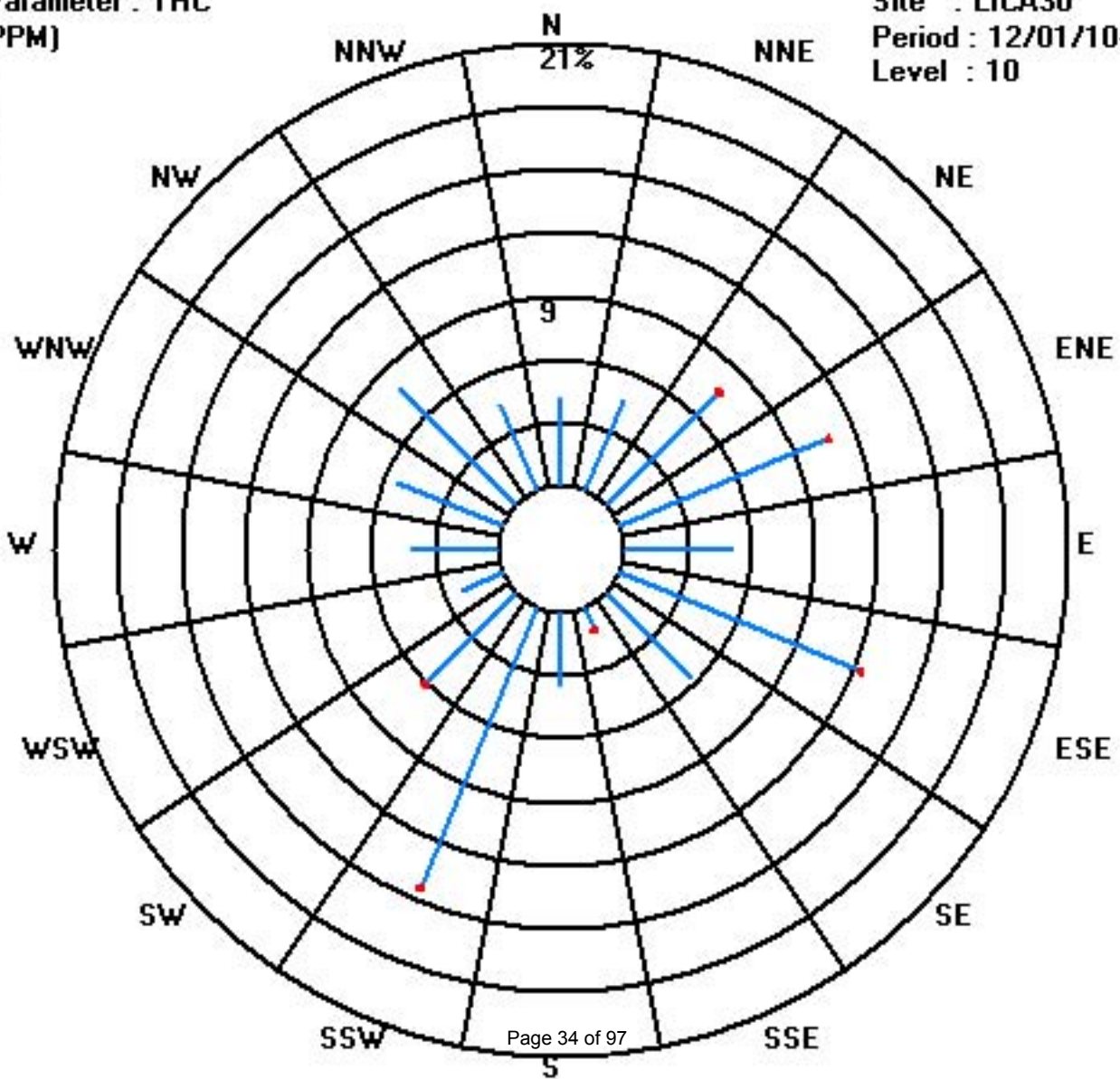
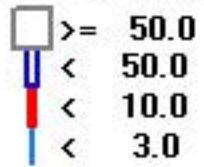
Calm : .00 %

Total # Operational Hours : 706

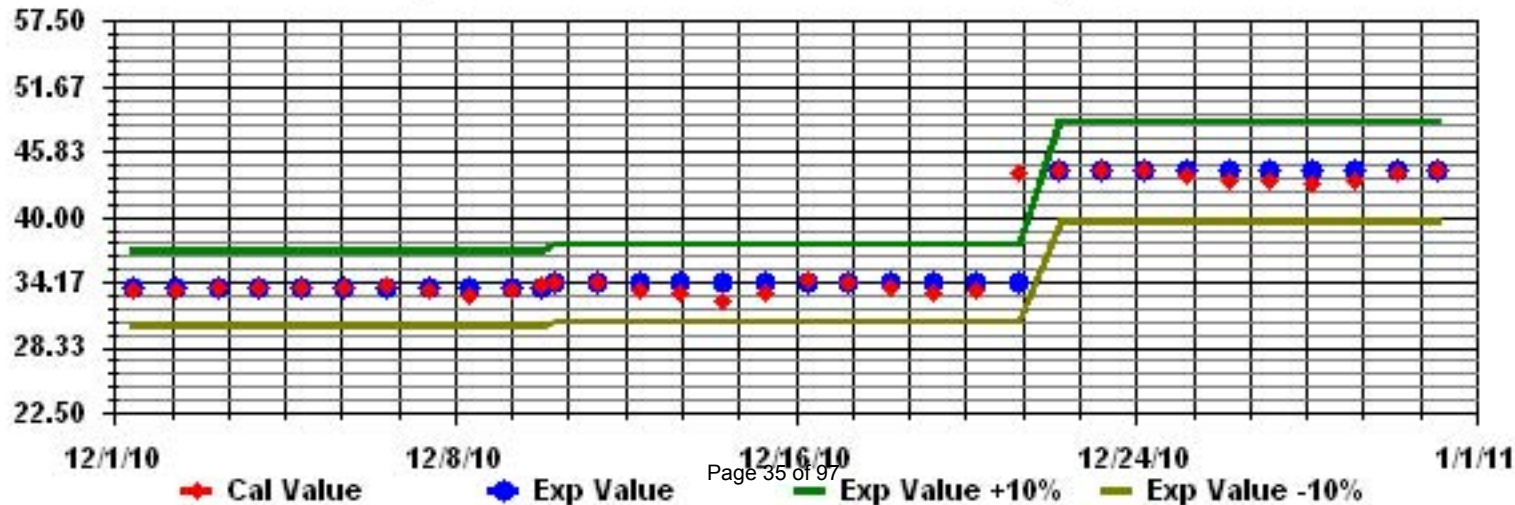
Class Limits (PPM)

Period : 12/01/10-12/31/10

Level : 10



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



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2010

NITROGEN DIOXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	3	2	2	3	1	1	1	1	3	4	IZS	5	3	3	4	3	4	8	4	4	5	5	5	4	8	3.4	24	
2	4	5	5	5	4	4	4	4	4	IZS	3	2	4	4	5	6	6	4	2	2	2	2	1	1	6	3.6	24	
3	1	2	2	4	3	4	3	5	IZS	7	6	5	8	9	5	4	4	2	2	3	4	4	2	2	9	4.0	24	
4	2	2	2	2	2	2	3	IZS	4	4	5	6	6	7	8	11	12	9	9	13	14	14	14	16	16	7.3	24	
5	19	21	17	12	11	10	IZS	19	15	10	10	8	8	10	12	14	16	17	22	21	20	17	15	15	22	14.7	24	
6	13	16	16	15	15	IZS	13	12	10	10	8	11	12	10	12	15	15	12	8	7	5	3	4	3	16	10.7	24	
7	2	1	1	1	IZS	2	2	2	2	2	2	2	1	2	2	4	5	4	2	2	3	4	3	4	5	2.4	24	
8	4	4	4	IZS	2	2	6	7	8	8	5	3	3	1	3	3	4	4	3	3	5	10	6	8	10	4.6	24	
9	6	6	IZS	6	7	2	4	4	2	1	1	1	C	C	C	C	C	C	C	4	3	2	3	3	4	7	3.5	24
10	1	IZS	0	0	0	0	1	1	1	0	0	1	0	0	0	1	C	0	0	0	0	0	0	0	1	0.3	24	
11	IZS	0	0	0	0	0	0	1	2	1	1	1	1	2	2	3	1	1	1	4	4	1	1	1	IZS	4	1.1	24
12	1	3	1	1	1	2	1	1	2	5	6	6	6	4	3	8	10	11	9	5	2	2	IZS	2	11	4.0	24	
13	2	3	3	3	3	4	4	4	4	5	5	4	4	5	7	9	13	17	16	17	16	IZS	15	14	17	7.7	24	
14	16	18	18	18	17	11	10	6	4	4	5	7	5	5	7	6	8	3	3	IZS	1	1	1	1	18	7.8	24	
15	0	0	0	0	0	0	2	2	2	4	3	1	0	2	4	4	5	7	3	IZS	2	2	1	2	7	2.0	24	
16	2	2	2	2	2	3	5	14	14	18	15	12	12	11	3	3	4	5	IZS	2	2	7	8	6	18	6.7	24	
17	3	3	3	3	2	2	2	2	3	4	5	7	2	3	5	5	5	IZS	4	3	3	6	6	5	7	3.7	24	
18	4	5	5	4	6	6	10	4	9	12	11	5	4	7	4	3	IZS	4	3	3	3	4	4	5	12	5.4	24	
19	3	4	4	4	4	5	4	5	6	4	10	7	7	2	4	IZS	6	4	4	5	3	5	4	4	10	4.7	24	
20	4	8	9	7	6	5	5	9	14	13	8	4	4	5	IZS	4	9	6	5	3	4	7	7	6	14	6.6	24	
21	12	11	9	6	5	6	4	4	6	8	4	5	4	IZS	7	5	6	13	11	8	2	1	2	2	13	6.1	24	
22	1	1	1	1	1	1	1	2	2	2	1	2	IZS	2	2	2	2	1	1	1	1	1	1	2	2	1.4	24	
23	2	2	2	2	2	2	2	1	1	1	1	1	IZS	1	2	7	9	10	8	4	3	10	5	5	2	10	3.7	24
24	2	3	2	4	4	2	6	4	2	2	IZS	2	2	2	2	2	2	2	2	3	3	2	4	2	6	2.7	24	
25	2	2	2	2	1	2	3	3	1	IZS	1	1	1	2	2	2	2	2	1	1	1	1	1	1	3	1.6	24	
26	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	1.2	24	
27	6	3	7	6	8	5	3	IZS	1	1	1	2	2	1	1	1	1	1	4	2	1	1	2	1	8	2.7	24	
28	1	1	1	3	5	7	IZS	8	8	7	6	6	8	1	1	1	2	0	2	8	1	1	5	8	8	4.0	24	
29	3	0	3	6	7	IZS	12	6	7	8	5	3	3	6	6	7	12	6	5	13	7	6	8	6	13	6.3	24	
30	8	4	12	12	IZS	7	8	8	10	9	8	5	6	7	7	7	8	10	9	8	7	6	7	7	12	7.8	24	
31	8	8	9	IZS	7	8	9	10	10	9	7	6	6	6	6	8	8	7	9	12	10	10	9	10	12	8.3	24	
HOURLY MAX	19	21	18	18	17	11	13	19	15	18	15	12	12	11	12	15	16	17	22	21	20	17	15	16				
HOURLY AVG	4.5	4.7	4.8	4.6	4.4	3.7	4.4	5.2	5.4	5.7	5.0	4.4	4.3	4.2	4.5	5.2	6.4	6.0	5.1	5.4	4.7	4.4	4.9	4.9				

STATUS FLAG CODES

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

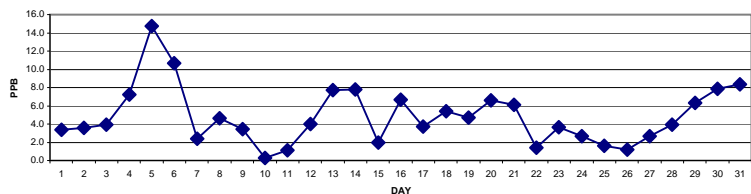
OBJECTIVE LIMIT:

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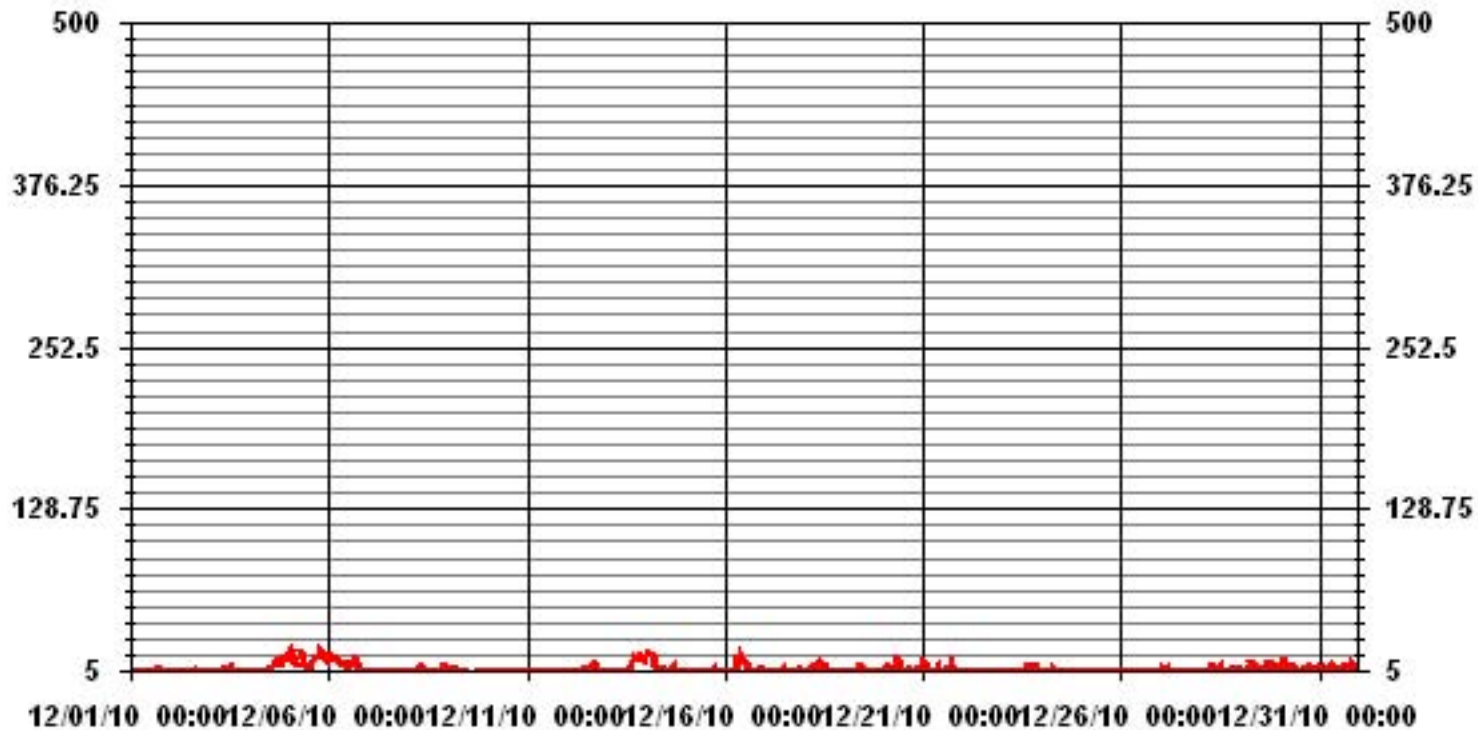
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	674
MAXIMUM 1-HR AVERAGE:	22 PPB @ HOUR(S) 18 ON DAY(S) 5
MAXIMUM 24-HR AVERAGE:	14.7 PPB ON DAY(S) 5
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	4.17
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	4.86 PPB

24 HOUR AVERAGES FOR DECEMBER 2010



01 Hour Averages



— LICA30 NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2010

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	5	4	4	6	2	2	2	3	5	6	IZS	19	5	4	17	19	6	23	6	5	6	6	6	5	23	7.2	24	
2	6	6	6	6	5	5	4	4	5	IZS	5	3	5	6	9	11	9	5	4	2	3	2	2	2	11	5.0	24	
3	2	2	3	7	5	6	4	7	IZS	11	8	7	11	11	7	6	5	3	3	6	7	6	3	3	11	5.8	24	
4	2	2	2	2	3	3	5	IZS	6	6	6	6	8	8	10	13	19	11	13	23	15	15	14	18	23	9.1	24	
5	23	24	19	14	12	11	IZS	28	24	11	11	9	10	11	13	16	17	23	26	23	22	19	16	16	28	17.3	24	
6	15	18	19	17	17	IZS	15	14	15	11	10	33	14	13	24	25	18	14	11	9	5	5	5	4	33	14.4	24	
7	3	2	2	1	IZS	2	5	3	3	3	3	2	3	4	7	9	8	3	3	6	6	4	5	9	3.9	24		
8	5	5	5	IZS	4	2	12	14	12	12	11	6	5	3	6	5	8	6	4	6	11	14	12	12	14	7.8	24	
9	7	13	IZS	9	10	6	7	9	5	2	2	13	C	C	C	C	C	C	5	5	3	4	4	5	13	6.4	24	
10	3	IZS	1	1	1	2	2	2	2	2	1	2	2	1	1	2	C	C	1	1	1	1	1	1	3	1.5	24	
11	IZS	1	1	1	1	1	1	2	3	2	2	2	3	3	5	5	2	6	13	2	3	2	IZS	13	2.9	24		
12	5	8	2	1	2	3	2	2	5	9	9	8	10	9	5	14	16	15	12	9	2	3	IZS	2	16	6.7	24	
13	3	5	4	4	4	5	4	5	7	6	7	9	5	6	10	11	20	21	19	19	19	IZS	19	17	21	10.0	24	
14	18	20	20	20	20	14	11	13	9	8	9	11	9	8	9	14	11	14	8	4	IZS	1	2	1	20	11.0	24	
15	1	1	1	1	2	1	14	4	9	28	8	3	4	6	6	21	9	9	6	IZS	2	2	2	2	28	6.2	24	
16	3	2	2	2	3	5	9	30	22	22	18	16	19	14	8	5	7	7	IZS	2	3	14	11	7	30	10.0	24	
17	4	4	4	4	3	3	3	3	P	6	8	9	4	8	9	8	10	IZS	5	4	4	10	9	7	10	5.9	23	
18	5	6	6	5	21	17	16	7	21	24	20	7	6	11	4	4	IZS	5	3	3	4	5	5	6	24	9.2	24	
19	4	7	5	5	5	11	8	40	11	6	15	16	13	7	8	IZS	9	8	6	6	6	11	5	5	40	9.4	24	
20	5	11	11	8	7	6	6	13	16	16	11	5	5	7	IZS	6	15	8	8	4	5	8	8	8	16	8.6	24	
21	18	14	11	8	7	7	7	21	9	13	10	9	9	IZS	10	10	16	17	14	13	3	2	3	4	21	10.2	24	
22	2	3	2	1	1	1	2	3	6	3	2	4	IZS	3	2	2	2	2	2	2	2	2	3	6	2.3	24		
23	3	2	2	2	2	2	2	2	2	2	2	IZS	2	4	10	14	13	11	6	6	13	11	14	3	14	5.7	24	
24	3	4	3	8	7	8	9	5	3	3	IZS	2	3	3	3	3	3	3	3	6	4	3	5	5	9	4.3	24	
25	2	2	2	2	2	3	4	8	2	IZS	2	2	2	2	2	2	3	2	2	2	2	2	2	2	8	2.4	24	
26	2	2	2	2	2	2	1	2	IZS	1	1	1	2	3	2	1	1	2	2	1	2	3	6	5	6	2.1	24	
27	13	9	15	14	12	10	4	IZS	2	2	2	7	7	1	1	1	2	2	7	5	2	2	5	2	15	5.5	24	
28	1	2	2	5	6	7	IZS	10	10	10	8	10	11	3	4	2	5	1	7	18	5	3	15	16	18	7.0	24	
29	13	1	8	12	14	IZS	20	18	11	15	12	7	8	13	13	14	19	12	7	18	17	12	15	8	20	12.5	24	
30	11	9	17	19	IZS	11	12	11	15	12	10	7	8	8	9	9	11	11	11	11	8	8	8	7	19	10.6	24	
31	8	9	10	IZS	9	9	11	12	14	10	8	7	6	7	7	9	9	8	11	13	12	13	12	11	14	9.8	24	
HOURLY MAX	23	24	20	20	21	17	20	40	24	28	20	33	19	14	24	25	20	23	26	23	22	19	19	18				
HOURLY AVG	6.5	6.6	6.4	6.4	6.5	5.7	7.0	10.2	9.1	9.0	7.6	8.1	6.8	6.4	7.4	8.9	9.9	9.0	7.4	8.1	6.5	6.5	7.2	6.4				

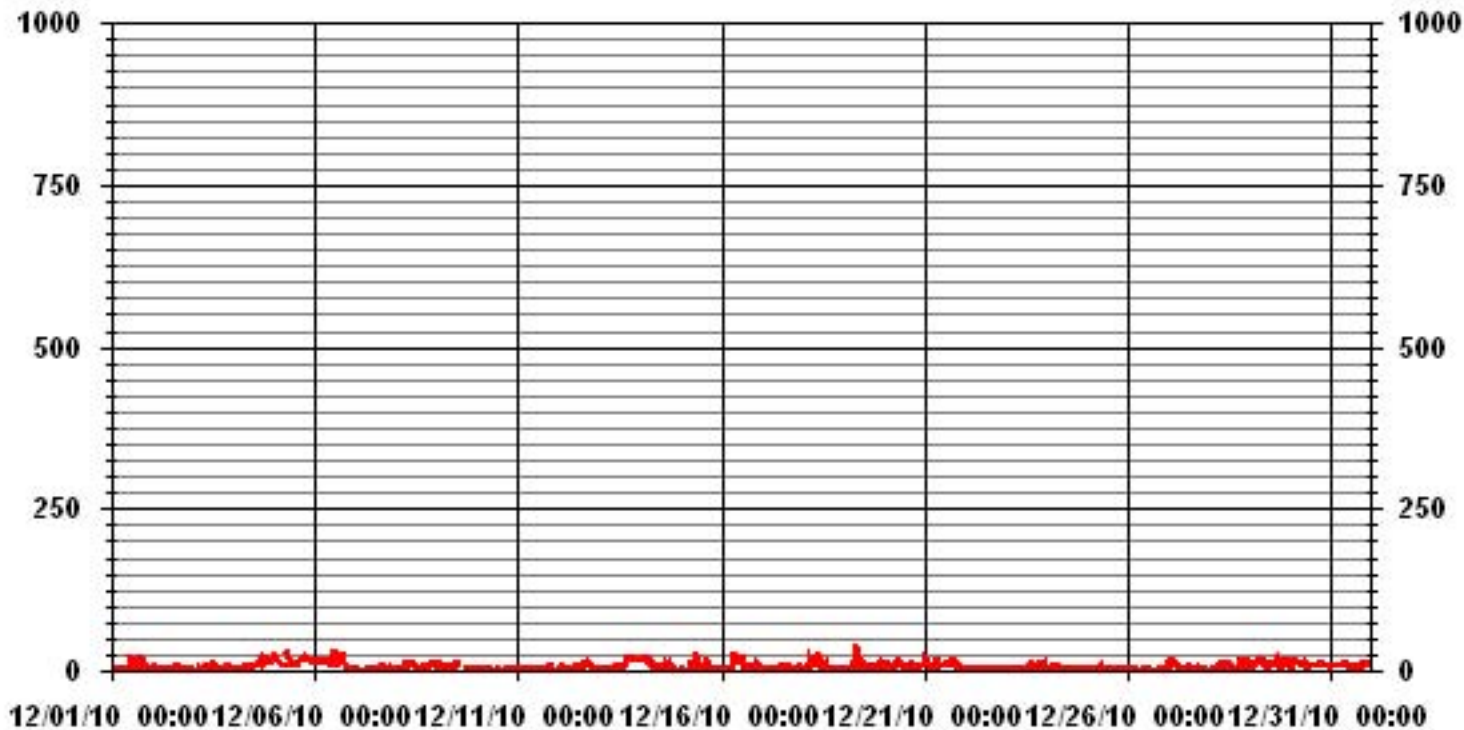
STATUS FLAG CODES

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:	703					
MAXIMUM INSTANTANEOUS VALUE:	40	PPB	@ HOUR(S)	7	ON DAY(S)	19
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	5.85					

01 Hour Averages



— LICA30 NO2MAX PPB

LICA30
 NO2_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 30
 Site Name : LICA30
 Parameter : NO2_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	3.54	4.53	7.80	11.06	5.24	12.62	5.67	1.27	3.54	14.60	6.24	2.12	4.11	5.39	7.80	4.39	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.54	4.53	7.80	11.06	5.24	12.62	5.67	1.27	3.54	14.60	6.24	2.12	4.11	5.39	7.80	4.39	

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	25	32	55	78	37	89	40	9	25	103	44	15	29	38	55	31	705
< 110																	
< 210																	
>= 210																	
Totals	25	32	55	78	37	89	40	9	25	103	44	15	29	38	55	31	

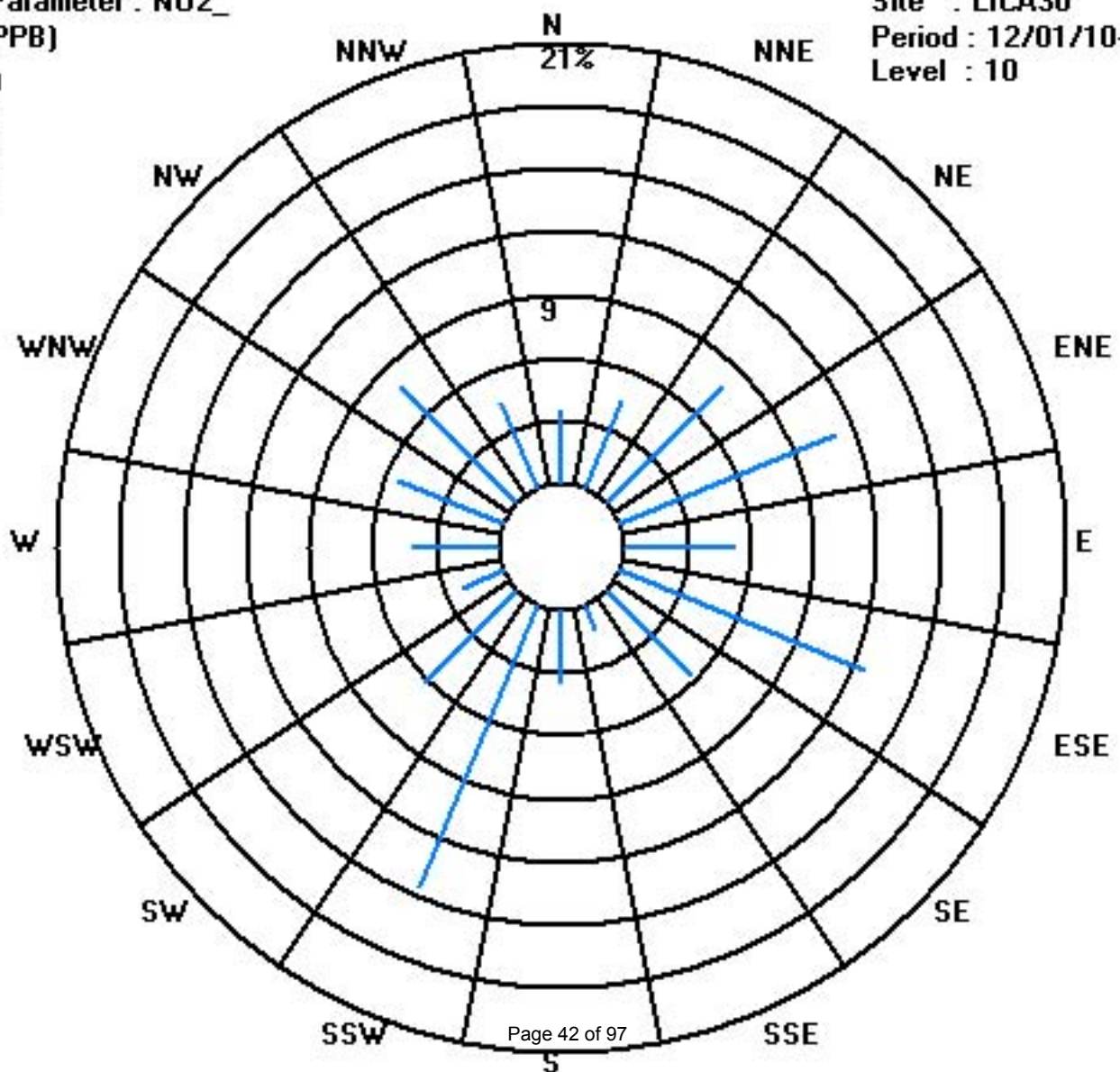
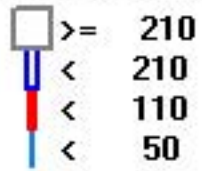
Calm : .00 %

Total # Operational Hours : 705

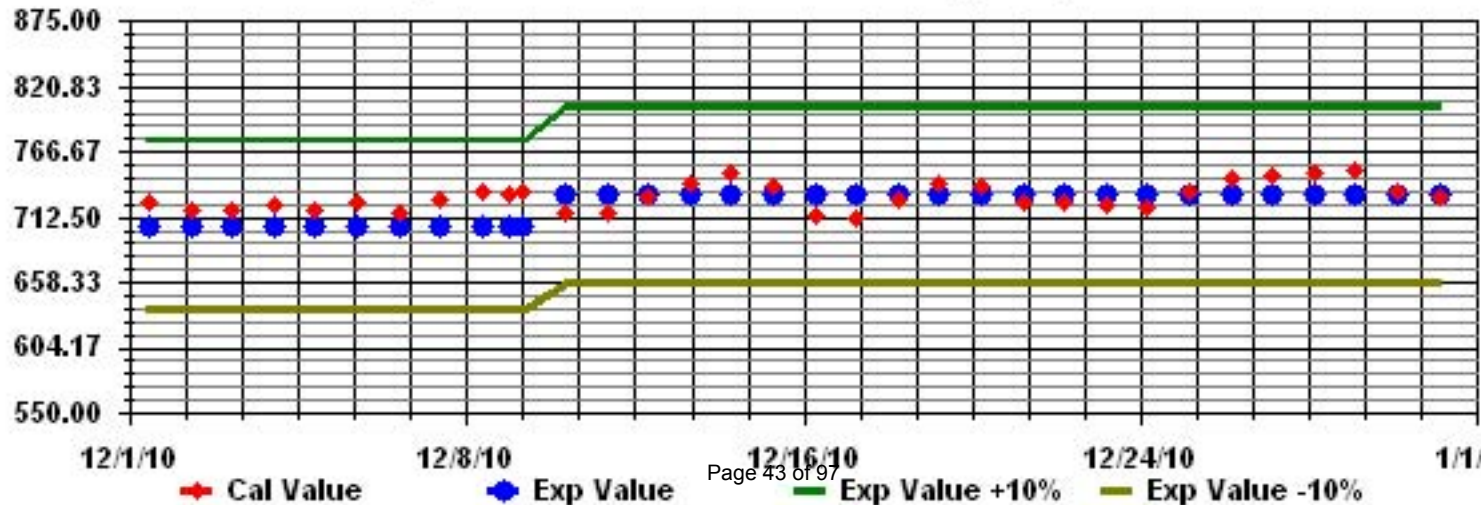
Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOICATION - MASKWA

DECEMBER 2010

NITRIC OXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR				
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
DAY																													
1	0	0	0	0	0	0	0	0	0	0	IZS	2	1	0	1	0	0	1	0	0	0	0	0	0	0	2	0.2	24	
2	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
3	0	0	0	0	0	0	0	0	0	IZS	1	1	1	4	3	1	0	0	0	0	0	0	0	0	0	4	0.5	24	
4	0	0	0	0	0	0	0	0	IZS	0	0	1	2	3	3	2	1	1	0	0	1	0	0	0	0	3	0.6	24	
5	0	0	0	0	0	0	0	IZS	4	2	3	4	5	5	4	3	1	0	1	3	2	3	0	0	0	5	1.7	24	
6	0	1	0	2	0	IZS	3	1	8	6	8	15	12	7	7	6	1	0	0	0	0	0	0	0	0	15	3.3	24	
7	0	0	0	0	IZS	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
8	0	0	0	IZS	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0.3	24	
9	0	1	IZS	1	3	0	2	2	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	3	0.5	24	
10	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C	0	0	0	0	0	0	0	0	0	0.0	24	
11	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	24	
12	0	0	0	0	0	0	0	0	0	0	1	1	1	2	1	1	2	2	2	1	0	0	0	IZS	0	2	0.6	24	
13	0	0	0	0	0	0	0	0	0	0	1	1	2	2	2	2	1	1	1	1	0	0	IZS	3	2	3	0.8	24	
14	3	7	8	4	3	0	0	1	0	0	1	1	0	1	1	1	1	1	0	0	0	IZS	0	0	0	8	1.4	24	
15	0	0	0	0	0	0	1	1	2	4	2	0	0	1	0	1	0	0	0	0	IZS	0	0	0	0	4	0.5	24	
16	0	0	0	0	0	0	0	5	5	19	16	14	11	7	1	1	0	0	IZS	0	0	0	0	0	0	19	3.4	24	
17	0	0	0	0	0	0	0	0	0	0	1	3	0	1	1	0	0	0	IZS	0	0	0	0	0	0	3	0.3	24	
18	0	0	0	0	2	1	2	0	2	6	6	1	1	2	0	0	IZS	0	0	0	0	0	0	0	0	6	1.0	24	
19	0	0	0	0	0	0	0	2	0	0	5	3	4	0	0	0	IZS	0	0	0	0	0	0	0	0	5	0.6	24	
20	0	0	0	0	0	0	0	0	1	5	5	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	5	0.6	24	
21	0	0	0	0	0	0	0	2	0	1	1	2	1	IZS	2	1	0	1	0	0	0	0	0	0	0	2	0.5	24	
22	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	1	1	1	0	0	0	1	0	0	0	1	0.2	24	
24	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
26	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
27	2	0	2	1	1	0	0	IZS	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
28	0	0	0	0	0	0	IZS	0	0	1	1	2	4	0	0	0	0	0	0	0	1	0	0	1	2	4	0.5	24	
29	0	0	1	1	1	IZS	4	1	0	2	2	1	1	3	2	1	3	1	0	2	0	1	1	0	4	1.2	24		
30	0	0	0	2	IZS	0	1	0	1	1	3	2	2	3	2	1	0	0	0	0	0	0	0	0	3	0.8	24		
31	0	0	0	IZS	0	0	0	0	0	2	2	2	2	2	2	1	1	0	0	0	0	0	0	0	2	0.5	24		
HOURLY MAX	3	7	8	4	3	1	4	5	8	19	16	15	12	7	7	6	3	2	3	2	3	2	3	2					
HOURLY AVG	0.2	0.3	0.4	0.4	0.3	0.0	0.5	0.7	0.8	1.9	2.2	2.1	2.0	1.4	1.0	0.7	0.4	0.3	0.2	0.2	0.1	0.1	0.2	0.1					

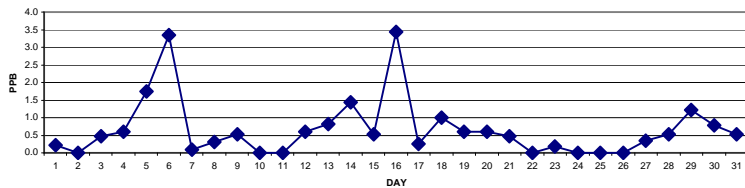
STATUS FLAG CODES

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

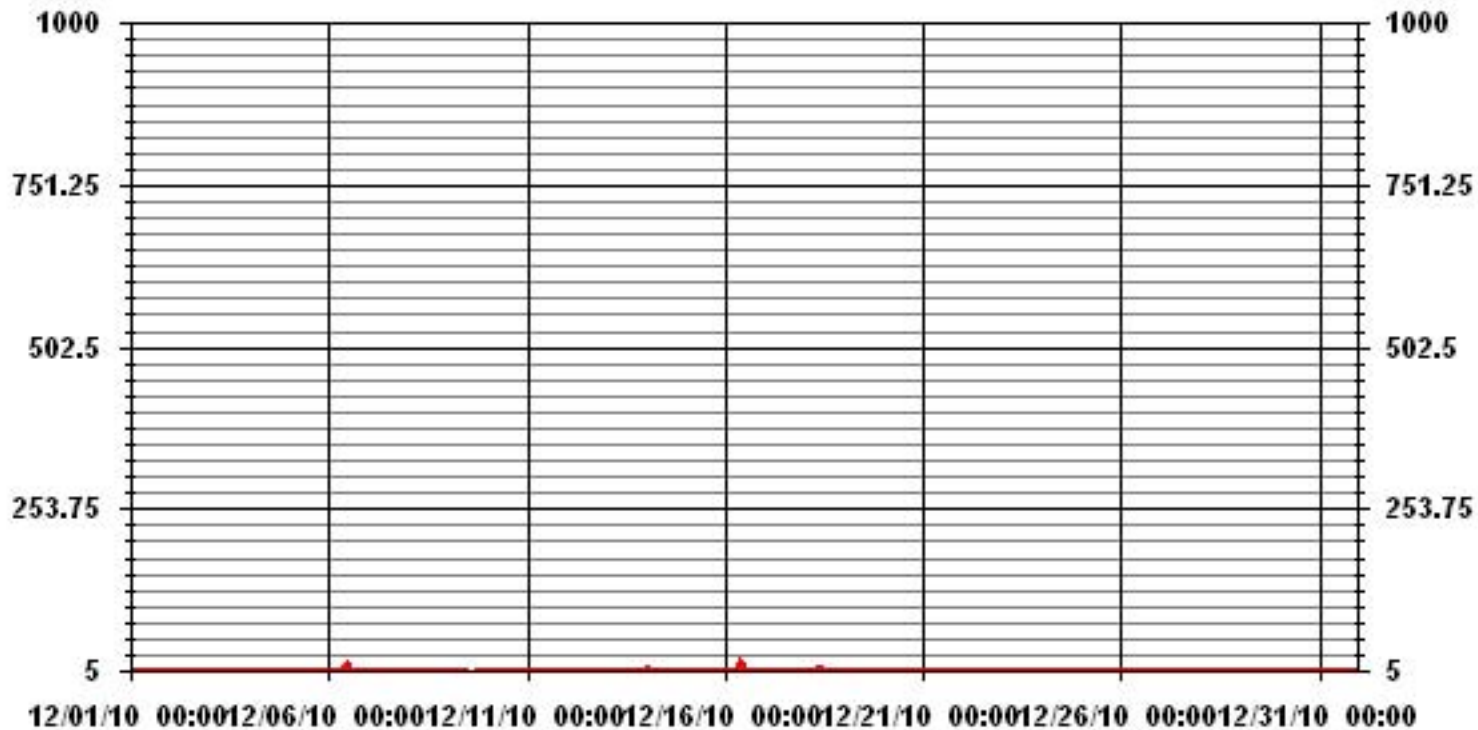
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	190
MAXIMUM 1-HR AVERAGE:	19 PPB @ HOUR(S) 9 ON DAY(S) 16
MAXIMUM 24-HR AVERAGE:	3.4 PPB ON DAY(S) 16
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	7 HRS
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	1.80
MONTHLY AVERAGE:	0.67 PPB

24 HOUR AVERAGES FOR DECEMBER 2010



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2010

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	0	1	IZS	8	3	1	24	17	0	15	1	0	0	0	0	0	24	3.0	24	
2	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	2	0	3	0	0	0	0	0	0	0	3	0.4	24	
3	0	0	0	0	0	0	0	0	IZS	4	2	3	7	5	2	1	1	0	0	2	1	0	0	0	7	1.2	24	
4	0	0	0	0	0	0	1	IZS	1	1	2	3	4	4	3	5	6	1	1	21	0	1	1	0	21	2.4	24	
5	0	1	1	1	1	0	IZS	14	6	4	5	5	5	5	3	1	6	11	5	9	1	1	1	1	14	4.0	24	
6	1	2	2	6	1	IZS	6	2	42	10	12	98	18	10	32	20	6	1	1	1	1	1	0	0	98	11.9	24	
7	0	0	1	0	IZS	0	4	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	4	0.9	24	
8	1	0	0	IZS	1	1	3	3	2	3	4	1	1	1	3	1	2	0	0	0	4	5	1	2	5	1.7	24	
9	1	8	IZS	6	6	2	20	7	3	0	0	5	C	C	C	C	C	C	0	0	0	1	0	0	20	3.5	24	
10	0	IZS	0	0	0	0	0	0	0	1	0	1	0	0	0	0	C	C	0	0	0	0	0	0	1	0.1	24	
11	IZS	0	0	0	0	1	0	0	0	0	0	1	1	1	0	1	0	0	0	2	0	1	0	0	IZS	2	0.4	24
12	1	1	1	1	1	0	0	0	1	3	3	2	4	4	2	4	4	4	2	1	0	0	IZS	0	4	1.7	24	
13	0	0	0	0	0	0	1	1	1	4	3	11	3	4	3	5	3	4	2	1	1	IZS	10	8	11	2.8	24	
14	4	13	14	8	7	1	1	8	1	2	2	3	2	2	3	3	3	3	1	0	IZS	0	0	0	14	3.5	24	
15	0	0	0	0	0	0	19	3	12	51	6	2	2	6	2	34	3	2	0	IZS	1	0	0	0	51	6.2	24	
16	0	0	0	0	0	0	1	57	19	34	22	20	24	11	4	3	0	0	IZS	1	1	1	1	0	57	8.7	24	
17	1	0	1	0	0	0	0	1	P	1	2	6	2	10	3	1	3	IZS	0	0	0	1	1	0	10	1.5	23	
18	0	0	0	0	26	19	8	2	13	20	43	2	2	4	1	0	IZS	0	0	0	0	0	1	0	43	6.1	24	
19	0	1	0	0	1	3	2	58	2	2	15	19	9	3	3	IZS	2	0	0	0	0	2	0	0	58	5.3	24	
20	1	0	0	0	0	0	0	1	3	6	8	2	2	3	IZS	1	1	0	0	0	0	0	0	0	8	1.2	24	
21	1	1	1	0	0	0	0	19	2	3	2	5	5	IZS	4	1	2	3	1	1	0	0	0	0	19	2.2	24	
22	0	0	0	0	0	0	0	0	1	0	1	1	IZS	1	1	0	0	0	0	0	0	0	0	0	1	0.2	24	
23	0	0	0	0	0	0	0	0	0	0	0	1	IZS	1	1	3	2	2	1	0	0	2	1	2	0	3	0.7	24
24	0	0	0	0	1	1	1	0	0	0	IZS	1	1	0	1	0	0	0	0	0	1	0	0	0	1	0.3	24	
25	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
26	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0.1	24	
27	8	3	9	8	6	0	0	IZS	0	1	1	6	5	0	0	0	0	1	0	0	0	0	0	0	9	2.1	24	
28	0	0	0	0	0	0	IZS	0	1	2	3	6	7	1	2	0	1	0	1	5	1	0	5	8	8	1.9	24	
29	4	0	2	2	3	IZS	9	7	1	7	6	4	5	30	7	4	6	3	1	4	4	2	3	0	30	5.0	24	
30	1	0	2	4	IZS	1	2	1	6	3	4	3	5	4	3	2	1	1	0	1	0	1	1	0	6	2.0	24	
31	0	0	0	IZS	1	0	1	1	2	3	3	4	3	2	2	1	1	0	0	1	0	1	0	0	4	1.1	24	
HOURLY MAX	8	13	14	8	26	19	20	58	42	51	43	98	24	30	32	34	6	15	11	21	9	5	10	8				
HOURLY AVG	0.8	1.0	1.1	1.2	1.9	1.0	2.7	6.4	4.3	5.8	5.2	7.5	4.2	4.0	4.0	3.8	1.9	1.6	0.8	1.5	0.9	0.6	1.0	0.7				

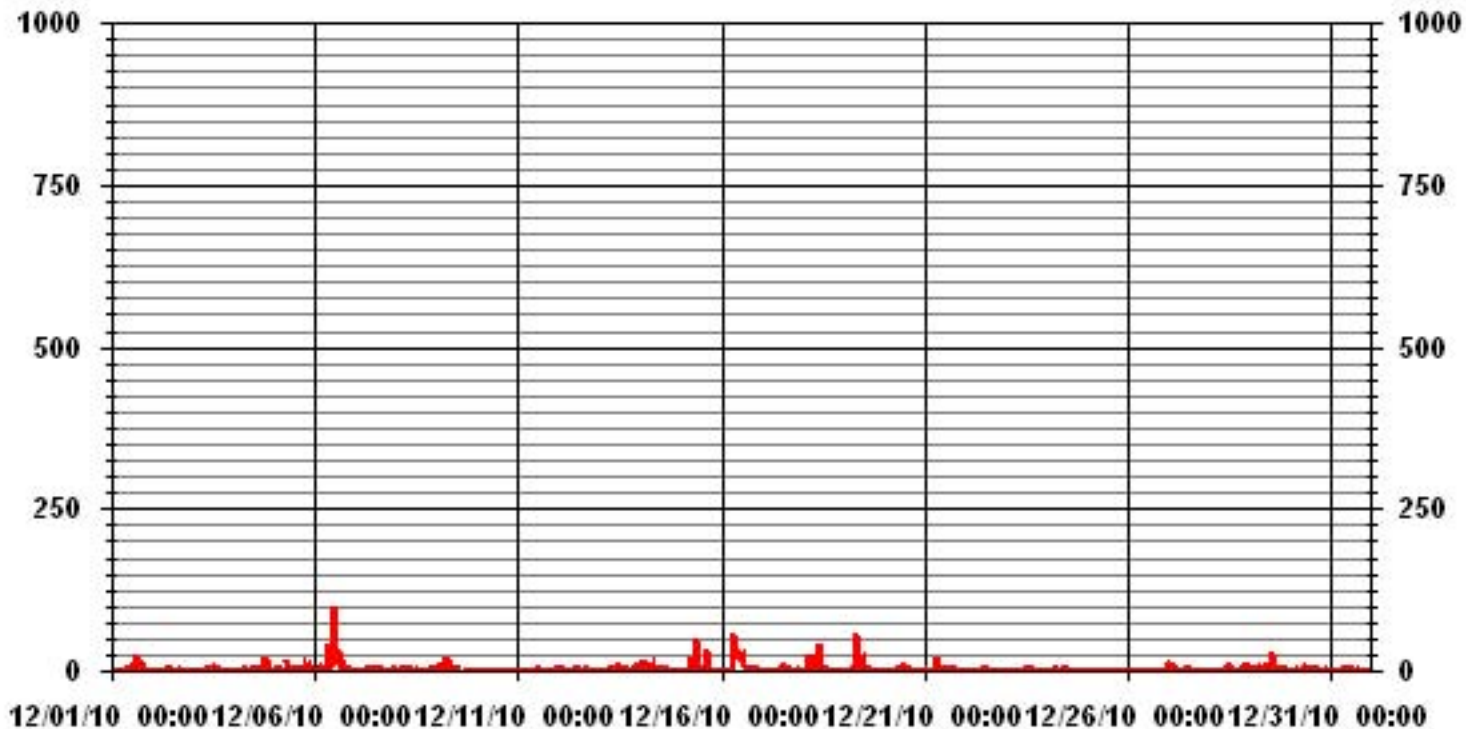
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	379					
MAXIMUM INSTANTANEOUS VALUE:	98	PPB	@ HOUR(S)	11	ON DAY(S)	6
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	6.99					

01 Hour Averages



LICA30
NO_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 30
Site Name : LICA30
Parameter : NO_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	3.54	4.53	7.80	11.06	5.24	12.62	5.67	1.27	3.54	14.60	6.24	2.12	4.11	5.39	7.80	4.39	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.54	4.53	7.80	11.06	5.24	12.62	5.67	1.27	3.54	14.60	6.24	2.12	4.11	5.39	7.80	4.39	

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	25	32	55	78	37	89	40	9	25	103	44	15	29	38	55	31	705
< 110																	
< 210																	
>= 210																	
Totals	25	32	55	78	37	89	40	9	25	103	44	15	29	38	55	31	

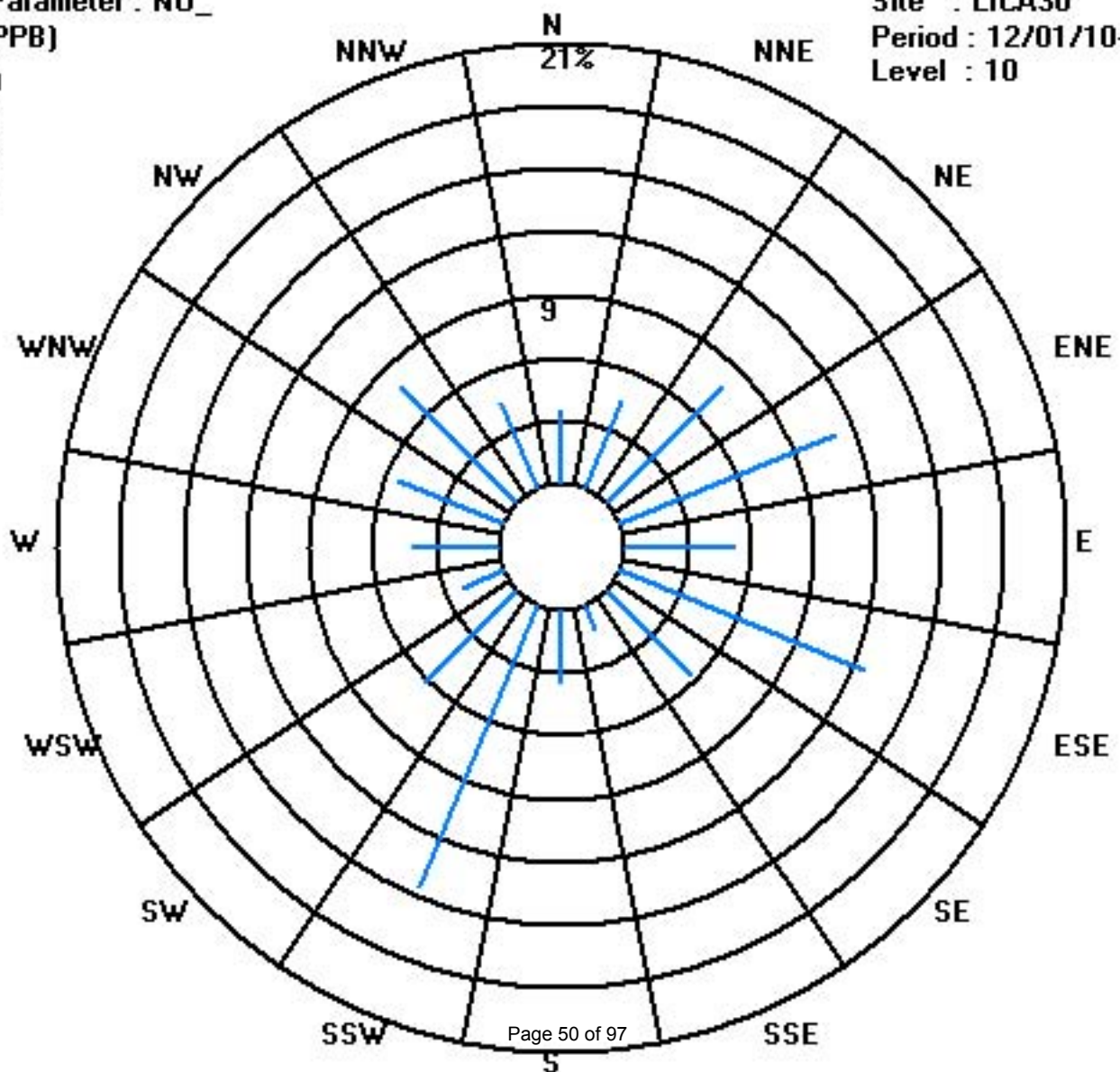
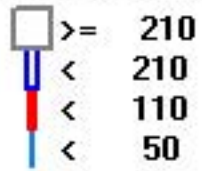
Calm : .00 %

Total # Operational Hours : 705

Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
DECEMBER 2010
OXIDES OF NITROGEN hourly averages in ppb

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	3	2	2	3	1	1	1	1	3	4	IZS	7	5	3	5	4	4	9	4	4	5	5	5	4	9	3.7	24	
2	4	5	5	5	4	4	4	4	4	IZS	5	3	5	6	6	8	7	5	3	3	3	3	2	2	8	4.3	24	
3	2	3	3	5	4	5	4	6	IZS	9	8	7	13	12	6	5	4	2	2	3	4	4	2	2	13	5.0	24	
4	2	1	2	1	2	2	3	IZS	5	5	7	8	9	10	10	12	13	9	10	14	14	14	14	16	16	8.0	24	
5	19	21	17	12	11	10	IZS	24	17	13	14	13	13	14	15	15	16	18	25	24	24	17	15	15	25	16.6	24	
6	14	17	17	17	16	IZS	16	13	18	16	17	26	24	17	19	21	17	13	9	7	5	4	4	3	26	14.3	24	
7	2	1	1	1	IZS	2	3	2	2	2	3	3	2	3	3	5	5	5	2	2	3	4	3	4	5	2.7	24	
8	4	4	4	IZS	3	2	7	9	9	9	6	3	3	2	4	3	4	4	3	3	5	13	6	9	13	5.2	24	
9	7	8	IZS	8	10	3	6	7	2	1	1	1	C	C	C	C	C	C	4	3	2	3	3	4	10	4.3	24	
10	1	IZS	0	0	0	0	1	1	0	0	0	1	0	0	0	0	C	0	0	0	0	0	0	0	1	0.2	24	
11	IZS	0	0	0	0	0	0	1	2	1	1	1	2	2	2	3	1	1	1	4	0	0	1	1	IZS	4	1.1	24
12	1	4	1	1	1	2	1	1	2	6	7	7	8	6	4	10	12	14	10	5	1	2	IZS	2	14	4.7	24	
13	2	3	3	3	3	4	4	4	5	6	6	7	6	7	9	11	13	19	17	17	16	IZS	18	17	19	8.7	24	
14	20	26	26	22	21	11	10	7	4	5	6	9	6	6	6	8	7	9	3	3	IZS	2	2	2	26	9.6	24	
15	1	1	1	1	1	1	4	4	6	9	6	3	2	5	6	7	7	8	4	IZS	2	2	1	1	9	3.6	24	
16	2	2	2	2	2	3	6	18	19	38	31	26	24	18	4	4	4	5	IZS	2	2	7	8	6	38	10.2	24	
17	3	3	4	3	2	2	3	3	5	6	10	3	5	6	6	6	6	IZS	4	4	3	6	7	6	10	4.4	24	
18	4	5	5	5	8	7	12	5	12	18	17	7	6	9	4	4	IZS	4	3	3	3	4	4	5	18	6.7	24	
19	3	4	4	5	4	6	5	8	7	5	15	11	11	3	4	IZS	7	4	4	5	3	5	4	4	15	5.7	24	
20	4	8	10	7	6	5	6	10	15	19	13	6	6	7	IZS	5	10	7	5	3	4	7	7	6	19	7.7	24	
21	12	12	9	6	5	6	5	6	7	9	5	7	6	IZS	10	6	7	15	12	9	2	1	2	2	15	7.0	24	
22	1	1	1	1	1	1	1	1	2	2	2	3	IZS	1	1	1	1	1	0	0	0	0	0	1	3	1.0	24	
23	1	1	1	0	1	1	0	0	0	0	1	IZS	2	2	9	10	12	8	4	3	11	5	6	2	12	3.5	24	
24	2	3	2	4	4	2	6	4	2	2	IZS	2	2	2	2	2	2	2	2	3	3	2	4	2	6	2.7	24	
25	2	2	2	1	2	2	3	4	1	IZS	2	2	2	2	2	2	2	2	2	1	1	1	1	1	4	1.8	24	
26	2	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	1.2	24	
27	9	4	9	8	10	6	3	IZS	1	2	2	4	3	1	1	1	1	1	4	2	1	1	2	1	10	3.3	24	
28	1	1	2	3	5	7	IZS	8	9	9	8	9	13	1	2	1	2	0	3	9	1	1	7	10	13	4.9	24	
29	4	0	4	7	9	IZS	16	7	8	10	7	4	5	9	9	16	8	6	16	8	7	9	6	16	16	8.0	24	
30	8	4	12	14	IZS	7	8	8	11	10	10	7	7	9	9	8	8	9	8	7	7	6	6	6	14	8.2	24	
31	7	7	8	IZS	7	7	9	9	10	10	8	8	7	7	7	8	7	6	9	12	9	10	9	9	12	8.3	24	
HOURLY MAX	20	26	26	22	21	11	16	24	19	38	31	26	24	18	19	21	17	19	25	24	24	17	18	17				
HOURLY AVG	4.9	5.1	5.3	5.0	5.0	3.8	5.1	6.1	6.4	7.8	7.4	6.9	6.8	5.9	5.7	6.2	7.0	6.5	5.4	5.7	4.8	4.6	5.2	5.0				

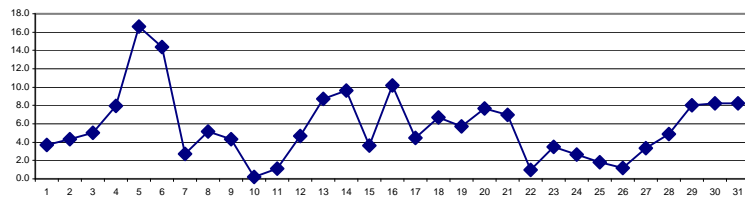
STATUS FLAG CODES

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

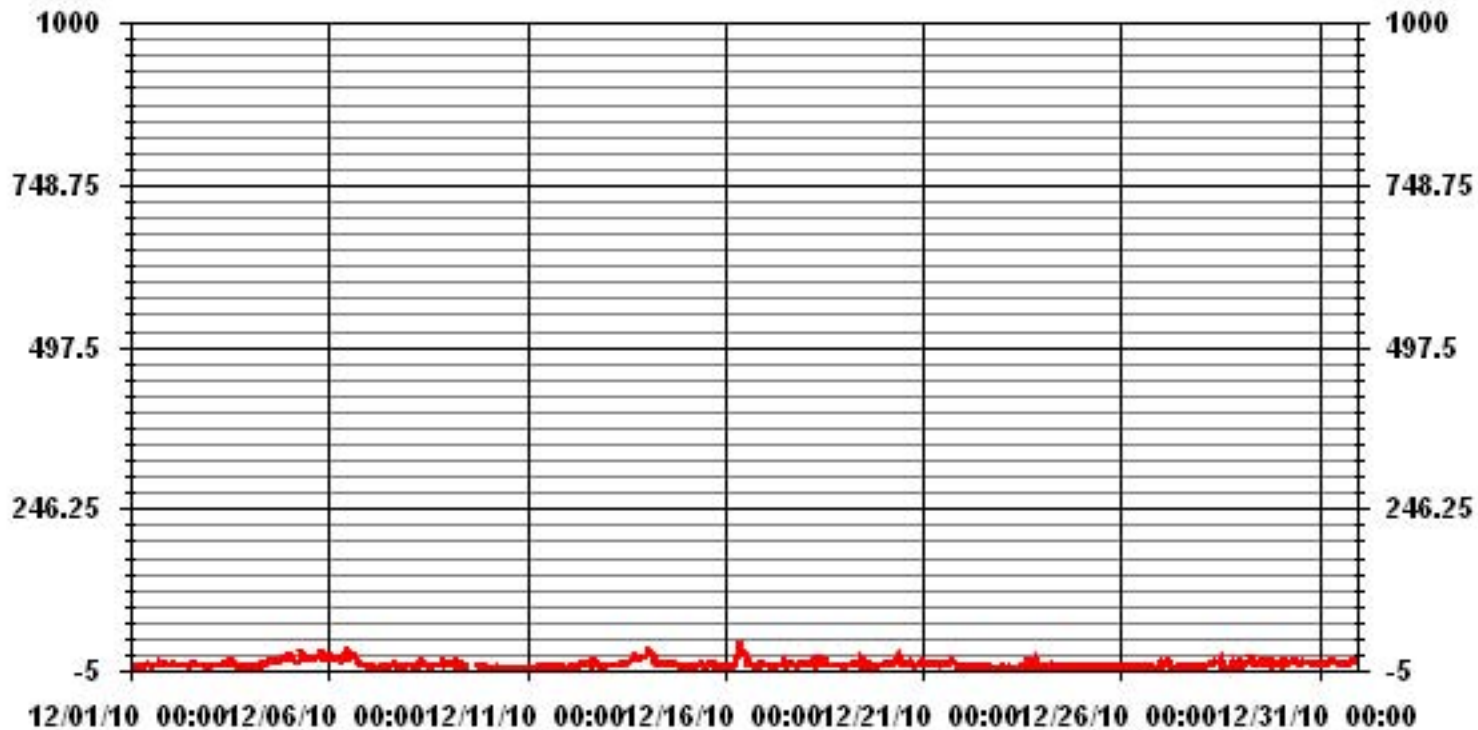
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	668					
MAXIMUM 1-HR AVERAGE:	38	PPB	@ HOUR(S)	9	ON DAY(S)	16
MAXIMUM 24-HR AVERAGE:	16.6	PPB			ON DAY(S)	5
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	5.33		MONTHLY AVERAGE:	5.72	PPB	

24 HOUR AVERAGES FOR DECEMBER 2010



01 Hour Averages



— LICA30 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2010

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	5	4	4	6	2	2	2	3	5	6	IZS	27	7	5	40	33	6	36	5	5	5	5	6	5	40	9.7	24	
2	5	6	6	6	5	5	4	4	5	IZS	7	5	7	8	12	13	13	6	5	3	4	4	3	3	13	6.0	24	
3	3	3	4	8	6	7	6	9	IZS	14	10	9	18	16	9	7	6	3	3	8	7	6	3	2	18	7.3	24	
4	2	2	2	2	3	3	5	IZS	7	7	8	9	11	13	12	17	25	12	13	39	15	15	15	18	39	11.1	24	
5	23	24	19	14	13	11	IZS	42	30	16	16	14	14	16	16	17	18	29	37	29	31	20	17	17	42	21.0	24	
6	15	20	21	20	17	IZS	20	15	52	21	21	130	32	23	52	45	23	15	12	9	6	5	4	5	130	25.3	24	
7	3	2	2	1	IZS	2	9	3	4	3	4	4	3	4	5	8	9	8	3	3	5	6	4	5	9	4.3	24	
8	5	5	5	IZS	4	3	14	16	13	14	14	7	6	3	9	6	8	6	4	6	15	18	13	13	18	9.0	24	
9	9	21	IZS	16	16	8	25	16	7	2	2	18	C	C	C	C	C	C	5	5	3	4	4	5	25	9.8	24	
10	3	IZS	1	1	1	2	2	2	2	3	1	2	2	1	1	1	C	C	0	1	1	1	1	1	3	1.4	24	
11	IZS	1	0	1	1	1	1	2	3	2	2	2	3	3	3	6	5	2	6	14	2	3	2	IZS	14	3.0	24	
12	6	9	2	2	2	3	2	1	6	12	12	11	14	14	7	18	20	19	14	10	2	2	IZS	2	20	8.3	24	
13	3	5	4	4	4	4	5	5	8	9	9	15	8	10	13	15	23	25	21	20	19	IZS	28	25	28	12.3	24	
14	21	32	34	28	26	15	12	21	9	9	12	14	12	10	11	17	14	17	8	4	IZS	3	3	2	34	14.5	24	
15	2	2	2	2	3	2	32	8	22	68	15	5	6	13	9	51	11	11	8	IZS	3	2	2	2	68	12.2	24	
16	2	2	2	2	3	5	10	83	41	56	38	36	43	25	13	7	7	8	IZS	3	3	14	11	7	83	18.3	24	
17	4	4	4	4	3	3	3	4	P	7	10	14	7	16	11	10	12	IZS	6	5	4	10	10	7	16	7.2	23	
18	5	6	6	6	45	30	22	8	34	44	59	9	8	15	5	4	IZS	5	4	4	4	5	5	6	59	14.7	24	
19	4	8	6	5	5	14	11	98	12	8	26	30	23	11	11	IZS	11	8	7	6	6	13	6	5	98	14.5	24	
20	5	11	11	8	7	6	6	14	19	22	20	7	7	9	IZS	7	16	9	8	4	5	9	9	8	22	9.9	24	
21	18	15	12	8	7	7	7	40	10	16	12	14	14	IZS	14	12	18	19	15	14	3	2	3	3	40	12.3	24	
22	2	3	2	1	1	1	2	2	7	3	3	5	IZS	2	2	2	1	1	1	1	1	1	1	1	7	2.0	24	
23	2	1	1	1	1	1	1	1	1	1	1	IZS	3	4	13	16	15	12	6	6	14	12	16	3	16	5.7	24	
24	3	4	3	9	7	9	10	6	3	3	IZS	3	3	3	3	3	3	3	6	5	3	5	5	10	4.6	24		
25	2	2	2	2	2	3	4	8	2	IZS	2	2	2	3	2	3	2	2	2	2	2	2	2	2	8	2.5	24	
26	2	2	2	2	2	2	2	1	IZS	2	2	1	2	4	2	2	1	2	2	1	2	4	7	7	7	2.4	24	
27	21	12	24	22	16	10	4	IZS	2	3	3	13	12	1	1	2	2	2	8	6	2	2	5	2	24	7.6	24	
28	1	2	2	5	7	7	IZS	10	11	12	11	17	18	4	6	2	6	1	8	23	6	4	20	24	24	9.0	24	
29	18	2	11	15	18	IZS	29	25	12	23	18	11	14	41	20	18	24	15	9	22	21	14	17	9	41	17.7	24	
30	11	10	19	23	IZS	10	13	11	18	13	13	10	12	11	11	10	10	10	10	10	7	7	7	7	23	11.4	24	
31	7	8	9	IZS	8	8	10	11	14	12	11	9	7	8	8	9	8	7	10	13	11	12	11	11	14	9.7	24	
HOURLY MAX	23	32	34	28	45	30	32	98	52	68	59	130	43	41	52	51	25	36	37	39	31	20	28	25				
HOURLY AVG	7.1	7.6	7.4	7.7	8.1	6.3	9.4	16.2	12.8	14.2	12.5	15.1	11.0	10.2	11.1	12.4	11.4	10.5	8.1	9.4	7.1	6.9	8.0	7.1				

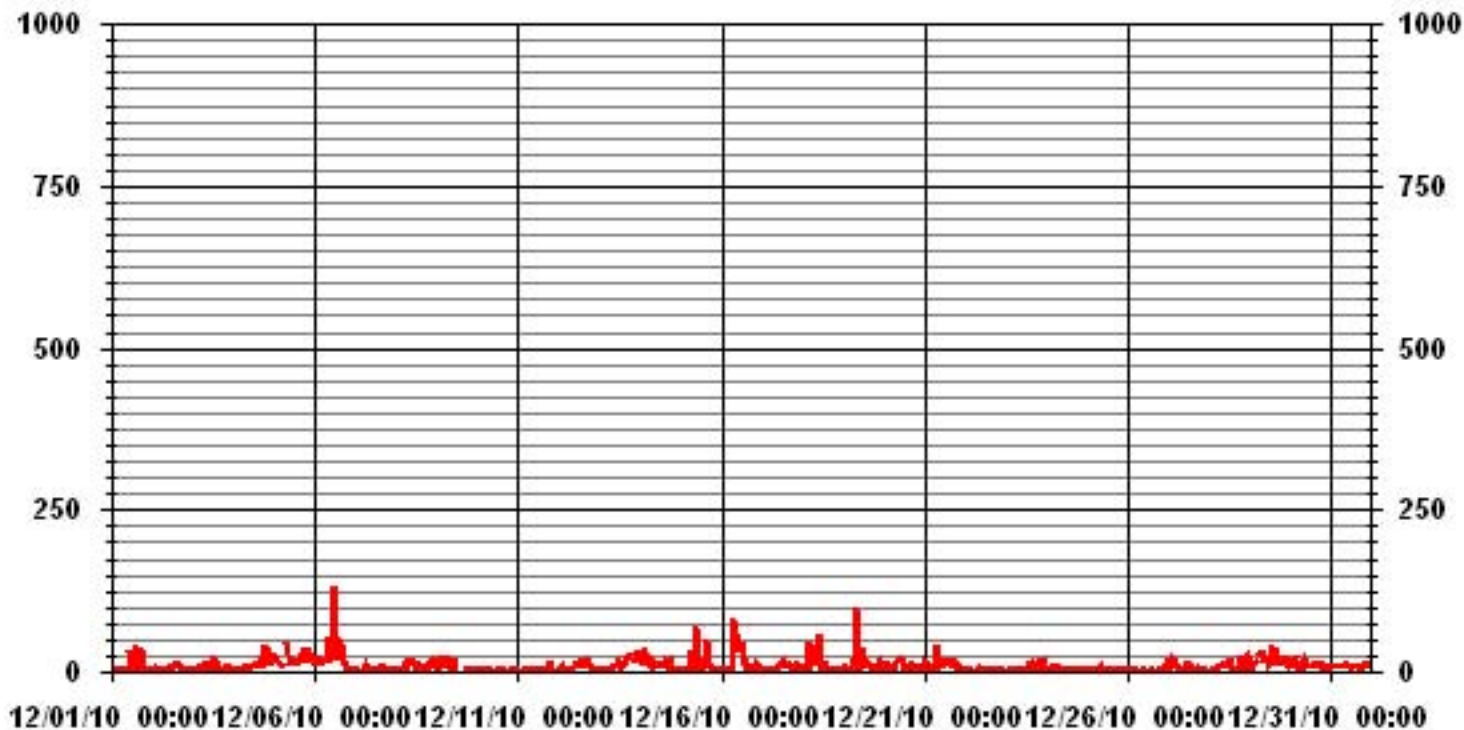
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	701					
MAXIMUM INSTANTANEOUS VALUE:	130	PPB	@ HOUR(S)	11	ON DAY(S)	6
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION	11.20					

01 Hour Averages



— LICA30 NOxMAX PPB

LICA30
 NOX_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 30
 Site Name : LICA30
 Parameter : NOX_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	3.54	4.53	7.80	11.06	5.24	12.62	5.67	1.27	3.54	14.60	6.24	2.12	4.11	5.39	7.80	4.39	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.54	4.53	7.80	11.06	5.24	12.62	5.67	1.27	3.54	14.60	6.24	2.12	4.11	5.39	7.80	4.39	

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	25	32	55	78	37	89	40	9	25	103	44	15	29	38	55	31	705
< 110																	
< 210																	
>= 210																	
Totals	25	32	55	78	37	89	40	9	25	103	44	15	29	38	55	31	

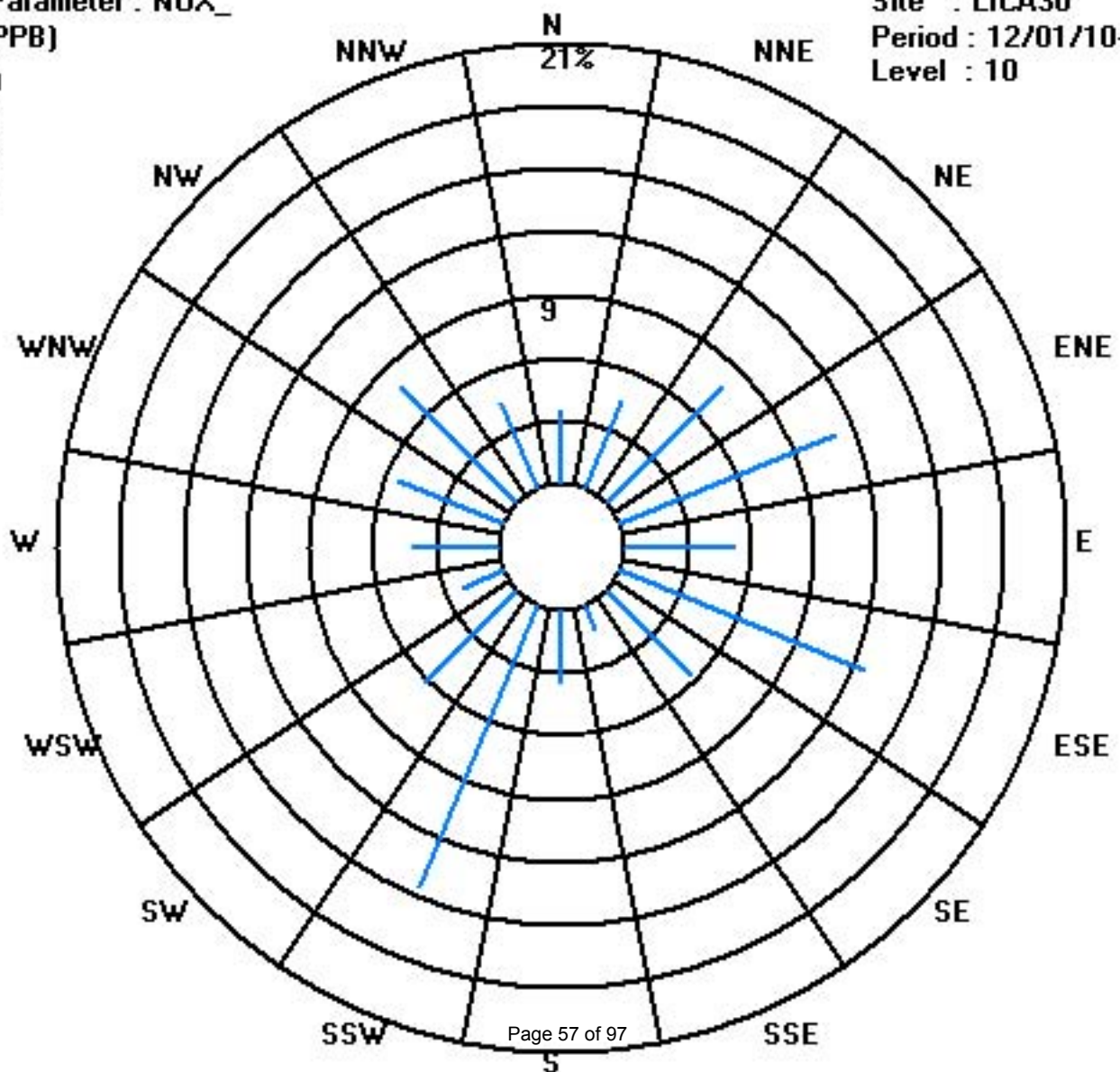
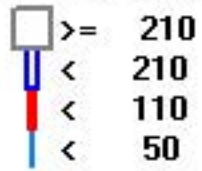
Calm : .00 %

Total # Operational Hours : 705

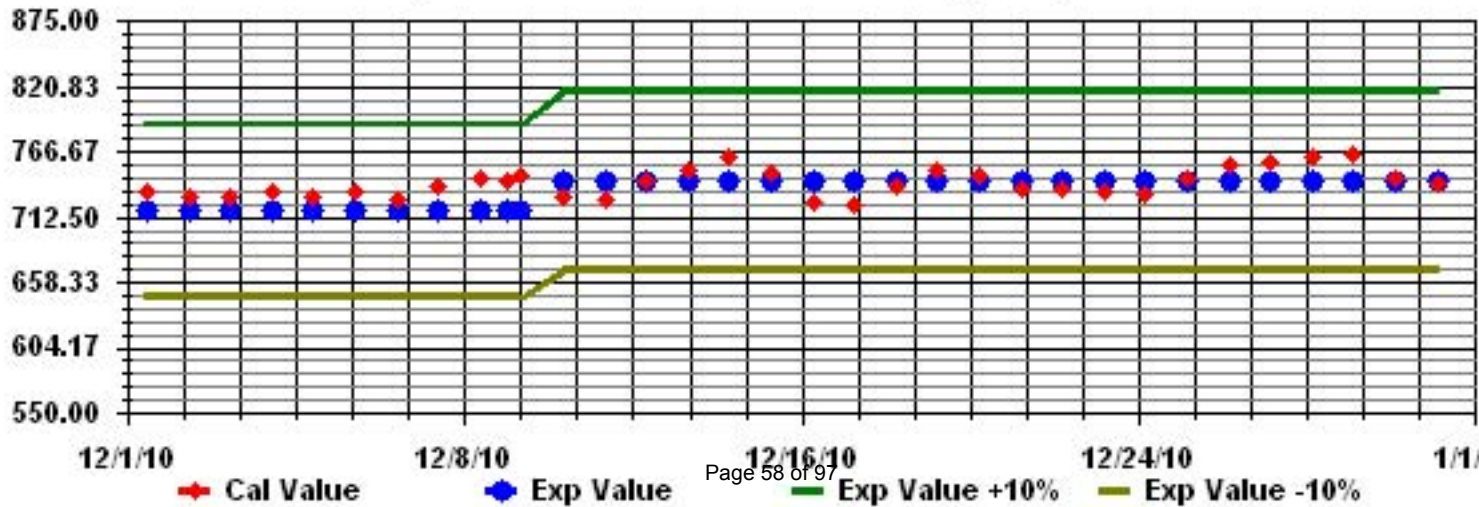
Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



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



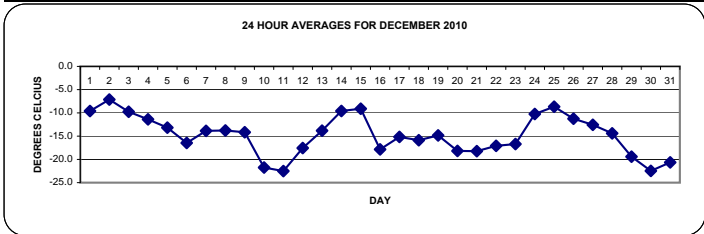
Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
DECEMBER 2010
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY	24-HOUR	
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	1	-9.8	-9.6	-9.5	-9.4	-9.7	-10.1	-10.3	-10.7	-11	-10.7	-10.4	-9.2	-8.8	-8.7	-8.9	-9.1	-9.9	-10.4	-9.8	-9.3	-9.1	-8.9	-8.6	-8.4	-8.4	-9.6	24	
2	2	-8.2	-8.1	-8	-7.8	-7.7	-7.5	-7.3	-7.2	-7	-6.7	-6.2	-6.1	-6	-6.2	-6.2	-6.4	-6.6	-6.8	-7	-7.4	-7.5	-7.7	-7.8	-7.8	-6.0	-7.1	24	
3	3	-7.7	-7.7	-7.7	-7.7	-7.7	-7.7	-7.7	-7.8	-7.7	-7.3	-6.4	-5.8	-6.2	-8.5	-9.9	-11.5	-13	-13.6	-13.7	-13.9	-13.8	-13.7	-13.8	-13.7	-5.8	-9.8	24	
4	4	-13.7	-13.7	-13.9	-14.3	-14.5	-14.4	-13.9	-13.4	-12.6	-11.5	-9.8	-8.6	-7	-5.9	-6.6	-8.7	-9.9	-10.6	-10.6	-10.9	-11.6	-12.1	-12.6	-12.4	-5.9	-11.4	24	
5	5	-12	-12.1	-11.8	-11.6	-12	-12.1	-13.3	-15.3	-15.4	-13.1	-11.3	-9.6	-8.3	-8.6	-8.9	-10.6	-12.6	-14.7	-16	-15.1	-15.7	-17.4	-18.8	-19.8	-8.3	-13.2	24	
6	6	-20.6	-21.1	-20.9	-21.5	-21.6	-22.7	-23.1	-23.5	-23.2	-20.6	-15.8	-10.3	-8.7	-8.3	-8.7	-10.5	-11.8	-12.6	-13.2	-13.8	-15	-15.7	-16.5	-15.4	-8.3	-16.5	24	
7	7	-14.2	-15.4	-16.4	-15	-15.4	-16.5	-16.4	-15.5	-15.5	-13.9	-12	-10.8	-9.9	-10.1	-10.5	-12.5	-12.8	-13.5	-13.8	-14	-14.2	-14.5	-15	-15	-9.9	-13.9	24	
8	8	-15.9	-16.4	-16.6	-16.4	-15.5	-15.9	-15.5	-14.7	-14.1	-13.7	-13.1	-12.7	-12.4	-12.3	-12.1	-13.1	-13.2	-13.2	-12.8	-12.4	-12.2	-12.3	-12.2	-12	-12.0	-13.8	24	
9	9	-11.9	-11.9	-12.6	-12.7	-12.5	-12.2	-12.2	-12.3	-12.6	-13.2	-13.1	-12.4	-13.4	-14	-14.1	-14.7	-15.1	-15.4	-16.1	-16.8	-17.2	-17.5	-17.8	-18.1	-11.9	-14.2	24	
10	10	-18.6	-19.1	-19.4	-19.7	-20	-20.2	-20.5	-20.9	-21.4	-21.7	-21.5	-21.2	-21.3	-21.2	-21.9	-22.6	-23.2	-23.6	-23.8	-23.9	-23.9	-24	-24.1	-24.3	-18.6	-21.8	24	
11	11	-24.4	-24.2	-24.2	-24.1	-24	-23.8	-23.8	-23.4	-23.2	-23	-22.1	-21	-20.8	-20.1	-19.7	-20.6	-21.5	-23	-23.9	-23.1	-22.1	-22	-21.5	-20.8	-19.7	-22.5	24	
12	12	-20.4	-19.9	-19.9	-19.5	-19.3	-19.3	-19.5	-19.6	-19.3	-18.8	-17.9	-17.3	-16.8	-16.4	-15.8	-15.8	-15.9	-15.8	-15.7	-15.7	-15.5	-15.7	-15.9	-15.8	-15.5	-17.6	24	
13	13	-15.6	-15.3	-14.9	-14.6	-14.5	-14.2	-13.9	-13.8	-13.6	-13.2	-12.1	-10.9	-9	-8.3	-8.4	-10.5	-12.8	-14	-15.1	-15.9	-16.9	-17.6	-18.6	-18.1	-8.3	-13.8	24	
14	14	-18.5	-18.3	-17.6	-15.6	-13.9	-14.2	-14.6	-10.6	-8.9	-8.6	-8.1	-7.6	-7	-6.4	-6.8	-6.7	-6.3	-5.6	-5.3	-5.5	-5.6	-5.9	-6.2	-6.3	-5.3	-9.6	24	
15	15	-6.3	-6.6	-6.8	-7	-7.1	-7.3	-7.6	-7.8	-8.1	-8	-8	-7.9	-7.7	-7.4	-7.7	-8.1	-8.4	-9.5	-10.7	-11.9	-12.9	-14.2	-15.2	-16.2	-6.3	-9.1	24	
16	16	-16.2	-16.4	-18	-18.9	-18.7	-18.6	-19.5	-20.6	-21.5	-22.1	-21.1	-16.9	-16.5	-16.1	-16.1	-16.3	-16.7	-17.3	-17.6	-17	-16.8	-16.6	-16.4	-16.3	-16.1	-17.8	24	
17	17	-16.1	-16.2	-16.4	-16.1	-15.8	-15.4	-15.1	-14.8	-14.6	-14.3	-13.4	-12.2	-11.9	-11.4	-11.6	-12.5	-14.7	-15.8	-16.6	-18.4	-18.6	-16.9	-16.6	-18.5	-11.4	-15.2	24	
18	18	-19.6	-20.7	-21.4	-21.3	-20.2	-20.5	-19.1	-19.4	-19.4	-17	-14.7	-13.2	-12.6	-12	-11.8	-11.8	-12.1	-12.6	-13.1	-13.1	-13.5	-13.9	-14	-14	-11.8	-15.9	24	
19	19	-14	-14	-14.1	-14.6	-14.9	-14.9	-14.6	-14.7	-14.7	-14.5	-13.9	-13.8	-13.2	-12.9	-13.2	-13.4	-14	-15.6	-16.6	-16.7	-16.6	-17	-16.8	-17.5	-12.9	-14.8	24	
20	20	-19.3	-19.5	-20	-20	-19.1	-18.6	-18.6	-18.7	-19.5	-19.5	-15.3	-13	-12.7	-12.7	-13	-16.1	-17.4	-18.9	-18.9	-18.3	-19.7	-21.1	-22.8	-23.6	-12.7	-18.2	24	
21	21	-24.2	-24.5	-24.1	-24.4	-25	-24	-23.4	-23.4	-22.5	-18.4	-16.6	-14	-12.7	-12.8	-13.7	-14.1	-14.6	-14.6	-14.7	-14.7	-14.8	-14.9	-15.2	-16.2	-12.7	-18.2	24	
22	22	-17.4	-18.3	-18.9	-19	-19.7	-19.6	-19.7	-20.4	-20.7	-19.7	-16.7	-14.1	-12.8	-11.8	-12.5	-14.1	-14.9	-15.5	-16.7	-16.8	-17.2	-17.6	-17.7	-18.3	-11.8	-17.1	24	
23	23	-18.9	-19.1	-19.3	-19.4	-19.8	-20	-19.6	-20.1	-20.4	-19.3	-18	-16	-14.7	-14.4	-13.5	-13.9	-15	-15.4	-15.4	-14.8	-14.2	-13.5	-13.1	-13	-13.0	-16.7	24	
24	24	-12.7	-12.5	-12.6	-12.6	-12.5	-12.2	-12	-11.9	-11.6	-11.2	-10.5	-9.9	-9.4	-8.8	-8.6	-8.9	-8.9	-8.6	-8.3	-8.1	-8.3	-8.4	-8.6	-8.7	-8.1	-10.2	24	
25	25	-8.7	-8.9	-8.8	-8.3	-8.6	-8.4	-8.6	-8.8	-8.7	-7.6	-5.2	-4.9	-3.9	-3.8	-5	-6.6	-8.5	-10.1	-11.1	-11.7	-12.1	-12.8	-13.3	-13.6	-3.8	-8.7	24	
26	26	-13	-12.9	-13.1	-12.8	-13.6	-13.6	-13.5	-14.1	-14.1	-13.5	-11.3	-9	-7.5	-6.3	-7	-8.1	-9.1	-9.8	-11.3	-11.9	-12.2	-11.5	-10.3	-10.6	-6.3	-11.3	24	
27	27	-10.9	-10.9	-10.7	-10.8	-11	-11.1	-11.3	-11.5	-12.3	-12.9	-13.2	-12.9	-12.8	-12.2	-12.6	-13.5	-13.4	-13.4	-13	-13.4	-13.9	-14.4	-14.8	-14.6	-10.7	-12.6	24	
28	28	-14.2	-13.9	-13.6	-13.6	-14.7	-16.6	-18.3	-18.6	-17.3	-15.6	-12.8	-11.6	-11.1	-10.7	-11.6	-12.5	-13.1	-13.7	-14.3	-14.6	-15.3	-15.8	-15.9	-16.2	-10.7	-14.4	24	
29	29	-17.3	-19.1	-20.1	-19.8	-19.1	-18.9	-18.8	-19.3	-20	-19.6	-18	-16.8	-15.8	-15.7	-16.6	-18.8	-19.9	-20.3	-20.7	-20.9	-21.6	-21.9	-22.7	-24.2	-15.7	-19.4	24	
30	30	-24.4	-24.4	-23.9	-23.5	-23.6	-24.4	-24.9	-25.4	-25.5	-25	-23.3	-22	-21.2	-20	-19.3	-19.5	-21.1	-21.5	-21.8	-21.5	-21.2	-20.7	-20.7	-20.5	-19.3	-22.5	24	
31	31	-20.3	-20.3	-21.3	-21.9	-20.2	-21.4	-22.3	-21.8	-23.4	-24.4	-18.5	-17	-16.1	-15.5	-15.6	-17.4	-20.1	-22	-21	-21.1	-23.2	-23.4	-23.9	-23.9	-20.6	-24	24	
HOURLY MAX		-6.3	-6.6	-6.8	-7.0	-7.1	-7.3	-7.3	-7.2	-7.0	-6.7	-5.2	-4.9	-3.9	-3.8	-5.0	-6.4	-6.3	-5.6	-5.3	-5.5	-5.6	-5.9	-6.2	-6.3				
HOURLY AVG		-15.6	-15.8	-16.0	-15.9	-15.9	-16.0	-16.1	-16.1	-16.1	-16.1	-15.5	-13.9	-12.6	-11.9	-11.6	-11.9	-12.8	-13.7	-14.4	-14.8	-14.9	-15.2	-15.5	-15.7	-15.9			

STATUS FLAG CODES

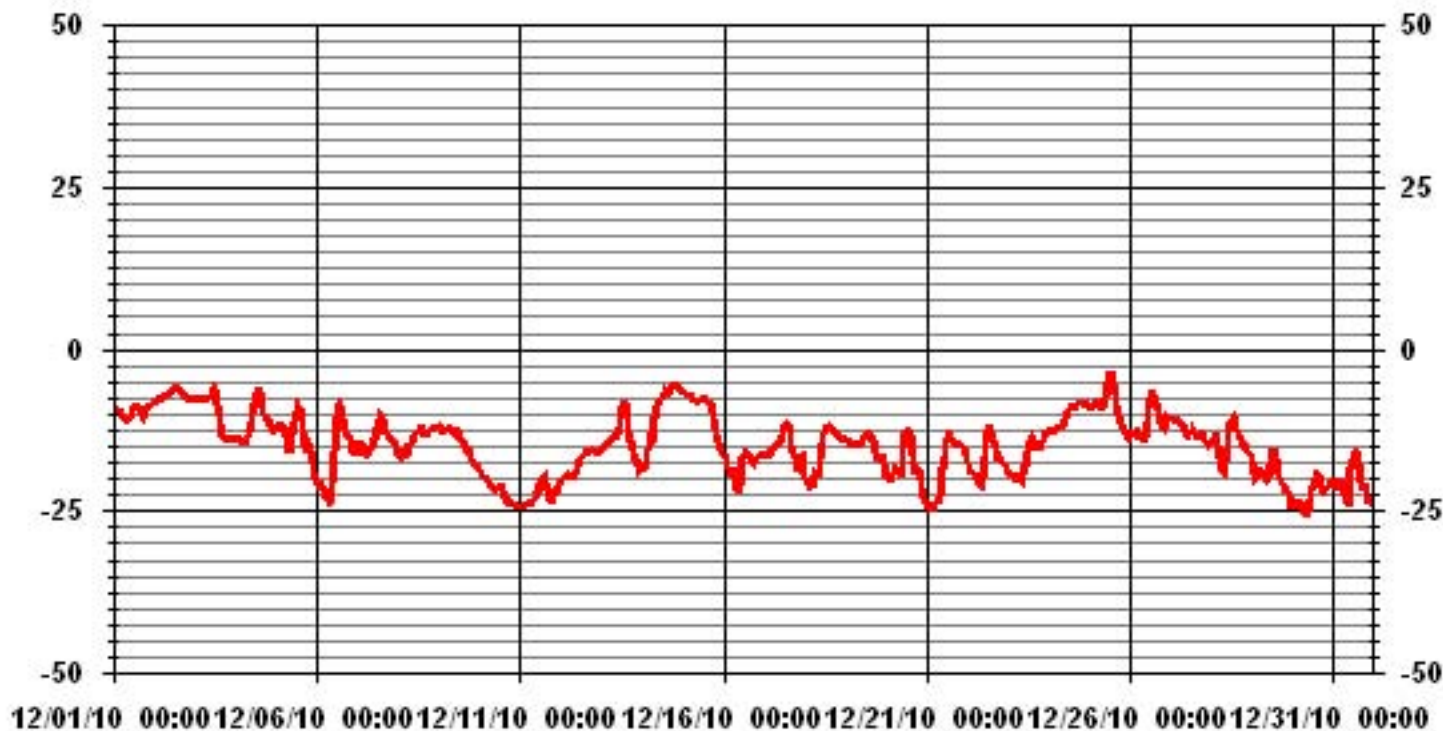
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-25.5 °C	@ HOUR(S)	8	ON DAY(S)	30
MAXIMUM 1-HR AVERAGE:	-3.8 °C	@ HOUR(S)	13	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	-7.1 °C			ON DAY(S)	2
CALIBRATION TIME:	0	HRS			
OPERATIONAL TIME:			744	HRS	
AMD OPERATION UPTIME:			100.0	%	
STANDARD DEVIATION:	4.91			MONTHLY AVERAGE:	-14.75 °C

01 Hour Averages



— LICA30 TPX DGC

Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
DECEMBER 2010
PRECIPITATION hourly averages (mm)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY	DAILY		
HOURLY MAX	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	TOTAL	RDGS.		
DAY																														
1		0	0	0	0	0	0	0	0	0.1	0.1	0.1	0.1	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0.1	0.5	24	
2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0.1	0.2	24
3		0	0	0	0	0	0	0	0	0.1	0.1	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5	24	
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
7		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
8		0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5	0.4	0.3	0.1	0.2	0.1	0	0	0.1	0.3	0.3	0.1	0.5	2.6	24	
9		0.1	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3	24	
10		0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0.2	24	
11		0	0.1	0	0.1	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4	24	
12		0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.1	0.2	0.1	0	0.1	0.2	0.2	1.0	24		
13		0	0.2	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3	24	
14		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5	0.7	0.9	0.4	0	0.6	0.9	3.4	24		
15		0.1	0.1	0.3	0.1	0.2	0	0	0	0.2	0.5	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0	0	0	0	0	0.5	2.8	24	
16		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
19		0	0	0	0	0	0	0.1	0	0	0	0	0	0.1	0	0.1	0	0	0.1	0	0.2	0	0	0	0	0.1	0.2	0.7	24	
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
31		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
HOURLY MAX		0.1	0.2	0.3	0.1	0.2	0.2	0.1	0.1	0.2	0.5	0.3	0.2	0.5	0.4	0.3	0.1	0.2	0.3	0.5	0.7	0.9	0.4	0.3	0.6					

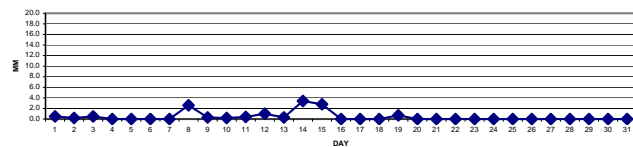
STATUS FLAG CODES

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

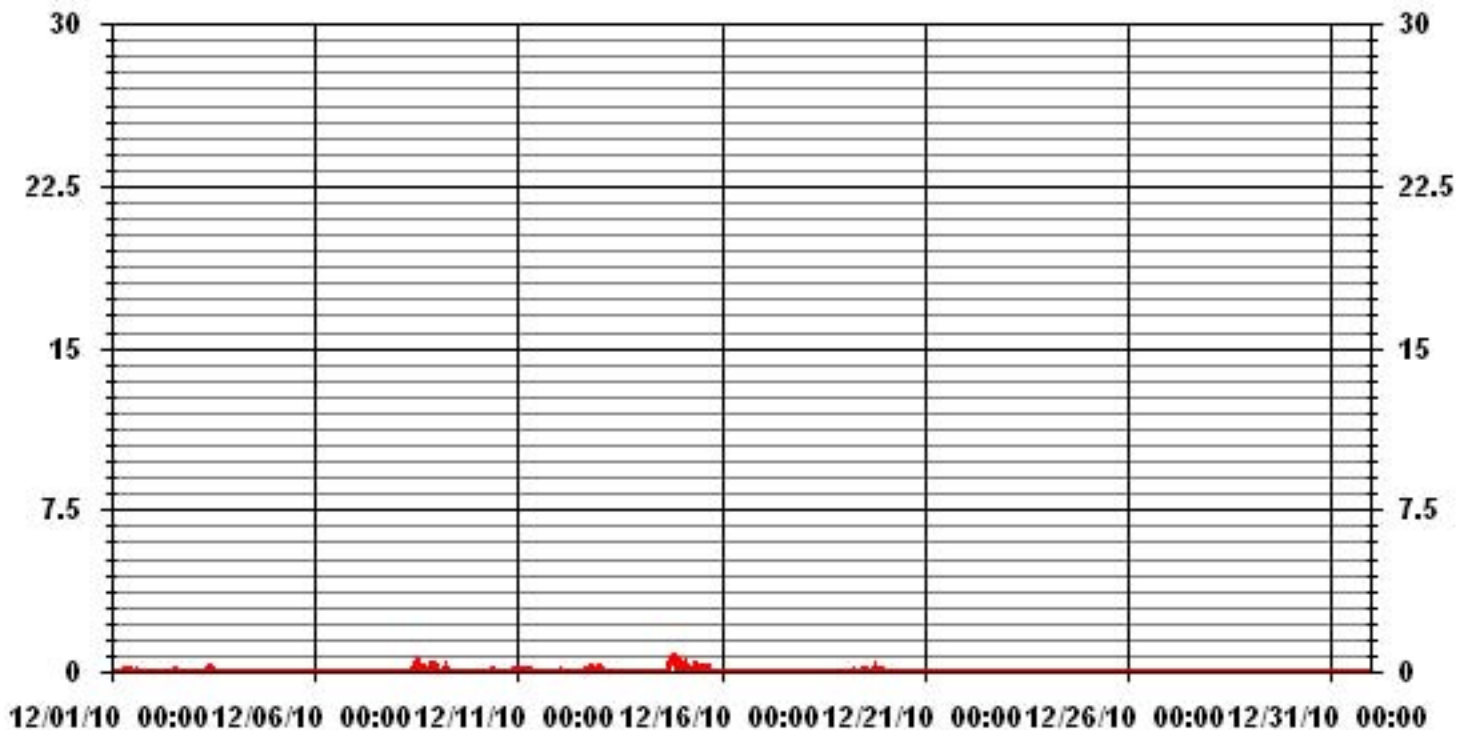
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	0.9	MM	HOUR(S)	20	ON DAY(S)	14
MAXIMUM DAILY TOTAL	3.4	MM			ON DAY(S)	14
MONTHLY TOTAL	12.9	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	0.07		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.02	MM	

DAILY TOTALS FOR DECEMBER 2010



01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2010

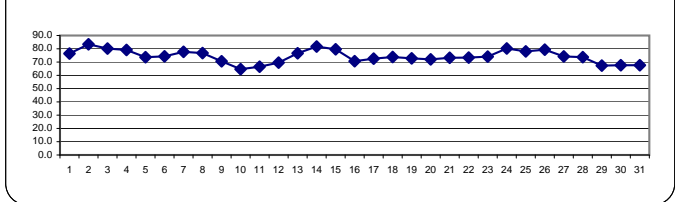
RELATIVE HUMIDITY hourly averages (%)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	1	75	75	76	78	78	76	76	76	75	74	71	71	72	74	76	79	80	80	80	79	79	79	79	79	80	80	76.4	24
2	2	79	79	80	81	84	85	85	85	85	84	83	83	83	83	84	85	85	85	85	84	84	84	84	84	84	85	83.4	24
3	3	84	84	84	84	84	83	83	83	83	83	83	83	80	78	76	76	77	76	76	76	77	77	77	78	78	84	80.2	24
4	4	78	78	78	78	78	78	79	79	79	80	81	80	77	73	74	82	83	83	82	81	80	80	79	79	83	79.1	24	
5	5	79	79	78	78	77	77	77	77	76	72	68	65	64	63	64	67	73	78	78	77	75	77	75	74	79	73.7	24	
6	6	73	73	73	71	72	70	70	69	70	73	74	69	70	71	73	79	81	79	80	80	79	78	78	78	81	74.3	24	
7	7	77	77	76	77	77	76	76	76	76	76	77	78	79	79	79	79	80	80	79	79	79	78	78	77	80	77.7	24	
8	8	76	76	75	77	77	76	77	77	77	78	78	77	77	77	76	76	76	77	77	77	77	77	77	77	78	76.8	24	
9	9	76	75	73	74	74	75	75	75	74	70	70	65	66	66	67	70	71	71	70	68	67	66	68	68	76	70.6	24	
10	10	66	67	67	67	67	66	65	64	64	62	59	60	59	61	64	66	65	66	66	66	66	66	66	66	67	64.7	24	
11	11	66	66	66	66	66	67	67	67	67	66	64	63	64	63	63	67	67	69	69	70	68	68	68	69	70	66.5	24	
12	12	68	69	69	70	69	69	69	68	68	68	66	66	66	67	69	70	71	72	73	73	72	72	73	73	73	69.6	24	
13	13	73	75	75	75	77	79	78	78	78	78	78	78	76	73	72	78	81	80	78	77	76	75	75	76	81	76.6	24	
14	14	74	75	75	79	80	79	78	83	83	82	82	82	83	83	84	84	85	85	85	85	84	84	83	83	85	81.7	24	
15	15	83	83	83	82	82	83	82	82	81	82	80	78	78	78	79	80	81	79	78	77	76	75	74	75	83	79.6	24	
16	16	75	75	75	75	74	74	73	73	72	71	70	67	67	65	65	68	70	71	71	70	69	69	68	69	75	70.7	24	
17	17	69	70	72	71	71	72	72	72	72	72	69	68	71	71	73	76	79	78	76	75	74	73	72	74	79	72.6	24	
18	18	74	74	74	74	73	74	72	72	72	72	72	72	73	74	73	75	76	75	74	74	74	75	76	76	76	73.8	24	
19	19	75	74	73	72	72	73	73	73	73	72	71	69	68	67	70	71	73	76	76	75	75	76	75	75	76	72.8	24	
20	20	74	74	74	74	74	73	72	72	72	71	67	67	65	65	67	75	77	76	77	76	74	72	71	70	77	72.0	24	
21	21	70	70	70	69	69	70	70	70	71	74	72	71	71	74	76	77	78	78	78	77	76	76	76	76	78	73.2	24	
22	22	76	75	75	75	74	75	74	74	73	71	68	67	66	65	69	74	76	76	76	77	77	77	76	75	77	73.4	24	
23	23	74	74	74	73	73	73	72	73	72	72	71	71	73	72	74	76	76	76	76	77	78	78	78	78	78	74.1	24	
24	24	79	79	79	79	79	80	80	80	80	80	80	80	79	79	79	81	81	82	82	82	82	81	81	81	82	80.3	24	
25	25	80	80	80	80	80	80	80	80	80	77	70	70	68	69	73	78	82	82	82	81	81	81	81	80	79	82	78.0	24
26	26	80	80	80	80	79	79	79	79	79	78	77	77	76	75	78	80	81	82	81	81	81	81	81	81	81	82	79.3	24
27	27	80	80	80	78	78	78	77	77	75	73	72	68	69	69	70	72	73	73	73	74	74	74	73	72	80	74.3	24	
28	28	72	72	73	74	75	77	76	76	74	76	77	75	74	72	73	74	75	75	73	73	72	71	70	70	77	73.7	24	
29	29	69	70	71	71	72	72	72	72	71	69	63	58	56	56	59	67	69	67	67	68	69	69	69	70	72	67.3	24	
30	30	70	69	70	69	69	69	69	68	67	66	64	63	64	64	65	66	69	69	69	68	69	69	69	69	70	67.6	24	
31	31	69	70	71	72	70	71	72	71	69	65	62	60	57	56	57	63	71	73	70	70	70	72	71	71	73	67.6	24	
HOURLY MAX		84	84	84	84	84	85	85	85	85	84	83	83	83	83	84	84	85	85	85	85	84	84	84	84	84			
HOURLY AVG		74.6	74.7	74.8	74.9	75.0	75.2	74.9	74.9	74.5	73.9	72.5	71.0	70.6	70.2	71.3	74.3	76.1	76.4	76.0	75.7	75.3	75.2	74.8	74.9				

STATUS FLAG CODES

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

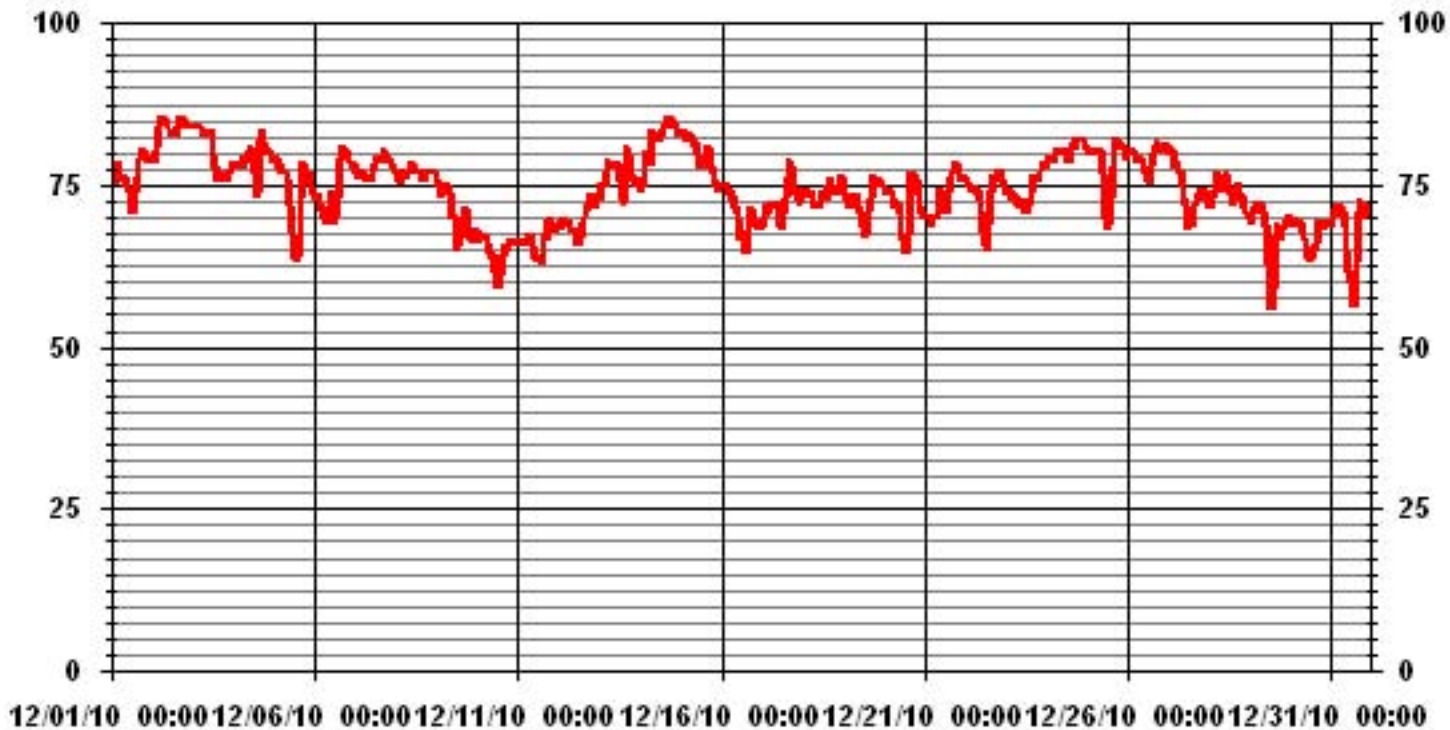
24 HOUR AVERAGES FOR DECEMBER 2010



MONTHLY SUMMARY

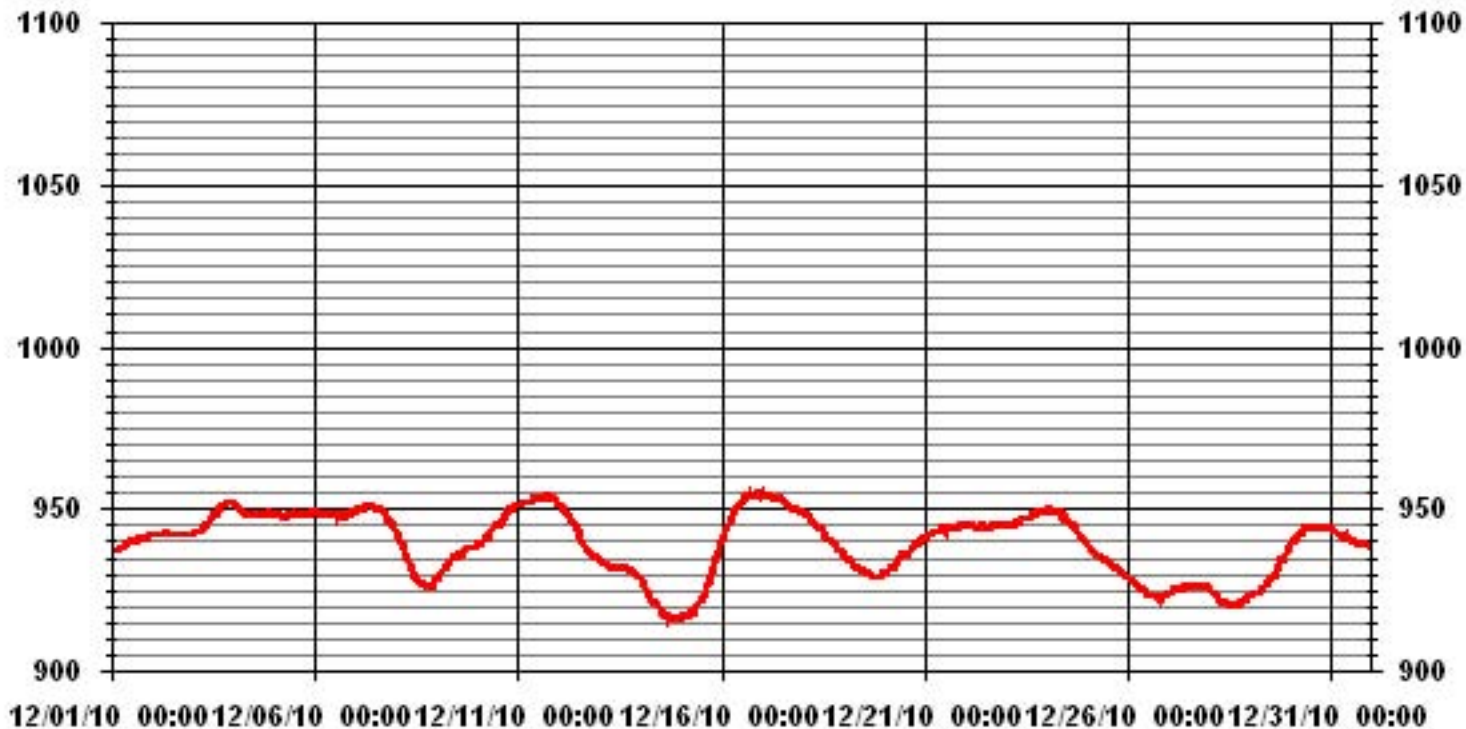
MAXIMUM 1-HR AVERAGE:	85	%	@ HOUR(S)	VAR	ON DAY(S)	2
MAXIMUM 24-HR AVERAGE:	83.4	%			ON DAY(S)	2
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	5.57		MONTHLY AVERAGE:	74.24	%	

01 Hour Averages



Barometric Pressure

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2010

WIND SPEED hourly averages (km/hr)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOURLY MAX	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		6	6.3	5.5	4.2	4.9	4.2	4.5	4.5	3.6	4.2	3.7	3.5	3.7	4.4	4.2	4.2	3.2	4	3.5	4.7	3.6	2.7	3.2	2.8	6.3	3.2	24	
2		2.3	2.5	1.9	1.3	2.5	1.3	0.5	0.9	0.3	1	1.3	3.5	3.7	3.4	2.1	1.5	4.3	3.7	4.9	5.6	3.7	4.1	4.3	3.2	5.6	1.9	24	
3		2.9	3	2.5	1.8	2.1	1.2	1.2	1.8	2.3	3	2.9	4.3	6	6.4	6.5	5.3	5.2	3.7	3.3	1.9	3.1	3.3	2.6	3	6.5	2.2	24	
4		4.7	5.6	6.7	8.7	7	5.5	5.9	5.5	3.8	6.4	6.6	7.6	5.5	4.4	4.7	2.7	3.3	3.9	5.2	5.9	5.1	4.4	5.9	4.1	8.7	5.3	24	
5		3.7	5.5	5.7	5.6	6.7	6.2	3.5	1.3	3.3	4.9	5.7	5.3	5.2	6	4.9	3.4	1.5	1.1	1.4	3.7	1.1	1.5	0.8	0	6.7	3.6	24	
6		0.1	0.4	2.3	0.5	1.2	0.8	0.5	1.7	0.9	1.5	0.7	0.2	3.7	5.1	1.9	2.4	4.5	4.1	4.1	3.8	2.6	1.9	2.1	4.1	5.1	1.7	24	
7		2	2.4	2.2	5.2	3.3	2.7	1.8	3.9	4.5	5.3	5.6	5.4	5.7	4.5	4.6	2.7	2.9	4.2	4.1	4.5	4.9	4.9	5.6	6	6	3.2	24	
8		5.4	5.4	7.1	6.9	7.2	7.7	7.7	6.3	6.4	6.7	5.9	6.2	5	3.9	1.7	4.2	1.4	2	2.7	4.1	5.4	6.3	7.7	7.5	7.7	2.3	24	
9		8.7	7.6	6.7	7.1	7.6	6.2	6.8	7.6	6.3	6.5	6.5	7.1	7.7	6.7	5	6.3	5.7	6.5	8.9	7.7	6.3	7.2	5.8	6.5	8.9	5.9	24	
10		7.9	8.4	8	7.3	6.2	6.6	8	9.1	7.9	6.2	6.1	6.7	5.7	5.4	3.7	2.9	9.4	4.2	5	3.9	0.4	4.7	1.7	2.1	9.4	4.5	24	
11		0.8	3	3.2	3.2	0.3	1.8	4.9	1.1	6	1.4	4.1	2.1	3.3	5.2	5.2	4.1	4.8	4.1	2.2	9.4	5.7	6.5	5.6	7.2	9.4	2	24	
12		7.1	6.2	6.8	7.1	7.4	6.7	5.4	6.7	8.1	7.7	7.7	7.7	8.2	9.6	9.5	9.5	9.1	8	7.4	6.7	6.9	7	6.5	5.7	9.6	7.3	24	
13		6.5	4.2	5.3	5.9	6.8	6.9	7.7	7.1	5.1	4.1	4.5	5	5.7	6.5	4.7	1.9	0.8	0.6	1.2	1.1	2.1	1.5	2.3	1.7	7.7	3.1	24	
14		1	0.9	1.9	4	4.5	3.6	3.9	3.9	6.8	7.3	7.7	7.9	7	8.6	8.4	8.1	9.4	7.7	8.8	6	6.4	8	9.5	8.8	9.5	5.9	24	
15		5.6	6	6.1	7	5.4	4.9	5.6	7	7.5	6.7	6.4	5.5	3.9	3.1	3.5	3.7	3.9	5.2	5.8	6.6	8.2	9.6	7.2	6.2	9.6	0.7	24	
16		5.9	5.4	4.3	4.1	2.9	2.7	2.3	3.1	2	1	1.2	0.3	0.7	1.6	2	2.6	1.4	1.8	2.2	2.9	3.2	3	2.7	3.6	5.9	0.7	24	
17		4.1	3.9	2.4	3.7	2.7	1.9	1.7	0.4	0.9	1.8	0.4	1.2	4.1	3.4	3.5	3	2.8	2.9	2.5	3	1.4	2.9	3.7	2.2	4.1	2.1	24	
18		2.3	1.1	0.6	2	2	2	4.4	3.7	4.3	3.7	3.8	4.5	6	5.6	6.1	4.9	6.7	5.8	5.4	4.3	5.9	5.5	5	4.7	6.7	3.8	24	
19		5.3	7.1	6.6	7.8	6.4	6.6	7	6.9	6.8	7.3	7.1	7.1	8.3	6.2	5.5	4.6	4	2	2.5	1.2	1.9	2.7	2.7	1.3	8.3	4.4	24	
20		1.5	5.2	3.6	3.4	3.2	0.9	1.1	1.1	0.8	0.6	1.2	4.2	3.5	1.6	4.5	3.9	4.1	2.8	3.9	5	2.7	1.9	1	2	5.2	1.4	24	
21		3.3	3.1	2.2	2.8	3.1	3.9	3.3	3.4	3.8	5.5	6.6	6.4	9.4	9.9	6.5	6.7	6.8	6.3	5.8	6.7	6.8	6.3	6.6	4.4	9.9	4.8	24	
22		3.8	3	3.3	3.3	2.3	2.8	2.7	1.6	2.5	3.1	3.5	4.1	4.8	4.1	6.3	6.3	5.5	5.1	3.8	4.8	4.5	4.7	5.1	5.9	6.3	3.9	24	
23		6.4	6.5	6.1	7	5.7	4.4	4	3.7	3.6	4.4	4.3	4.6	5.3	4.2	6.4	7	7.4	4.3	2.6	3.7	6.2	5.8	6.1	5.5	7.4	4.7	24	
24		5.2	5	5	5.7	5.7	5.8	6	7.1	5.9	7.8	7.3	7.9	7.6	8.9	8.1	6.7	6.7	9.6	8.4	7.8	8.7	7.2	8.5	8	9.6	7	24	
25		6.6	6.9	6.7	7.3	5.9	5.7	6.7	5.8	5.9	6.9	5.2	4.7	4.4	4	3.8	3.3	3.1	1.5	0.5	1.9	1.4	0.5	2.6	2.5	7.3	4	24	
26		4.1	4.4	4.1	3.9	3.8	5	4.9	4.5	5.4	4	4.9	5.5	5.3	3.8	4.2	4.1	3.8	3.3	1.3	2.5	1.1	0.5	5.2	7.2	7.2	3.2	24	
27		7.4	5.9	6.9	9.4	8.6	5.4	4.4	4.4	9.1	10.2	10.5	11.1	10.9	7.6	9.2	9.4	6.3	8.7	10	6.2	6.6	8.3	9.9	6.8	11.1	7.9	24	
28		5.9	4.1	4.7	4.5	4.5	5	3.5	4	5.3	3	3.7	4.2	5.3	5.1	5.5	4.8	6.4	6.8	6.5	7.4	7	7.6	7.3	7.4	7.6	4	24	
29		8.4	6.8	7.4	6.7	7.3	9.2	8.5	7.8	8.1	8.4	8.6	7.6	6.6	6.7	6.2	6.3	6.7	6.4	6.6	6.3	5.4	4.9	3.6	2.5	9.2	6.6	24	
30		1.4	3.8	6.3	5.5	1.6	1.3	1.7	3.8	2.8	2.4	2.9	4.7	4.3	3.7	3.9	3.6	4.5	2.9	4.3	6.5	6.3	5	3	3	6.5	2.9	24	
31		5.7	7.1	3	4.8	7.2	4.2	3.4	4.2	3.1	2.2	4.7	6.7	5.9	7	6.9	2.9	2.8	2.3	3.8	4.8	1.7	3.6	3.5	4.4	7.2	4.2	24	
HOURLY MAX		8.7	8.4	8.0	9.4	8.6	9.2	8.5	9.1	9.1	10.2	10.5	11.1	10.9	9.9	9.5	9.5	9.4	9.6	10.0	9.4	8.7	9.6	9.9	8.8				
HOURLY AVG		4.6	4.7	4.7	5.1	4.7	4.3	4.3	4.3	4.6	4.7	4.9	5.3	5.6	5.4	5.1	4.6	4.8	4.4	4.5	4.9	4.4	4.6	4.8	4.5				

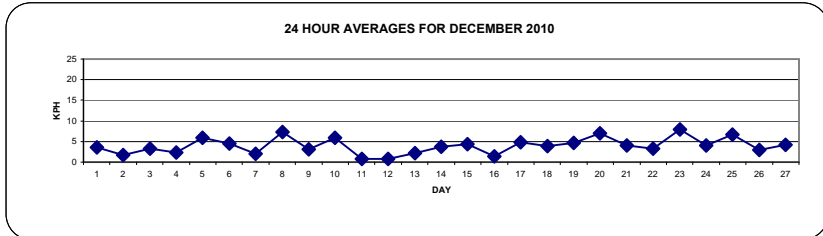
STATUS FLAG CODES

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

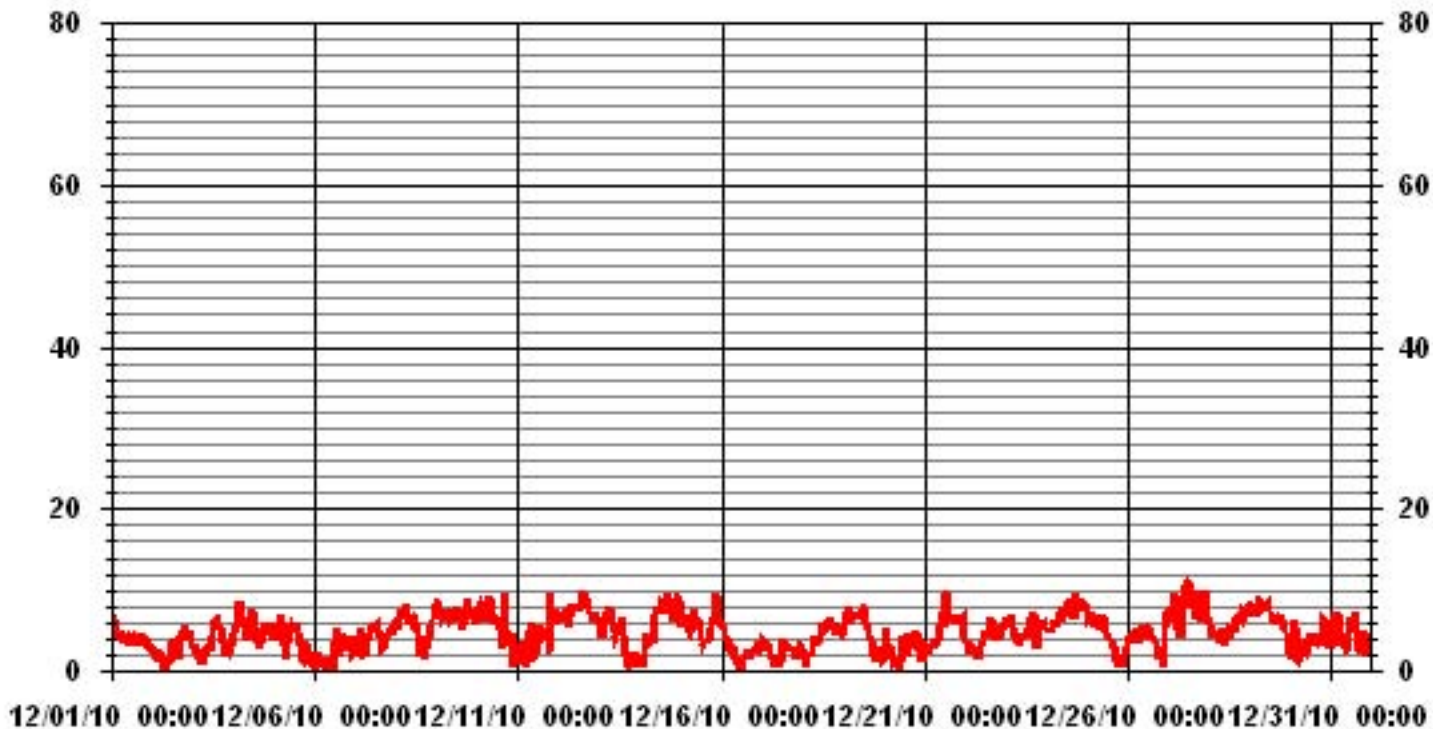
LAST CALIBRATION: February 4, 2009

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	11.1	KPH	@ HOUR(S)	11	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	7.9	KPH			ON DAY(S)	27
CALMS (≤ 1 KPH)	3.49	%			OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	0	HRS			AMD OPERATION UPTIME	100.0 %
STANDARD DEVIATION	2.26				MONTHLY AVERAGE	4.73 KPH



01 Hour Averages



— LICA30 WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2010

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
HOUR START		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.
HOUR END		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	
DAY																											
1		21.8	22.4	20.3	17.9	15.7	15.1	16	13.6	13.8	18.9	11.2	12.5	13.6	14.9	13.4	12.9	12.7	12.3	12.5	12.5	16.6	15.7	21.3	18.1	22.4	
2		14.9	17.7	21.8	17.9	18.1	11.2	9.3	10.8	9.5	47.4	20.3	12.1	13.1	13.8	11	21.3	12.3	12.3	11.4	12.3	12.5	13.8	14.9	19.4	47.4	
3		20.5	14.4	17.8	11.4	11.6	11.4	17	11.9	11.6	15.3	17.6	21.5	21.3	29.7	23.5	21.6	19.6	15.5	15.7	32.3	16.8	28.5	18.8	16.2	32.3	
4		30.2	23.1	24.4	27.5	21.1	15.3	14.5	15.5	15	21.1	19.6	22.2	18.8	17.2	20.6	18.8	14	12.1	14	14.2	13.8	12.9	16	11.9	30.2	
5		12.1	12.3	15	15.3	18.1	15.1	13.8	50.6	18.3	14.9	15.7	15.3	32.6	15.5	12.1	12.1	20.1	18.8	58.8	16.4	41.6	86.6	48.1	20.1	86.6	
6		77.6	83.9	98.1	58.2	16.2	44	28.3	176.6	32.4	43.8	46.4	26.9	14	9.5	21.6	44	29.7	16.6	43.5	17.9	69.8	68.1	84	20.9	176.6	
7		64	66.2	68.1	55.8	74.4	51.7	18.4	36	64.7	19.2	19.4	20.1	21.8	16	22.6	15.3	55.6	14.5	30	15.1	16.4	14.9	18.1	19.6	74.4	
8		43.5	17.9	23.1	25	23.1	23.9	27.2	33.6	33.9	24.8	20.5	28.5	22.6	16.6	26.3	17.2	74.3	46.8	31.1	21.3	23.9	27.8	25.4	26.3	74.3	
9		28.7	30	28	23.4	27.1	24.4	25.6	26.5	24.5	23.1	26.5	25.9	20.3	25.7	15.3	18.4	16	20.3	22.6	20.3	19.4	17.9	17.5	18.9	30	
10		17	25.7	19.4	24.4	52.6	14.9	19.7	20.5	21.4	35.2	15.5	16.6	18.1	83.2	49.4	53.7	53.9	39.5	26.3	27.2	52.6	29.8	52.4	69	83.2	
11		49.8	30.6	25.9	30.2	48.3	52.4	92.1	54.1	85.4	56.5	48.9	57.1	81.1	61.7	17.7	79.6	31.1	31.1	51.5	54.6	23.5	39.3	30.8	41	92.1	
12		31.5	21.1	37.7	39.1	31.5	24.2	43.5	28.7	26.7	29.6	28.5	27	32.1	34.3	28.2	35.8	33	28	29.5	25.2	25.9	23.1	23.1	16.6	43.5	
13		15.8	47.9	16	14.2	19	17.5	21.1	19.6	19	14.7	17.7	13.6	16.4	17.5	12.9	33	10.3	12.7	30	47	49.8	83.1	73.7	80.8	83.1	
14		59.5	50.7	58.2	29.8	15.3	54.7	32.1	29.1	32.1	22.8	26.1	39.9	25.2	26.1	32.3	26.1	38.1	26.1	28.7	21.5	28.2	25.8	33.8	30.4	59.5	
15		24.1	24.4	23.7	25.4	21.8	19.8	17.5	16.4	18.8	14.7	14	14.9	15.7	15.1	44.4	21.3	15.7	25	15.3	16.6	19.8	22.6	21.6	17.7	44.4	
16		17.5	17.3	16.6	16.2	10.8	25.2	43.1	53.9	19.4	56.9	40.1	65.1	16.8	76.5	64	46.4	61.2	57.3	73.3	44	85.4	58.8	38.4	15.1	85.4	
17		16.2	42.7	82.9	27.2	40.5	28.7	55.6	67.2	0	31.7	20.1	30.2	15.5	15.9	14.2	17.5	19	28.2	18.1	72.6	92	73.7	15.1	17.4	92	
18		85.8	30.6	74.6	105.2	84.3	98.9	18.1	51.5	37.1	26.7	42.9	19.6	19	21.6	19.4	17.3	20.9	24.3	18.3	20.9	21.3	19.6	21.8	18.3	105.2	
19		20.1	28.7	34.7	30.6	23.7	29.8	20.9	25	24.6	32.8	26.1	22.2	26.7	25.2	21.1	18.8	27.6	48.9	27.8	54.3	30.2	14.2	15.8	45.3	54.3	
20		21.6	15.3	41.2	14.7	20.7	90.7	50.9	59.9	84.9	65.3	61.7	15.3	16.2	17	61.8	30.8	80	55	88.4	39.9	81.3	90.3	61	47.5	90.7	
21		45.9	28	61.9	38.6	37.3	39.7	53	29.6	31.3	31.9	30.2	29.5	28.2	34.5	29.3	21.6	30	23.2	22.7	23.5	26.3	24.1	21.7	83.6	83.6	
22		67.5	36.7	53.5	82.8	64.9	83.6	58.2	54.7	50.7	82.1	13.2	15	26.9	17.3	20.9	22	19.4	18.1	25.4	50	69.6	41.8	25.9	20.1	83.6	
23		50.9	23.9	66.6	26.5	28.7	65.3	50.9	82.1	55.6	25.8	69	26.1	19.6	24	22.2	26.1	26.5	39.4	43.1	41.2	25.2	33.2	24.4	17	82.1	
24		18.9	16.2	20.1	21.6	19.2	24.1	24.8	22.4	20.7	19.4	20.7	23.3	28.7	29.1	27.4	22.4	24.6	30.6	27.8	32.8	28.7	28.7	28.4	29.3	32.8	
25		22.1	21.1	26.1	26.9	17.9	31.5	27.1	22	23.1	20.1	21.6	19	15.9	16.2	16	17.7	60.5	43.3	9.7	17.9	43.9	28	61.2	27.8	61.2	
26		41.2	29.5	26.5	27.6	45.7	26.3	18.6	59.7	14	15.5	16.8	19.2	20.9	20.2	16.8	15.5	17.7	17.3	31	17.4	53.4	58	19.6	28.2	59.7	
27		27.4	23.7	28.9	32.6	28.9	27.8	20.5	30.8	35.8	32.8	35.1	40.5	39.2	29.7	35.6	35.6	30	38.4	34.2	29.5	43.8	33	35.1	28.9	43.8	
28		34.3	40.3	19.8	45.1	18.3	17	59.1	19.2	14	59.1	24.1	30	19.2	20.5	21.3	23.3	28.5	23.5	23.9	27.7	25.7	30	27	26.5	59.1	
29		31.2	31.7	29.6	39.7	28.9	34.3	33	36.9	40.3	28.9	30.6	27.6	32.9	29.5	20.9	33	24.6	28.9	29.6	34.9	20.7	21.6	26.8	52.8	52.8	
30		55.9	52.4	38	33.4	53.5	53.1	83.4	15.3	22.9	31.1	18.7	18.8	79.3	27.6	13.6	17	16	55	17.7	16.2	16.6	15.7	52.2	90.1	90.1	
31		15.1	17.9	65.3	28.3	22.4	28.3	28.3	17.7	44	46.2	15.1	16.6	18.5	16	19.4	63.8	20.3	14	13.6	14.2	33.4	16	55.4	19.7	65.3	
PEAK		85.8	83.9	98.1	105.2	84.3	98.9	92.1	176.6	85.4	82.1	69.0	65.1	81.1	83.2	64.0	79.6	80.0	57.3	88.4	72.6	92.0	90.3	84.0	90.1		

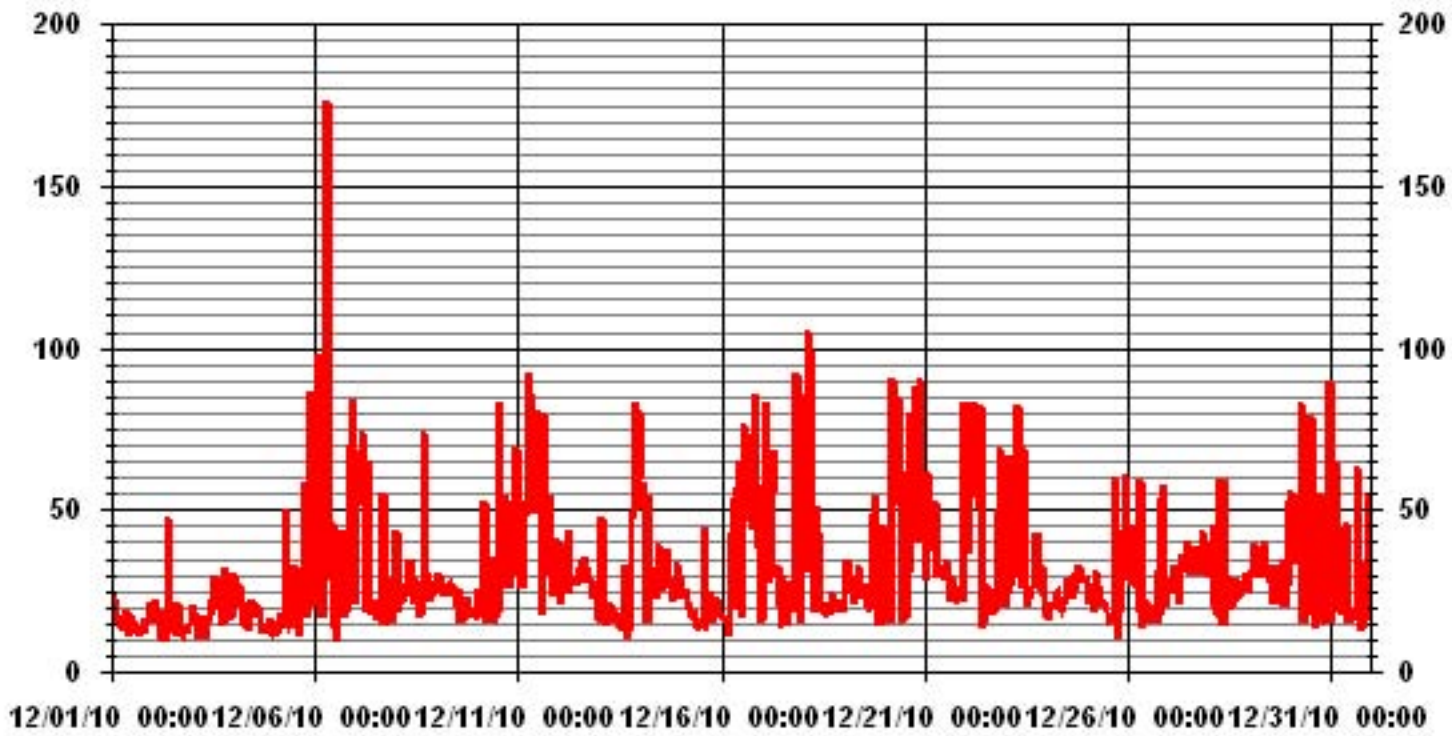
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	176.6	KPH	@ HOUR(S)	7
			ON DAY(S)	6

01 Hour Averages



— LICA30 WSMAX KPH

LICA30
WSP / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	3.36	2.41	7.39	9.81	2.15	5.10	3.49	1.20	3.36	11.42	5.64	1.88	2.01	1.47	3.76	3.09	67.60
< 12.0	.94	2.28	.53	1.07	3.09	7.25	2.28	.00	.00	2.82	.80	.13	2.01	3.76	4.03	1.20	32.25
< 20.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.30	4.70	7.93	10.88	5.24	12.36	5.77	1.20	3.36	14.24	6.45	2.01	4.03	5.24	7.79	4.30	

Calm : .13 %

Total # Operational Hours : 744

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	25	18	55	73	16	38	26	9	25	85	42	14	15	11	28	23	503
< 12.0	7	17	4	8	23	54	17			21	6	1	15	28	30	9	240
< 20.0																	
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	32	35	59	81	39	92	43	9	25	106	48	15	30	39	58	32	

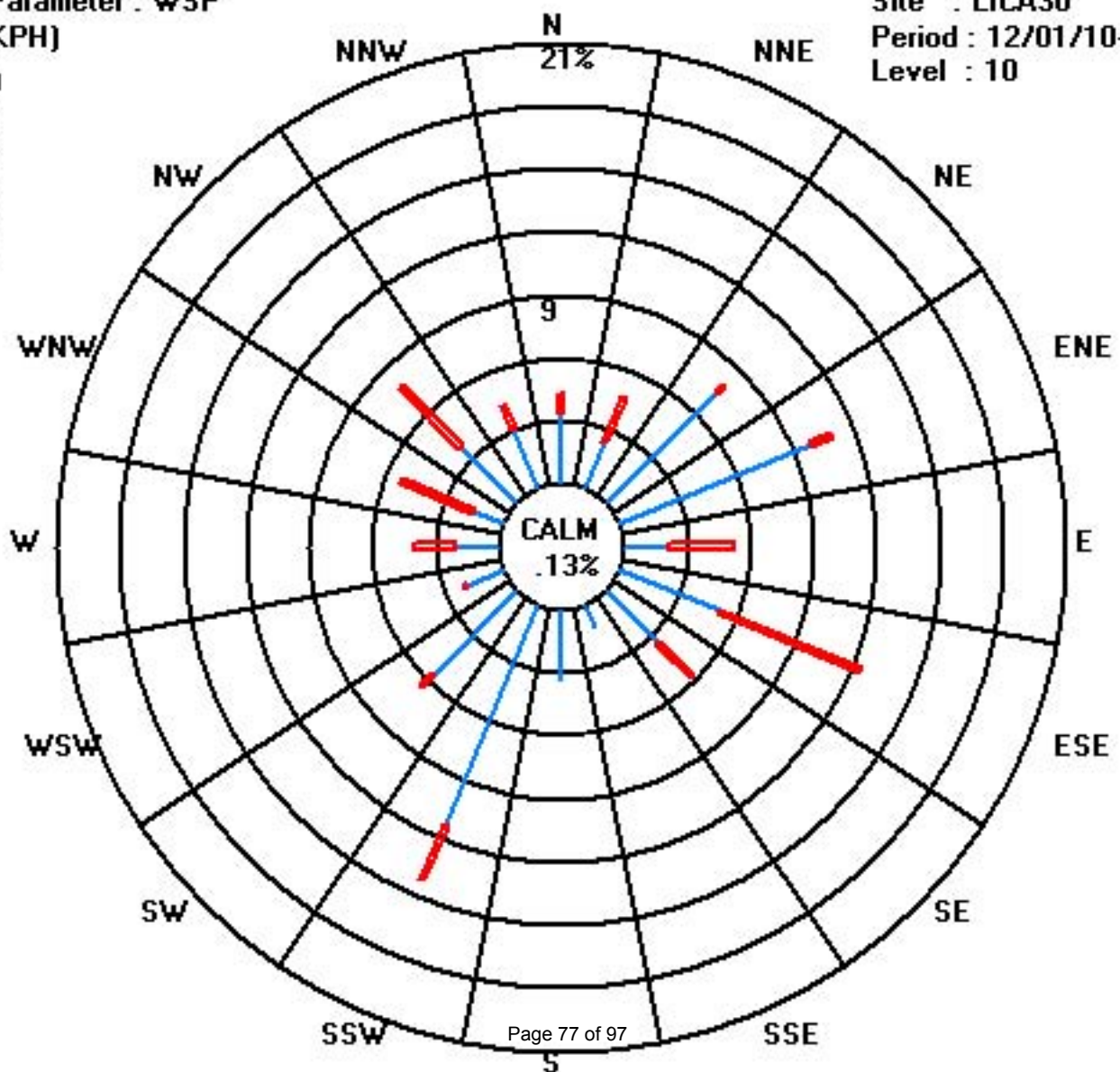
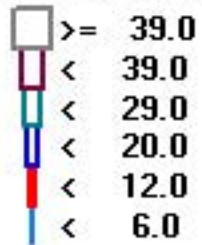
Calm : .13 %

Total # Operational Hours : 744

Class Limits (KPH)

Period : 12/01/10-12/31/10

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2010

WIND DIRECTION hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT		
DAY																												
1	114	122	118	118	137	135	137	151	170	137	196	196	203	190	208	204	197	197	186	198	212	216	224	223	169	SSE	24	
2	228	230	233	278	326	0	327	345	279	92	109	197	198	201	175	103	190	185	181	198	172	191	174	204	195	.SSW	24	
3	209	205	212	261	325	324	250	231	232	232	252	274	318	330	338	344	336	349	340	306	308	276	249	225	293	WNW	24	
4	213	218	228	217	212	199	201	202	216	216	215	216	226	234	233	242	228	221	216	210	211	209	207	210	215	SSW	24	
5	212	202	204	206	207	201	214	224	218	206	202	201	196	198	196	203	224	219	239	219	150	198	238	197	205	SSW	24	
6	152	218	203	152	175	27	109	64	45	45	76	359	40	35	65	68	70	57	64	62	44	69	75	52	60	ENE	24	
7	16	63	9	38	48	64	15	46	42	48	60	63	74	58	58	56	92	133	124	138	115	138	126	131	78	ENE	24	
8	131	123	126	120	128	127	112	110	111	116	115	96	113	123	140	201	237	235	239	281	287	297	290	288	132	SE	24	
9	285	316	323	313	310	326	313	311	318	340	350	336	359	358	353	15	11	11	24	14	11	21	15	26	345	NNW	24	
10	32	20	31	25	28	34	25	28	27	38	38	25	32	45	77	73	221	51	44	51	250	66	65	209	35	NE	24	
11	71	58	42	50	152	61	220	94	238	93	65	56	57	119	135	113	129	144	113	313	118	115	114	113	107	ESE	24	
12	124	116	120	122	120	121	122	114	118	113	116	107	96	95	92	99	107	106	106	114	124	118	128	135	112	ESE	24	
13	139	159	180	189	195	193	199	199	201	206	202	208	205	198	201	203	121	357	74	28	27	37	25	85	188	S	24	
14	81	85	64	62	54	57	31	111	107	113	112	110	89	94	92	100	92	112	95	86	81	81	89	90	91	E	24	
15	75	72	77	84	80	62	45	37	33	31	29	19	0	311	296	271	228	231	213	210	210	204	207	198	74	ENE	24	
16	190	186	191	194	213	201	170	183	192	113	128	7	187	296	302	279	356	1	350	356	347	329	339	359	235	SW	24	
17	4	7	8	19	19	342	345	3	103	76	289	308	335	336	329	346	347	320	325	16	350	304	309	338	347	NNW	24	
18	19	3	17	8	13	323	308	317	304	308	304	4	352	315	319	337	359	353	350	338	346	337	313	322	335	NNW	24	
19	320	318	329	334	334	315	315	312	295	294	303	313	312	323	318	305	296	245	230	251	225	209	203	173	306	NW	24	
20	189	195	209	206	195	203	44	57	45	45	125	160	162	65	47	67	105	110	110	112	94	64	41	28	120	ESE	24	
21	40	47	39	43	44	54	52	42	79	109	100	95	119	116	93	89	94	104	102	111	118	121	113	102	95	E	24	
22	71	63	61	74	62	74	75	65	60	46	37	42	60	61	70	78	74	64	55	56	55	58	62	60	62	ENE	24	
23	59	59	74	67	60	67	55	50	52	58	48	58	57	84	111	108	106	105	110	97	100	114	117	124	82	E	24	
24	145	141	119	104	121	128	105	123	127	137	139	141	132	133	128	125	124	120	122	116	119	117	114	117	124	ESE	24	
25	120	116	119	121	120	104	109	106	113	131	131	132	137	124	109	95	67	76	79	49	59	101	67	44	110	ESE	24	
26	69	52	57	51	59	59	45	49	36	50	50	65	57	59	58	51	65	64	6	32	63	231	312	300	45	NE	24	
27	304	322	294	288	286	268	267	263	276	278	279	284	279	278	278	277	270	273	285	273	268	275	277	276	280	W	24	
28	271	258	230	240	229	212	214	212	212	232	290	291	302	329	318	341	313	340	323	305	328	318	311	305	289	WNW	24	
29	315	325	313	294	302	301	297	291	279	291	314	307	289	296	298	300	297	291	286	300	302	315	298	251	299	WNW	24	
30	278	272	284	306	333	264	85	208	223	212	209	203	221	207	204	200	197	202	208	205	205	208	211	212	220	SW	24	
31	206	207	215	198	203	222	219	215	213	210	204	204	198	202	199	176	157	172	194	188	198	170	198	192	199	SSW	24	
HOURLY AVG	320	325	329	334	334	342	345	345	318	340	350	359	359	358	353	346	359	357	350	356	350	337	339	359				

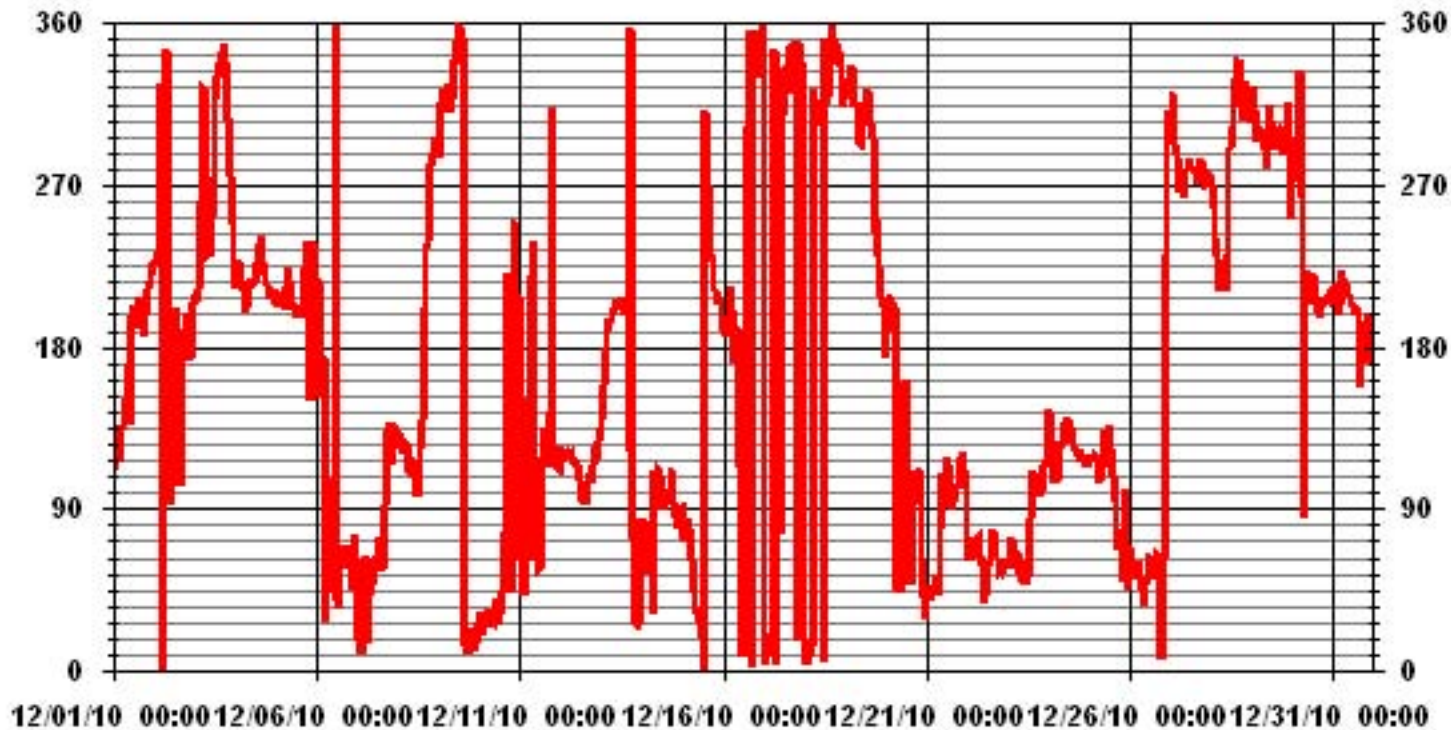
STATUS FLAG CODES

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

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

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION	100.54	AMD OPERATION UPTIME	100.0 %
		MONTHLY AVERAGE	101 DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

DECEMBER 2010

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	25	21	24	28	22	23	24	20	23	24	22	23	24	20	22	16	14	9	16	16	23	27	24	24
2	33	26	32	41	38	44	52	38	52	45	53	26	26	21	26	44	18	23	20	17	29	23	22	28
3	27	24	28	34	34	43	32	28	28	26	39	38	35	33	34	30	36	32	34	38	41	36	38	35
4	24	28	28	25	22	19	20	25	32	25	24	21	30	29	26	25	20	13	14	14	15	20	17	21
5	20	13	15	17	17	19	26	28	30	22	18	18	20	16	16	25	38	42	42	21	41	24	47	45
6	64	51	28	36	53	35	47	38	42	35	48	53	17	10	54	30	17	17	22	18	16	34	31	20
7	43	32	44	16	25	22	29	21	19	20	25	28	28	27	26	31	20	19	19	20	20	18	22	20
8	17	21	21	26	26	28	27	29	28	26	29	27	29	28	45	20	42	39	35	34	31	26	24	25
9	24	33	36	31	30	35	35	30	38	32	29	33	25	30	30	18	21	23	17	21	23	18	20	19
10	17	17	17	16	17	16	14	15	16	16	20	18	23	27	35	36	57	25	20	23	52	28	42	58
11	49	29	21	24	51	34	63	44	55	56	32	44	30	24	25	29	25	23	40	67	27	25	26	25
12	24	25	22	22	25	24	26	25	23	26	26	25	25	24	26	24	20	24	24	27	22	25	22	22
13	21	30	22	21	17	18	18	20	24	26	31	23	20	18	18	48	52	50	50	33	33	36	24	36
14	49	49	33	32	16	25	29	31	28	26	26	28	28	26	25	25	27	25	24	30	25	24	25	24
15	28	24	25	22	25	20	22	17	16	13	16	20	28	30	38	35	24	31	19	18	18	15	17	15
16	16	16	13	11	16	20	23	18	48	59	36	71	60	56	49	43	37	46	40	31	30	34	35	26
17	25	26	42	23	26	35	41	48	60	42	79	56	29	35	29	28	25	22	21	20	27	23	23	23
18	20	33	33	25	26	23	27	25	29	32	29	26	27	31	31	31	26	29	27	30	30	33	30	34
19	33	32	34	33	34	32	30	32	24	26	31	33	30	35	34	32	29	31	25	45	50	15	38	24
20	48	9	15	11	18	54	57	31	46	41	50	24	28	25	20	21	23	25	23	21	36	40	33	34
21	16	17	20	20	20	19	35	17	31	38	27	27	25	23	25	23	23	25	28	25	24	27	23	24
22	25	26	23	27	26	34	30	38	26	20	16	18	23	28	24	23	24	21	17	16	15	17	18	18
23	18	18	22	19	22	27	20	19	18	21	20	23	23	28	24	25	23	26	31	28	24	25	22	25
24	27	22	25	26	25	23	28	26	25	21	25	23	25	26	24	26	27	27	28	29	24	28	25	28
25	29	25	25	22	21	21	21	23	23	24	26	27	28	19	24	25	27	41	57	44	46	59	31	30
26	23	20	21	27	22	25	26	17	10	21	19	23	23	33	25	25	24	23	46	32	55	67	32	31
27	31	32	26	24	25	27	35	32	26	25	26	26	24	29	29	26	31	26	24	33	30	28	24	32
28	31	34	26	32	20	12	14	22	18	28	44	35	31	34	33	33	33	32	32	31	34	35	33	33
29	34	37	30	32	31	26	28	26	26	26	35	33	30	29	28	31	28	28	27	27	26	32	39	42
30	49	42	25	28	45	48	64	15	18	26	23	18	26	23	16	17	18	31	21	16	15	20	30	47
31	19	17	28	18	20	27	25	23	24	35	28	19	20	17	17	31	14	37	23	19	46	19	20	19

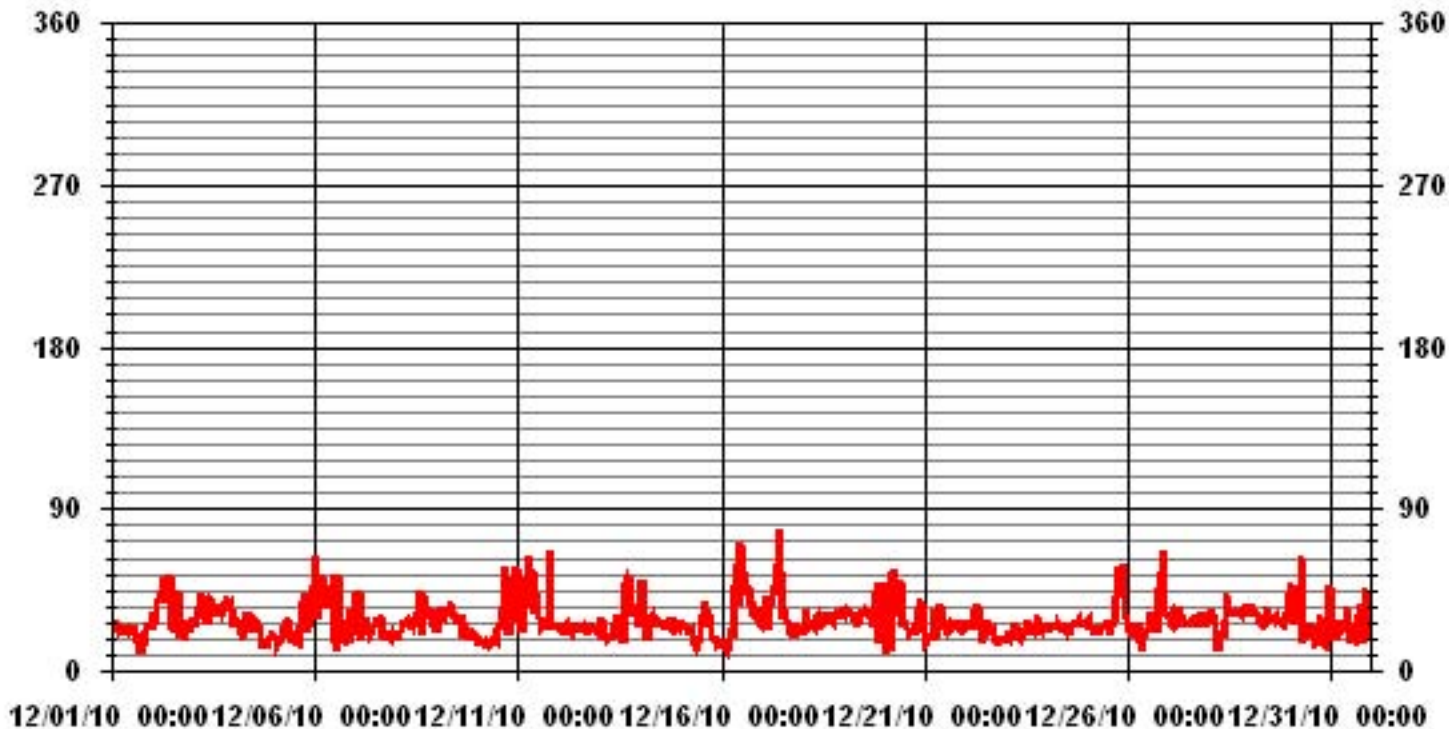
STATUS FLAG CODES

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

LAST CALIBRATION: February 4, 2009

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO₂ Calibration Report

Station Information

Calibration Date	December 10, 2010	Previous Calibration	November 9, 2010
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	13:08	End Time (MST)	16:41
Reason:	Monthly Calibration		
Barometric Pressure	946 mBar	Station Temperature	21 Deg C
Cal Gas	51.4 ppm	Cal Gas Expiry date	August 5, 2012
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	0 - 1 Volts

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	508	Method:	Fluorescent
Converter Make / Model:	-	S/N :	-		
Calibrator Make / Model:	Enviroics 6000		4760	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Flow Meter:	Enviroics 6000	S/N :	4760		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 1000	ppb	
Sample Flow / Box Temp	601 ccm 30 Deg C	599 ccm 30.7 Deg C	
HVPS / Lamp Setting	494 3161	494 3158	
PMT / RxCell Temp	7.7 Deg C 50 Deg C	7.7 Deg C 50 Deg C	
Converter / IZS Temp	NA Deg C 45 Deg C	NA Deg C 45 Deg C	
Offset / Slope	36.8 0.98	37.5 0.98	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	1	N/A
4995	0	0	0	N/A
4923	72.8	749	752	0.9960
4956	38.8	399	400	0.9982
4979	16.5	170	171	0.9928
4996	0	0	1	N/A
Sum of Least Squares				0.9964
New Correction Factor				0.9960

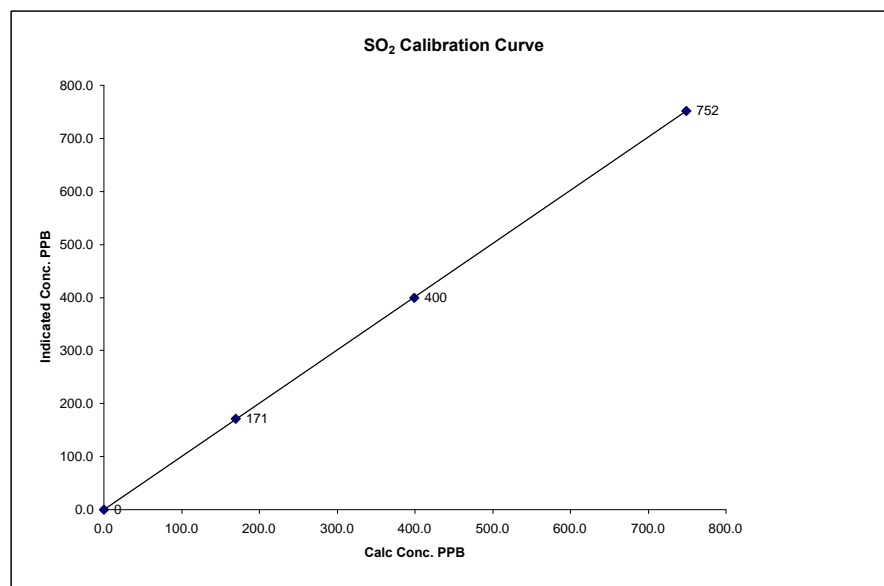
	Before Calibration	After Calibration
Auto Zero	1.5	0.9
Auto Span	590	579
Sample Lines Connected		YES
Percent Change from Previous Calibration		-0.1%

Calibration Performed by: Ting Xu

SO₂ Calibration Curve

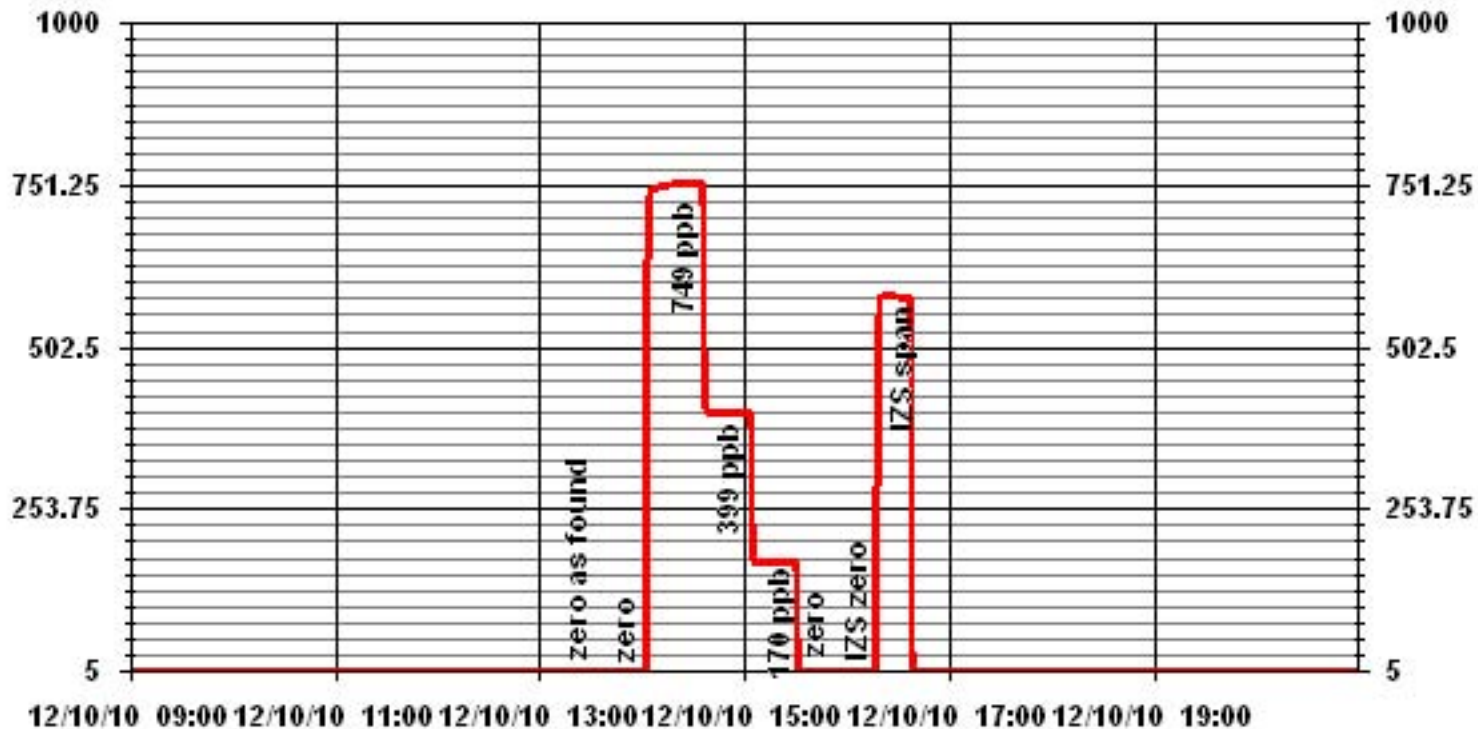
Calibration Date	December 10, 2010
Company	Lakeland Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	13:08
End Time (MST)	16:41

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999997
0	0	n/a	Intercept	(± 3% F.S.)	1.003516
170	171	0.9928			
399	400	0.9982			
749	752	0.9960			



Notes:

01 Minute Averages



— LICA30 SO2_ PPB

Hydrogen Sulphide

H₂S Calibration Report

Station Information

Calibration Date	December 9, 2010	Previous Calibration	November 10, 2010
Company	Lakelnad Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	12:10	End Time (MST)	16:15
Reason:	Monthly Calibration		
Barometric Pressure	936 mBar	Station Temperature	21 Deg C
Cal Gas	10.6 ppm	Cal Gas Install date	05/12/2011
DAS Output Voltage	0 - 1 Volts		

Equipment Information

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

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 100 ppb	0 - 100 ppb	
Sample Flow / Box Temp	531 ccm 30.7 Deg C	537 ccm 31.3 Deg C	
HVPS / Lamp Setting	552 2185	552 2183	
PMT / RxCell Temp	7.9 Deg C 50 Deg C	7.9 Deg C 50 Deg C	
Converter / IZS Temp	315.5 Deg C 45 Deg C	315.6 Deg C 45 Deg C	
Offset / Slope	30 0.959	30 0.975	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4998	0	0	0	N/A
4962	37.7	80	79	1.0127
4962	37.7	80	80	1.0000
4982	18.8	40	41	0.9756
4986	10.9	23	23	1.0000
4998	0	0	0	N/A
Sum of Least Squares				0.9943
New Correction Factor				1.0000

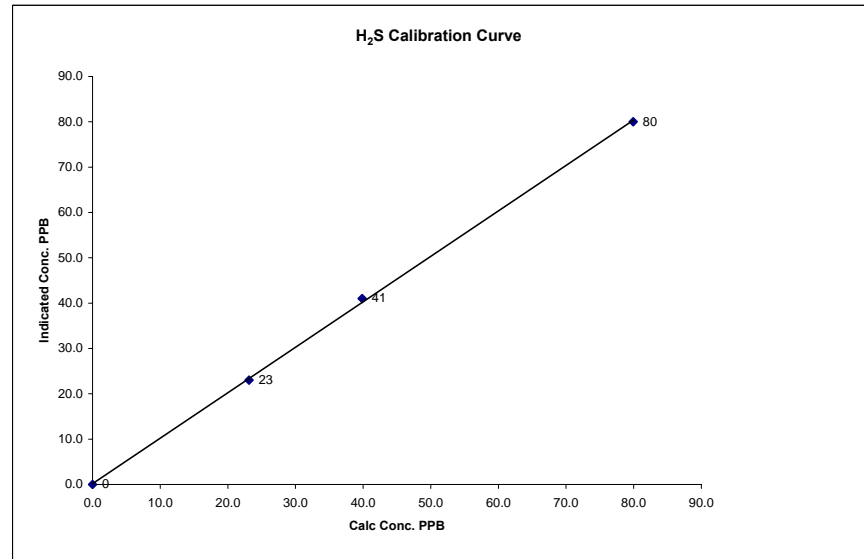
Before Calibration		After Calibration	
Auto Zero	0.3	Auto Zero	-0.5
Auto Span	55	Auto Span	55
Sample Lines Connected		Sample Lines Connected	YES
Percent Change from Previous Calibration		Percent Change from Previous Calibration	-1.3%

Calibration Performed by: Ting Xu

H₂S Calibration Curve

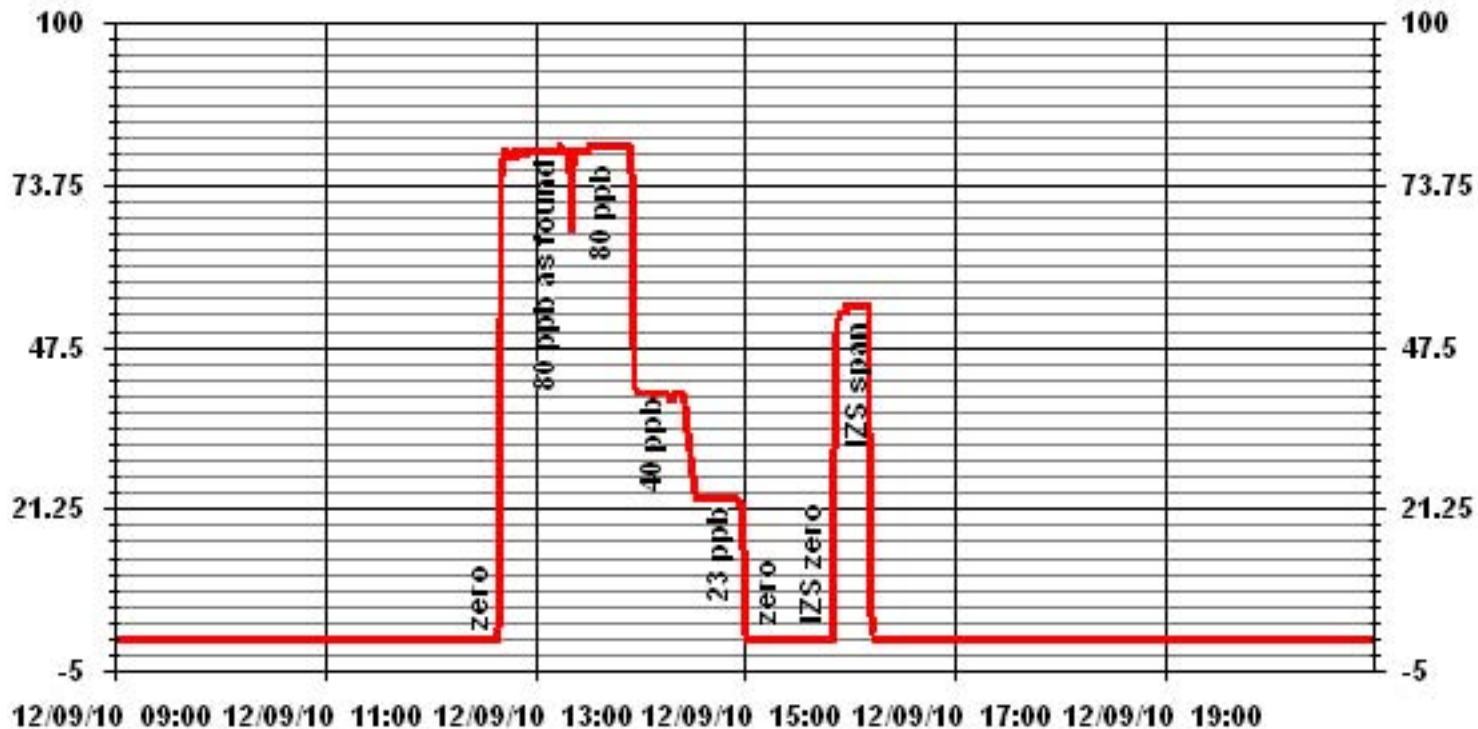
Calibration Date	December 9, 2010
Company	Lakelnad Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	12:10
End Time (MST)	16:15

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999704
0	0	n/a	Intercept	(± 3% F.S.)	0.175862
23	23	1.0053			
40	41	0.9719			
80	80	0.9991			



Notes: When did adjusted span point, there was cal gas pressure warning, have to re-do this point.

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	December 10, 2010	Previous Calibration	November 9, 2010
Company:	Lakeland Industry & Community Association		
Plant / Location:	Cold Lake - Maskwa		
:	(MST) 13:23	End Time	(MST) 17:07
Reason:	Monthly Calibration		
Barometric Pressure:	946 mBar	Station Temperature:	21 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	207 Prop/ 602 Meth/1171.25THC	ppm	Cal Gas Expiry Date: August 21, 2011
DAS make & Model:	ESC 8832	S/N :	AO 791
Output Voltage Range:	0 - 10 VDC		

Analyzer Information

Make / Model	TECO 51C-LT	S/N :	436609738	Method	Flame Ionization
--------------	-------------	-------	-----------	--------	------------------

Analyzer Settings

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

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
1999	0	0.0	-0.3	N/A
1999	0.0	0.0	0.0	N/A
1999	70.0	39.6	39.7	0.9982
1999	70.0	39.6	40.0	0.9907
1998	35.0	20.2	20.1	1.0032
1998	20.0	11.6	11.4	1.0182
1998	0	0.0	0.0	N/A
			Correction Factor:	0.9907

Previous Calibration Correction Factor:	0.9907
Current Correction Factor Before Span Adjust:	0.9907
Percent Change:	0.00%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-0.3	0.0
Auto Span	33.5	34.1
Sample Lines Connected		YES

Cylinder Pressures

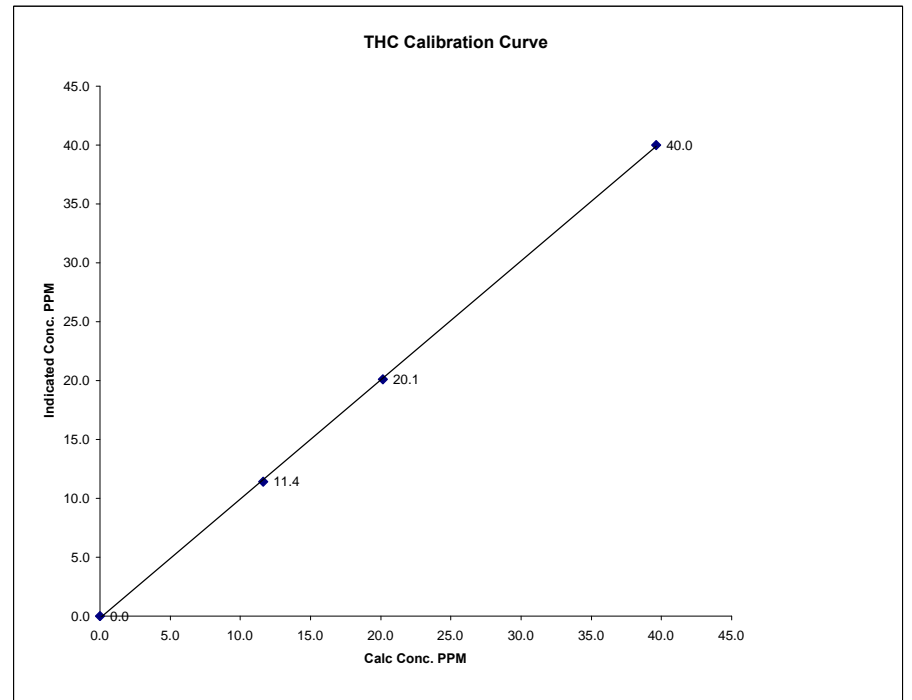
Span	300	psi
Hydrogen	1600	psi
Zero Air	32	psi

Calibration Performed by: Ting Xu

THC Calibration Curve

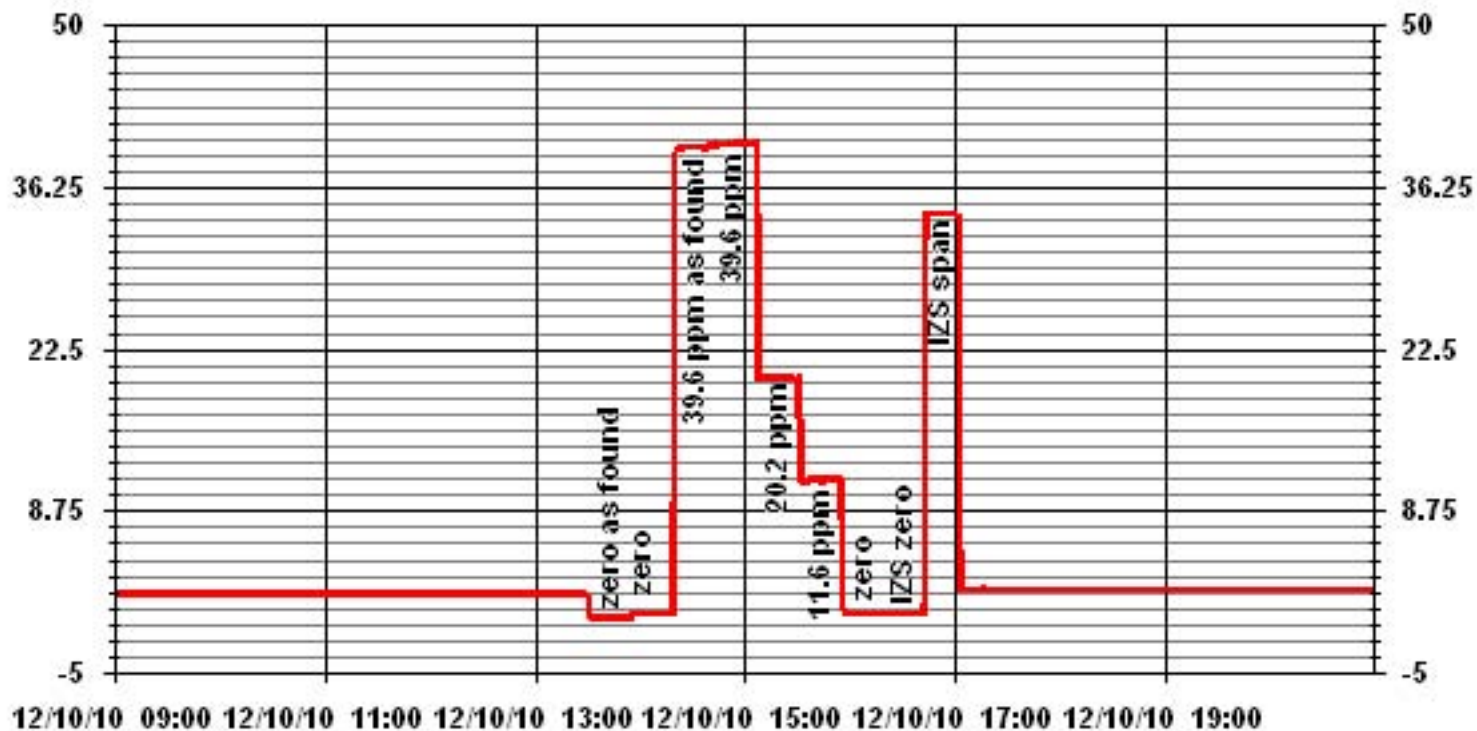
Calibration Date	December 10, 2010		
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	13:23	End Time (MST)	17:07

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999905
0.0	0.0		Intercept	(± 3% F.S.)	-0.172588
11.6	11.4	1.0182			
20.2	20.1	1.0032			
39.6	40.0	0.9907			



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO₂ Calibration Report

Station Information

Calibration Date	December 9, 2010		Previous Calibration	November 10, 2010	
Company	LICA		Plant/Location	Maskwa	
Start Time (MST)	12:10		End Time (MST)	17:24	
Reason:	Monthly Calibration		Other		
Barometric Pressure	936 mmHg	Station Temperature	21 Deg C	MFCF	1
Cal Gas Concentration	NOx 50.8 ppm	NO	50.4 ppm	Cal Gas Expiry date	05-Aug-12
DAS Output Voltage	0 - 1	Volts	Chart Rec. Output	NA	Volts

Equipment Information

Analyzer Make / Model:	API 200E	S/N :	594	Method:	Chemiluminescent
Calibrator Make / Model:	Envionics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Envionics 6100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0-1000			ppb			
Sample Flow/Conv. Temp	459 ccm	315.4 Deg C		451 ccm	314.2 Deg C		
Ozone Flow / Vacuum	79 ccm	5.8 "Hg-A		78 ccm	5.8 "Hg-A		
HVPS / A ZERO	767 Volts	17.2 MV		767 Volts	16.8 MV		
Rx/ Temp / PMT Temp	50.0 Deg C	6.5 Deg C		50.0 Deg C	6.5 Deg C		
Box Temp / IZS Temp	29.6 Deg C	45.1 Deg C		30.6 Deg C	45.3 Deg C		
Offset	1.5 NOx	0.5 NO		1.5 NOx	0.5 NO		
Slope	1.083 NOx	1.074 NO		1.083 NOx	1.074 NO		
NO ₂ COEF / Conv Efficiency	NA	0.994		NA	0.994		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4995	0.0	----	0	0	----	0	1	0	----	----
4919	74.2	----	755	749	----	757	751	7	0.9972	0.9986
4960	34.6	----	352	349	----	355	352	3	0.9913	0.9947
4974	19.8	----	201	200	----	203	202	2	0.9922	0.9942
4995	0.0	----	0	0	0	0	1	0	----	----

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO ₂ Correction Factor	NO ₂ Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4919	74.2	----	755	749	----	758	752	6	----	----
4919	74.2	600	755	----	580	757	178	579	1.0017	99.83%
4919	74.2	300	755	----	294	758	464	294	1.0000	100.00%
4919	74.2	150	755	----	101	758	657	102	0.9902	101.05%

Linearity	Sum of Least Squares	NOx= 0.996	NO= 0.996	NO ₂ = 1.001	
OK?	Yes No	Correction Factors:	NOx= 0.9972	NO= 0.9986	NO ₂ = 1.0017
Average Converter Efficiency= 100.29%					

Before Calibration				After Calibration			
Auto Zero	1.3 NOx	1.3 NO2		0.7 NOx	0.0 NO2		
Auto Span	747 NOx	735 NO2		743 NOx	731 NO2		
Sample Lines Connected				YES			

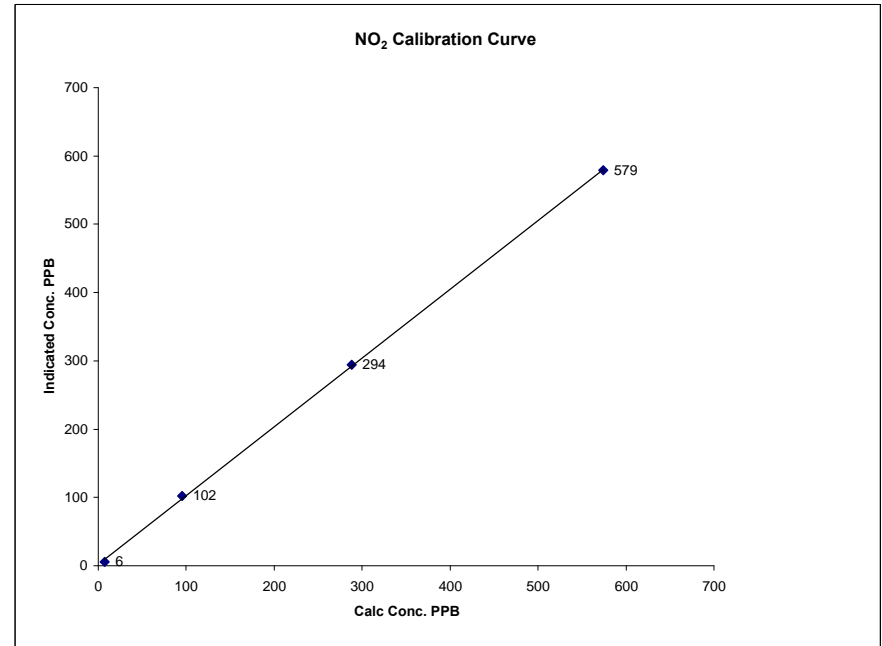
Notes

Calibration Performed by: Ting Xu

NO₂ Calibration Curve

Calibration Date	December 9, 2010		LICA	
Company	Maskwa			
Plant / Location	Maskwa			
Start Time (MST)	12:10	End Time (MST)	17:24	

Calculated Conc.	Indicated Response	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999835
ppb	ppb		Slope	(0.85 to 1.15)	1.006127
7	6	N/A	Intercept	(± 3% F.S.)	2.77345
95	102	0.9314			
288	294	0.9796			
574	579	0.9914			

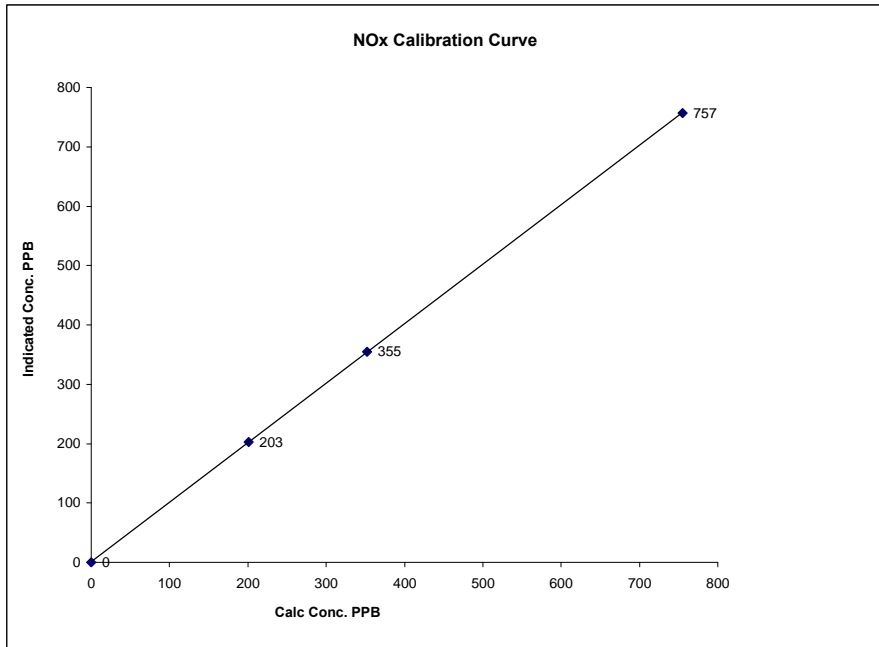


Notes: No CE gain adjustment.

NOx Calibration Curve

Calibration Date December 9, 2010
 Company LICA
 Plant / Location Maskwa
 Start Time (MST) 12:10 End Time (MST) 17:24

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999990
0	0	N/A	Slope (0.85 to 1.15)	1.002535
201	203	0.9922	Intercept (± 3% F.S.)	0.86264
352	355	0.9913		
755	757	0.9972		

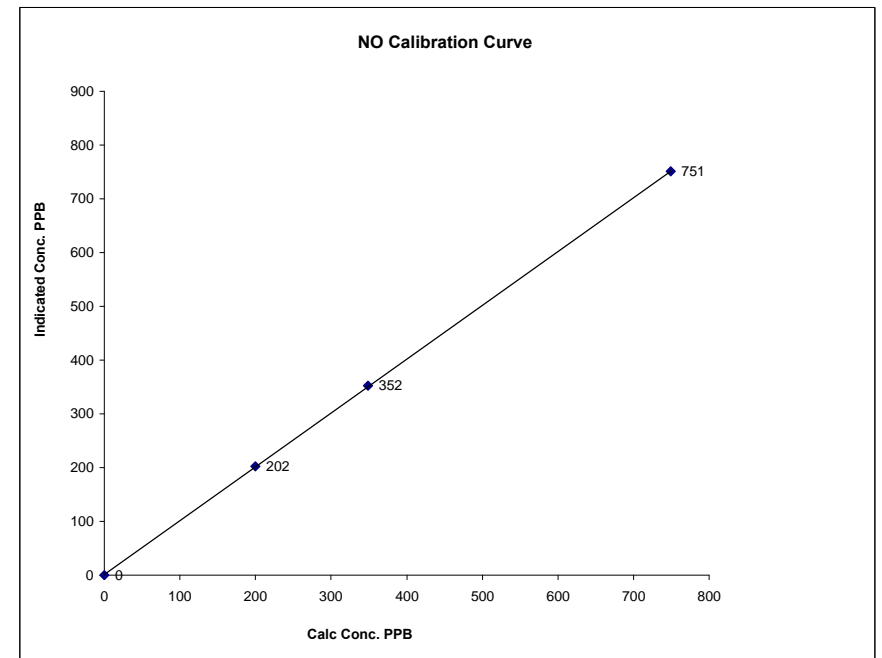


Notes:

NO Calibration Curve

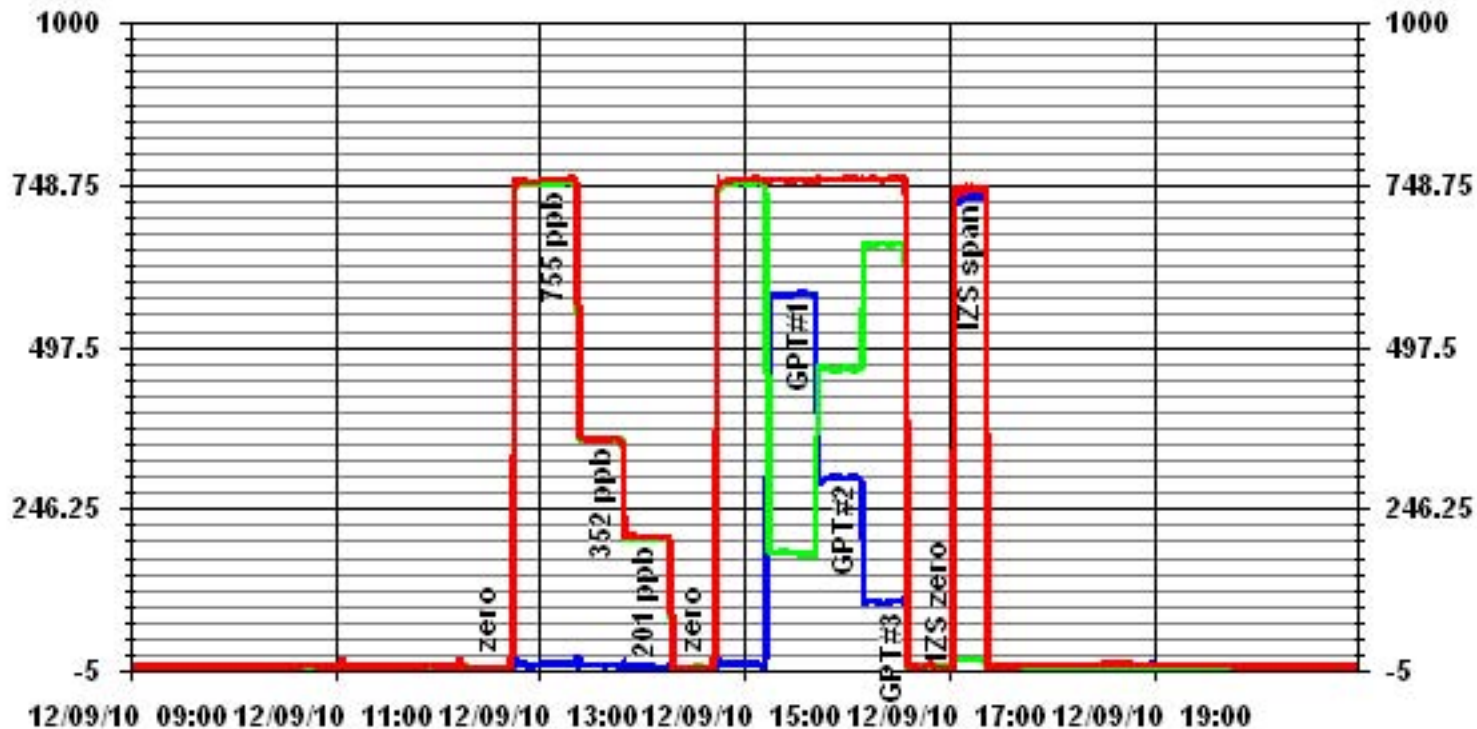
Calibration Date December 9, 2010
 Company LICA
 Plant / Location Maskwa
 Start Time (MST) 12:10 End Time (MST) 17:24

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999990
0	0	N/A	Slope (0.85 to 1.15)	0.999403
200	202	0.9893	Intercept (± 3% F.S.)	3.5618
349	352	0.9919		
749	751	0.9973		



Notes:

01 Minute Averages



Lakeland Industry & Community Association

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

Ambient Air Monitoring Data Report

For

December 2010

Prepared By:



January 14, 2011

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

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Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Portable / Devon Wellsite 13-16-62-5 W4M
Data Period: December 2010

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

The 6-days analytical report for VOCs and PAHs:
Authorized by Petro Oh

Calibration Procedure

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

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

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

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

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

MONTHLY CONTINUOUS DATA SUMMARY

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE

Continuous Ambient Monitoring – December 2010

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PORTABEL / DEVON WELLSITE 13-16-62-5 W4M SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)
						OBJECTIVES					1-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	0.27	5	13	0	10.1	154(SSE)	1.4	13	99.9
H ₂ S (PPB)	10	3	-	-	0.03	1	VAR	VAR	VAR	VAR	0.6	6	99.9
THC (PPM)	-	-	-	-	2.64	8.1	6	7	0.6	9(N)	5.5	6	99.9
NO ₂ (PPB)	212	106	0	0	4.91	22	5	19	5.1	175(S)	15.7	6	99.9
NO (PPB)	-	-	-	-	0.83	30	6	10	3.8	285(WNW)	11.7	6	99.9
NO _x (PPB)	-	-	-	-	5.74	43	6	11	1.3	89(E)	26.9	6	99.9
O ₃ (PPB)	82	-	0	-	20.86	36	29	VAR	VAR	VAR	32.1	29	99.7
PM 2.5 (UG/M ³)	-	30	-	0	7.29	34.3	6	14	4.1	33(NNE)	18.4	6	94.1
VECTOR WS (KPH)	-	-	-	-	8.81	20.9	27	10	-	286(WNW)	16.7	27	100.0
VECTOR WD (DEGREES)	-	-	-	-	68(ENE)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS

Volatile Organics Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE

Xontech Model 910A – December 4, 2010

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

Xontech Model 910A – December 10, 2010

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

Xontech Model 910A – December 16, 2010

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

Xontech Model 910A – December 22, 2010

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

Xontech Model 910A – December 28, 2010

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

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

PUF cartridge – December 4, 2010

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

PUF cartridge – December 10, 2010

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

PUF cartridge – December 16, 2010

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

PUF cartridge – December 22, 2010

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

PUF cartridge – December 28, 2010

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

General Monthly Summary

Equipment Operation

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

AQM STATION – LICA – PORTABLE

Sulphur Dioxide (PPB)

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

No operational issue observed during this month. The inlet filter was replaced before the monthly calibration was started. One hour of the maximum concentration data was invalidated on December 17th as less than 100% of valid data was recorded in the hour. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

No operational issues observed during the month. The inlet filter was replaced before the monthly calibration was started. One hour of the maximum concentration data was invalidated on December 17th as less than 100% of valid data was recorded in the hour. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

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

No operational issue observed during the month. The inlet filter was replaced before the monthly calibration was started. One hour of the maximum concentration data was invalidated on December 17th as less than 100% of valid data was recorded in the hour. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Ozone (PPB)

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

No operational issues observed during the month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration data was invalidated on December 17th as less than 100% of valid data was recorded in the hour. Data was corrected using daily zero information.

THC (PPM)

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

No operational issues observed during the month. The inlet filter was replaced before the monthly calibration was started. The Hydrogen gas cylinder was replaced on December 23rd. A daily zero/span check was ran after the cylinder replacement. One hour of the maximum concentration data was invalidated on December 17th as less than 100% of valid data was recorded in the hour. Data was corrected using daily zero information.

Particulate Matter 2.5 (ug/m³)

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

A routine Teom audit attempted to be performed on December 16th. It was noticed that there was an intermittent warning for pump pressure – the pump pressure was between 0.38 and 0.40 atm, and the tolerance is 0.40 atm or less. Following the audit, the pump was rebuilt, the inlet was cleaned and the filters were replaced. The Teom was allowed to stabilize. After the maintenance, the pump pressure was read between 0.32 to 0.33 atm. Data was corrected using Alberta air quality guideline for PM2.5 analyzer. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. 37 hours of data were invalidated as they were below –3.0 ug/m³. The Teom 1405F unit output provides hourly average, but no instantaneous output. As a result, no hourly maximum value is recorded.

General Monthly Summary

AQM STATION – LICA – PORTABLE

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

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

No operational issues observed during the month. The wind system is reported as vector wind speed and vector wind direction. One hour of the maximum concentration data was invalidated on December 17th as less than 100% of valid data was recorded in the hour.

Datalogger

- System make / model - ESC 8832, S/N: AO717
- Software make / version - ESC v 5.51a

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

Trailer

No issue was observed this month. The manifold was cleaned on December 9th.

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. One hour of AQI value recorded in December 2010 was in the Fair range, and it was due to PM2.5. Others were within the Good range. The highest hourly concentration of PM2.5 was 34.3ug/m3 and an AQI value of 28, hour 14 on December 6th. The highest hourly concentration of Ozone was 36 ppb and an AQI value of 18 on December 29th, in various hours.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Volatile Organics (VOCs)

The volatile organics were sampled from December 4th to December 28th. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the VOCs in this report were reported as ug/m3 in 3 significant figures.

Polycyclic Aromatic Hydrocarbons (PAHs)

The PAHs were sampled from December 4th to December 28th. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the PAHs in this report were reported as ng/m3.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -PORTABLESITE

DECEMBER 2010

AIR QUALITY INDEX (AQI)

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

STATUS FLAG CODES NA - NOT APPLICABLE V - VARIOUS

AQI CLASS	OZONE (O ₃)					PARTICULATE MATTER 2.5 (PM _{2.5})					NITROGEN DIOXIDE (NO ₂)					SULPHUR DIOXIDE (SO ₂)					FREQUENCY	
	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	0	0.0%	-	-	-	1	0.1%	28	14	6	0	0.0%	-	-	-	0	0.0%	-	-	-	1	0.1%
GOOD (1-25)	498	66.9%	18	VAR	29	151	20.3%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	649	87.2%
OVERALL	498	66.9%	-	-	-	152	20.4%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	650	87.4%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	94	12.6%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY 1	0	0	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
2	0	0	IZS	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
3	0	IZS	0	0	0	0	0	0	0	0	0	0	0	3	4	3	3	2	1	1	1	0	0	4	0.8	24		
4	IZS	0	0	0	0	0	0	1	0	1	1	2	2	1	1	1	1	1	1	1	1	1	1	IZS	2	0.8	24	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	IZS	0	1	0.1	24	
6	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	0	0	0	0	0	IZS	0	1	1	0.4	24	
7	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	1	0.0	24	
8	0	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0.0	24
9	0	0	1	1	1	0	0	0	M	0	0	0	0	0	0	0	0	0	IZS	0	1	2	2	2	2	2	0.5	23
10	3	2	1	1	0	1	0	0	0	0	1	0	1	1	0	0	0	0	IZS	0	0	0	0	0	0	3	0.5	24
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	1	3	4	4	0.4	24
13	5	4	3	3	2	2	1	1	1	1	1	1	1	1	IZS	1	1	1	1	0	0	1	1	0	5	1.4	24	
14	0	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	1	1	0.6	24	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	1	0	0	0	0	0	0	0	0	1	0.0	24	
16	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
17	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
18	0	0	0	2	2	1	0	0	0	IZS	0	1	1	1	1	0	0	2	5	3	1	1	1	1	5	1.0	24	
19	1	1	2	2	2	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.5	24	
20	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
21	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
22	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23	0	0	0	0	IZS	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	1	0.3	24	
24	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
27	IZS	0	0	1	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	3	0.3	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0.0	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0.0	24	
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	1	1	0.0	24
31	0	0	0	0	0	0	0	0	0	0	1	1	2	2	2	1	1	1	2	IZS	2	1	1	1	2	0.8	24	
HOURLY MAX	5	4	3	3	3	2	1	1	1	1	1	2	2	3	4	3	3	2	5	3	2	2	3	4				
HOURLY AVG	0.3	0.3	0.3	0.4	0.4	0.3	0.1	0.2	0.1	0.1	0.2	0.2	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.4				

STATUS FLAG CODES

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

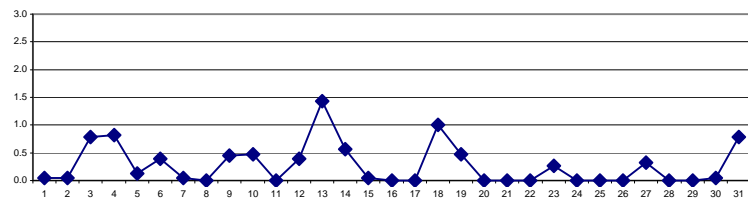
OBJECTIVE LIMIT:

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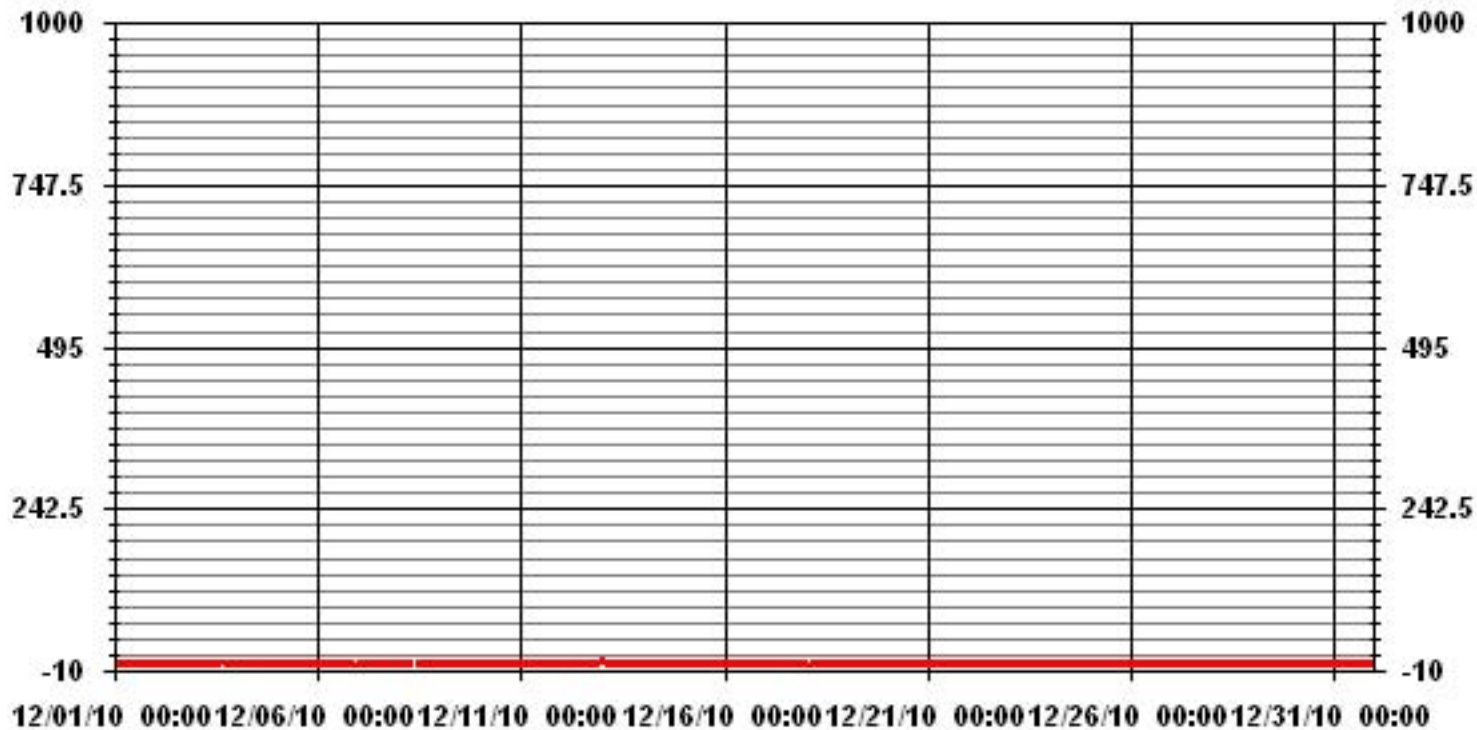
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	137					
MAXIMUM 1-HR AVERAGE:	5	PPB	@ HOUR(S)	0	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	1.4	PPB			ON DAY(S)	13
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	0.67		MONTHLY AVERAGE:	0.27	PPB	

24 HOUR AVERAGES FOR DECEMBER 2010



01 Hour Averages



— LICA33 SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -PORTABLE SITE

DECEMBER 2010

SULPHUR DIOXIDE MAX instantaneous maximum in ppt

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY	24-HOUR	RDGS.
DAY	HR	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.		
1		1	1	2	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24
2		0	0	IZS	1	1	1	1	1	1	1	1	2	2	1	2	1	2	2	1	2	1	1	1	1	1	2	1.2	24
3		1	IZS	1	1	1	1	1	1	1	1	1	1	2	4	5	5	5	3	3	2	2	2	1	1	5	2.0	24	
4		IZS	1	1	1	1	1	1	2	1	2	2	3	3	3	2	2	2	2	2	2	2	2	2	1	IZS	3	1.8	24
5		1	1	1	1	0	0	1	0	1	0	1	1	1	2	2	2	1	1	1	1	1	1	1	IZS	1	2	1.0	24
6		1	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	1	2	1	1	1	1	IZS	2	2	1.5	24	
7		1	1	1	1	1	1	1	1	2	1	1	1	2	2	1	2	1	1	1	1	1	IZS	0	0	0	2	1.0	24
8		0	1	1	1	1	1	2	1	C	C	C	C	0	0	0	0	0	0	0	1	IZS	0	1	0	0	2	0.5	24
9		0	1	2	2	2	1	0	0	M	0	0	0	0	1	0	0	0	0	0	IZS	1	3	4	3	3	4	1.0	23
10		4	5	2	2	1	2	1	1	1	1	3	2	2	2	1	1	1	IZS	1	1	0	0	0	0	0	5	1.5	24
11		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0.0	24
12		0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	IZS	1	1	1	1	3	3	5	6	6	1.2	24	
13		6	5	4	4	3	4	2	2	2	2	3	2	2	2	IZS	2	2	2	2	2	1	1	2	2	1	6	2.5	24
14		1	2	2	2	2	2	2	2	2	2	2	2	2	IZS	1	1	1	1	1	1	1	1	1	1	2	2	1.6	24
15		2	1	1	1	1	1	1	1	1	1	1	1	IZS	2	2	2	1	0	0	0	0	0	0	0	0	2	0.9	24
16		0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	1	0	0	0	0	0	1	0.0	24
17		0	0	0	1	1	0	0	0	N	0	IZS	0	0	0	1	1	0	0	0	1	0	0	1	2	2	0.4	23	
18		1	1	1	4	4	3	1	1	1	IZS	1	2	2	2	2	1	3	7	8	5	2	2	3	3	8	2.6	24	
19		2	3	3	4	3	2	2	2	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.6	24
20		1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	3	1.1	24
21		1	1	1	1	1	1	IZS	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.9	24	
22		1	1	0	1	0	IZS	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
23		1	1	1	1	IZS	1	1	1	1	3	1	1	2	2	2	2	2	2	3	1	1	1	1	1	3	1.4	24	
24		1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
25		1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1.0	24	
26		1	IZS	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24	
27		IZS	0	1	3	5	4	2	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	IZS	5	1.3	24
28		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
29		0	1	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	2	0.3	24
30		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	IZS	1	2	2	2	1.0	24
31		2	1	1	1	1	1	1	1	1	2	2	2	3	3	4	3	2	3	3	3	IZS	3	2	2	2	4	2.0	24
HOURLY MAX		6	5	4	4	5	4	2	2	3	3	3	3	3	4	5	5	5	5	7	8	5	3	4	5	6			
HOURLY AVG		1.1	1.2	1.1	1.3	1.2	1.1	0.9	0.9	0.9	1.0	1.1	1.1	1.2	1.3	1.3	1.2	1.2	1.2	1.4	1.1	1.1	1.1	1.2	1.2				

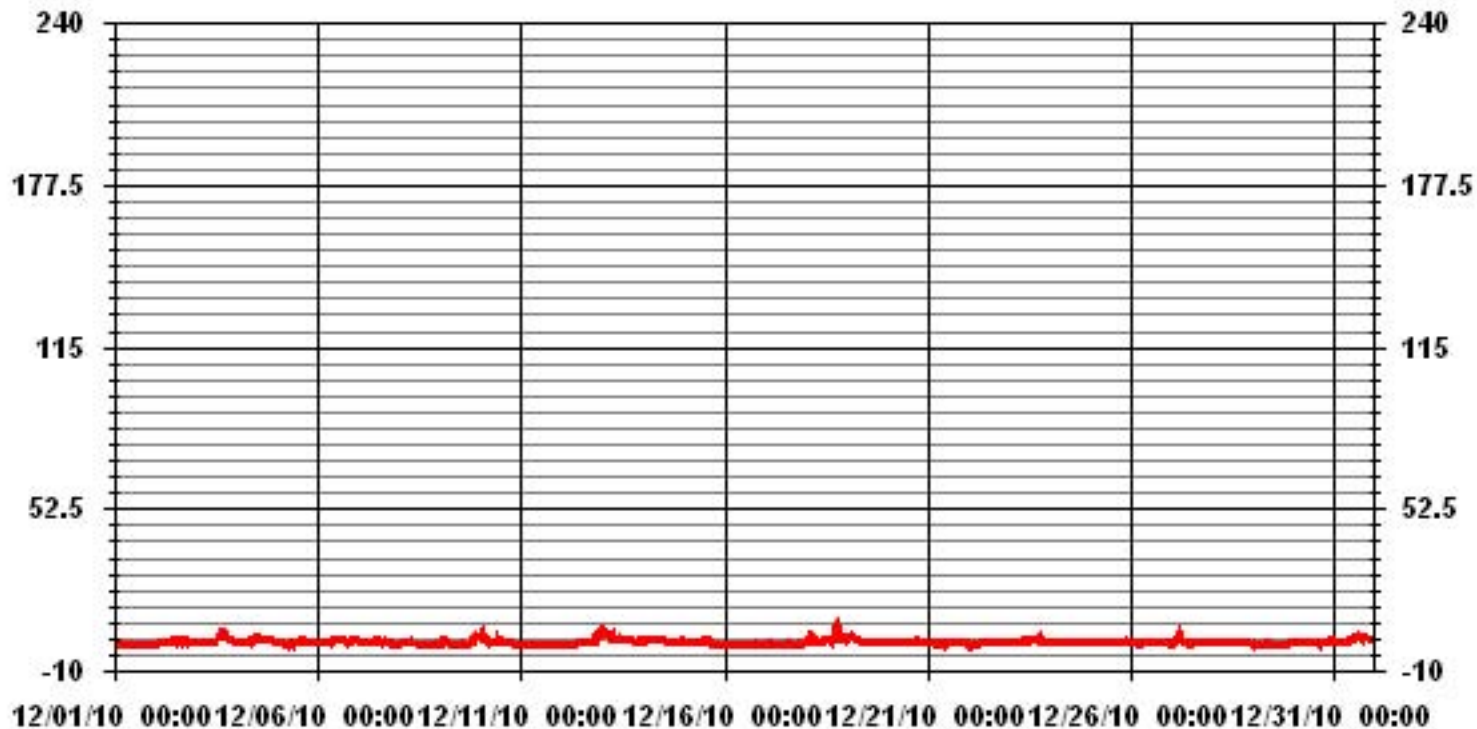
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	545					
MAXIMUM INSTANTANEOUS VALUE:	8	PPB	@ HOUR(S)	18	ON DAY(S)	18
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	1.02					

01 Hour Averages



— LICA33 SO2MAX PPB

LICA33
 SO2_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 Parameter : SO2_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	.99	2.69	4.10	4.95	30.16	3.96	4.53	3.68	2.97	2.40	7.50	3.68	8.21	11.33	5.94	2.83	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	.99	2.69	4.10	4.95	30.16	3.96	4.53	3.68	2.97	2.40	7.50	3.68	8.21	11.33	5.94	2.83	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	7	19	29	35	213	28	32	26	21	17	53	26	58	80	42	20	706
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	7	19	29	35	213	28	32	26	21	17	53	26	58	80	42	20	

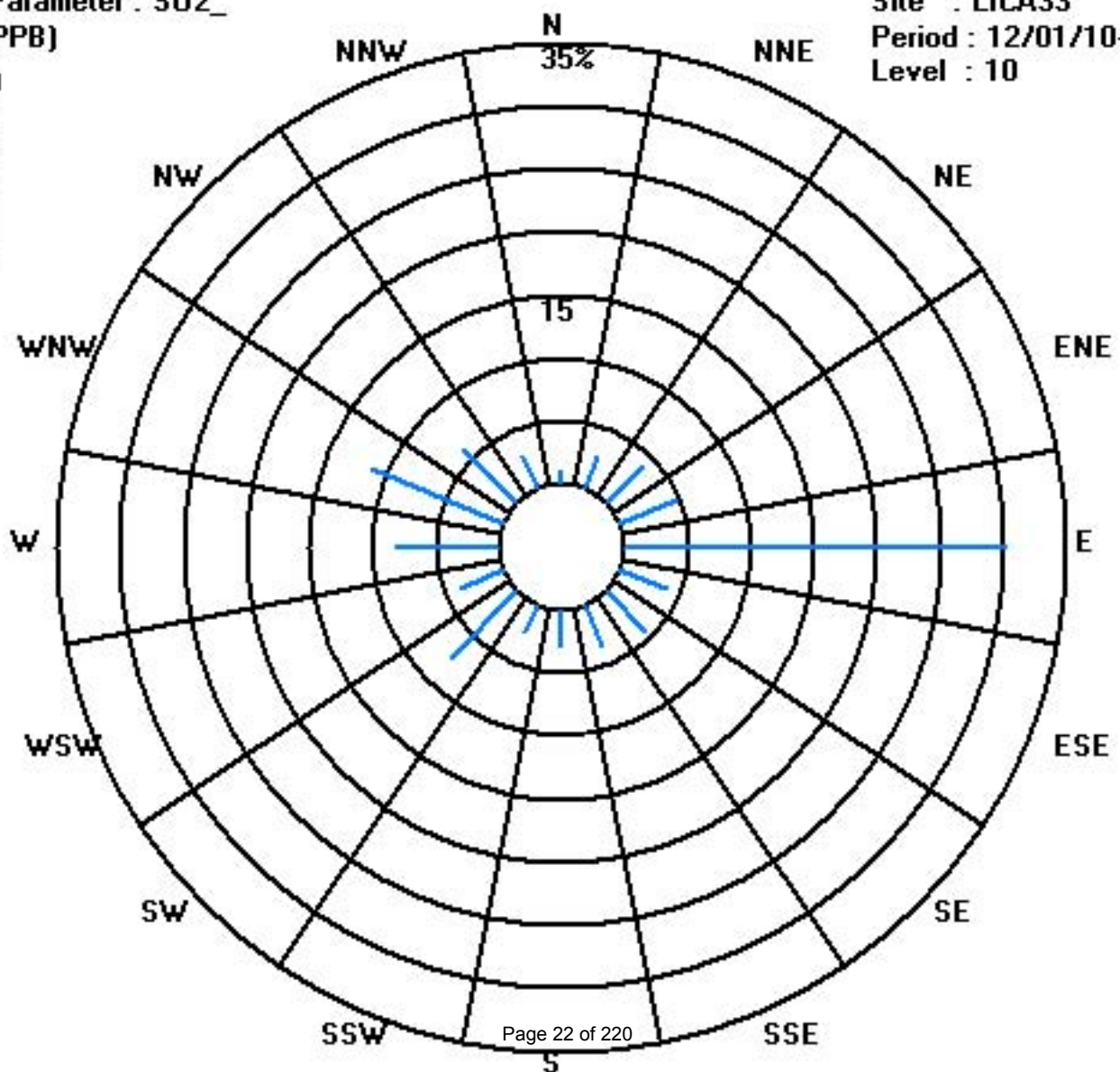
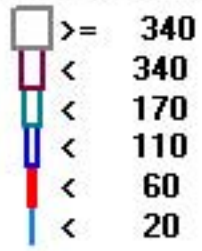
Calm : .00 %

Total # Operational Hours : 706

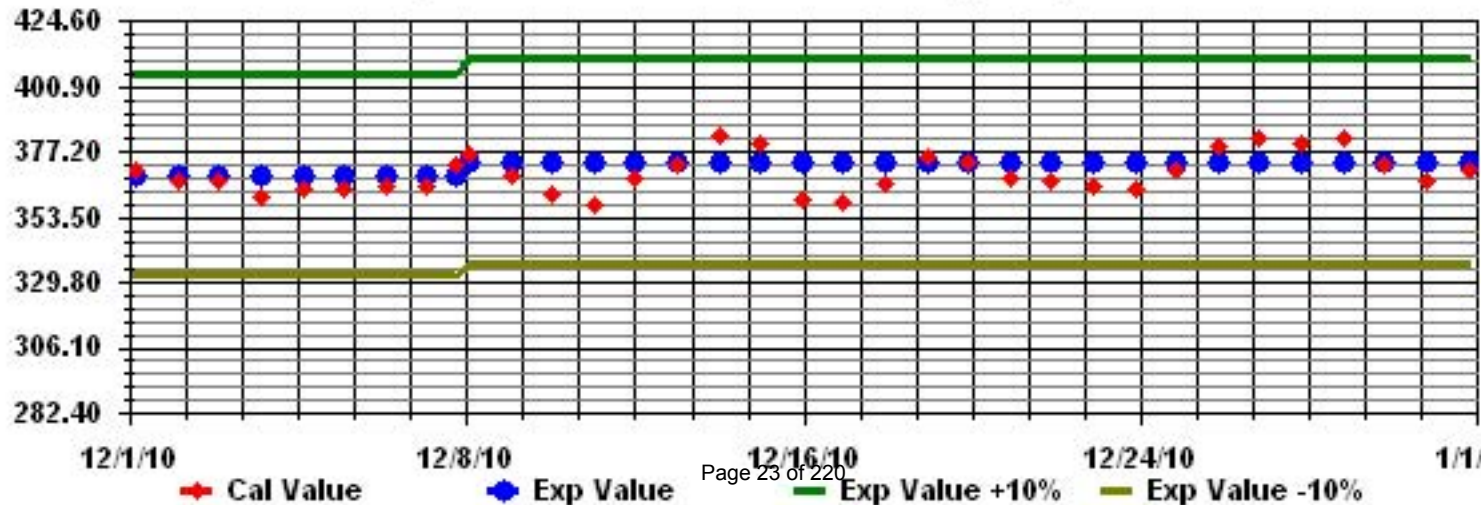
Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

HYDROGEN SULPHIDE (H2S) hourly averages in ppb

MST

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

STATUS FLAG CODES

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

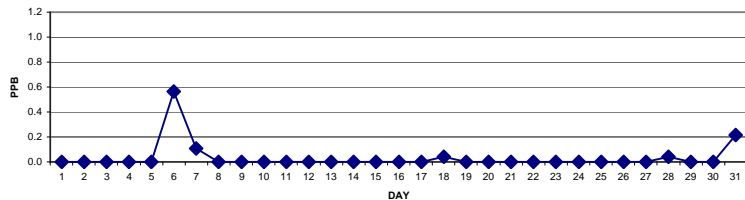
OBJECTIVE LIMIT:

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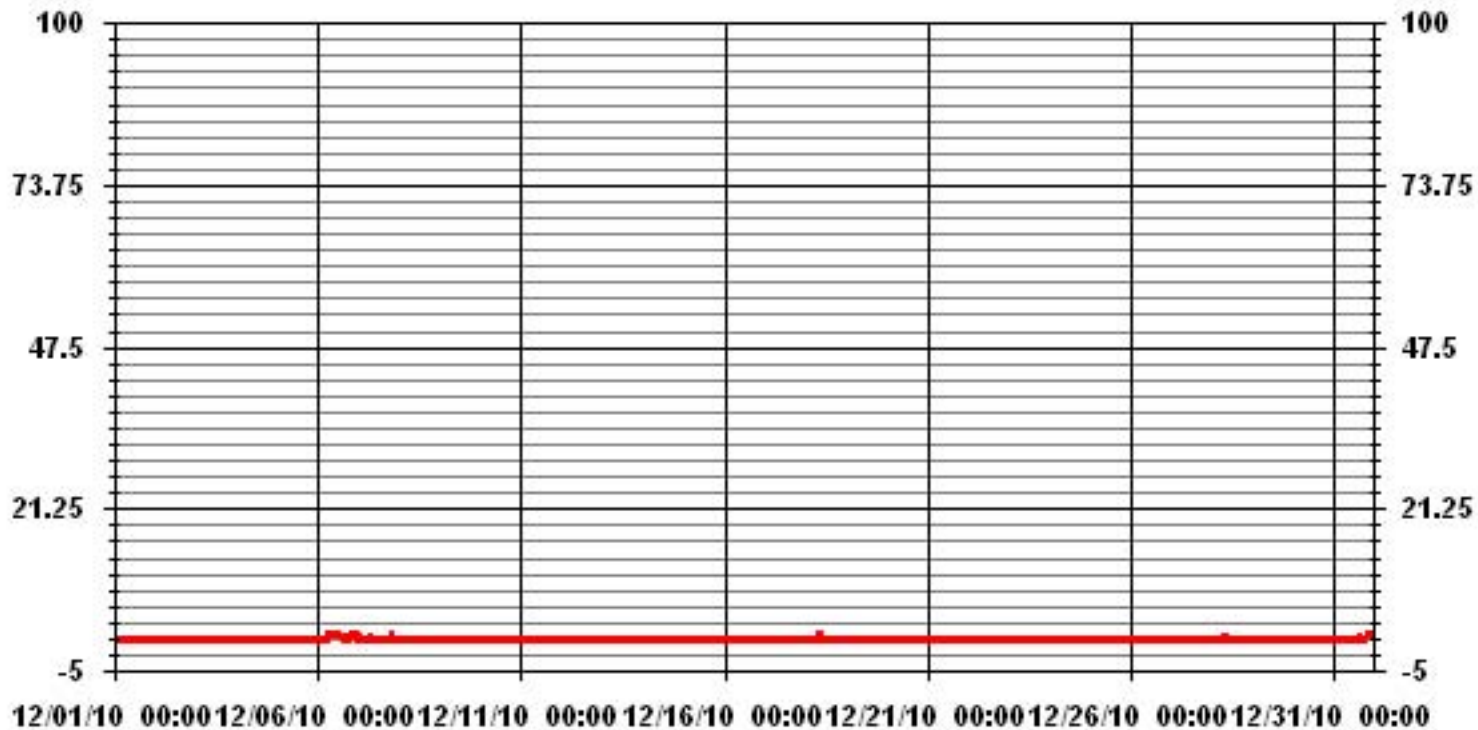
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0			
NUMBER OF 24-HR EXCEEDENCES:	0			
NUMBER OF NON-ZERO READINGS:	22			
MAXIMUM 1-HR AVERAGE:	1 PPB @ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.6 PPB		ON DAY(S)	6
			VAR-VARIOUS	
IZS CALIBRATION TIME:	33 HRS	OPERATIONAL TIME:	743 HRS	
MONTHLY CALIBRATION TIME:	4 HRS	AMD OPERATION UPTIME:	99.9 %	
STANDARD DEVIATION:	0.17	MONTHLY AVERAGE:	0.03 PPB	

24 HOUR AVERAGES FOR DECEMBER 2010



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

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

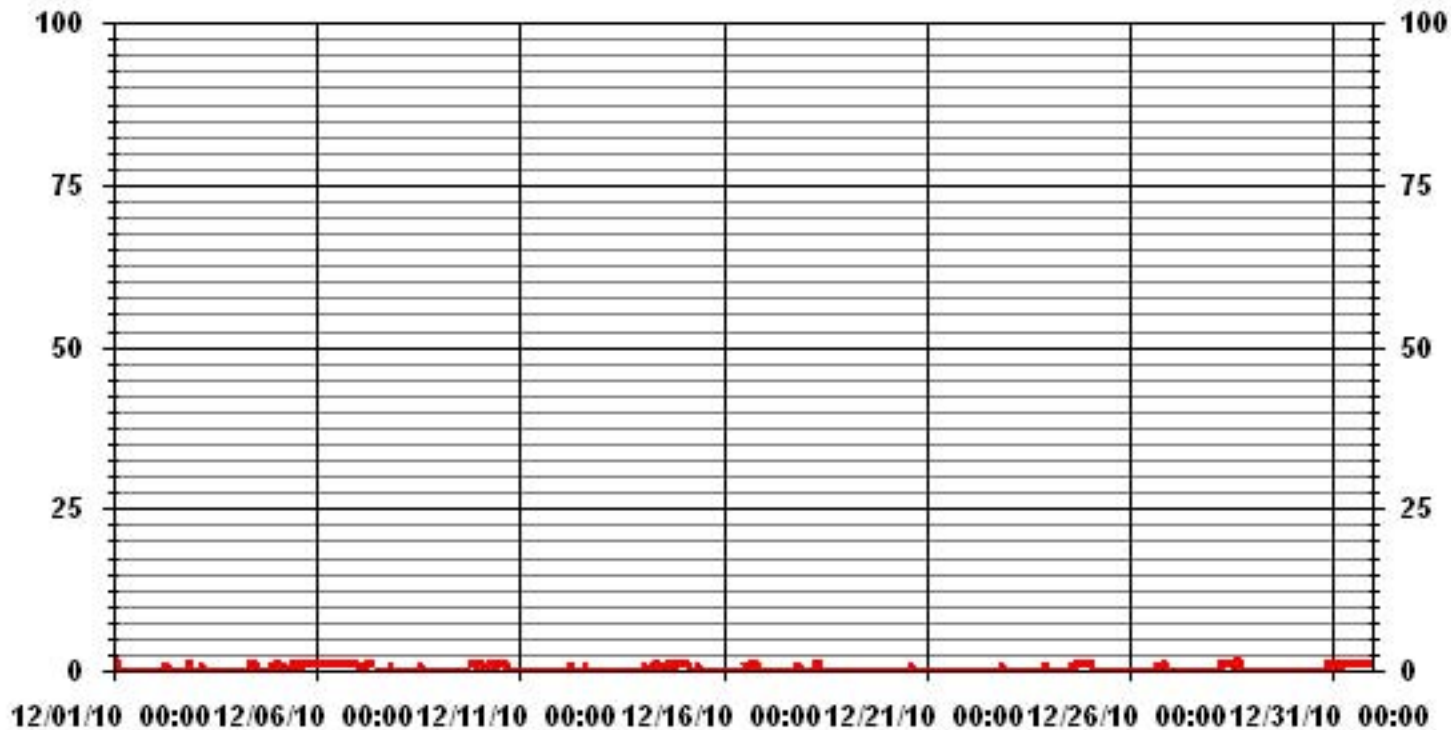
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	143					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	1, 16	ON DAY(S)	1, 28
	VAR - VARIOUS					
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742 HRS		
MONTHLY CALIBRATION TIME:	4 HRS					
STANDARD DEVIATION:	0.41					

01 Hour Averages



— LICA33 H2S MAX PPB

LICA33
H2S_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	.99	2.69	3.96	4.95	30.31	3.96	4.53	3.68	2.97	2.40	7.50	3.68	8.21	11.33	5.94	2.83	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	.99	2.69	3.96	4.95	30.31	3.96	4.53	3.68	2.97	2.40	7.50	3.68	8.21	11.33	5.94	2.83	

Calm : .00 %

Total # Operational Hours : 706

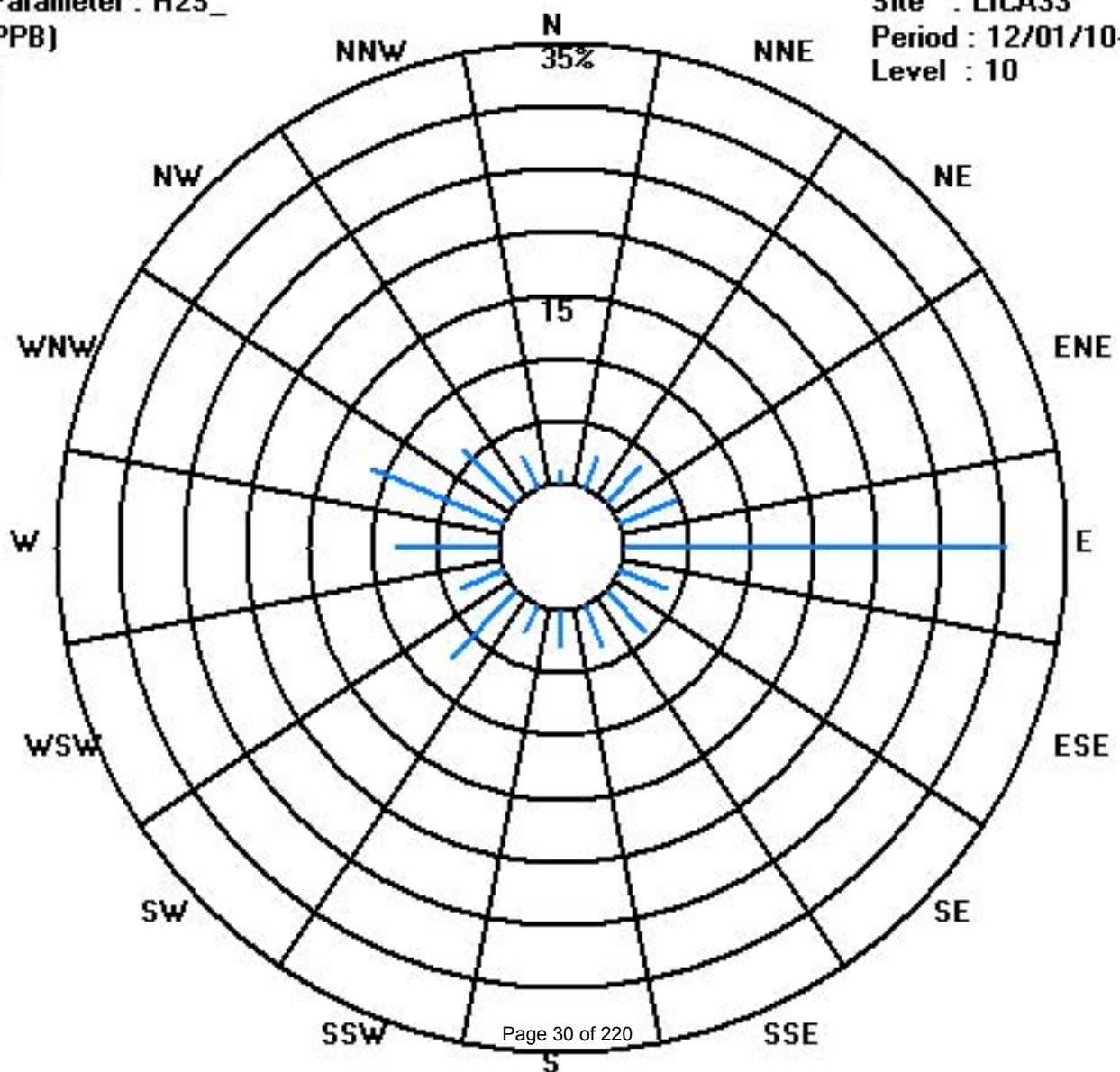
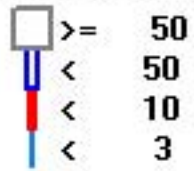
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	7	19	28	35	214	28	32	26	21	17	53	26	58	80	42	20	706
< 10																	
< 50																	
>= 50																	
Totals	7	19	28	35	214	28	32	26	21	17	53	26	58	80	42	20	

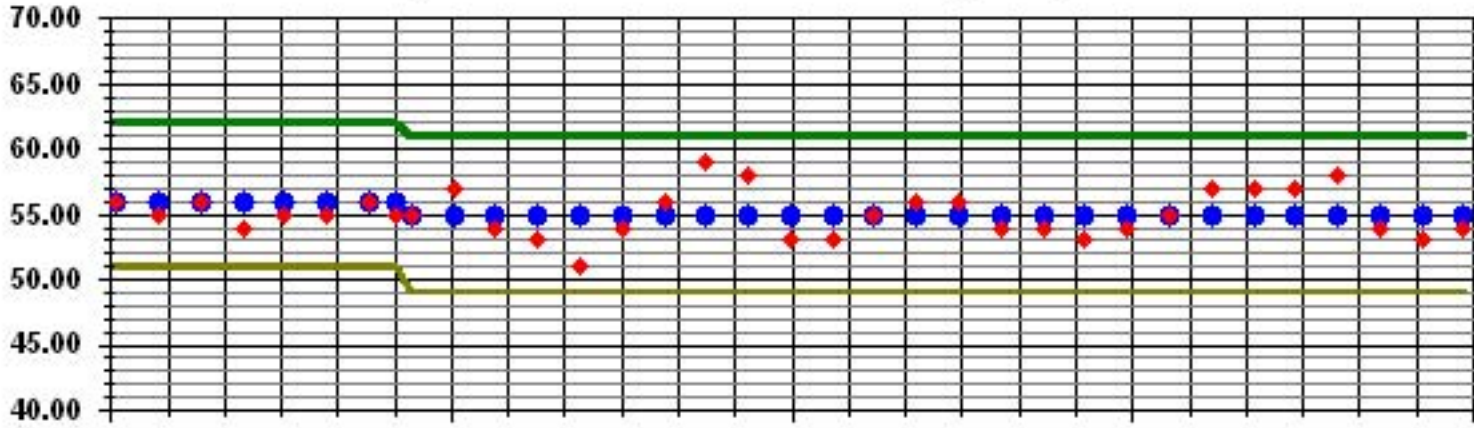
Calm : .00 %

Total # Operational Hours : 706

Class Limits (PPB)



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



◆ Cal Value
 ◆ Exp Value
 — Exp Value +10%
 — Exp Value -10%

Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY	24-HOUR	
HOURLY MAX	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		0.2	0	3.7	12.2	5.8	4.2	0	0	N	N	0.8	0	4.8	11.2	N	14.2	9.7	N	2.3	14.7	17.2	2.7	5.8	7.7	17.2	5.9	20	
2		13.3	20.7	18.8	10.7	5.8	14.2	24.3	7.3	7.3	24.8	13.8	11.2	14.2	4.8	2.3	0.8	10.2	6.3	2.3	3.7	15.7	9.7	9.7	1.8	24.8	10.6	24	
3		9.7	8.3	N	8.3	10.2	0.2	10.7	21.7	9.7	2.3	18.2	N	12.8	0.8	0	9.2	9.2	6.8	3.7	14.7	9.2	9.2	0	6.3	21.7	8.2	22	
4		0	7.3	1.2	4.8	7.7	5.8	0	11.7	18.2	19.3	6.8	16.8	25.7	14.7	16.8	13.3	14.2	12.8	27.7	18.8	15.7	17.2	22.2	16.2	27.7	13.1	24	
5		19.3	12.8	23.8	15.7	17.2	13.8	13.8	18.3	9.8	17.8	13.3	5.8	9.2	14.2	8.3	18.7	5.7	11.2	18.3	14.2	11.2	19.3	16.8	18.8	23.8	14.5	24	
6		21.7	23.3	8.7	9.2	11.8	15.2	16.8	17.7	13.8	8.3	12.7	23.2	26.7	28.8	34.3	19.3	10.2	17.7	17.1	17.2	17.7	21	27.9	21.4	34.3	18.4	24	
7		12.7	18.6	8.8	15.7	13.8	12.9	16.5	13.3	28.9	17.1	8.8	0.1	0	10.2	6.2	2.5	8.6	10	10.9	12.1	15.1	16.4	21.6	22.6	28.9	12.6	24	
8		17.1	11.5	18	15.4	10.2	13.1	8.3	3.4	7.3	12.5	2.3	8.1	13.6	5.7	4.7	9.3	5.2	10.7	7.3	15.2	8.7	11.5	10.5	11.1	18.0	10.0	24	
9		13.3	9.8	7.7	11.7	6.4	8.9	0	8.7	11	1.7	3.9	0.5	1.4	0	1.6	3.6	5.9	4.8	2.4	0.8	0.9	6.9	N	0	13.3	4.9	23	
10		1.9	13.5	5.8	6.9	0	N	2	0.3	1.9	0	0	3.1	2.4	1.3	0	4.2	1.3	N	0	2.1	N	8.7	N	10.7	13.5	3.3	20	
11		N	0	0	0	3.6	N	7.3	N	4.8	N	2.3	0	1.8	5.2	5.2	0.8	4.2	N	1.2	3.7	N	0	2.3	1.2	7.3	2.4	18	
12		0.2	0	N	2.2	3.7	4.7	0.2	3.7	0	0.8	0.8	0.8	N	2.3	0.8	1.2	1.2	0	1.2	2.7	7.3	1.2	8.3	8.3	8.3	2.3	22	
13		7.7	3.7	8.7	2.7	8.3	7.7	4.8	7.3	15.2	1.8	9.2	7.7	9.7	11.2	12.2	4.2	10.7	12.2	14.7	15.2	12.7	13.8	12.2	12.7	15.2	9.4	24	
14		10.7	12.8	8.7	9.2	9.2	6.8	4.7	0.2	7.7	3.7	7.3	3.7	9.2	11.7	6.8	8.7	0.8	23.2	17.2	4.2	N	4.7	15.2	3.2	23.2	8.2	23	
15		2.7	9.2	2.7	N	0.8	10.7	20.7	17.2	1.2	N	0	0	10.2	8.7	1.2	3.7	0	0	9.7	0.2	0.8	6.3	0	2.7	20.7	4.9	22	
16		2.7	1.8	N	10.7	6.8	0	0	3.2	7.7	12.2	0	7.3	C	C	M	M	M	M	M	M	M	M	1	6	8.4	12.2	4.8	16
17		1.4	6.1	0.4	1.6	0.9	0	5.4	0	0.3	6.9	10	3.3	3.6	4.5	1	7.5	0	5.3	0	4.3	0	7.7	2.1	11	11.0	3.5	24	
18		4.9	3.4	1.3	0.1	0	1.9	0	4.9	2.5	3.8	0	5.2	2	0	0	0	0	2.3	7.2	1.8	4.4	0	0.9	5.8	7.2	2.2	24	
19		0.5	2.2	3.2	9.7	11.8	1.2	2.4	0	4.4	N	12.4	N	10.9	6.8	1.2	3.4	2.7	2.4	8	0	0	0	6	0	12.4	4.1	22	
20		11.7	0	1.4	8	5.9	5.2	6.7	9.4	9.7	11	4.5	5.3	11.6	8.8	3.1	6.9	2.2	10	7	6.4	0	6.2	0	7.3	11.7	6.2	24	
21		4.2	5.7	9	9	6.9	2.7	0	2.1	3.6	6.6	6.6	0	0.8	7.3	1	9.8	7.1	3.8	2.7	7.1	1.8	5	9.7	2.7	9.8	4.8	24	
22		5.5	0.3	3.7	3.6	3.7	2.2	6.2	0.3	9.2	5.2	6.7	8.8	9.1	1.8	12.7	0	6.3	6.7	6.2	9.6	7.2	8.2	2.6	7.2	12.7	5.5	24	
23		4.7	5.2	4.6	7.7	3.3	8.7	3.7	7.7	4.7	5.7	11.7	15.2	7.7	10.2	13.2	0	9.7	2.2	3.7	2.2	7.2	15.2	2.7	11.2	15.2	7.0	24	
24		5.2	7.2	7.2	8.7	6.2	8.7	9.7	2.7	14.7	21.7	10.2	10.7	9.7	3.7	0.2	4.7	13.2	7.7	4.7	16.7	21.2	12.7	3.7	9.7	21.7	9.2	24	
25		7.7	0.7	1.7	9.2	7.2	8.7	8.7	9.2	9.2	N	N	0	0	2.2	6.7	N	12.2	9.7	4.7	8.7	7.2	6.2	6.2	N	12.2	6.3	20	
26		10.2	0	12.2	0.7	7.7	13.2	3.2	6.7	9.7	5.2	0.2	17.2	6.2	11.2	8.2	6.7	13.7	7.2	6.7	9.7	16.2	N	0	0	17.2	7.5	23	
27		5.2	18.2	14.2	17.2	5.7	N	0	0.2	4.7	12.2	1.7	8.2	11.7	0.7	0	14.7	3.7	1.2	12.2	0	5.2	5.7	6.2	3.2	18.2	6.6	23	
28		3.7	3.2	4.2	5.2	3.7	5.7	13.2	5.7	14.2	7.7	7.2	14.2	4.7	0	5.2	5.1	8.2	8.6	7.7	8.2	7.7	N	0	8.7	14.2	6.6	23	
29		N	12.2	0	0.2	1.7	N	3.7	2.2	N	6.7	N	0.7	N	0	3.2	9.2	0	0	9.2	11.2	9.2	9.2	9.7	3.6	12.2	4.8	19	
30		0.2	4.2	6.2	5.2	0	3.6	0.7	3.7	0.7	4.7	1.7	0	0	6.7	4.7	0	0	0	8.2	13.2	10.7	0.7	4.7	13.7	13.7	3.9	24	
31		13.2	10.1	8.2	14.2	13.2	14.7	10.2	4.7	3.7	11.2	16.2	5.2	6.7	0	15.7	2.2	2.7	11.7	6.7	12.2	13.7	10.2	8.2	11.2	16.2	9.4	24	
HOURLY MAX		22	23	24	17	17	15	24	22	29	25	18	23	27	29	34	19	14	23	28	19	21	21	28	23				
HOURLY AVG		7.3	7.5	6.9	7.9	6.4	7.2	6.6	6.5	8.1	8.9	6.5	6.3	8.1	6.5	6.1	6.3	6.0	7.2	7.7	8.4	9.0	8.2	7.6	8.3				

STATUS FLAG CODES

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

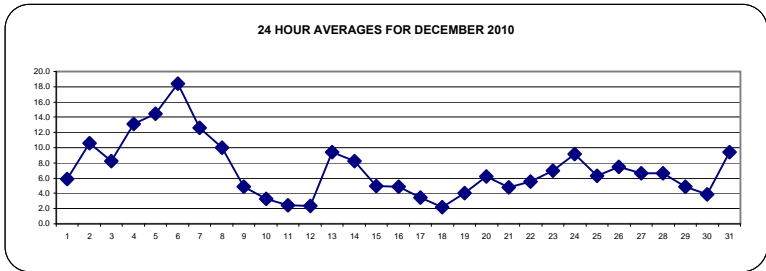
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:

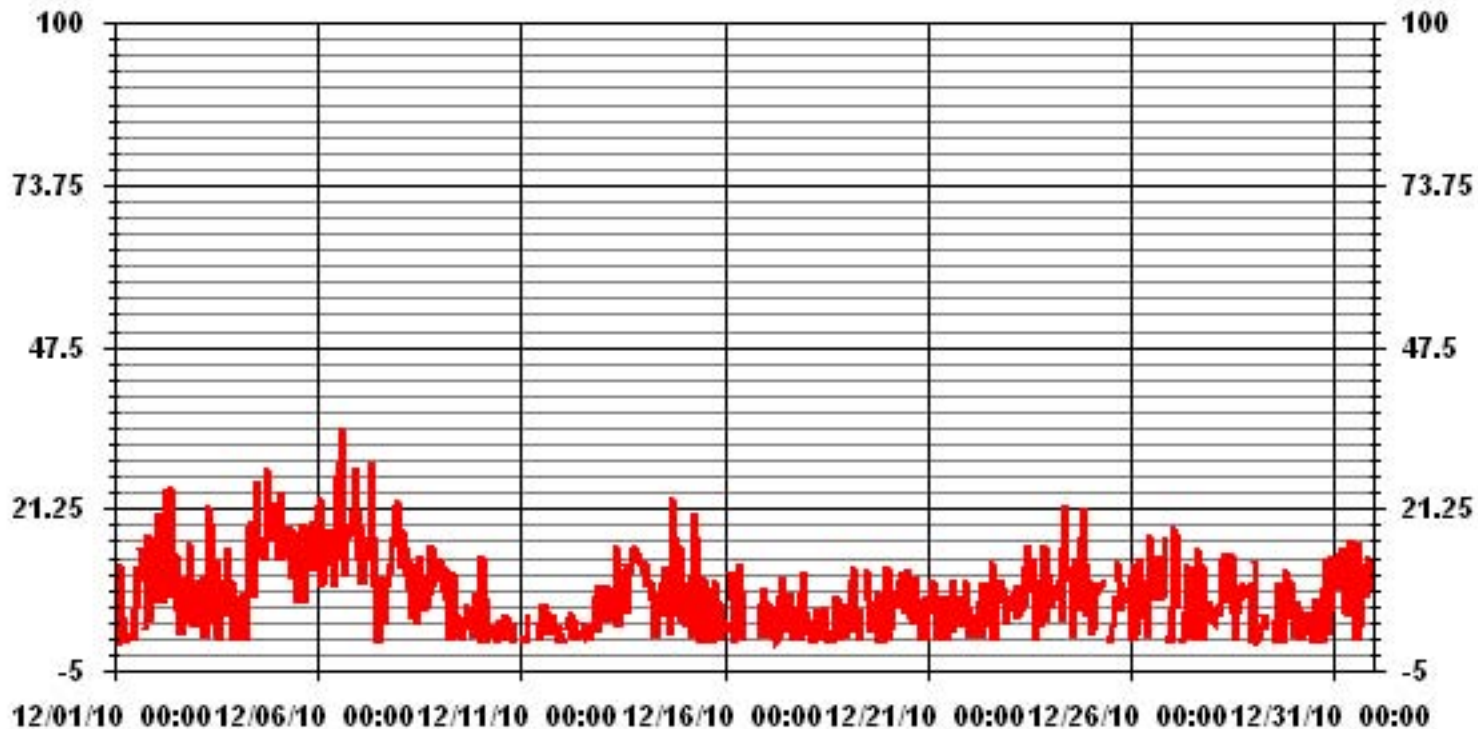
1-HR	-	PPB	24-HR	30	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-				
NUMBER OF 24-HR EXCEEDENCES:	0	PROPOSED CANADA WIDE GUIDELINE			
NUMBER OF NON-ZERO READINGS:	619				
MAXIMUM 1-HR AVERAGE:	34.3	UG/M ³	@ HOUR(S)	14	ON DAY(S) 6
MAXIMUM 24-HR AVERAGE:	18.4	UG/M ³			ON DAY(S) 6
IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	700	HRS
MONTHLY CALIBRATION TIME:	2	HRS	AMD OPERATION UPTIME:	94.1	%
STANDARD DEVIATION:	6.02		MONTHLY AVERAGE:	7.29	UG/M ³



01 Hour Averages



— LICA33 PM2 UG/M3

LICA33
 PM2 / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	1.00	2.29	3.72	4.72	30.80	4.01	4.72	4.01	3.15	2.43	7.30	4.15	8.30	11.17	5.30	2.72	99.85
< 60.0	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
< 80.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.00	2.43	3.72	4.72	30.80	4.01	4.72	4.01	3.15	2.43	7.30	4.15	8.30	11.17	5.30	2.72	

Calm : .00 %

Total # Operational Hours : 698

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	7	16	26	33	215	28	33	28	22	17	51	29	58	78	37	19	697
< 60.0		1															1
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	7	17	26	33	215	28	33	28	22	17	51	29	58	78	37	19	

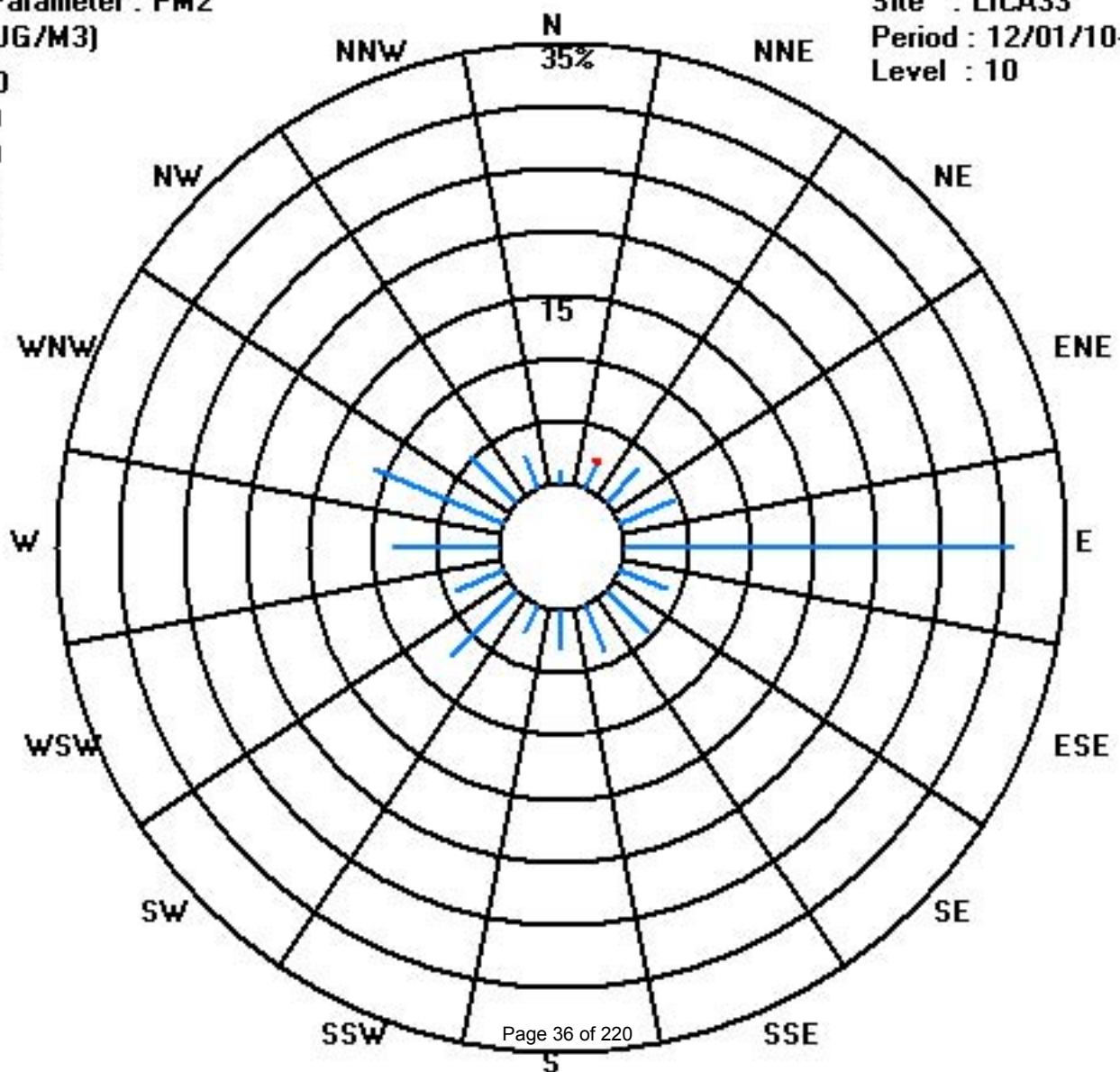
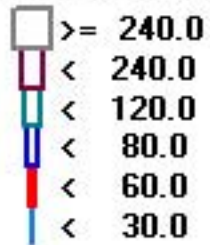
Calm : .00 %

Total # Operational Hours : 698

Class Limits (UG/M3)

Period : 12/01/10-12/31/10

Level : 10



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

NITROGEN DIOXIDE hourly averages in ppb

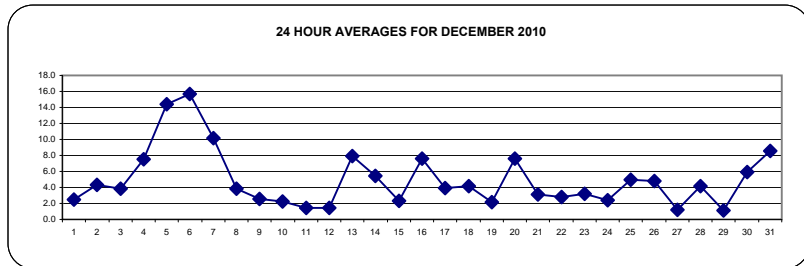
MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.				
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	2	2	2	IZS	2	3	2	2	3	2	1	1	1	2	3	4	4	3	3	3	3	3	3	3	4	2.5	24				
2	3	4	IZS	4	3	5	6	9	11	5	5	5	6	3	3	3	3	3	4	3	3	3	3	3	11	4.3	24				
3	2	IZS	3	5	5	5	3	6	6	5	3	3	4	6	4	3	5	4	5	3	3	2	2	1	6	3.8	24				
4	IZS	0	1	1	2	2	3	5	5	5	11	7	6	6	7	9	11	13	14	14	14	14	15	IZS	15	7.5	24				
5	16	16	13	13	12	11	11	13	13	10	10	9	9	9	11	15	19	19	21	22	21	21	IZS	18	22	14.4	24				
6	19	16	16	15	14	13	15	15	13	13	13	14	15	14	14	18	19	18	19	17	18	IZS	16	17	19	15.7	24				
7	15	13	12	12	11	12	14	15	13	C	C	C	C	C	C	C	4	7	7	7	7	IZS	7	5	8	15	10.1	24			
8	7	4	6	7	4	3	3	3	2	2	2	2	2	1	2	4	4	5	6	IZS	5	4	5	5	7	3.8	24				
9	5	5	5	4	4	4	3	2	M	2	1	1	0	1	1	1	1	1	IZS	1	4	4	3	4	5	2.6	23				
10	4	4	3	3	2	2	2	3	2	2	2	2	2	2	2	3	2	IZS	2	2	1	2	1	1	4	2.2	24				
11	2	2	1	1	2	2	2	2	3	2	1	1	1	1	1	1	IZS	2	2	2	2	1	0	1	3	1.5	24				
12	2	3	2	2	1	0	1	2	1	0	0	1	1	0	1	IZS	1	2	1	2	2	2	3	4	4	1.5	24				
13	4	4	4	4	4	5	4	5	5	4	5	5	5	6	IZS	9	11	13	14	18	14	14	14	12	18	8.0	24				
14	12	13	12	9	8	8	8	7	7	4	4	4	3	IZS	2	2	2	3	3	3	3	3	3	3	13	5.5	24				
15	2	2	2	2	2	3	3	2	3	4	3	3	IZS	5	4	3	2	2	1	1	1	1	1	1	5	2.3	24				
16	1	1	1	1	1	3	3	4	9	7	7	IZS	8	7	4	10	15	16	22	21	19	8	5	2	22	7.6	24				
17	3	3	3	4	4	3	3	5	5	6	IZS	4	4	4	3	3	3	6	8	5	4	3	3	2	8	4.0	24				
18	2	3	5	6	3	5	8	12	15	IZS	6	3	2	2	2	3	4	3	3	2	1	2	1	2	15	4.1	24				
19	2	2	2	2	2	1	1	IZS	1	1	1	1	1	1	1	2	3	5	2	3	4	3	4	4	5	2.2	24				
20	3	2	4	4	3	5	9	IZS	10	8	7	9	7	6	7	9	11	14	11	10	9	10	10	7	14	7.6	24				
21	8	5	6	5	5	4	IZS	3	3	4	2	1	1	1	2	2	3	1	2	1	2	3	4	4	8	3.1	24				
22	3	2	2	1	2	IZS	3	3	4	3	3	2	2	2	2	3	3	3	3	3	3	3	4	4	4	2.8	24				
23	5	3	3	3	IZS	2	2	2	3	3	2	2	2	2	3	3	4	4	5	5	5	4	2	4	5	3.2	24				
24	2	3	3	IZS	2	2	3	3	2	2	2	2	2	2	2	4	3	2	2	2	2	2	3	4	4	2.4	24				
25	3	4	IZS	3	5	4	2	4	3	3	4	4	3	2	4	6	7	5	7	9	7	7	11	7	11	5.0	24				
26	4	IZS	3	5	4	3	2	3	3	2	2	2	2	3	4	3	6	7	7	9	13	18	5	1	18	4.8	24				
27	IZS	2	2	3	3	3	3	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	3	1.2	24				
28	2	4	2	3	5	4	7	11	15	10	7	6	4	2	2	2	2	1	2	2	1	1	IZS	0	15	4.1	24				
29	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	1	2	2	3	3	3	IZS	2	3	3	1.1	24				
30	4	3	2	4	6	3	4	5	5	8	4	2	3	3	5	8	13	8	9	7	IZS	13	11	7	13	6.0	24				
31	10	8	9	9	8	8	8	12	10	9	6	6	6	6	6	8	9	8	10	IZS	11	10	10	10	12	8.6	24				
HOURLY MAX	19	16	16	15	14	13	15	15	15	13	13	14	15	14	14	18	19	19	22	22	21	21	16	18							
HOURLY AVG	5.1	4.6	4.4	4.7	4.3	4.3	4.6	5.4	6.1	4.4	4.0	3.6	3.6	3.4	3.6	4.9	5.9	6.0	6.6	6.2	6.1	5.8	5.2	4.9							

STATUS FLAG CODES

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

OBJECTIVE LIMIT:

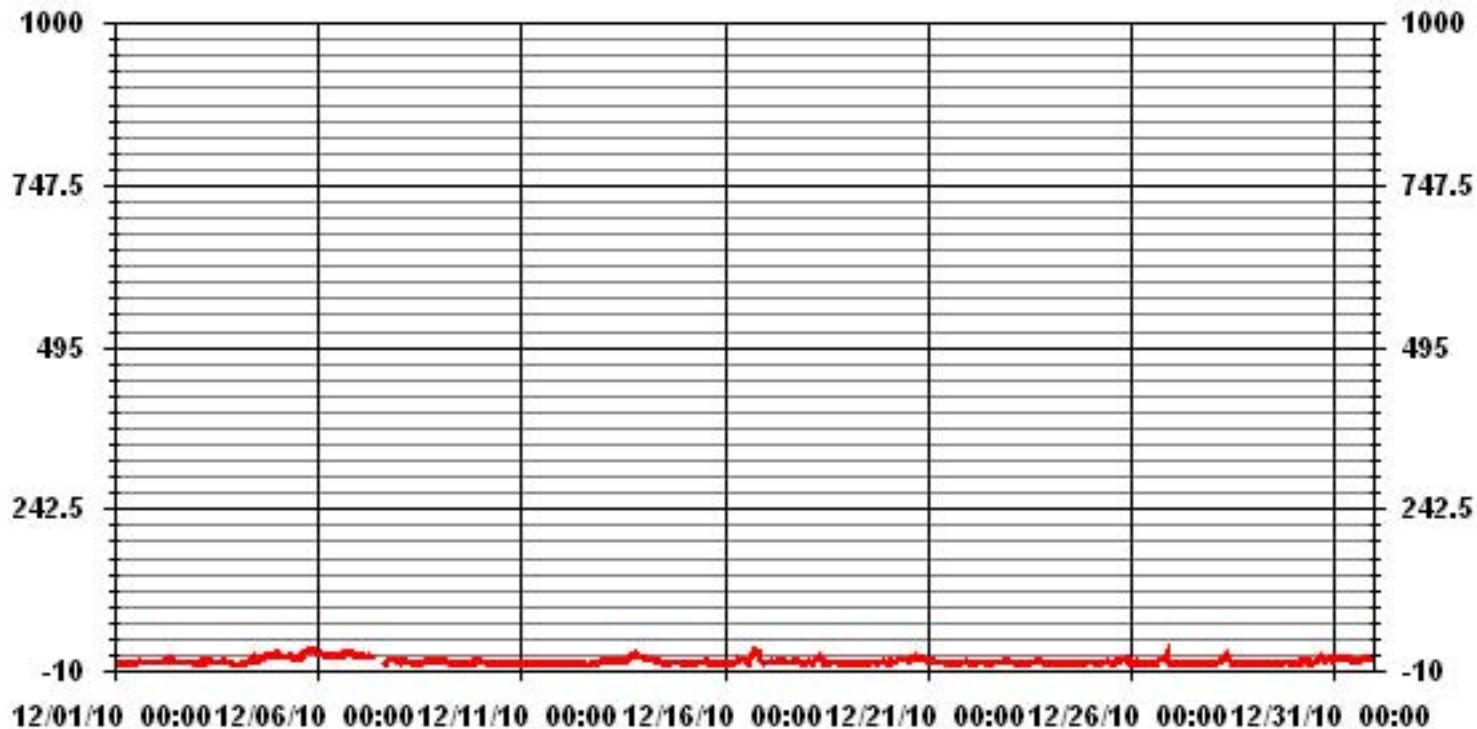
ALBERTA ENVIRONMENT:	1-HR	212	PPB	24-HR	106	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF 24-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	681				
MAXIMUM 1-HR AVERAGE:	22	PPB	@ HOUR(S)	19	ON DAY(S) 5
MAXIMUM 24-HR AVERAGE:	15.7	PPB			ON DAY(S) 6
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	4.42		MONTHLY AVERAGE:	4.91	PPB

01 Hour Averages



— LICA33 H02_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

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	2	3	3	IZS	3	3	3	3	4	3	1	1	2	2	4	5	5	5	5	4	4	4	4	5	5	5	3.4	24
2	5	6	IZS	6	5	6	10	12	20	6	9	9	8	5	4	4	4	4	4	4	4	3	4	4	20	6.3	24	
3	3	IZS	6	7	9	9	5	12	9	6	5	4	6	7	6	4	7	5	8	5	4	2	2	2	12	5.8	24	
4	IZS	1	2	1	2	3	5	6	6	15	42	16	6	8	8	11	12	14	16	15	15	16	17	IZS	42	10.8	24	
5	19	17	16	17	13	13	13	14	16	12	11	11	9	10	14	17	20	20	23	24	23	24	IZS	20	24	16.3	24	
6	22	18	18	19	17	17	17	17	15	15	14	16	17	15	18	21	21	20	21	19	21	IZS	19	19	22	18.1	24	
7	17	15	14	14	12	14	16	16	16	C	C	C	C	C	C	6	8	9	9	IZS	11	7	9	17	12.1	24		
8	8	6	10	10	6	5	5	4	3	3	2	2	3	3	4	13	5	7	7	IZS	6	5	6	6	13	5.6	24	
9	6	6	6	5	4	4	4	3	M	2	2	1	1	1	1	2	2	2	IZS	2	7	6	4	6	7	3.5	23	
10	5	5	4	4	3	3	3	5	3	3	3	3	3	3	3	3	3	IZS	4	5	3	4	2	2	5	3.4	24	
11	4	4	2	4	4	3	3	3	4	3	3	2	2	1	2	2	IZS	3	3	3	3	1	3	2	4	2.8	24	
12	3	3	3	3	1	1	3	3	3	1	1	2	1	1	1	IZS	2	2	2	3	3	4	4	4	4	2.3	24	
13	5	4	5	5	5	6	5	6	6	5	6	6	6	8	IZS	15	13	15	16	21	20	18	16	13	21	9.8	24	
14	14	15	14	13	9	10	10	8	11	7	6	34	8	IZS	3	3	3	4	3	4	4	4	4	3	34	8.4	24	
15	3	3	2	2	3	7	5	4	5	7	4	4	IZS	6	5	4	3	3	2	2	2	3	1	2	7	3.6	24	
16	1	1	1	1	2	6	5	7	12	9	9	IZS	18	9	7	15	17	19	25	24	21	16	6	4	25	10.2	24	
17	4	4	5	5	6	4	5	6	N	8	IZS	5	5	5	4	4	4	11	9	8	28	3	3	3	28	6.3	23	
18	3	5	6	8	4	8	18	15	44	IZS	10	4	3	2	3	5	6	4	4	3	2	3	2	3	44	7.2	24	
19	2	3	3	3	3	3	2	2	IZS	6	2	2	1	1	2	2	4	22	3	4	7	6	5	6	22	4.1	24	
20	5	3	7	6	4	7	12	IZS	13	10	8	11	9	8	10	11	14	17	13	11	10	12	13	8	17	9.7	24	
21	9	7	9	7	7	7	IZS	5	5	6	2	2	2	2	3	3	5	2	4	4	5	6	6	6	9	5.0	24	
22	6	5	3	2	5	IZS	5	4	5	4	4	3	3	3	4	4	4	4	4	3	4	5	5	5	6	4.1	24	
23	6	5	4	6	IZS	3	3	3	4	4	3	3	3	4	4	4	6	7	7	6	7	6	6	6	7	4.8	24	
24	4	5	5	IZS	3	4	4	4	2	2	3	3	2	2	3	6	5	3	2	3	3	3	5	5	6	3.5	24	
25	5	5	IZS	4	6	6	4	5	4	5	6	6	4	3	5	9	11	6	15	14	8	10	16	13	16	7.4	24	
26	10	IZS	4	6	5	4	3	4	4	3	3	3	3	6	7	10	36	10	12	13	17	21	16	2	36	8.8	24	
27	IZS	3	3	4	4	3	4	2	1	1	1	1	1	1	2	2	3	3	3	3	2	2	2	IZS	4	2.3	24	
28	4	11	3	8	11	4	18	24	19	14	10	7	6	4	3	3	3	3	4	3	3	3	IZS	0	24	7.3	24	
29	0	1	1	0	1	1	1	3	2	2	2	2	1	1	1	2	3	5	4	4	3	IZS	3	4	5	2.0	24	
30	6	4	3	5	9	7	7	8	8	19	7	3	19	4	6	14	16	11	26	9	IZS	15	13	8	26	9.9	24	
31	15	9	10	10	8	9	9	28	12	14	7	6	6	7	7	10	10	9	11	IZS	14	12	11	12	28	10.7	24	
HOURLY MAX	22	18	18	19	17	17	18	28	44	19	42	34	19	15	18	21	36	22	26	24	28	24	19	20				
HOURLY AVG	6.8	6.1	5.9	6.4	5.8	6.0	6.9	7.9	9.1	6.7	6.4	5.9	5.4	4.6	5.0	7.2	8.4	8.3	9.0	8.0	8.7	7.9	7.1	6.3				

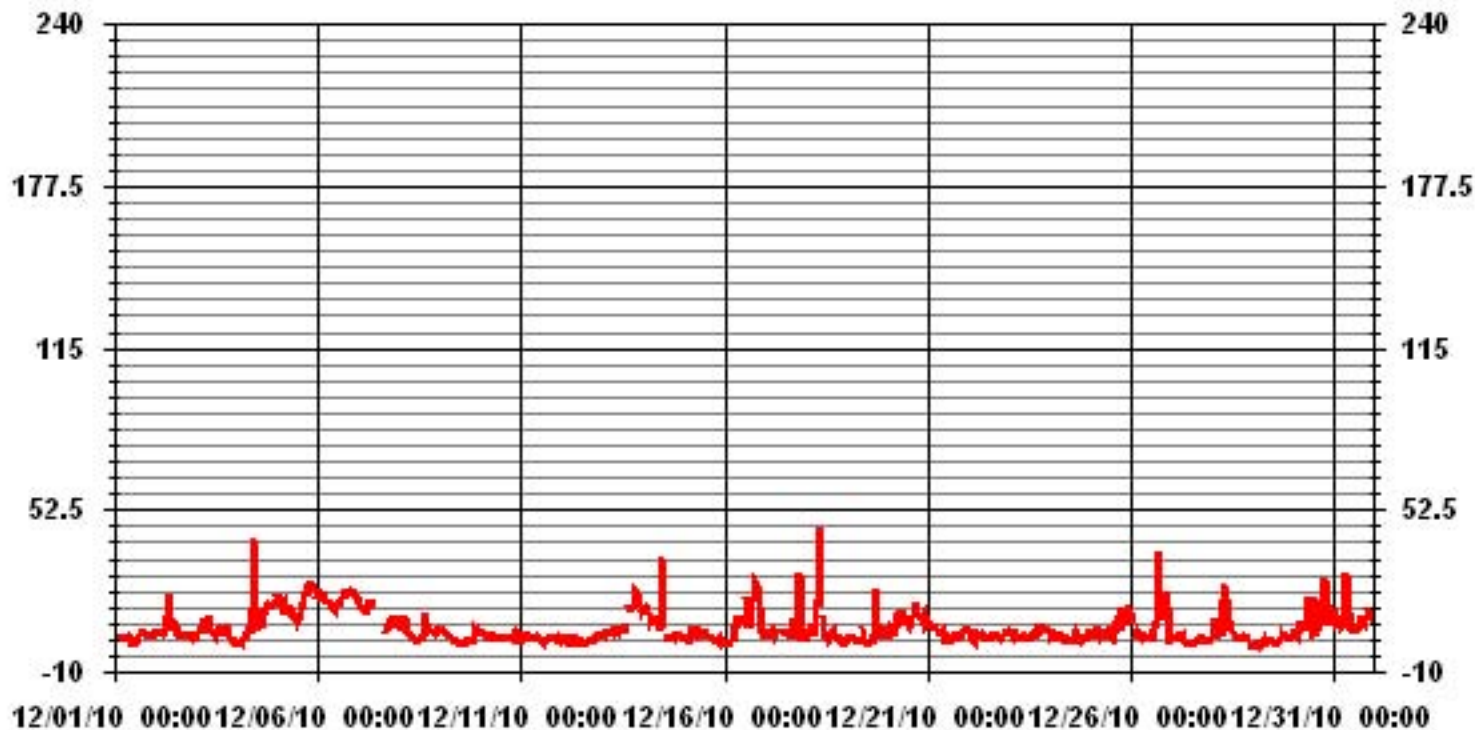
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	699					
MAXIMUM INSTANTANEOUS VALUE:	44	PPB	@ HOUR(S)	8	ON DAY(S)	18
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION	5.88					

01 Hour Averages



— LICA33 IIO2MAX PPB

LICA33
 NO2_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 Parameter : NO2_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	.99	2.70	3.98	4.97	30.01	3.98	4.55	3.69	2.98	2.41	7.53	3.69	8.25	11.37	5.97	2.84	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	.99	2.70	3.98	4.97	30.01	3.98	4.55	3.69	2.98	2.41	7.53	3.69	8.25	11.37	5.97	2.84	

Calm : .00 %

Total # Operational Hours : 703

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	7	19	28	35	211	28	32	26	21	17	53	26	58	80	42	20	703
< 110																	
< 210																	
>= 210																	
Totals	7	19	28	35	211	28	32	26	21	17	53	26	58	80	42	20	

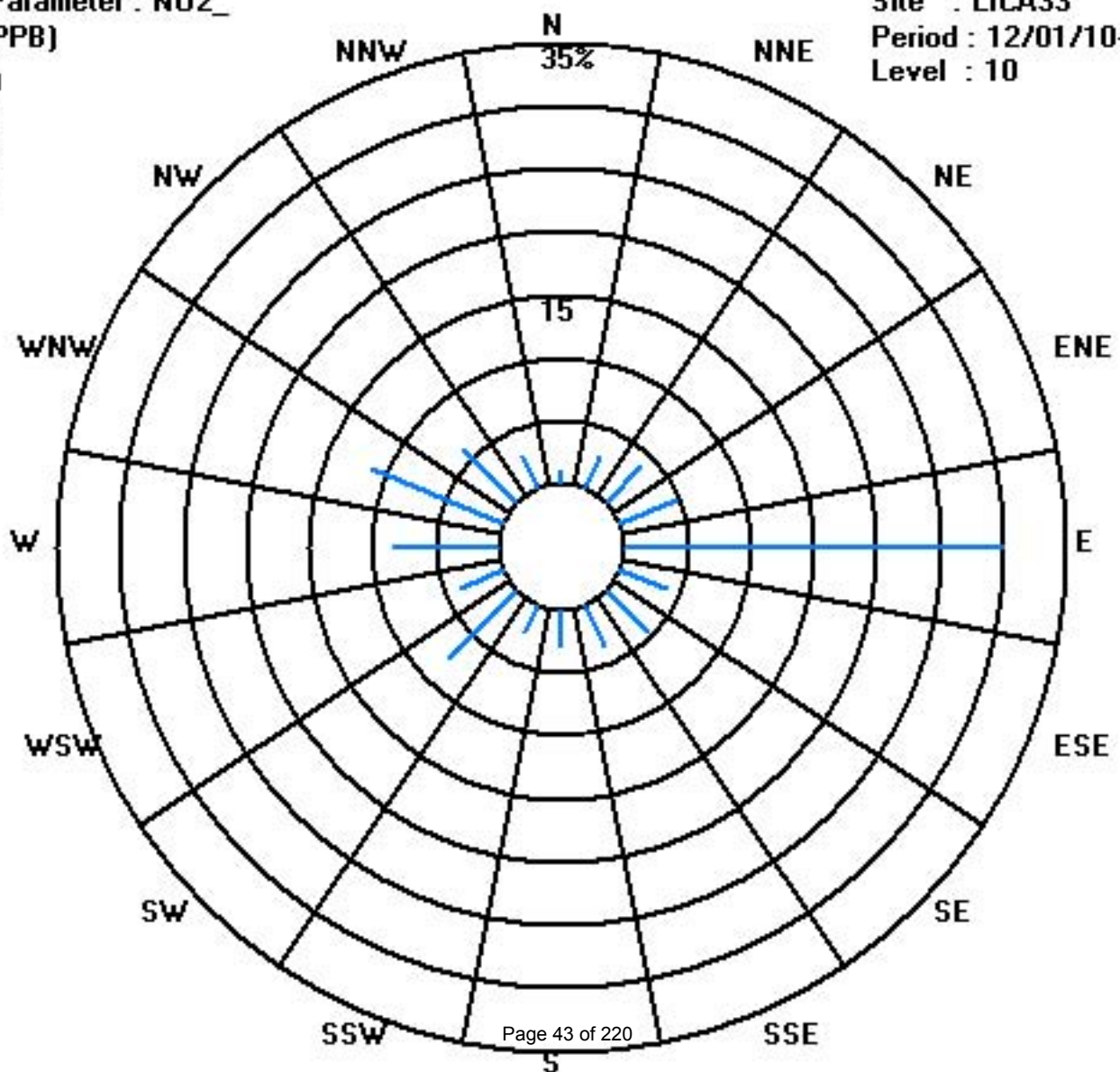
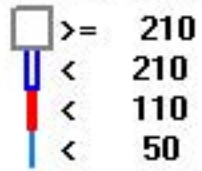
Calm : .00 %

Total # Operational Hours : 703

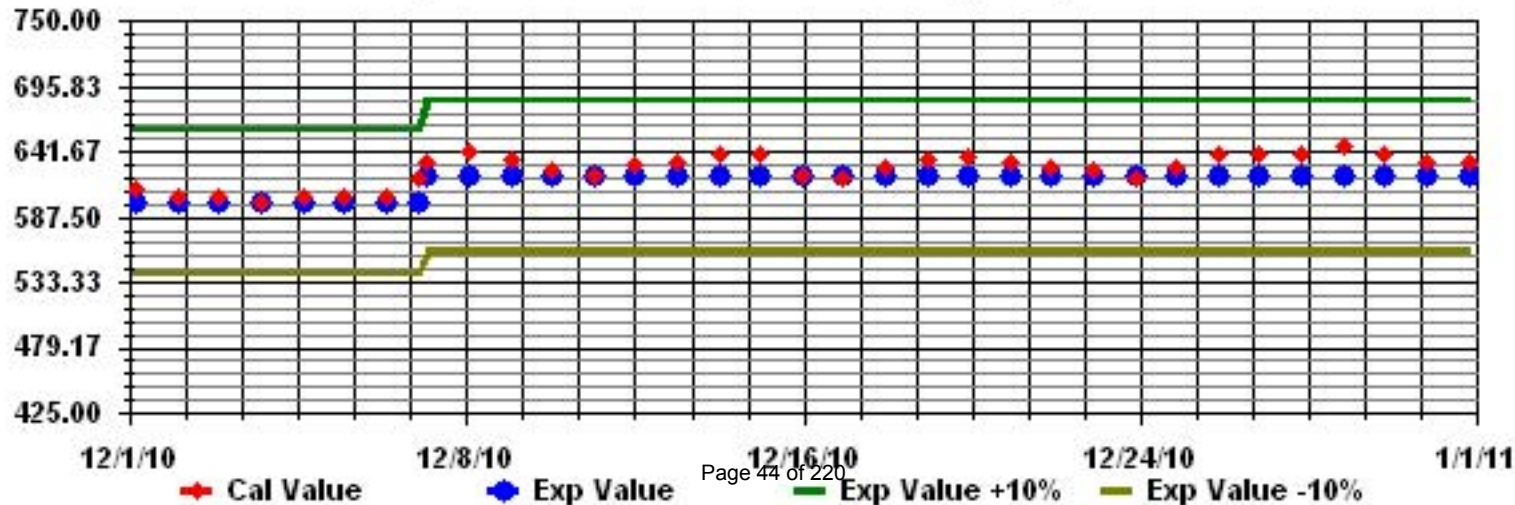
Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

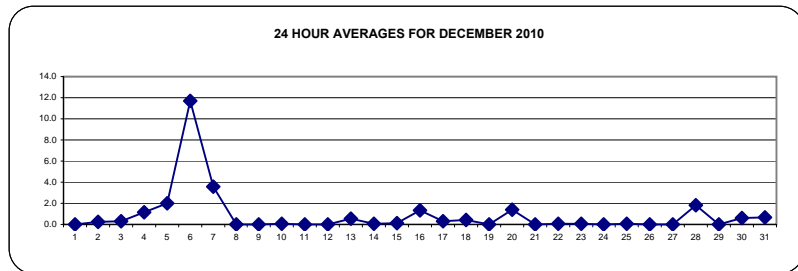
NITRIC OXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00					
DAY																													
1	0	0	0	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	
2	0	0	IZS	0	0	0	0	0	1	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24	
3	0	IZS	0	0	0	0	0	0	0	1	0	0	1	3	2	0	0	0	0	0	0	0	0	0	0	3	0.3	24	
4	IZS	0	0	0	0	0	0	0	0	1	10	5	3	3	2	1	0	0	0	0	0	0	0	0	IZS	10	1.1	24	
5	1	1	0	1	0	0	0	0	2	5	7	6	6	5	4	3	1	0	0	1	1	1	IZS	1	7	2.0	24		
6	2	1	2	3	1	3	14	19	15	28	30	29	27	18	11	11	4	1	4	2	7	IZS	17	20	30	11.7	24		
7	4	1	1	1	1	3	10	19	17	C	C	C	C	C	C	C	0	0	0	0	IZS	0	0	0	19	3.6	24		
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0.0	24		
9	0	0	0	0	0	0	0	0	M	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0.0	23		
10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	IZS	0	0	0	0	0	0	0	1	0.0	24	
11	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		
12	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		
13	0	0	0	0	0	0	0	0	0	0	2	2	3	3	IZS	2	0	0	0	1	0	0	0	0	0	3	0.6	24	
14	0	0	0	0	0	0	0	0	0	0	0	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	2	1	0	0	0	0	0	0	0	0	0	2	0.1	24	
16	0	0	0	0	0	0	0	0	0	2	5	IZS	9	5	1	2	1	0	3	2	1	0	0	0	0	9	1.3	24	
17	0	0	0	0	0	0	0	0	0	1	IZS	2	2	1	1	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
18	0	0	0	0	0	0	0	0	6	IZS	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	6	0.4	24	
19	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
20	0	0	0	0	0	0	0	IZS	0	2	4	9	6	5	4	2	0	0	0	0	0	0	0	0	0	9	1.4	24	
21	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
22	0	0	0	0	0	IZS	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
23	0	0	0	0	IZS	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
24	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
25	0	0	IZS	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
26	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
27	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
28	0	0	0	0	0	0	1	4	10	7	8	8	3	1	0	0	0	0	0	0	0	0	0	0	IZS	0	10	1.8	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
30	0	0	0	0	0	0	0	0	0	2	2	1	2	1	2	1	0	0	3	0	IZS	0	0	0	0	3	0.6	24	
31	0	0	0	0	0	0	0	1	0	2	2	2	3	3	2	1	0	0	0	IZS	0	0	0	0	3	0.7	24		
HOURLY MAX	4	1	2	3	1	3	14	19	17	28	30	29	27	18	11	11	4	1	4	2	7	1	17	20					
HOURLY AVG	0.2	0.1	0.1	0.2	0.1	0.2	0.8	1.4	1.8	1.8	2.6	2.4	2.4	1.8	1.0	0.8	0.2	0.0	0.3	0.2	0.3	0.0	0.6	0.7					

STATUS FLAG CODES

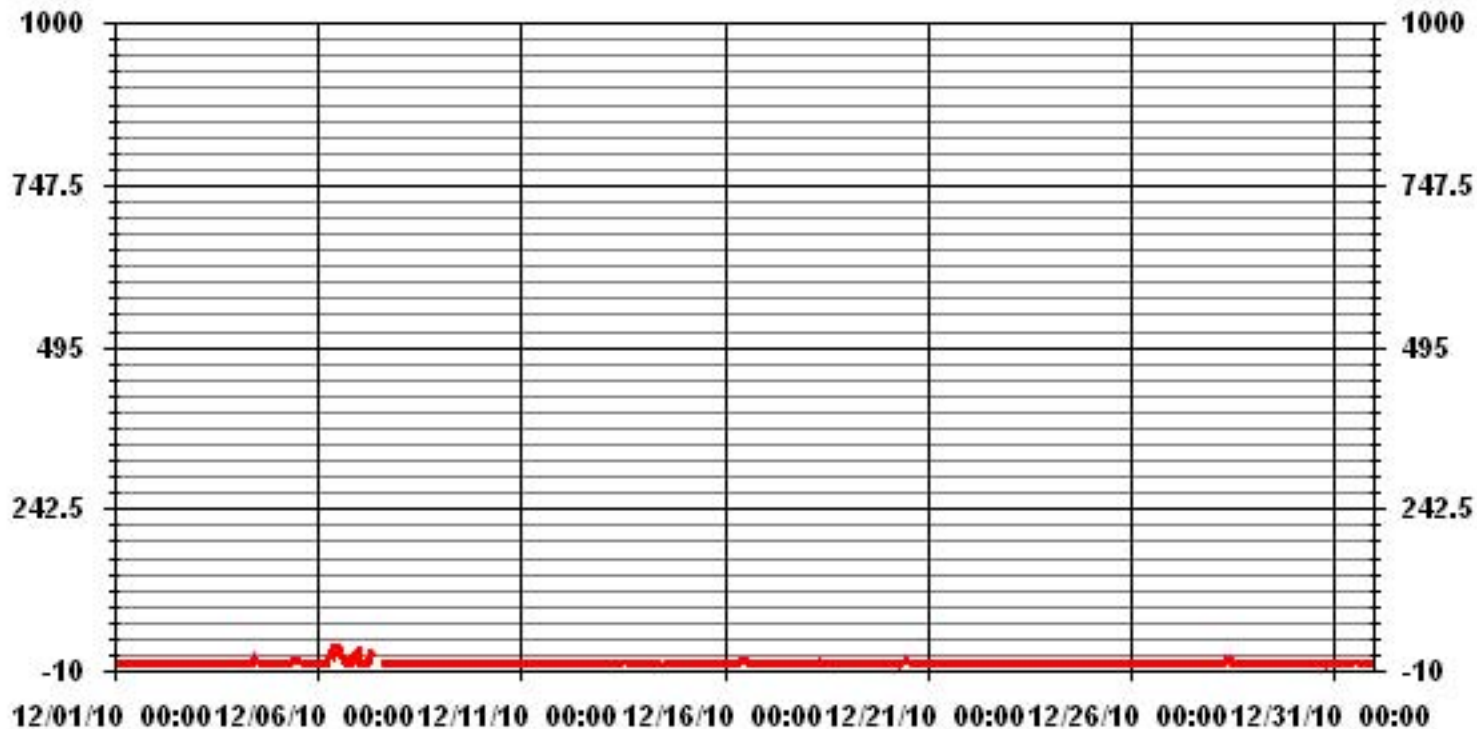
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	127
MAXIMUM 1-HR AVERAGE:	30 PPB @ HOUR(S) 10 ON DAY(S) 6
MAXIMUM 24-HR AVERAGE:	11.7 PPB ON DAY(S) 6
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	7 HRS
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	3.13
MONTHLY AVERAGE:	0.83 PPB

01 Hour Averages



— LICA33 NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

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	IZS	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	1	0.1	24	
2	0	0	IZS	1	0	1	0	2	18	1	4	4	2	1	0	0	0	0	0	0	0	0	0	0	18	1.5	24	
3	0	IZS	1	0	0	0	0	1	1	2	1	1	3	3	3	1	1	0	1	0	0	0	0	0	3	0.8	24	
4	IZS	1	0	0	0	0	0	0	1	14	20	13	4	4	4	2	1	0	1	1	1	1	1	IZS	20	3.1	24	
5	2	1	1	3	1	1	1	1	4	7	7	9	6	6	6	6	2	1	1	1	1	3	IZS	3	9	3.2	24	
6	8	1	6	8	2	15	16	27	22	38	34	32	33	24	16	15	7	4	7	4	12	IZS	25	33	38	16.9	24	
7	8	3	3	2	1	7	17	28	25	C	C	C	C	C	C	1	0	0	1	IZS	1	0	0	0	28	6.1	24	
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	1	IZS	0	0	0	0	10	0.5	24	
9	0	0	0	0	0	0	0	0	M	0	1	0	0	0	0	1	0	0	IZS	0	0	0	0	0	1	0.1	23	
10	0	0	0	0	0	0	0	1	0	1	1	1	2	1	0	0	0	IZS	0	0	0	0	0	0	2	0.3	24	
11	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	IZS	1	0	0	0	0	0	0	1	0.2	24	
12	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	IZS	0	0	0	0	0	0	0	0	1	0.0	24	
13	0	0	0	0	0	0	0	0	0	1	3	3	4	4	IZS	3	1	0	0	4	3	4	1	0	4	1.3	24	
14	0	1	1	0	0	0	0	0	1	1	2	5	1	IZS	1	0	0	0	0	0	0	0	0	0	5	0.6	24	
15	0	0	0	0	0	0	0	0	0	3	2	1	IZS	4	2	1	0	1	0	0	0	0	0	0	4	0.6	24	
16	0	0	0	0	0	0	1	0	1	3	6	IZS	44	7	2	3	4	1	7	5	2	1	0	0	44	3.8	24	
17	0	0	0	0	0	0	1	0	N	2	IZS	3	3	3	3	1	0	0	0	0	14	0	0	0	14	1.4	23	
18	0	0	0	0	0	0	22	0	52	IZS	5	2	1	1	0	0	0	0	0	0	0	0	0	0	52	3.6	24	
19	0	0	0	0	0	0	0	0	IZS	10	0	0	0	1	0	0	0	23	0	0	0	0	0	0	23	1.5	24	
20	0	0	0	0	0	0	2	IZS	2	3	5	11	8	7	6	4	1	0	0	0	0	0	0	0	11	2.1	24	
21	0	0	0	0	0	0	IZS	0	1	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
22	0	0	0	0	0	IZS	0	0	0	1	2	1	1	1	1	0	0	0	0	0	0	0	0	0	2	0.3	24	
23	0	0	0	0	IZS	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.2	24	
24	0	0	0	IZS	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
25	0	0	IZS	0	0	0	0	0	0	0	1	2	1	1	1	1	0	0	0	0	0	0	1	4	4	0.5	24	
26	0	IZS	1	0	0	0	0	0	0	0	1	1	1	2	2	1	30	1	2	2	2	0	0	0	30	1.9	24	
27	IZS	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0.1	24	
28	1	0	0	0	1	0	33	44	48	9	11	11	7	2	1	0	0	0	0	0	0	0	0	0	48	7.3	24	
29	0	0	0	0	0	0	0	1	1	0	0	1	1	1	0	1	0	0	0	0	0	0	IZS	0	0	1	0.3	24
30	0	0	0	0	1	0	0	0	0	24	3	1	26	3	3	2	2	0	64	0	IZS	1	0	0	64	5.7	24	
31	3	0	0	0	0	0	0	18	1	3	3	3	4	4	3	2	0	0	0	IZS	0	0	0	0	18	1.9	24	
HOURLY MAX	8	3	6	8	2	15	33	44	52	38	34	32	44	24	16	15	30	23	64	5	14	4	25	33				
HOURLY AVG	0.8	0.2	0.4	0.5	0.2	0.8	3.1	4.1	6.4	4.3	4.0	3.7	5.4	2.8	1.9	1.9	1.7	1.1	2.8	0.6	1.1	0.4	1.0	1.4				

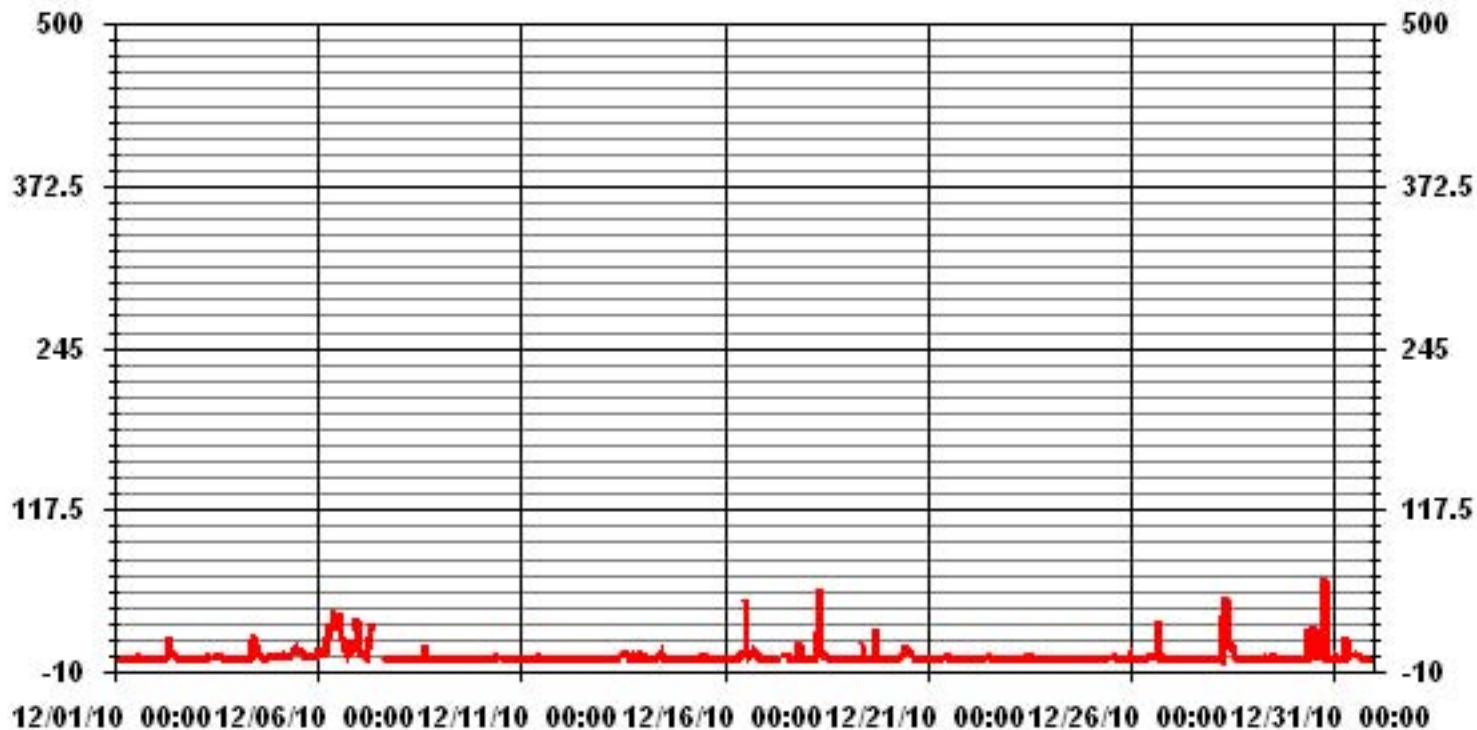
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	256					
MAXIMUM INSTANTANEOUS VALUE:	64	PPB	@ HOUR(S)	18	ON DAY(S)	30
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION	6.46					

01 Hour Averages



LICA33
 NO_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	.99	2.70	3.98	4.97	30.01	3.98	4.55	3.69	2.98	2.41	7.53	3.69	8.25	11.37	5.97	2.84	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	.99	2.70	3.98	4.97	30.01	3.98	4.55	3.69	2.98	2.41	7.53	3.69	8.25	11.37	5.97	2.84	

Calm : .00 %

Total # Operational Hours : 703

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	7	19	28	35	211	28	32	26	21	17	53	26	58	80	42	20	703
< 110																	
< 210																	
>= 210																	
Totals	7	19	28	35	211	28	32	26	21	17	53	26	58	80	42	20	

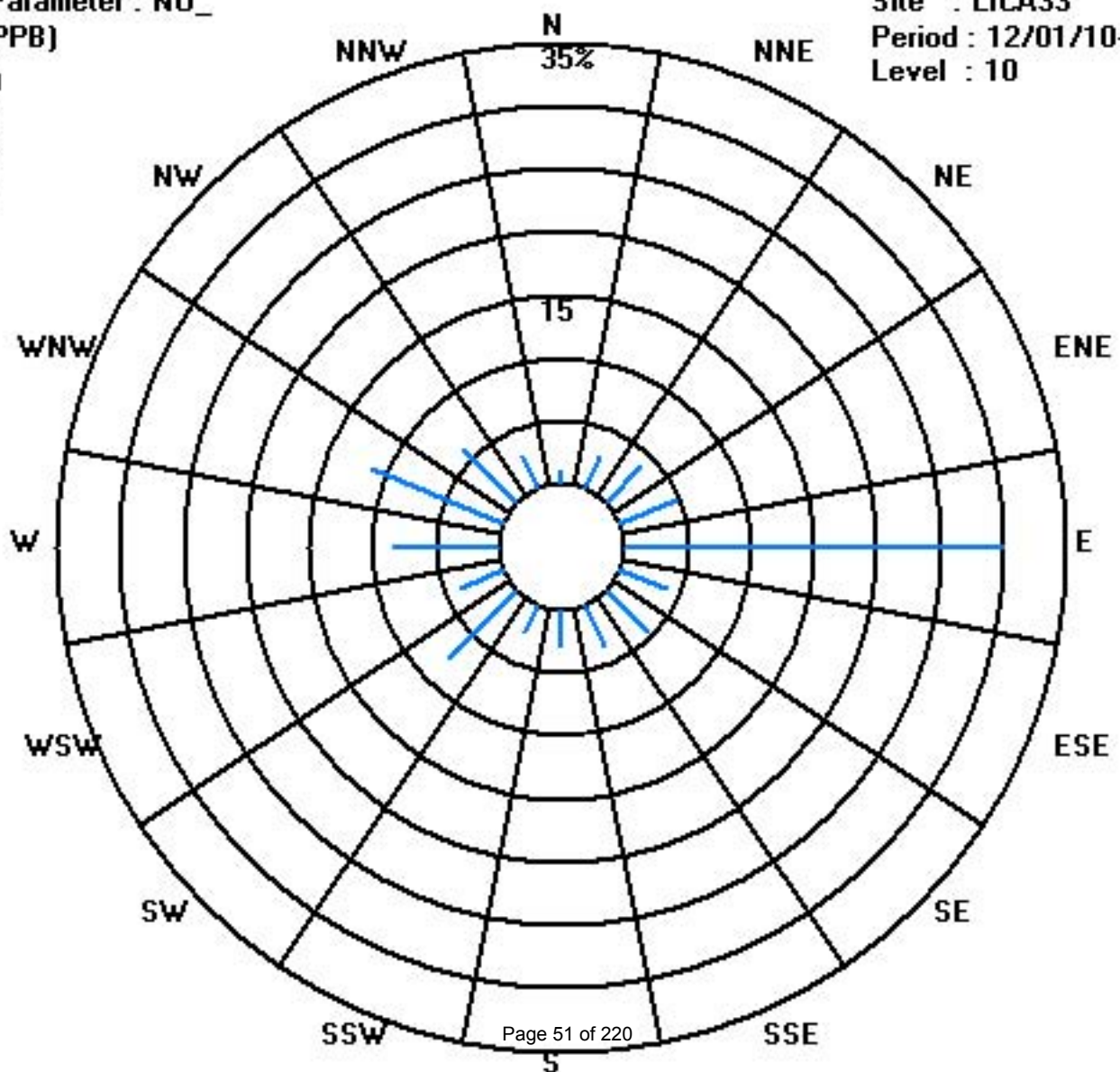
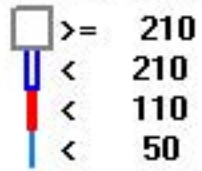
Calm : .00 %

Total # Operational Hours : 703

Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

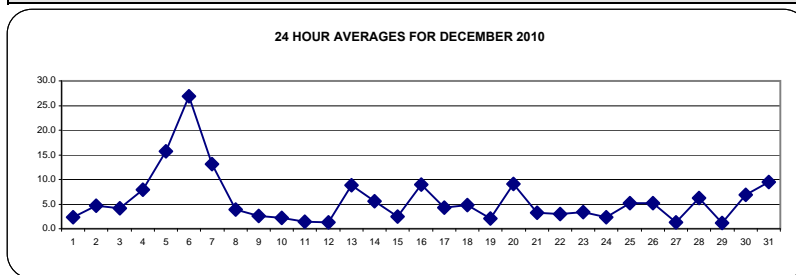
OXIDES OF NITROGEN hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
DAY																												
1	2	2	2	IZS	2	2	2	2	3	2	1	1	1	2	3	4	3	3	3	3	3	3	3	3	3	4	2.4	24
2	3	4	IZS	4	3	5	6	10	12	6	6	7	8	4	3	3	3	3	4	3	3	3	3	3	3	12	4.7	24
3	2	IZS	3	5	5	5	3	7	6	6	3	4	5	9	6	4	5	4	5	3	2	1	1	1	9	4.1	24	
4	IZS	0	0	0	0	1	2	4	4	6	20	12	8	9	9	10	10	12	13	13	13	14	14	IZS	20	7.9	24	
5	17	16	13	13	11	10	10	13	14	15	16	15	13	14	15	17	19	18	20	22	21	21	IZS	19	22	15.7	24	
6	20	17	17	18	15	16	28	34	27	41	42	43	41	31	25	28	23	18	22	19	25	IZS	33	36	43	26.9	24	
7	19	13	13	12	11	14	23	33	29	C	C	C	C	C	C	C	4	6	6	6	IZS	7	5	8	33	13.1	24	
8	7	4	6	7	4	3	3	3	2	2	2	2	2	1	3	4	4	5	6	IZS	5	5	5	5	7	3.9	24	
9	5	5	5	4	4	4	3	2	M	2	1	1	0	1	0	1	1	1	IZS	1	4	4	3	4	5	2.5	23	
10	4	4	2	3	2	2	2	3	2	2	2	2	3	3	2	3	2	IZS	2	2	1	2	1	1	4	2.3	24	
11	2	2	0	1	2	2	2	2	3	2	2	1	1	1	1	1	1	IZS	2	1	1	1	0	1	1	3	1.4	24
12	2	3	2	2	0	0	0	1	1	0	0	1	1	0	1	1	IZS	1	1	1	2	2	2	3	4	4	1.3	24
13	4	4	4	4	4	4	4	5	5	5	7	8	9	10	IZS	11	11	13	14	20	15	15	14	13	20	8.8	24	
14	13	13	12	9	8	9	8	7	7	5	4	5	4	IZS	2	3	2	3	2	2	3	3	3	2	13	5.6	24	
15	2	2	1	1	2	3	3	2	3	5	4	3	IZS	8	6	3	2	2	1	1	1	1	0	1	8	2.5	24	
16	1	0	0	0	1	3	3	4	9	9	12	IZS	17	12	5	12	16	17	25	24	20	9	5	2	25	9.0	24	
17	2	3	3	4	4	3	3	5	6	7	IZS	7	7	6	4	3	3	6	8	5	5	2	2	2	8	4.3	24	
18	2	3	5	6	3	5	9	13	22	IZS	9	5	3	3	2	4	4	3	3	2	1	1	1	2	22	4.8	24	
19	1	1	1	2	2	2	1	1	IZS	2	1	1	1	1	1	2	3	5	2	2	4	3	4	4	5	2.0	24	
20	2	2	3	4	3	5	9	IZS	11	11	11	19	14	11	12	11	11	14	11	10	9	10	10	7	19	9.1	24	
21	8	5	6	5	5	4	IZS	4	4	4	2	2	2	2	2	3	3	1	2	1	1	3	3	4	8	3.3	24	
22	3	2	1	1	2	IZS	4	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	4	4	4	3.0	24	
23	5	3	3	3	IZS	2	2	2	3	3	3	3	3	4	4	3	4	4	5	5	4	4	2	4	5	3.4	24	
24	2	3	3	IZS	2	2	3	2	1	2	2	2	2	2	2	4	3	2	2	2	2	2	3	3	4	2.3	24	
25	3	4	IZS	3	5	4	2	4	3	3	5	5	3	3	5	6	7	5	7	9	6	7	11	8	11	5.1	24	
26	4	IZS	3	5	4	3	2	3	3	3	3	3	3	3	5	3	7	7	7	10	14	19	5	1	19	5.2	24	
27	IZS	2	2	3	3	2	3	1	0	0	0	0	1	1	1	1	1	2	1	1	1	1	1	1	IZS	3	1.3	24
28	3	4	2	3	5	4	8	16	26	17	15	15	8	4	3	2	2	1	1	2	1	1	IZS	0	26	6.2	24	
29	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	1	2	2	3	2	3	IZS	3	3	3	1.1	24	
30	4	3	2	4	6	3	5	5	10	7	3	5	5	8	10	14	8	12	7	IZS	13	12	7	14	6.9	24		
31	11	8	9	9	8	8	8	14	10	11	9	9	9	9	8	9	9	8	10	IZS	12	11	10	10	14	9.5	24	
HOURLY MAX	20	17	17	18	15	16	28	34	29	41	42	43	41	31	25	28	23	18	25	24	25	21	33	36				
HOURLY AVG	5.3	4.6	4.2	4.7	4.2	4.3	5.4	6.9	7.8	6.4	6.7	6.3	6.1	5.6	4.9	5.8	6.1	6.0	6.7	6.3	6.4	5.9	5.7	5.6				

STATUS FLAG CODES

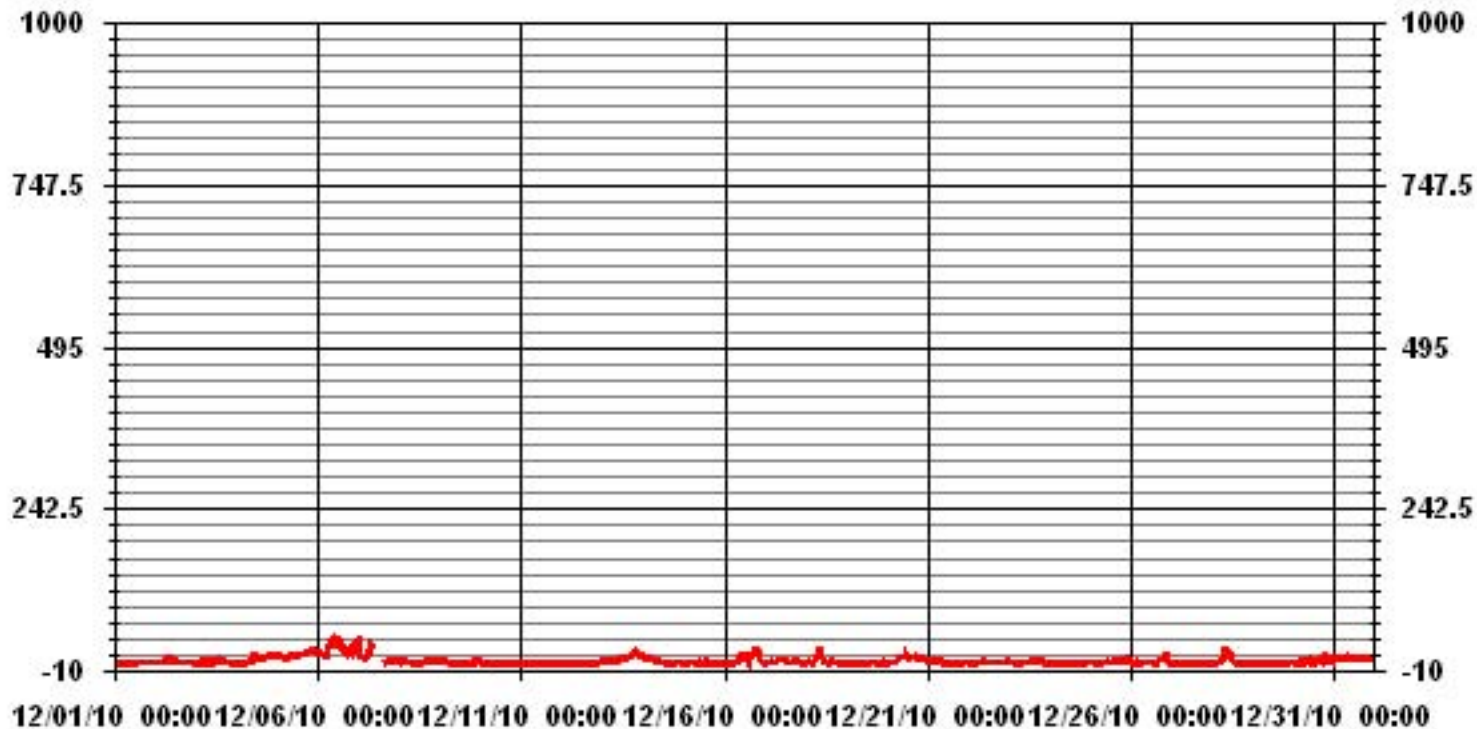
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	672
MAXIMUM 1-HR AVERAGE:	43 PPB @ HOUR(S) 11 ON DAY(S) 6
MAXIMUM 24-HR AVERAGE:	26.9 PPB ON DAY(S) 6
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	6.35
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
MONTHLY AVERAGE:	5.74 PPB

01 Hour Averages



— LICA33 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	2	3	3	IZS	3	3	3	3	4	3	2	1	2	3	4	5	5	6	5	4	4	4	3	5	6	3.5	24	
2	5	6	IZS	6	5	7	10	13	38	7	13	13	10	6	4	4	4	4	4	4	4	3	4	4	38	7.7	24	
3	3	IZS	6	7	8	9	5	12	9	7	7	5	9	10	8	4	7	5	8	4	4	2	2	2	12	6.2	24	
4	IZS	1	1	0	1	2	4	5	5	27	57	28	10	11	11	12	11	13	15	14	14	15	16	IZS	57	12.4	24	
5	19	17	16	19	13	12	12	14	19	17	17	19	14	14	19	19	20	19	23	24	24	26	IZS	23	26	18.2	24	
6	29	19	24	25	19	30	32	42	34	52	47	45	49	38	33	34	27	23	27	21	32	IZS	42	51	52	33.7	24	
7	24	17	15	15	13	20	32	43	40	C	C	C	C	C	C	C	6	7	9	8	IZS	11	8	9	43	17.3	24	
8	9	6	11	11	6	5	5	4	3	3	3	2	3	3	4	23	5	7	8	IZS	7	5	6	6	23	6.3	24	
9	6	6	6	5	4	4	4	3	M	2	3	1	1	2	1	2	1	2	IZS	2	7	6	4	6	7	3.5	23	
10	5	5	4	4	3	3	3	5	3	3	4	3	5	5	3	3	2	IZS	4	5	3	4	2	2	5	3.6	24	
11	4	4	2	4	4	3	3	3	4	3	3	3	2	2	2	2	IZS	2	3	3	3	1	3	2	4	2.8	24	
12	3	3	3	3	1	1	3	3	3	1	1	2	2	1	1	IZS	2	2	2	3	3	3	4	4	4	2.3	24	
13	5	4	5	5	5	5	5	6	6	6	9	9	11	12	IZS	18	14	16	16	26	22	23	17	14	26	11.3	24	
14	14	15	14	13	9	10	10	9	12	8	7	39	9	IZS	4	3	3	4	3	4	4	4	3	3	39	8.9	24	
15	3	2	2	2	3	7	6	4	5	10	6	6	IZS	10	7	5	3	5	2	2	2	3	1	2	10	4.3	24	
16	1	1	1	1	1	6	6	8	14	11	15	IZS	60	15	8	18	21	20	32	30	23	16	6	4	60	13.8	24	
17	4	4	5	5	6	4	5	6	N	9	IZS	8	8	8	7	5	4	11	9	8	31	3	3	3	31	7.1	23	
18	3	5	6	8	4	8	33	16	91	IZS	15	7	4	3	3	5	7	4	4	3	2	2	2	3	91	10.3	24	
19	2	2	2	3	3	2	2	2	IZS	15	2	2	1	2	2	4	40	3	4	6	6	5	6	6	40	5.1	24	
20	5	2	7	5	4	7	12	IZS	15	12	13	22	18	15	16	14	14	17	13	11	10	13	14	8	22	11.6	24	
21	9	7	9	7	6	7	IZS	5	6	8	4	3	3	3	4	3	4	2	4	3	5	6	6	5	9	5.2	24	
22	5	5	3	2	4	IZS	6	4	5	5	5	5	4	4	5	5	4	4	4	3	4	5	5	4	6	4.3	24	
23	6	5	4	6	IZS	3	3	3	4	4	4	4	4	6	6	4	5	7	7	6	6	6	6	6	7	5.0	24	
24	4	5	6	IZS	3	4	5	5	2	2	3	3	3	3	3	7	5	3	2	3	2	3	5	5	7	3.7	24	
25	4	5	IZS	4	7	6	4	5	4	5	7	7	5	4	6	9	11	6	15	14	8	10	17	17	17	7.8	24	
26	10	IZS	4	6	5	4	3	4	4	3	4	5	4	8	9	12	59	10	14	15	17	22	16	2	59	10.4	24	
27	IZS	3	3	4	4	3	5	3	1	1	1	1	2	1	2	3	2	3	2	3	2	2	1	2	IZS	5	2.3	24
28	5	12	3	8	12	4	47	64	65	21	22	18	14	5	4	3	3	4	2	3	2	3	2	IZS	1	65	14.1	24
29	1	1	1	0	0	1	1	4	3	2	2	3	2	2	1	3	2	5	4	3	3	IZS	3	4	5	2.2	24	
30	6	4	4	5	10	7	7	8	8	42	10	4	42	7	9	15	17	11	84	9	IZS	16	14	8	84	15.1	24	
31	18	9	10	10	8	9	9	44	12	18	10	9	10	11	10	12	10	9	11	IZS	14	12	11	12	44	12.5	24	
HOURLY MAX	29	19	24	25	19	30	47	64	91	52	57	45	60	38	33	34	59	40	84	30	32	26	42	51				
HOURLY AVG	7.4	6.1	6.2	6.7	5.8	6.5	9.5	11.7	15.0	10.6	10.2	9.6	10.7	7.4	6.8	8.7	9.4	9.0	11.4	8.3	9.3	8.0	7.9	7.6				

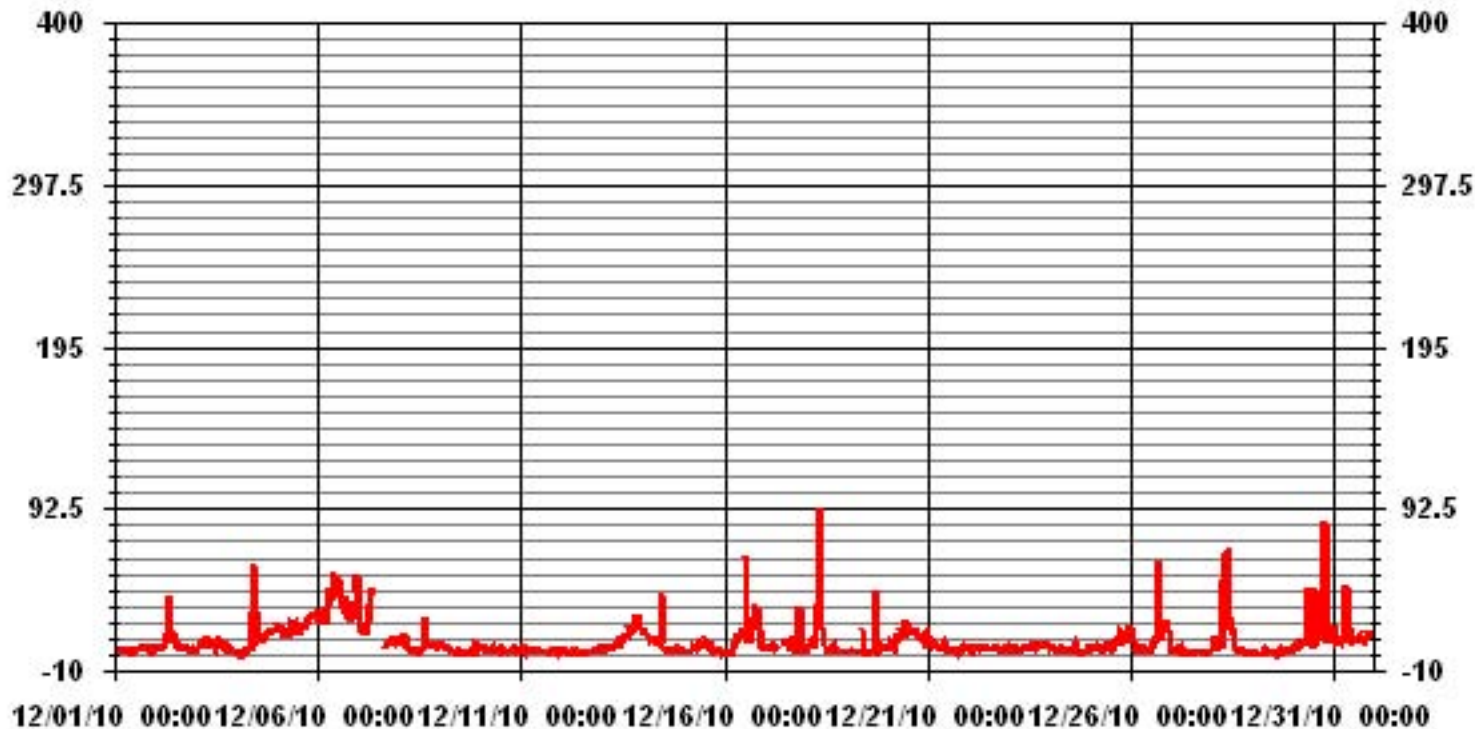
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	699					
MAXIMUM INSTANTANEOUS VALUE:	91	PPB	@ HOUR(S)	8	ON DAY(S)	18
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742 HRS		
MONTHLY CALIBRATION TIME:	7 HRS					
STANDARD DEVIATION	10.42					

01 Hour Averages



— LICA33 NOxMAX PPB

LICA33
NOX_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	.99	2.70	3.98	4.97	30.01	3.98	4.55	3.69	2.98	2.41	7.53	3.69	8.25	11.37	5.97	2.84	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	.99	2.70	3.98	4.97	30.01	3.98	4.55	3.69	2.98	2.41	7.53	3.69	8.25	11.37	5.97	2.84	

Calm : .00 %

Total # Operational Hours : 703

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	7	19	28	35	211	28	32	26	21	17	53	26	58	80	42	20	703
< 110																	
< 210																	
>= 210																	
Totals	7	19	28	35	211	28	32	26	21	17	53	26	58	80	42	20	

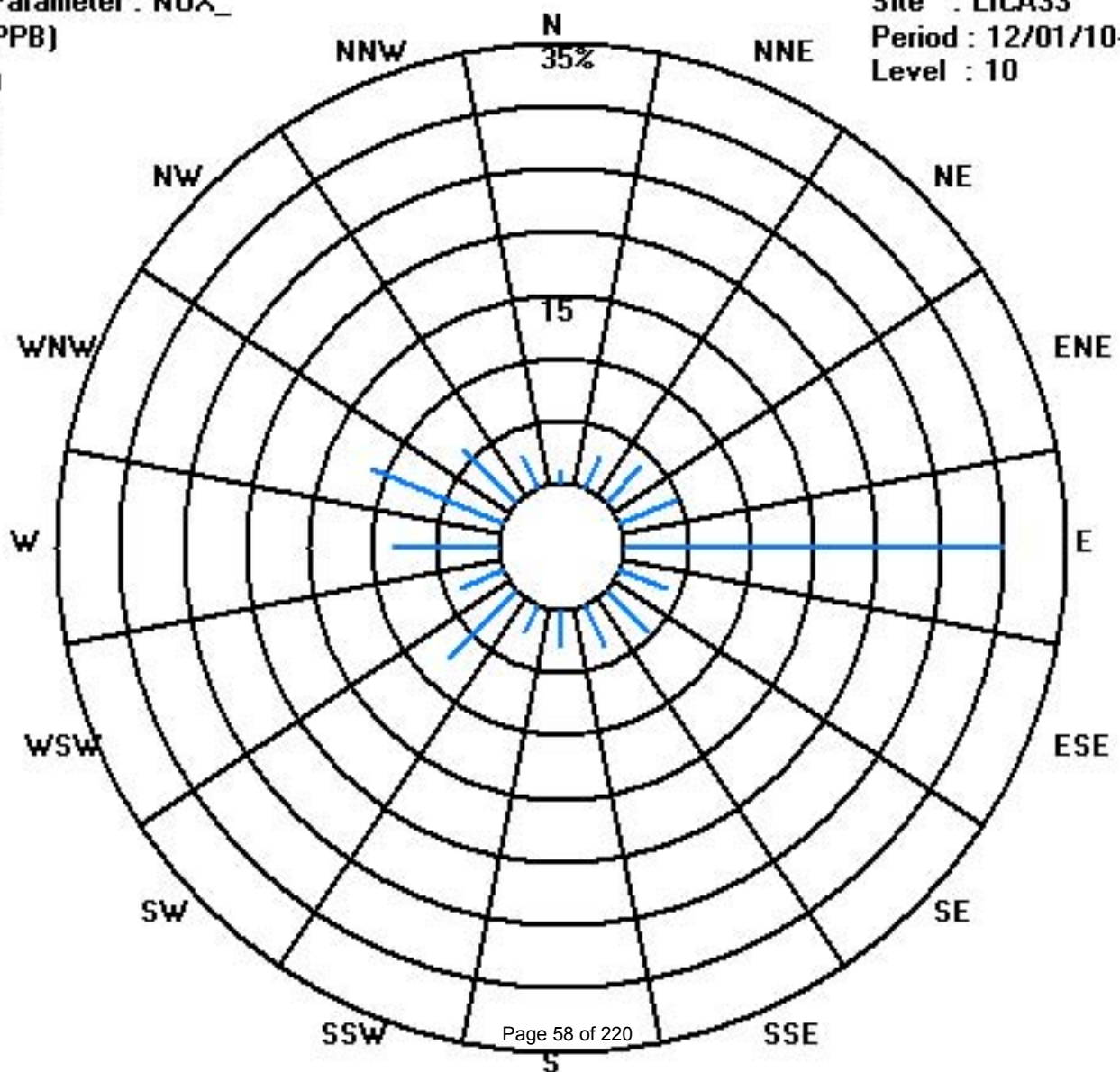
Calm : .00 %

Total # Operational Hours : 703

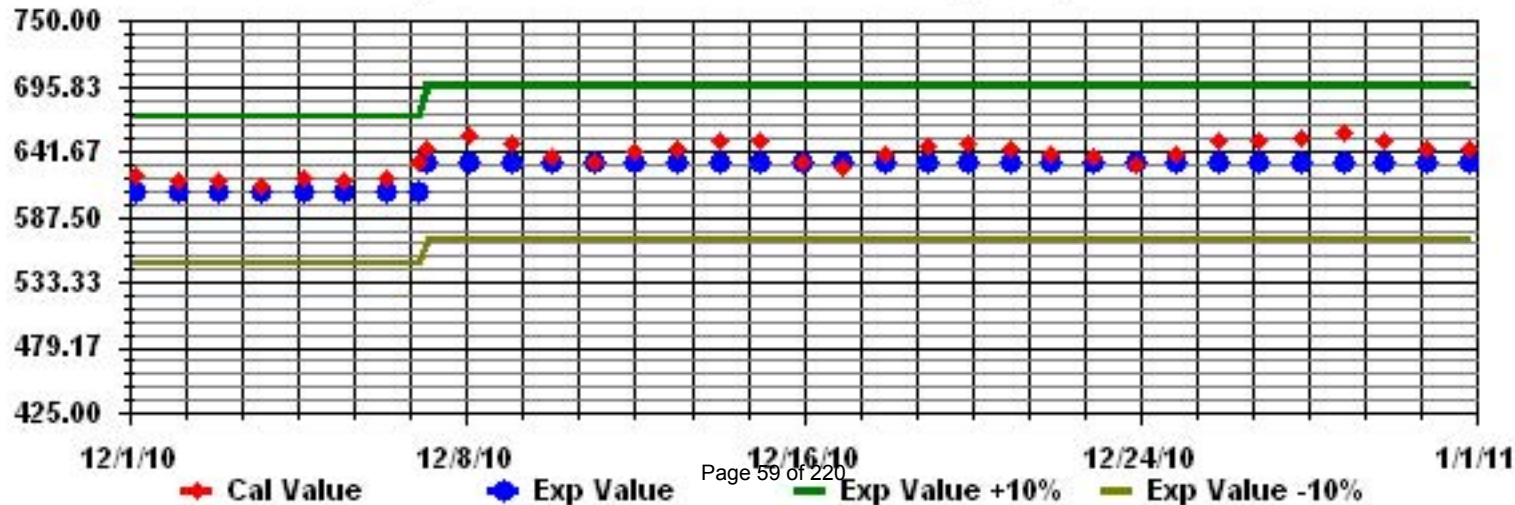
Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - *PORTABLE SITE*

DECEMBER 2010

OZONE (O₃) hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.	
DAY	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.		
1	1	30	29	29	IZS	27	25	25	25	24	27	28	28	28	27	26	24	26	27	27	26	26	25	25	24	30	26.4	24	
2	2	24	23	IZS	23	23	20	18	14	13	18	17	17	18	25	25	24	24	24	23	23	24	25	25	25	25	25	21.5	24
3	3	27	IZS	25	23	22	22	22	18	19	21	24	23	19	12	15	17	17	17	16	19	22	22	22	24	27	20.3	24	
4	4	IZS	22	21	23	21	20	18	18	19	22	20	20	20	20	19	17	14	12	11	12	10	9	7	IZS	23	17.0	24	
5	5	4	6	6	6	8	7	9	8	7	10	15	20	21	20	18	14	9	7	4	2	3	3	IZS	2	21	9.1	24	
6	6	2	1	0	0	0	0	0	0	1	3	5	7	9	10	10	5	2	3	1	1	0	IZS	0	0	10	2.6	24	
7	7	3	5	3	4	4	1	0	0	1	5	12	14	14	14	14	10	7	7	6	IZS	8	10	8	14	7.1	24		
8	8	9	13	12	14	19	19	20	21	C	C	C	C	24	24	23	22	21	19	18	IZS	18	19	17	15	24	18.3	24	
9	9	15	13	13	13	13	13	13	14	M	16	19	20	21	22	22	23	22	22	IZS	21	18	22	25	23	25	18.3	23	
10	10	24	24	26	25	27	27	28	27	28	30	31	31	30	30	31	30	30	IZS	30	30	30	30	30	30	31	28.7	24	
11	11	29	29	30	29	29	29	28	28	27	28	29	30	29	30	29	IZS	27	27	27	27	27	28	27	26	30	28.3	24	
12	12	25	24	24	25	27	28	28	28	29	30	31	29	30	30	30	IZS	28	28	27	26	25	25	24	24	31	27.2	24	
13	13	23	23	23	22	22	21	21	20	20	20	19	20	19	19	IZS	15	11	9	7	3	5	5	5	5	23	15.5	24	
14	14	6	7	8	13	14	14	15	16	18	22	24	24	25	IZS	25	23	23	23	24	23	23	23	23	23	25	19.1	24	
15	15	24	25	26	26	26	24	24	24	24	22	23	24	IZS	14	13	15	16	18	20	21	21	22	23	22	26	21.6	24	
16	16	23	23	22	22	21	19	19	17	13	14	14	IZS	13	15	21	15	10	6	2	4	6	16	19	21	23	15.4	24	
17	17	21	21	20	19	19	19	19	18	17	16	IZS	18	19	20	22	23	23	18	16	22	25	24	24	24	25	20.3	24	
18	18	24	21	19	19	21	19	16	12	12	IZS	20	24	25	27	28	26	26	27	28	28	28	28	29	27	29	23.2	24	
19	19	27	28	28	28	28	27	27	28	IZS	26	26	27	28	28	28	27	26	23	25	25	23	24	24	23	28	26.3	24	
20	20	23	23	21	20	22	18	13	IZS	12	14	15	14	17	20	19	17	15	12	14	14	13	13	16	23	16	23	16.5	24
21	21	15	17	16	17	17	18	IZS	20	21	22	25	27	28	28	28	29	29	31	30	30	30	30	28	27	27	31	24.3	24
22	22	28	28	28	27	26	IZS	24	24	23	23	24	25	26	27	27	27	27	26	27	27	27	26	28	28	28	28	26.2	24
23	23	27	28	28	28	IZS	29	29	28	27	27	28	28	28	27	26	27	25	25	24	23	23	25	26	25	29	26.6	24	
24	24	27	26	25	IZS	26	26	25	26	27	27	28	28	29	29	28	26	27	29	30	29	29	29	28	28	30	27.5	24	
25	25	29	29	IZS	30	28	30	31	30	31	31	31	31	33	33	31	29	27	30	27	23	23	22	18	21	33	28.2	24	
26	26	25	IZS	27	25	26	26	27	26	25	25	26	27	27	27	27	23	20	19	17	12	6	18	22	27	23.0	24		
27	27	IZS	21	20	17	17	18	17	18	17	18	19	19	18	19	19	17	16	16	17	18	18	20	18	IZS	21	18.0	24	
28	28	17	15	16	14	11	12	8	4	2	6	9	9	15	18	21	23	C	C	M	29	32	33	IZS	35	35	16.5	23	
29	29	36	34	33	34	35	36	36	36	35	35	C	C	C	C	32	31	31	30	29	27	27	IZS	27	26	36	32.1	24	
30	30	24	25	25	23	21	23	21	21	20	18	22	24	23	23	21	18	14	20	20	21	IZS	14	16	21	25	20.8	24	
31	31	15	19	18	19	23	22	21	16	19	20	25	26	27	27	27	25	24	25	22	IZS	17	17	16	14	27	21.0	24	
HOURLY MAX		36	34	33	34	35	36	36	36	35	35	31	31	33	33	32	31	31	31	30	30	32	33	30	35				
HOURLY AVG		20.9	20.8	20.4	20.3	20.8	20.4	20.1	19.5	19.0	20.6	21.8	22.6	22.9	22.9	23.5	22.0	20.6	20.0	19.7	19.9	20.2	20.4	20.5	21.0				

STATUS FLAG CODES

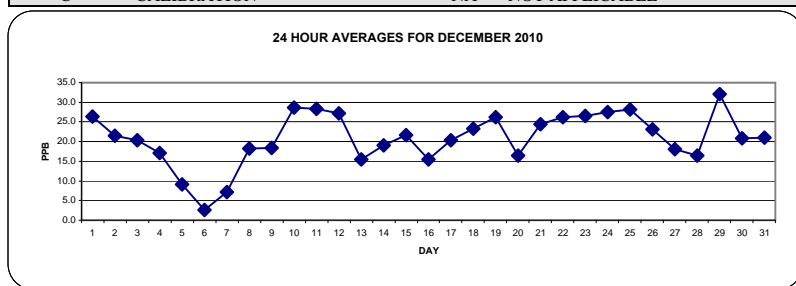
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

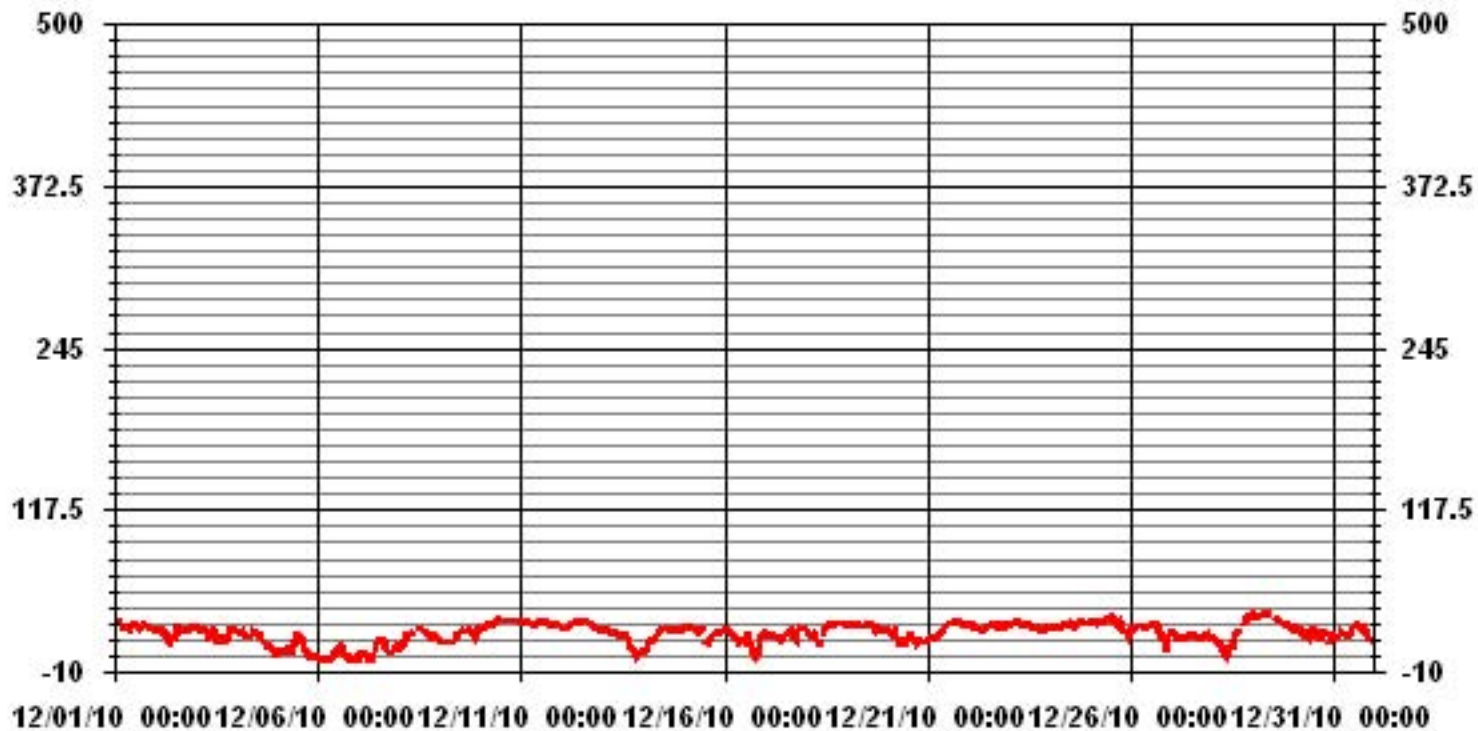
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	688				
MAXIMUM 1-HR AVERAGE:	36	PPB	@ HOUR(S)	VAR	ON DAY(S) 29
MAXIMUM 24-HR AVERAGE:	32.1	PPB			ON DAY(S) 29
					VAR-VARIOUS
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742	HRS
MONTHLY CALIBRATION TIME:	10	HRS	AMD OPERATION UPTIME:	99.7	%
STANDARD DEVIATION	7.77		MONTHLY AVERAGE	20.86	PPB



01 Hour Averages



— LICA33_03_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

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	30	30	30	IZS	27	25	26	26	25	28	28	28	28	27	27	25	28	28	28	27	27	26	25	25	30	27.1	24	
2	25	25	IZS	24	24	21	20	17	18	20	19	19	22	28	26	25	25	25	24	24	25	26	25	26	28	23.2	24	
3	29	IZS	26	26	25	24	22	22	21	23	25	24	23	13	17	18	18	18	18	21	24	24	23	26	29	22.2	24	
4	IZS	23	22	24	22	22	20	18	21	23	22	21	21	21	20	18	16	13	12	12	11	10	9	IZS	24	18.2	24	
5	5	8	9	9	11	10	12	11	8	13	18	21	22	21	20	16	11	9	6	3	6	6	IZS	4	22	11.3	24	
6	3	1	1	0	0	0	0	0	2	4	6	8	10	11	12	8	3	5	3	2	1	IZS	0	2	12	3.6	24	
7	7	8	6	8	6	5	1	1	2	9	13	14	14	15	14	13	9	8	8	IZS	12	12	9	15	9.0	24		
8	12	13	13	16	21	21	21	22	C	C	C	C	24	25	24	23	22	21	19	IZS	19	19	18	16	25	19.4	24	
9	15	14	13	13	14	13	15	15	M	17	20	21	22	22	23	23	23	23	IZS	22	21	26	26	25	26	19.4	23	
10	25	27	27	27	28	28	28	28	30	31	32	31	31	31	31	31	30	IZS	31	31	32	32	31	31	32	29.7	24	
11	30	30	31	31	30	29	29	30	30	30	30	31	30	30	30	29	IZS	28	28	28	28	28	27	31	29.3	24		
12	27	25	26	27	28	28	28	28	31	31	31	30	30	30	30	IZS	29	28	28	27	26	26	25	24	31	28.0	24	
13	23	24	23	23	22	22	22	21	20	21	20	21	20	20	IZS	18	14	12	12	5	8	7	7	7	24	17.0	24	
14	8	9	10	16	16	16	16	18	20	24	25	25	26	IZS	26	24	24	24	24	24	24	24	24	24	26	20.5	24	
15	25	26	27	27	26	26	26	25	25	24	24	25	IZS	23	15	17	19	21	22	22	23	23	23	27	23.0	24		
16	23	23	23	22	22	21	20	19	15	16	15	IZS	15	20	23	19	11	9	7	6	9	20	20	22	23	17.4	24	
17	22	22	22	20	20	20	21	19	N	17	IZS	19	19	21	23	24	24	25	17	26	26	25	24	25	26	21.9	23	
18	25	23	20	21	22	21	18	14	15	IZS	23	26	26	28	29	27	29	29	30	29	29	29	30	29	30	24.9	24	
19	28	28	29	29	29	28	27	29	IZS	27	27	28	28	28	28	27	26	26	26	26	24	24	24	24	29	27.0	24	
20	24	24	23	22	22	22	16	IZS	15	16	16	16	20	22	20	19	16	15	15	15	16	14	16	17	24	18.3	24	
21	18	18	18	18	18	19	IZS	21	22	25	27	28	29	29	29	30	31	31	31	31	31	31	30	29	29	31	25.7	24
22	29	29	29	28	27	IZS	26	25	24	24	25	26	27	28	28	28	27	27	27	28	28	27	28	29	29	29	27.1	24
23	28	30	29	30	IZS	29	29	29	28	28	28	29	28	28	27	27	26	26	25	24	24	27	27	26	30	27.5	24	
24	27	27	27	IZS	27	27	26	27	27	36	29	29	29	29	29	28	28	30	30	29	30	30	30	30	36	28.7	24	
25	30	30	IZS	31	31	31	32	32	32	34	33	32	33	34	32	31	30	32	30	27	25	24	23	25	34	30.2	24	
26	26	IZS	29	26	27	27	27	28	26	26	27	28	29	28	29	29	27	24	21	19	16	9	21	23	29	24.9	24	
27	IZS	24	20	19	18	18	18	19	18	18	19	19	19	21	21	18	17	16	17	19	19	20	20	IZS	24	19.0	24	
28	18	18	17	16	14	13	11	9	5	8	12	12	17	19	23	25	C	C	M	36	36	35	IZS	36	36	19.0	23	
29	36	35	34	35	36	36	37	36	36	C	C	C	C	C	33	32	31	31	30	28	28	IZS	27	27	37	32.7	24	
30	25	25	26	25	23	25	23	23	22	21	23	25	24	24	22	22	19	23	23	22	IZS	17	22	23	26	22.9	24	
31	20	21	20	22	24	23	21	20	22	24	26	27	27	28	28	28	26	26	23	IZS	20	18	18	17	28	23.0	24	
HOURLY MAX	36	35	34	35	36	36	37	36	36	36	33	32	33	34	33	32	31	32	31	36	36	35	31	36				
HOURLY AVG	22.2	22.1	21.7	21.9	22.0	21.7	21.3	21.1	20.7	22.1	23.0	23.6	23.9	24.2	24.7	23.4	22.1	21.8	21.2	21.4	21.9	22.0	21.9	22.4				

STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	691					
MAXIMUM INSTANTANEOUS VALUE:	37	PPB	@ HOUR(S)	6	ON DAY(S)	29
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	11	HRS				
STANDARD DEVIATION	7.48					

01 Hour Averages



— LICA33 O3MAX PPB

LICA33
 O3_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 Parameter : O3_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	1.00	2.71	4.14	5.00	30.47	4.00	4.57	3.71	3.00	2.43	7.58	3.71	8.15	11.01	5.57	2.86	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.00	2.71	4.14	5.00	30.47	4.00	4.57	3.71	3.00	2.43	7.58	3.71	8.15	11.01	5.57	2.86	

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
< 50	7	19	29	35	213	28	32	26	21	17	53	26	57	77	39	20	699
< 110																	
< 210																	
>= 210																	
Totals	7	19	29	35	213	28	32	26	21	17	53	26	57	77	39	20	

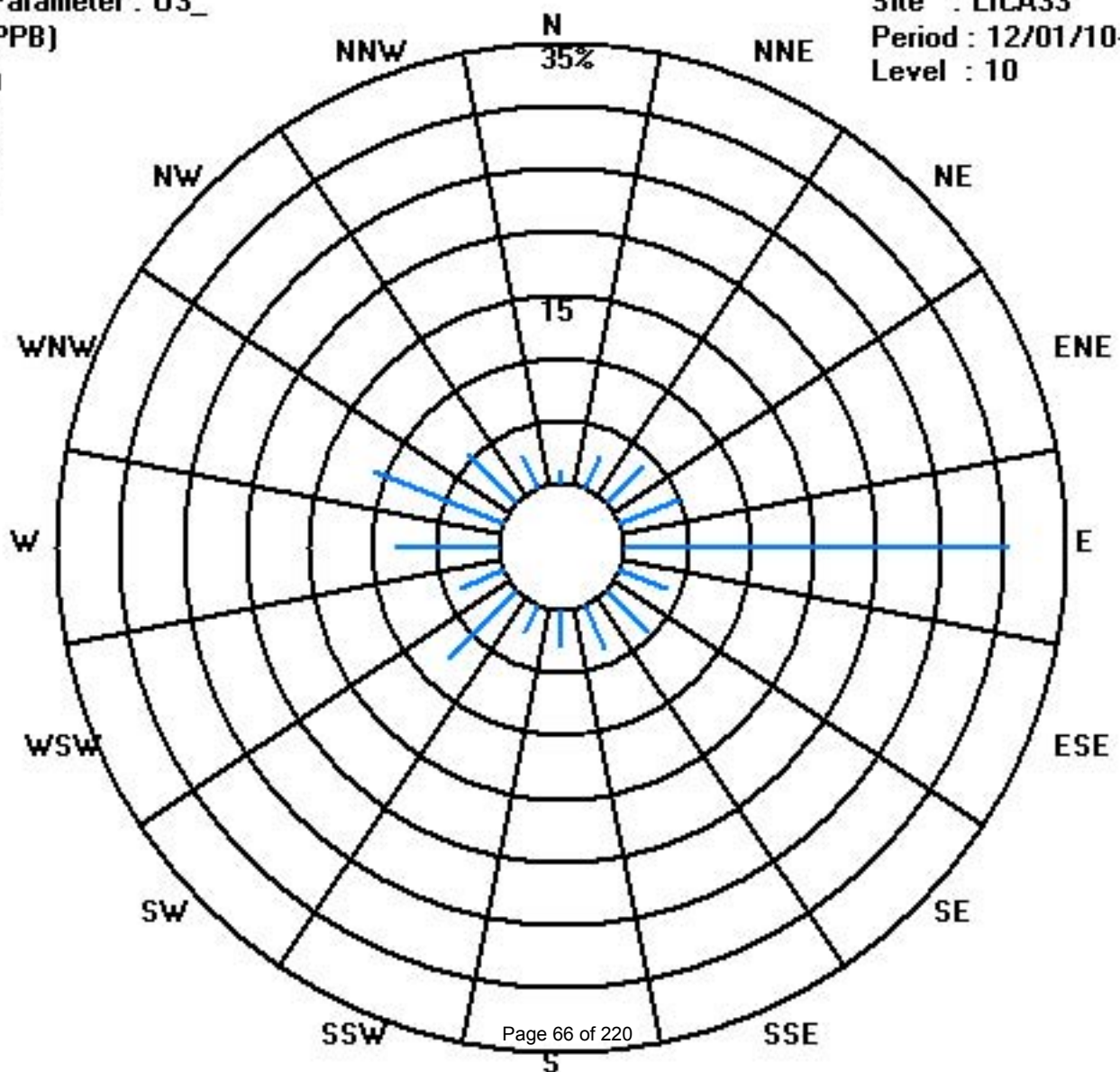
Calm : .00 %

Total # Operational Hours : 699

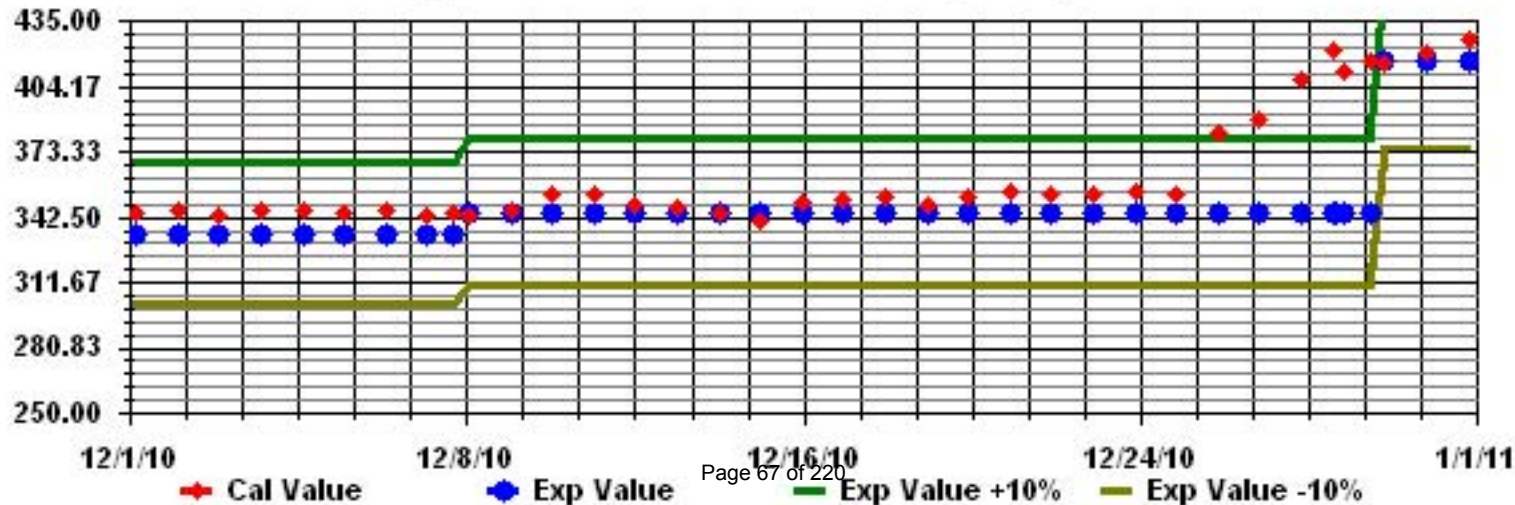
Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

TOTAL HYDROCARBONS (THC) hourly averages in ppm

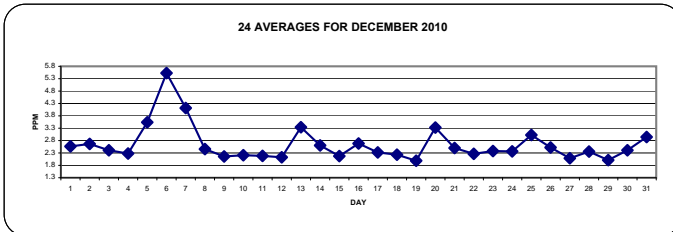
MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	1	2.1	2.6	2.4	IZS	2.2	2.2	2.3	3	2.2	3.3	2.5	4.8	2.7	2.6	2.6	3.4	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	4.8	2.6	24	
2	2	2.3	2.3	IZS	2.3	2.3	2.5	2.5	2.4	2.4	2.4	3.3	3.6	2.4	2.5	2.5	2.7	3.1	3.3	2.9	3.3	2.7	2.5	2.6	2.5	3.6	2.7	24	
3	3	2.5	IZS	3.2	2.8	2.9	3.1	2.5	2.6	2.6	2.6	2.4	2.3	2.2	2.2	2.1	2.1	2.5	2.1	2.2	2.1	2.1	2.1	2.1	2.1	3.2	2.4	24	
4	4	IZS	2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.6	2.7	2.8	IZS	2.8	2.3	24	
5	5	2.9	4.6	3.6	4.2	4.7	4.4	4.2	3.6	4.1	4.1	3.3	2.7	2.6	2.7	2.7	2.8	3.1	3.5	3.3	3.6	3.7	IZS	4.3	4.7	3.5	24		
6	6	4.9	4.4	4	4.7	5.1	4.7	7	8.1	7.2	7.3	6.2	7.7	7.8	5.3	4.7	5.3	4.6	3.6	5.1	3.9	3.8	IZS	5.6	6.1	8.1	5.5	24	
7	7	4.1	3.5	3.7	3.6	3.7	5.5	5.2	7.1	7.3	5.8	3.3	3.3	C	C	C	C	3.2	2.8	2.6	2.9	IZS	3.3	3.8	3.5	7.3	4.1	24	
8	8	3.8	3.6	3.2	2.8	3	2.5	2.2	2.3	2.1	2.1	2.1	2	2.3	2.3	2.2	2.1	2.1	2.1	IZS	2.3	2.3	2.4	2.6	3.8	2.5	24		
9	9	2.7	2.7	2.5	2.4	2.2	2.2	2.1	2.1	M	2.1	2.1	2	2	2	2	2.1	2	IZS	2	2	2	2	2.3	2.7	2.2	23		
10	10	2.4	2.2	2.1	2	2	2	2.1	2.1	2	2.1	2.1	2.1	2.3	2.4	2.3	2.3	2.3	IZS	2.3	2.3	2.2	2.6	2.3	2.3	2.6	2.2	24	
11	11	2.2	2.4	2.5	2.2	2.2	2.2	2.2	2.4	2.2	2.3	2.2	2.1	2.1	2.2	2.2	2.1	IZS	2	2	2	2.1	2.3	2.1	2	2.5	2.2	24	
12	12	2.1	2.1	2.1	2.3	2.2	2.4	2.2	2	2.2	2.3	2.3	2	1.9	1.8	1.8	IZS	2	2	2	2.5	2.1	2.4	2.1	2.1	2.5	2.1	24	
13	13	2.1	2.2	2.3	2.3	2.4	2.4	2.3	2.3	2.6	2.7	2.6	2.5	2.5	2.6	IZS	3	3.6	3.7	3.8	5.2	5.8	7	5.5	5.4	7.0	3.3	24	
14	14	3.7	3.4	3.5	3.4	3.2	3.3	3.3	3.5	2.8	2.8	2.2	2.2	2	IZS	2	2	2.2	2	2.5	2.1	1.9	1.9	1.9	2.1	3.7	2.6	24	
15	15	2.6	2.5	2.4	2.5	2.4	2.2	2	2.1	2.4	2.2	2	2.1	IZS	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2.1	2.6	2.2	24
16	16	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.6	3.4	IZS	2.9	2.8	2.4	2.9	3.3	4.6	3.4	3.2	3.3	2.7	2.5	2.3	4.6	2.7	24	
17	17	2.6	2.5	2.4	2.5	2.4	2.3	2.2	2.2	2.3	2.4	IZS	2.4	2.3	2.3	2.2	2.2	2.4	2.5	2.3	2.3	2.1	2.2	2.2	2.6	2.3	2.4	24	
18	18	2.1	2.4	2.5	2.4	2.3	2.4	2.7	2.7	2.7	IZS	2.4	2.3	2.1	2	2	2.1	2.1	2.1	2	2	2	2	1.9	2	2.7	2.2	24	
19	19	2	2	1.9	1.9	1.9	1.9	1.9	IZS	2	2	1.9	1.9	1.9	1.9	2	2.1	2.2	2.1	2.1	2.1	2	2	2	2	2.1	2.2	2.0	24
20	20	2.4	2.2	2.3	2	2	2.6	4	IZS	4.4	3.6	6.6	6	4.5	3.4	3.3	2.9	2.9	3.2	2.9	3	2.6	3.5	3.3	2.9	6.6	3.3	24	
21	21	3	2.9	2.9	2.8	2.6	2.3	IZS	2.6	2.3	2.5	2.2	2.4	2.2	2.2	2.1	2.3	2.5	2.5	2.6	2.6	2.6	2.3	2.4	2.7	3.0	2.5	24	
22	22	2.6	2.6	2.4	2.4	2.3	IZS	2.4	2.6	2.4	2.2	2.3	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.2	2.6	2.3	24	
23	23	2.2	2.1	2.5	2.2	IZS	2.7	2.5	2.6	2.5	2.5	2.5	C	2.2	2.3	2.2	2.1	2.2	3.1	2.3	2.1	2.4	2.4	2.3	2.4	3.1	2.4	24	
24	24	2.7	2.7	2.2	IZS	2.4	2.3	2.4	2.4	2.4	2.3	2.1	2.1	2.1	2.2	2.6	2.5	2.5	2.5	2.5	2.5	2.3	2.1	2.3	2.3	2.7	2.4	24	
25	25	2.6	2.3	IZS	2.6	2.8	2.6	2.5	2.8	2.9	2.7	2.7	2.9	2.9	2.6	2.9	2.8	3.4	3.4	3.6	4.6	3.4	3.7	4	2.9	4.6	3.0	24	
26	26	3.1	IZS	2.9	2.9	2.5	2.4	2.3	2.4	2.2	2.4	2.3	2.4	2.4	2.5	2.8	2.2	2.3	2.3	2.3	2.5	2.9	3.7	2.3	2	3.7	2.5	24	
27	27	IZS	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2.1	2.1	24	
28	28	2.1	2.1	2.1	2.2	2.4	2.8	3	2.4	2.3	3.1	3.5	3.3	2.6	2.4	2.2	2.1	2	2	2	2	1.9	1.9	IZS	1.8	3.5	2.4	24	
29	29	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	C	C	C	C	C	2	2.1	2.1	2.1	2.1	2.2	IZS	2.2	2.3	2.3	2.0	24	
30	30	2.3	2.3	2.4	2.4	2.6	2.3	2.3	2.4	2.5	2.4	2.3	2.2	2.5	2.4	2.3	2.7	2.2	2.4	2.4	IZS	2.4	2.8	2.4	2.8	2.4	2.8	2.4	24
31	31	3.1	2.9	2.5	2.5	2.4	2.7	2.8	3.7	2.9	2.7	2.6	2.7	2.7	2.5	2.7	2.5	2.6	2.6	2.6	IZS	4.2	3.7	4	4.1	4.2	2.9	24	
HOURLY MAX		4.9	4.6	4.0	4.7	5.1	5.5	7.0	8.1	7.3	7.3	6.6	7.7	7.8	5.3	4.7	5.3	4.6	4.6	5.1	5.2	5.8	7.0	5.6	6.1				
HOURLY AVG		2.7	2.6	2.6	2.6	2.6	2.6	2.7	2.8	2.8	2.8	2.7	2.8	2.6	2.5	2.4	2.5	2.5	2.6	2.6	2.6	2.6	2.7	2.7	2.7				

STATUS FLAG CODES

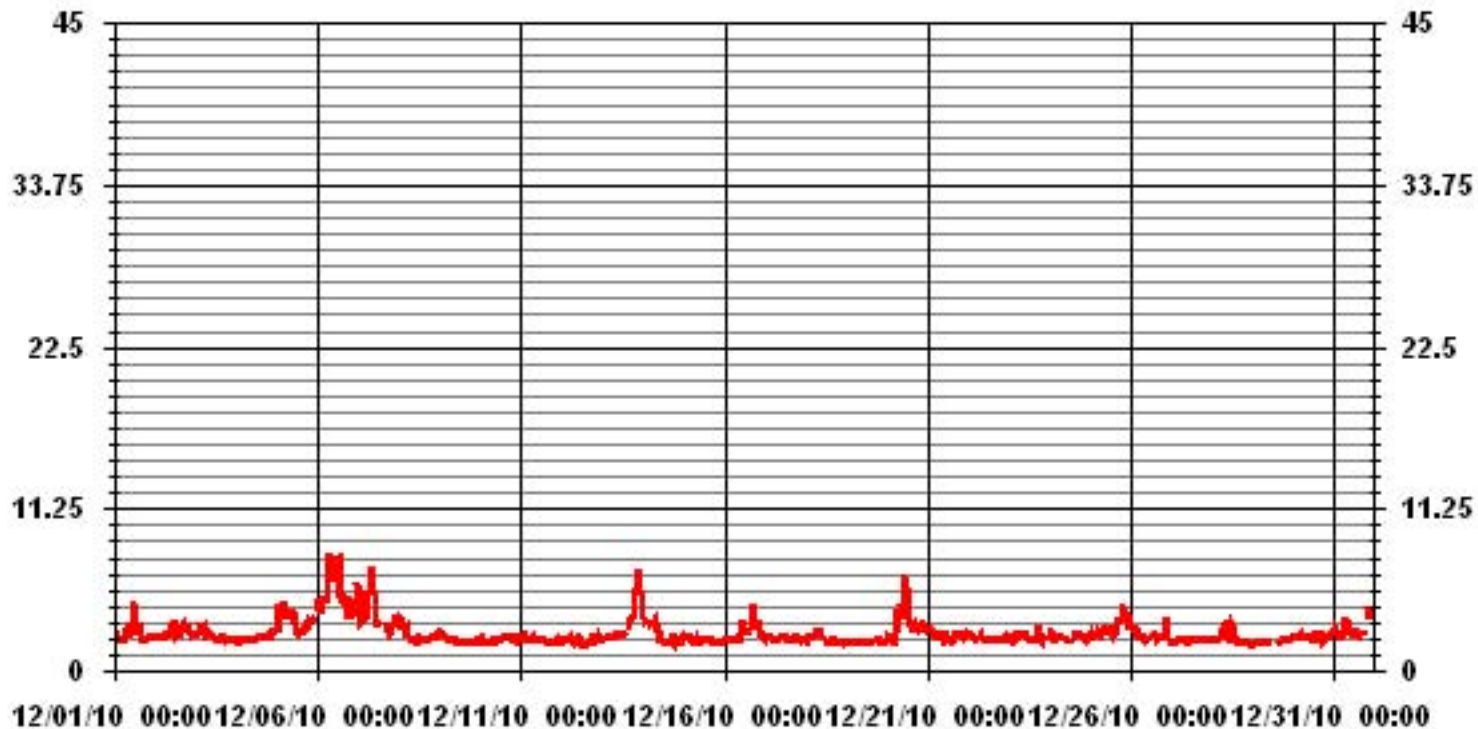
S - OUT OF SERVICE	IZS - IZS - DAILY ZERO/SPAN CHECK
N - INVALID DATA	M - MISSING DATA
D - INSTRUMENT DRIFT	P - POWER FAILURE
C - CALIBRATION	NA - NOT APPLICABLE
BB - BELOW BACKGROUND OF 1.5 PPM	

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	700		
MAXIMUM 1-HR AVERAGE:	8.1 PPM	@ HOUR(S)	7 ON DAY(S)
MAXIMUM 24-HR AVERAGE:	5.5 PPM		6 ON DAY(S)
IZS CALIBRATION TIME:	33 HRS	OPERATIONAL TIME:	743 HRS
MONTHLY CALIBRATION TIME:	10 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.91	MONTHLY AVERAGE:	2.64 PPM



01 Hour Averages



— LICA33 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

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	3.5	6.3	7.3	IZS	3.6	4.9	8	9.7	4.5	10	11.9	18.3	9.4	12.9	6.7	32.7	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.4	32.7	7.3	24	
2	2.3	2.4	IZS	2.3	2.4	2.6	2.6	2.5	2.5	4.2	15	15.4	2.4	10.3	10.1	7.9	10.7	9.8	9.5	14.1	11.7	2.6	2.6	2.6	15.4	6.5	24	
3	5.9	IZS	10.9	3.5	4.8	15.1	2.6	2.8	2.8	2.8	2.6	2.4	2.3	2.2	2.1	2.2	4	2.4	4.6	2.2	4.6	2.2	2.1	2.2	15.1	3.9	24	
4	IZS	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.3	2.2	2.3	2.3	2.4	2.3	2.3	3.6	3.8	2.5	2.4	4.6	7	13.1	IZS	13.1	3.2	24		
5	20.4	16.5	14.6	14.8	20.2	9.5	18.6	17.1	9	22	8.8	2.9	2.7	2.8	2.8	2.8	2.9	16.4	28.3	6.2	9.6	11.1	IZS	12.6	28.3	11.9	24	
6	7.5	27.7	8.9	12.4	28.3	7.7	10.7	9.2	9.8	7.7	7	19.7	18.9	6.6	12.8	23.8	12	9.3	19.3	7.9	4.5	IZS	54	19.4	54	15.0	24	
7	11.8	6.9	4.4	4.2	4.2	28.1	26.2	11.4	35.3	10	6	5.4	C	C	C	C	7.5	7	2.8	7.8	IZS	IZS	8.8	9.2	8.4	35.3	10.8	24
8	7.4	6.9	6.7	5.8	5.7	5.7	3.1	4.8	2.7	2.4	2.5	2.7	4.7	5.8	5	3.6	2.4	2.5	2.3	IZS	2.4	2.4	2.5	2.7	7.4	4.0	24	
9	2.8	2.8	2.5	2.5	2.3	2.2	2.2	2.2	M	2.3	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	IZS	2.1	2.8	2.2	2.3	5.2	5.2	2.4	23	
10	5.2	4.5	4	2.4	2.3	2.2	5	2.6	2.6	3	2.3	2.9	4.8	5	4.9	6.4	4.9	IZS	5.2	7.9	3.5	5.5	5.3	4	7.9	4.2	24	
11	3.6	4.5	5.1	2.8	2.4	2.9	4	4	3.6	3.6	3.7	3.3	2.9	3.8	3.6	3.1	IZS	3.8	3.4	3.1	3.2	3.9	3.5	2.5	5.1	3.5	24	
12	3.1	2.9	3.2	3.6	3.4	3.9	4.3	2.5	3.3	3.3	3.5	3.3	1.9	2	2	IZS	2.1	2.3	3.4	4.4	3.6	4.2	2.2	2.1	4.4	3.1	24	
13	2.2	2.3	2.4	2.4	2.4	2.4	2.4	4.3	7.1	8.2	9.5	2.7	2.6	2.6	IZS	7.4	6.8	26	6.9	12.1	21.3	33.4	9.8	13.3	33.4	8.3	24	
14	9.5	9.6	9.1	7	9.1	10.5	7.3	12	6.3	6.9	5.1	4.4	3.6	IZS	3.1	2.9	4.7	3.7	5.4	5.2	3.2	2.1	2.3	4.1	12	6.0	24	
15	4.3	4.2	3.9	4.8	4.7	3.8	2.5	2.6	5.1	2.7	2.2	2.3	IZS	2.3	2.1	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	5.1	2.9	24
16	2.1	2.1	2.6	4.3	2.2	2.3	2.3	2.3	2.4	11.2	16.7	IZS	25.5	8.9	3.8	4.1	8	12.5	3.8	3.5	3.7	5.1	4.3	3	25.5	5.9	24	
17	3.4	3.2	3	5.1	4.4	2.4	2.3	2.3	N	3.1	IZS	2.4	2.4	2.4	2.3	2.3	2.2	3	2.5	2.6	2.9	2.2	2.2	2.3	5.1	2.8	23	
18	2.2	2.8	4.3	2.6	2.3	2.7	2.8	3	6	IZS	2.9	2.4	2.2	2.1	2.1	2.2	2.2	2.3	2.5	2	2	2	2	2	6	2.6	24	
19	2	2	2	2	2	2	2	2	IZS	2	2.1	2	2	2	2	2.1	2.2	2.9	2.6	2.2	2.4	2.1	2	5.3	5.3	2.3	24	
20	5.8	7.5	8.5	2	2	7.8	18	IZS	22.1	6.5	11.2	15	9.3	5.8	9.1	3.6	5.4	9.6	3.3	6	4.3	6.7	11.8	6	22.1	8.1	24	
21	4.8	10.8	4.6	4	3.8	2.8	IZS	6.2	3.2	4.1	2.6	3.3	2.8	2.9	2.7	3.4	3.9	3.9	3.7	3.8	3.7	3.7	5.9	9.4	10.8	4.3	24	
22	4.1	4	3.1	3.5	3.1	IZS	3.9	3.8	3.9	2.5	2.4	2.3	2.6	2.6	2.3	3	2.5	2.5	2.2	2.1	2.4	2.4	3.5	2.8	4.1	2.9	24	
23	2.3	2.3	4.4	2.9	IZS	3.7	2.9	3.1	3.4	2.7	2.7	C	C	3.6	2.8	2.3	3.7	4.5	4.2	2.3	4	3.5	3.1	3.3	4.5	3.2	22	
24	4.1	3.9	2.9	IZS	3.2	3.2	2.9	3	3	3.2	2.5	2.2	2.5	2.7	3.9	5.4	5.3	3.3	3.2	3.3	2.9	3.2	3.3	4.8	5.4	3.4	24	
25	9.4	5.2	IZS	4.2	4.9	4	3.9	3.7	4.3	3.8	5.5	6.6	13.1	4.9	5.7	4.3	18.1	14.8	7.7	17.6	6	6.8	10.8	8.7	18.1	7.6	24	
26	5.8	IZS	5.9	4.8	4.8	3.6	3.7	4.2	3	5.3	4.1	5	4.2	6.1	11.3	8.3	9.1	3.2	2.7	3.1	3.3	4.1	3.1	2.1	11.3	4.8	24	
27	IZS	2	2.1	2.1	2.1	2.1	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	IZS	2.4	2.1	24
28	2.5	2.4	2.2	2.8	5.2	6	4.6	3.5	2.4	4.9	5.4	3.9	3.1	2.6	2.3	2.2	2.2	3.1	3.1	2.1	2	2	IZS	1.9	6	3.1	24	
29	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2.1	2.3	C	C	C	C	C	2.2	2.2	2.6	2.2	2.2	2.2	IZS	2.3	2.4	2.6	2.1	24	
30	2.3	2.5	2.5	2.5	3.1	2.4	2.4	2.8	5.4	5.5	2.3	2.2	13.5	8	4.6	3.8	11.8	2.4	8	6.4	IZS	3.8	9.6	4.1	13.5	4.9	24	
31	8.4	9	3.9	6.1	3.4	2.9	3.3	7.4	3.3	2.9	2.7	3.9	3.9	2.6	4.6	3.8	3.7	3.6	3	IZS	9.8	4.6	10.9	6.1	10.9	4.9	24	
HOURLY MAX	20	28	15	15	28	28	26	17	35	22	17	20	26	13	13	33	18	26	28	18	21	33	54	19				
HOURLY AVG	5.2	5.6	4.8	4.2	4.9	5.1	5.4	4.7	5.8	5.1	5.2	5.1	5.6	4.3	4.3	5.3	5.1	5.7	5.2	4.9	4.6	5.0	6.6	5.1				

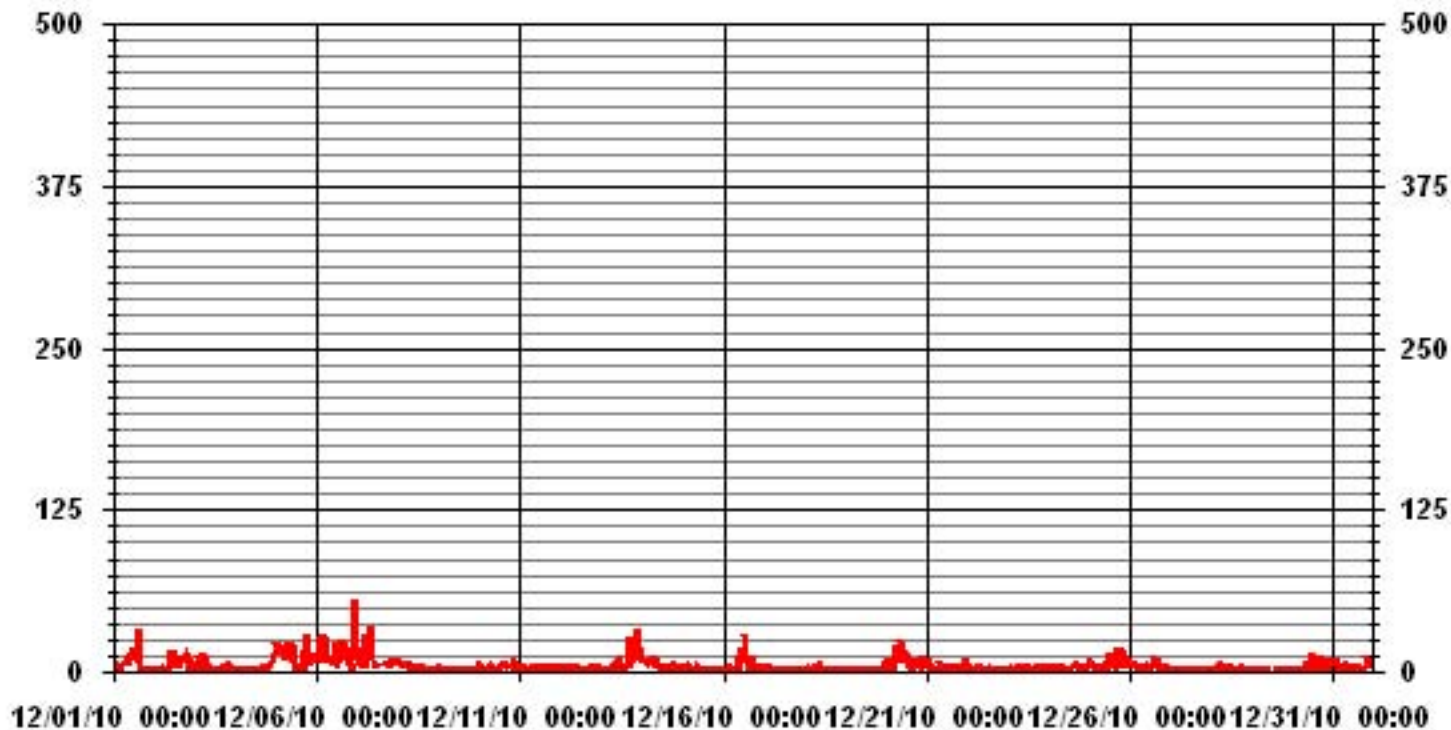
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	698					
MAXIMUM INSTANTANEOUS VALUE:	54.0	PPB	@ HOUR(S)	22	ON DAY(S)	6
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	740	HRS	
MONTHLY CALIBRATION TIME:	11	HRS				
STANDARD DEVIATION	5.06					

01 Hour Averages



— LICA33 THCMAX PPM

LICA33
 THC / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 33
 Site Name : LICA33
 Parameter : THC
 Units : PPM

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	.57	1.71	2.85	3.28	25.14	1.85	3.28	3.28	2.14	1.71	7.42	3.57	7.42	9.85	5.28	2.57	82.00
< 10.0	.42	1.00	1.28	1.71	5.14	2.14	1.28	.42	.85	.71	.14	.14	.71	1.00	.71	.28	18.00
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.00	2.71	4.14	5.00	30.28	4.00	4.57	3.71	3.00	2.42	7.57	3.71	8.14	10.85	6.00	2.85	

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
< 3.0	4	12	20	23	176	13	23	23	15	12	52	25	52	69	37	18	574
< 10.0	3	7	9	12	36	15	9	3	6	5	1	1	5	7	5	2	126
< 50.0																	
>= 50.0																	
Totals	7	19	29	35	212	28	32	26	21	17	53	26	57	76	42	20	

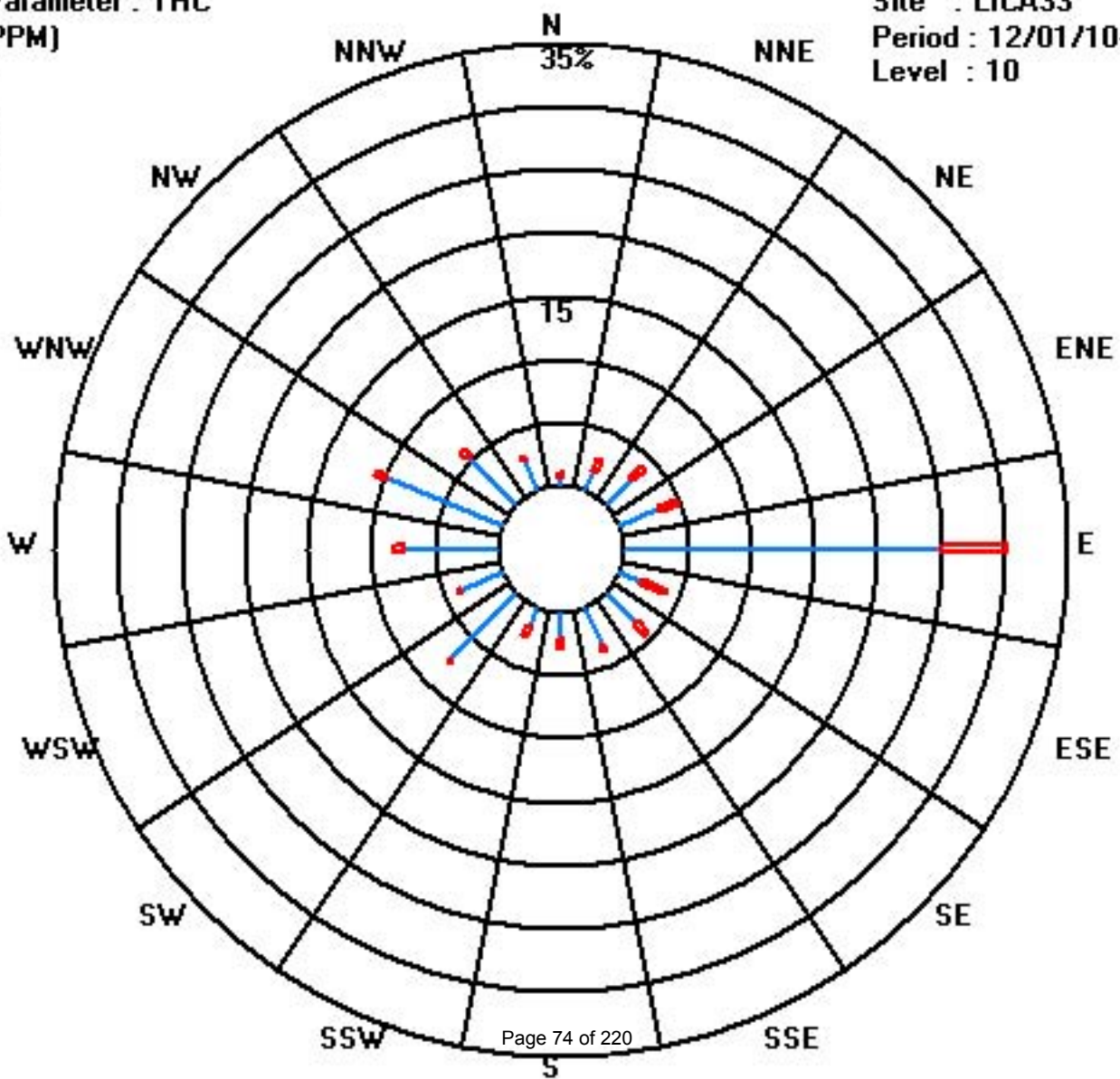
Calm : .00 %

Total # Operational Hours : 700

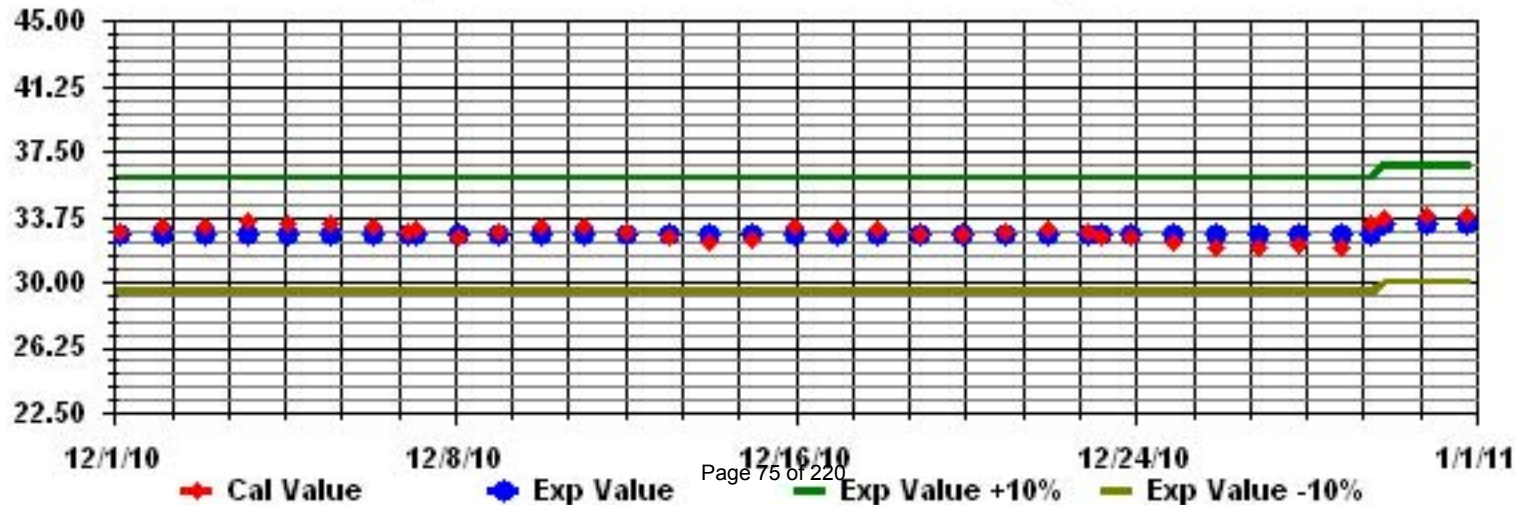
Class Limits (PPM)

Period : 12/01/10-12/31/10

Level : 10



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



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																												
1		11.6	14.4	13.1	11.5	11.8	12	10	8.4	7.3	10.6	5.7	5.4	3.4	1.8	1.1	0.1	1.5	3.2	2.9	4	8.9	7.8	6.7	6.2	14.4	4.3	24
2		6.4	6.1	5.7	4.8	4.3	4.1	3.7	3.9	2.6	0.8	0.5	3.5	4.1	3.3	3.2	4.1	5.5	6.5	5	3.7	5.2	5	3.3	4.3	6.5	2.4	24
3		1.7	1.3	2.4	1.5	2.8	2.1	2	3.4	4.6	6.2	8.8	13.3	15.1	14.8	14.3	12.1	9.7	5	4.8	8.5	4.2	3.3	2.7	6.9	15.1	5.3	24
4		8.5	12.3	13	9.7	6.6	4.1	4.2	5.1	5.3	13.1	16.1	13	13.1	10.6	9.8	11	9.5	6.4	10.2	5.6	3.9	4.4	2.2	4.6	16.1	7.7	24
5		3.1	2.3	2	3.7	3.4	2.5	1.3	2.2	2.6	4.1	3.5	3.9	4.1	5	4.3	4.2	4.8	2.7	3.2	5.1	5	4.6	2	3	5.1	3.4	24
6		1.3	0.4	1.4	0.9	0.8	1.8	3.5	0.6	1.6	3.8	3.8	1.3	4.3	0.8	4.1	3.3	5.1	2.3	1.5	1	2	2.3	1.5	3.8	5.1	2.2	24
7		5.4	3.2	2.2	4.4	0.7	0.6	1.6	1.5	1.4	2.4	9	12.2	9.7	10.2	7.6	6.5	7.1	5.8	7.7	6	7.1	7.1	7	8	12.2	5.6	24
8		9.8	10.3	12	12.3	14.2	12.6	14.1	14.7	14.3	14.5	16.1	15.3	13.6	9.7	3.5	4.3	2.2	6.6	10.6	10.4	12	14.2	14.9	15.1	16.1	11.6	24
9		17.3	18	14.8	15.4	13.8	12.6	14.9	15.5	13.1	13.1	9.1	11.4	12.4	11.9	9.1	8.1	7.4	7.4	8	9	10.6	11	8.4	9.9	18.0	11.8	24
10		10.3	12	9.5	9.3	9.2	10.3	9.4	8.3	11	9.1	11	9.3	7.9	7.1	6.2	6.6	8.4	7.6	7.8	6.8	7.3	7.1	7.5	10.3	12.0	8.7	24
11		9.5	9.8	9.6	10	9.8	9.5	9.6	10.8	11.5	12.6	13	13	12.8	14.2	12.5	13.5	15.6	13.8	14.7	16.3	18.3	16.8	14.3	15.1	18.3	12.8	24
12		16	15.8	15.1	16.5	17.5	16.7	16.2	16.4	18	20.1	19.5	17.9	18.8	20.8	20.6	18.9	18.6	15.7	14.2	14.2	15.5	13.2	13.7	11.1	20.8	16.7	24
13		10.1	12.9	10.1	8.8	7.8	5.9	4.4	5.4	3.5	4.1	4.7	4.3	3	4.2	3.9	2.8	6.5	2.9	4.5	2.8	3	4.3	2.7	2.5	12.9	5.2	24
14		5.3	6	6	7.3	9.3	7.1	6.5	7.2	9	10.9	10	11.5	11.1	15.1	18.4	16.8	18.2	19.4	14.9	10.9	14.3	14.2	13.5	12.3	19.4	11.5	24
15		13.3	12.9	12.3	10.6	8.9	8.9	10.4	8.1	4.3	5.8	6.6	8.1	10.1	13.9	15.4	17.2	17.2	17.3	14.5	16	16.1	14.6	12.5	9.9	17.3	11.9	24
16		10.6	7.2	7.4	5.6	6.6	6.3	3.3	3.5	3.5	4.1	2.1	0.9	2	1.6	4.2	3.9	2.4	1.8	3.1	3.1	3.5	4.9	3.9	4.3	10.6	4.2	24
17		6	4.9	4.3	5.9	4.8	4.6	6.7	5	4.1	3.2	3.5	4.7	5	7.4	8.7	7.1	8.2	8.5	7.4	6.3	7	7	7.6	7.3	8.7	6.1	24
18		5.8	5.1	6.6	7.5	7.4	5.4	5.7	6	3.7	4.4	9	9.1	10.5	11	9.8	8.3	8.1	7.5	9.6	10.7	11.7	12	12.8	12	12.8	8.3	24
19		13.1	11.7	12.4	12.9	12.9	12	13.8	14.9	14.3	14.5	17.9	16.6	17.1	14.9	13.6	10.4	8.2	6.7	8	5.3	6.2	5.6	4.5	3	17.9	11.3	24
20		3.4	4.2	3.4	3	2.2	1.6	2.1	3.3	1.9	3.3	4.7	3.3	4.5	5.2	6	8	7.8	5.4	6.5	6.2	5.1	4.5	3.7	5	8.0	4.3	24
21		5.7	4.9	6	6	4.8	9.5	9.9	8.5	8.6	8.4	7.9	11.3	15.3	12.9	12.7	14.2	14.1	13.2	13.2	12.7	10.6	11.6	8.1	6.3	15.3	9.9	24
22		10.5	11.3	14	11.3	10.9	11	9.4	11.3	10.1	11.2	10.9	10.4	10.9	12.9	12.1	11.2	13	15.5	15.8	15.2	13.1	11.7	12.2	13	15.8	12.0	24
23		12.5	12.2	10.8	12	12.5	12.2	15.8	13.1	10.4	12.6	12.4	13	11.9	11.5	16.4	13.3	10.6	10.2	10	11.1	9.6	11.5	13.7	13	16.4	12.2	24
24		10.1	11.5	13.2	16.3	13.8	14.8	15.2	14.5	12.1	9.8	12.1	13.2	15.5	14.5	11	10.2	9.8	16.3	15.7	16.4	15.5	12.1	14.9	10.9	16.4	13.3	24
25		10.8	8.4	12.6	11.7	11	12.2	10.5	11.9	11.1	12	6.5	7.3	6	6.1	5.1	7.7	6.6	5.4	3.6	5	3.1	2.8	4.5	7.3	12.6	7.9	24
26		6.4	7.8	9	7.2	8.2	8.6	8.6	8.8	9.5	8.4	8.4	7.7	8.7	6.6	5.3	1.3	2.3	4.1	4.6	3.7	5.5	8.2	14.1	19.1	19.1	7.6	24
27		15.1	11.7	14.1	15.7	16.1	12.8	10.5	18.4	17.4	18.3	20.9	18.3	20.8	19.3	17.1	17.7	18.5	18.7	18.6	17	18.1	18.3	15.9	12.6	20.9	16.7	24
28		9.5	10	11	12.8	4.2	2.6	0.3	4.9	5.1	3.2	3.2	3.8	5	6.9	8.4	7.9	7.5	11.8	8.3	8.3	8.3	13.7	16.9	15.5	16.9	7.9	24
29		16.9	17.6	15.5	16	15.3	15.2	15.8	13.6	15.4	12.9	14.9	14.4	14.5	12.7	13.8	12.7	13.3	13.9	13.9	15	14.1	13.8	12.2	11.2	17.6	14.4	24
30		11	12.1	11.1	8.3	9.1	7.9	6.4	4.6	4	5	7.1	7.6	2.8	1.6	2.8	3	3.1	4.2	3	2	3.6	2.9	2.9	2.4	12.1	5.4	24
31		1.9	2.1	2.9	4.4	6	4.5	3.4	3.3	4.6	6.4	5.8	4.8	5.5	6.9	6	6.6	6.4	6.5	4.8	4.4	3.8	5	2.2	3.1	6.9	4.6	24
HOURLY MAX		17.3	18.0	15.5	16.5	17.5	16.7	16.2	18.4	18.0	20.1	20.9	18.3	20.8	20.8	20.6	18.9	18.6	19.4	18.6	17.0	18.3	18.3	16.9	19.1			
HOURLY AVG		9.0	9.0	9.1	9.1	8.6	8.1	8.0	8.3	7.9	8.7	9.2	9.3	9.7	9.5	9.3	8.8	8.9	8.8	8.7	8.5	8.8	8.9	8.5	8.7			

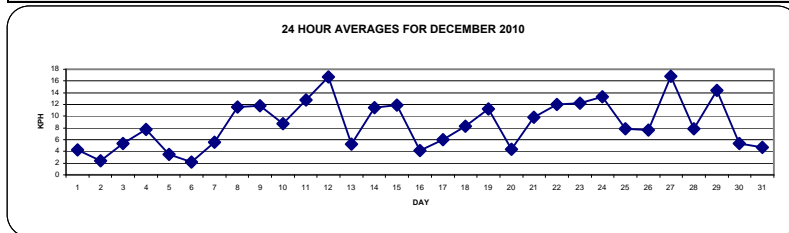
STATUS FLAG CODES

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

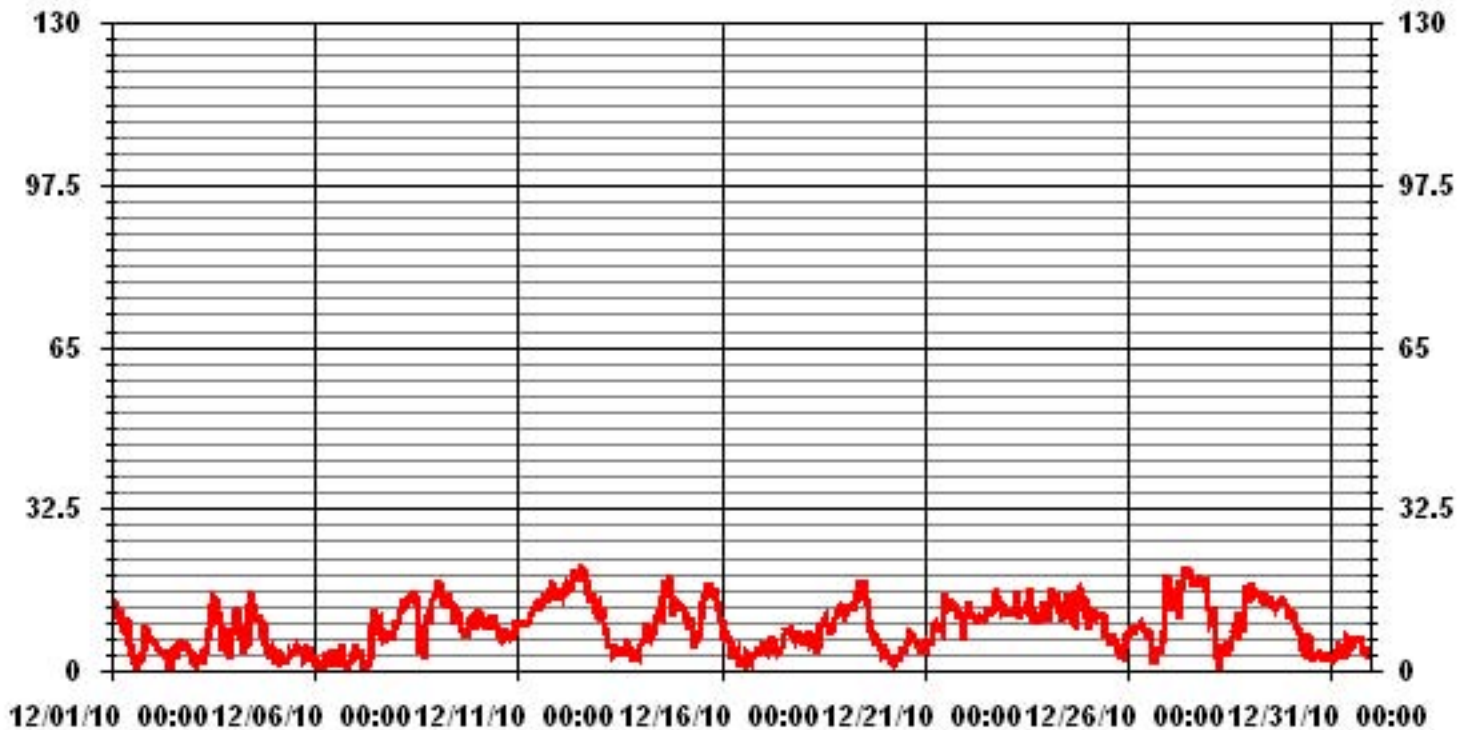
LAST CALIBRATION: September 24, 2009

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	20.9	KPH	@ HOUR(S)	10	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	16.7	KPH			ON DAY(S)	27
CALMS (≤ 1 KPH)	0.27	%				
MONTHLY CALIBRATION TIME:	0	HRS				
STANDARD DEVIATION:	4.83					
OPERATIONAL TIME:	744	HRS				
AMD OPERATION UPTIME:	100.0	%				
MONTHLY AVERAGE:	8.81	KPH				



01 Hour Averages



— LICA33 WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST																								DAILY	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
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	16.3	19.5	18.2	16.3	16.5	17.2	13.9	13.9	10.1	15	7.9	9.2	5.8	5.2	4.1	2.5	7.3	6.9	7.3	11.4	13	11.9	11.6	10.1	19.5
2	10.1	9.6	9.6	7.7	7.2	8.4	5.7	5.6	5.5	3	3	6.8	7.7	9.4	10.8	11.3	12.1	11.7	12.9	10.3	11.4	12.5	9.5	9.6	12.9
3	6.2	3.5	4.7	3.2	5.4	4.2	4.2	5.8	8	10.8	14.2	21.1	25.3	26.5	25.4	26.3	20.6	14.3	13.5	15.9	12.4	11.1	8.9	16.3	26.5
4	15.1	20.9	22.8	19.2	12.4	8.7	7.4	13.4	14.8	22.3	24.5	23.6	22	22.3	15.5	15.8	13.4	12.7	14.2	11.1	7.7	9.6	4.8	8.9	24.5
5	5.9	8	7.3	5.8	5.7	8.8	10.3	7.6	5.3	8.3	9	9.4	10	10.2	10.1	11.5	12	7.3	5.1	8.9	10.6	9.7	7.7	5.6	12
6	4.6	2.6	4.7	3.4	4.7	5.8	5.7	3	5.4	6.3	6.2	5.3	10.5	3.9	8	5.6	8.1	7.6	4	5.8	4.4	5.1	5.4	5.9	10.5
7	8.5	7	5	6.4	4.5	4.7	4	4.4	4.8	5.8	14.1	18.6	14.3	15.7	12.5	13.6	9.7	7.8	9.8	9.1	9.5	10.1	10.7	11.1	18.6
8	15.2	15.6	17.1	17.6	19.9	19.1	20.3	20.4	19.6	21.1	22.4	20.5	19.1	14.6	13	7.6	5.5	11.4	16	15.2	20.8	21.9	24.7	21.4	24.7
9	28.5	30.2	23.3	23.7	24.2	22.8	26.1	26.8	23.3	21.5	19.1	22.8	25.3	22.1	18.2	19	13.7	15.2	15.6	15.2	19.4	17.6	15.6	16.5	30.2
10	17.7	19.7	16.8	15.4	15.5	16.4	16.3	13.1	16	13.8	17.1	13.3	13	12.7	9.8	10.7	13.2	10.6	12.9	12.3	12.3	11.1	11.5	13.7	19.7
11	13.9	12.5	12.3	13.5	13.7	12.6	13.2	14.4	15.4	17	17	18.6	18	19.9	19.2	20.4	22.1	20.7	21.7	22.4	25.7	24.9	19.2	20.4	25.7
12	21.5	21.4	20.7	23.4	24.4	21.6	20.9	20.5	24.6	26.5	25.6	24	27.2	29.1	28.2	25.8	25.2	22.8	19.3	21	25.1	24.2	19.6	19.4	29.1
13	19.3	23.6	19.1	16.7	14.2	11	9.5	10	10.6	10.1	9.7	10.8	9.4	11.1	9.7	7.6	9	10.4	6.2	5.9	6.1	7.4	4.5	4.1	23.6
14	9.1	9.5	9.1	16.9	17.2	12.3	11.2	14.2	14.1	16.3	14.8	17.7	19.1	21.9	26.8	28.8	30.5	29.1	29.3	17	20.9	20	21.4	16.6	30.5
15	22.4	19.5	17	15.9	12.6	13.2	15.3	15.2	7.4	10.8	10.1	12.4	18.3	22.9	24.6	30.1	27.8	28	23.7	24.2	27.6	23.7	21.2	14.2	30.1
16	15	12.5	11	8.8	9	11.9	8.7	9	7.9	7.4	5.4	3.7	5	6	7.8	7.1	4.4	4.2	6.3	7.5	5.9	11.3	9.3	7.9	15
17	11.1	9.5	8.7	9.9	8.9	9.1	10.1	8.1	0	6.1	6.1	8.8	8.3	12.6	13.3	11.3	11.7	12.9	11.2	13.3	11.2	12.5	13.6	14.5	14.5
18	12.2	8.2	9.4	10.5	9.9	8.5	7.9	8.3	7.4	9.3	14.6	14.8	16.1	18.4	16.5	15.1	13.3	14.3	25	18.8	20.9	19.4	21.9	19.5	25
19	20.3	19.5	19.8	23.3	26.4	19.4	21	22.3	21.6	23.8	26.1	25.5	27.2	24.6	20.7	17	13.6	12.7	12	8.1	8.8	7.7	7.4	6.2	27.2
20	6.3	8.7	8.3	5.3	5.3	4.5	5.4	5.3	4.4	5.3	6.2	4.9	7.8	8.1	9.5	10.9	10.2	7.4	8.1	8.7	7.2	6.4	5.1	6.9	10.9
21	9.1	9.1	8.3	7.9	7.7	13.6	14	12.9	14.7	16	11.4	16.2	22.1	18.7	18.5	20.4	19.2	18.3	19.2	16.6	15.9	17.2	11.5	12.1	22.1
22	15.2	15.5	18.7	14.8	15.2	15	15.3	14.7	14.9	16.3	15.5	14.4	15.6	19.1	17	17.4	17.5	21	21.8	21.7	18.5	16.9	19	18	21.8
23	17.6	16.5	16.4	17.9	17.7	18	23.8	21.2	15.7	18	17.9	17.6	17.7	19.6	21.7	19.3	15.9	13.6	16.4	17.6	15.3	20.4	20	17.7	23.8
24	17.1	17.1	19.9	21.8	20.2	21	20.8	20.1	17.5	14.5	18.1	18.5	21.9	23.3	15.4	15.7	19.2	21.3	21.6	23.5	22.4	18.3	22.3	15.4	23.5
25	14.9	12.7	19.9	15.4	17.3	17	16	17.9	15.9	17.1	11.2	11.9	12.4	9.9	9.1	10.2	9.8	10.1	6.3	8.8	5.5	6.3	9.9	12.8	19.9
26	10.7	11.6	13.3	12.1	13.3	15.4	13.4	13.2	13.8	13.3	11.8	12.9	14.3	11.2	13.3	4.8	6	7.2	8.8	6.1	11.2	12.6	26.5	29.4	29.4
27	27.7	20.2	22	26.1	25.2	22.5	17.5	34	26.1	36.3	35.4	30.7	34.2	32.8	30.9	28	31.9	31.7	28.2	26.4	28.1	27.7	25.7	20.3	36.3
28	14.6	13.2	15.3	18.9	11.5	6.7	4.4	8.3	8.1	8.3	6.2	7.8	11.4	11.5	13.3	14.3	20.2	24.8	16.4	15.1	18.2	26.1	27.8	25.3	27.8
29	28.9	29.2	26.4	28.5	25.9	25.9	24.7	20.6	24.1	21	23.9	22.6	24.2	21.7	21.1	18.9	20.5	21.5	21.3	19.8	20.1	19.5	17.1	16.2	29.2
30	15.1	19.3	17.2	12.1	15.2	11.2	9.5	7.2	8.2	11	9.8	11.2	7.4	3.9	6.4	9	9.5	9.9	9.7	5.7	9.4	8.1	12.3	9.5	19.3
31	11.1	9.8	6	9.6	12.1	5.8	6.7	6.3	6.2	9.9	9	8.5	8.9	10.7	10.6	11.2	9.1	9.9	7.2	6.7	5.9	6.2	5.4	4.9	12.1
PEAK	28.9	30.2	26.4	28.5	26.4	25.9	26.1	34.0	26.1	36.3	35.4	30.7	34.2	32.8	30.9	30.1	31.9	31.7	29.3	26.4	28.1	27.7	27.8	29.4	

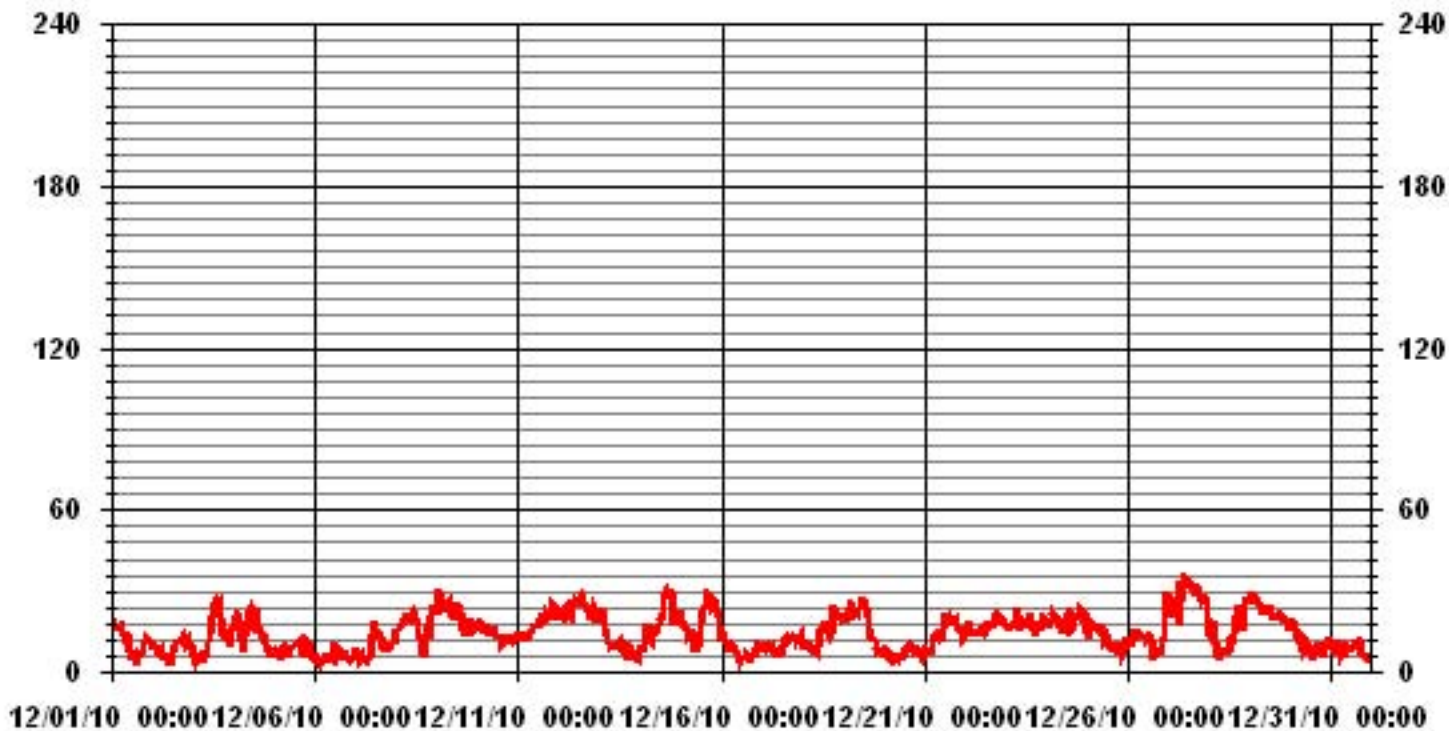
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	36.3	KPH	@ HOUR(S)	9
			ON DAY(S)	27

01 Hour Averages



— LICA33 WSMAX KPH

LICA33
WSP / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 33
Site Name : LICA33
Parameter : WSP
Units : KPH

Wind Parameter : WDR
Instrument Height : 10 Meters

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 6.0	.80	.94	1.34	1.88	3.22	2.01	3.22	2.82	2.68	2.28	3.36	1.74	2.01	2.01	2.41	1.34	34.13	
< 12.0	.26	1.47	2.55	2.15	13.57	1.20	.67	.94	.13	.00	2.82	1.34	2.15	2.68	2.41	1.20	35.61	
< 20.0	.00	.13	.00	.94	13.44	.53	.53	.00	.13	.00	1.07	.80	4.16	6.45	1.07	.26	29.56	
< 29.0	.00	.00	.00	.00	.40	.00	.00	.00	.00	.00	.00	.00	.00	.26	.00	.00	.67	
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	1.07	2.55	3.89	4.97	30.64	3.76	4.43	3.76	2.95	2.28	7.25	3.89	8.33	11.42	5.91	2.82		

Calm : .00 %

Total # Operational Hours : 744

Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 6.0	6	7	10	14	24	15	24	21	20	17	25	13	15	15	18	10	254	
< 12.0	2	11	19	16	101	9	5	7	1		21	10	16	20	18	9	265	
< 20.0		1		7	100	4	4		1		8	6	31	48	8	2	220	
< 29.0					3									2			5	
< 39.0																		
>= 39.0																		
Totals	8	19	29	37	228	28	33	28	22	17	54	29	62	85	44	21		

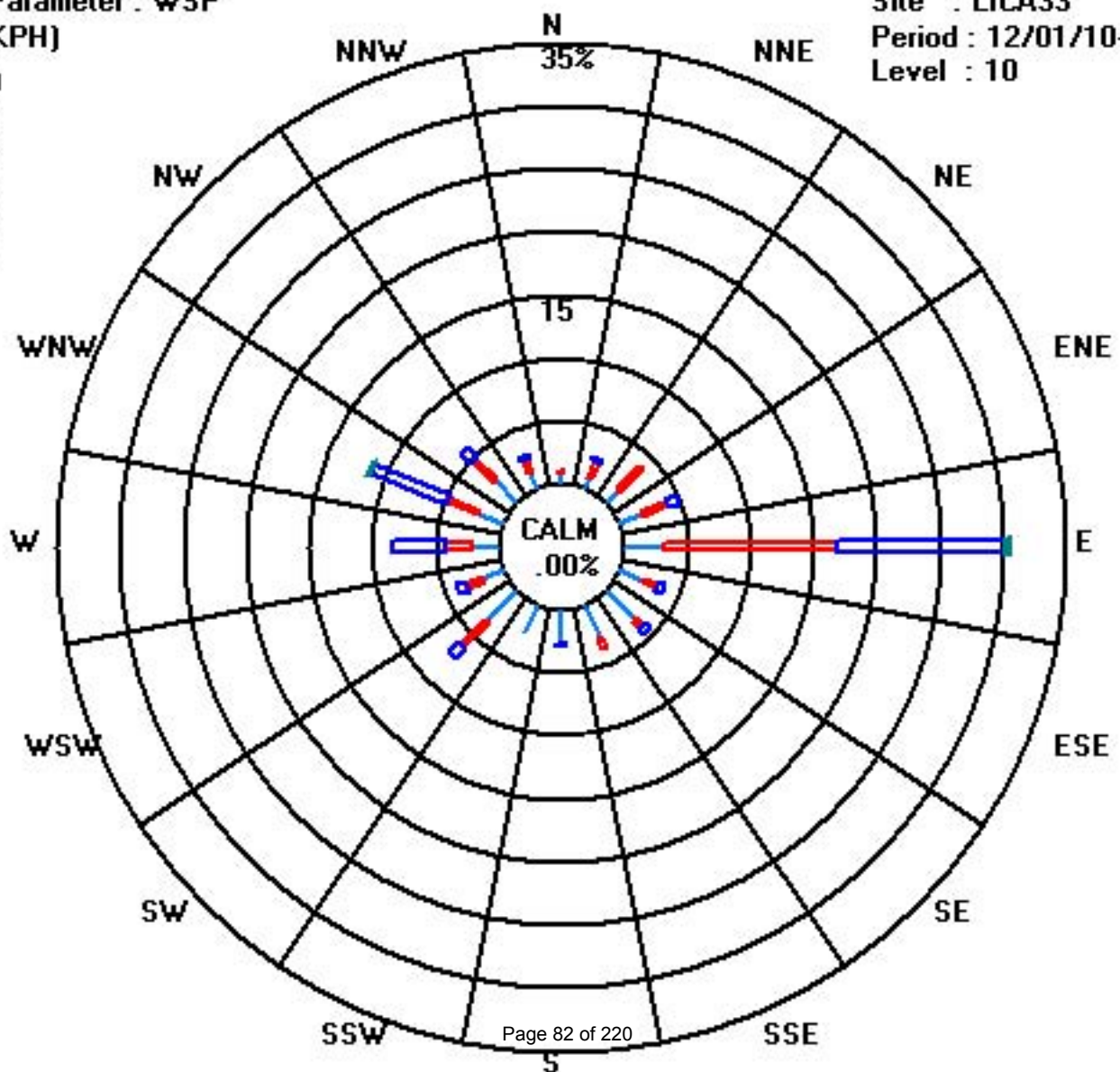
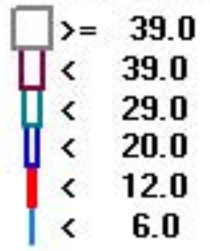
Calm : .00 %

Total # Operational Hours : 744

Class Limits (KPH)

Period : 12/01/10-12/31/10

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	QUADRANT	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.	
DAY																												
1	87	94	92	84	78	89	88	93	88	96	84	99	112	79	51	142	212	215	207	207	230	223	223	229	106	ESE	24	
2	226	237	231	245	262	283	228	231	248	239	108	122	159	144	118	125	106	115	136	126	152	163	182	213	182	S	24	
3	189	348	355	339	350	340	251	267	260	253	270	285	294	318	319	329	339	328	307	309	315	292	229	237	301	WNW	24	
4	242	229	235	220	159	148	167	190	215	230	230	233	234	242	222	228	228	216	224	222	224	215	160	160	221	SW	24	
5	142	122	157	105	108	180	194	185	104	134	180	206	181	177	181	187	200	207	146	175	182	212	254	97	170	SSE	24	
6	96	205	291	233	166	72	17	9	320	298	285	89	69	266	33	41	63	69	24	287	273	306	1	38	14	NNE	24	
7	40	69	37	35	32	276	281	25	72	38	98	101	83	85	93	97	102	94	97	92	89	98	94	91	86	E	24	
8	96	101	93	92	100	93	88	93	82	83	83	80	91	88	49	12	309	272	280	276	284	284	276	282	77	ENE	24	
9	286	296	303	298	308	307	296	296	300	300	332	327	340	329	325	336	330	332	7	16	36	31	20	12	322	NW	24	
10	12	25	41	19	12	31	40	36	41	42	32	39	47	51	24	36	45	58	49	37	45	61	74	76	39	NE	24	
11	85	91	97	86	83	84	85	91	85	90	88	84	83	83	86	82	86	88	86	89	93	98	89	86	87	E	24	
12	91	91	92	97	96	99	94	90	97	99	99	84	84	79	83	81	84	86	89	99	139	122	134	145	95	E	24	
13	154	169	162	161	165	157	151	152	146	135	138	144	181	182	163	123	102	134	126	131	136	101	75	36	146	SE	24	
14	18	26	40	82	80	88	82	88	94	118	96	89	81	85	91	76	84	89	97	85	84	85	83	76	83	E	24	
15	64	65	67	67	64	51	44	37	337	327	300	289	283	274	271	266	258	257	247	239	244	235	229	223	274	W	24	
16	223	221	227	221	230	239	200	211	251	294	296	265	221	276	321	323	311	334	312	314	319	350	319	332	262	W	24	
17	350	354	330	346	326	304	294	298	306	318	293	275	294	290	296	309	296	289	285	327	319	321	317	319	309	NW	24	
18	324	306	306	316	291	288	281	246	279	238	275	283	291	298	298	309	292	321	330	312	312	303	295	295	298	WNW	24	
19	297	305	302	310	315	297	290	292	284	279	289	291	292	295	289	279	273	260	257	251	235	231	234	228	286	WNW	24	
20	209	217	204	226	224	94	65	80	80	97	102	77	72	86	100	102	97	94	95	100	120	80	79	86	101	E	24	
21	85	83	83	91	92	81	85	82	84	85	86	97	93	85	86	91	98	97	95	101	90	86	102	80	89	E	24	
22	87	90	93	93	89	88	87	92	88	88	87	83	84	79	80	74	75	78	81	83	85	85	88	89	84	E	24	
23	84	82	93	86	86	93	88	92	83	85	83	85	93	95	94	87	86	96	82	85	86	93	96	97	88	E	24	
24	101	98	88	86	98	93	97	101	104	112	133	128	121	114	104	89	90	97	101	100	100	86	97	90	101	E	24	
25	87	93	92	100	93	89	91	85	91	99	78	77	80	80	76	96	109	95	75	71	100	123	56	34	87	E	24	
26	82	68	86	72	70	82	82	88	76	90	74	80	85	76	72	146	152	251	296	278	264	282	289	285	62	ENE	24	
27	298	288	277	282	281	274	261	278	281	281	286	287	284	281	281	276	276	265	269	278	275	280	274	272	278	W	24	
28	264	243	230	245	237	227	92	229	225	258	274	298	291	273	279	287	310	306	306	310	292	299	304	302	279	W	24	
29	300	298	294	303	300	305	293	279	276	292	291	289	290	279	291	286	271	270	273	274	274	277	284	276	286	WNW	24	
30	277	297	293	279	259	238	235	248	239	221	228	224	234	108	144	185	211	217	225	186	180	165	184	202	243	WSW	24	
31	192	166	154	169	178	149	158	133	140	152	142	152	144	146	140	131	132	153	137	129	93	120	174	158	145	SE	24	
HOURLY AVG	350	354	355	346	350	340	296	298	337	327	332	327	340	329	325	336	339	334	330	327	319	350	319	332				

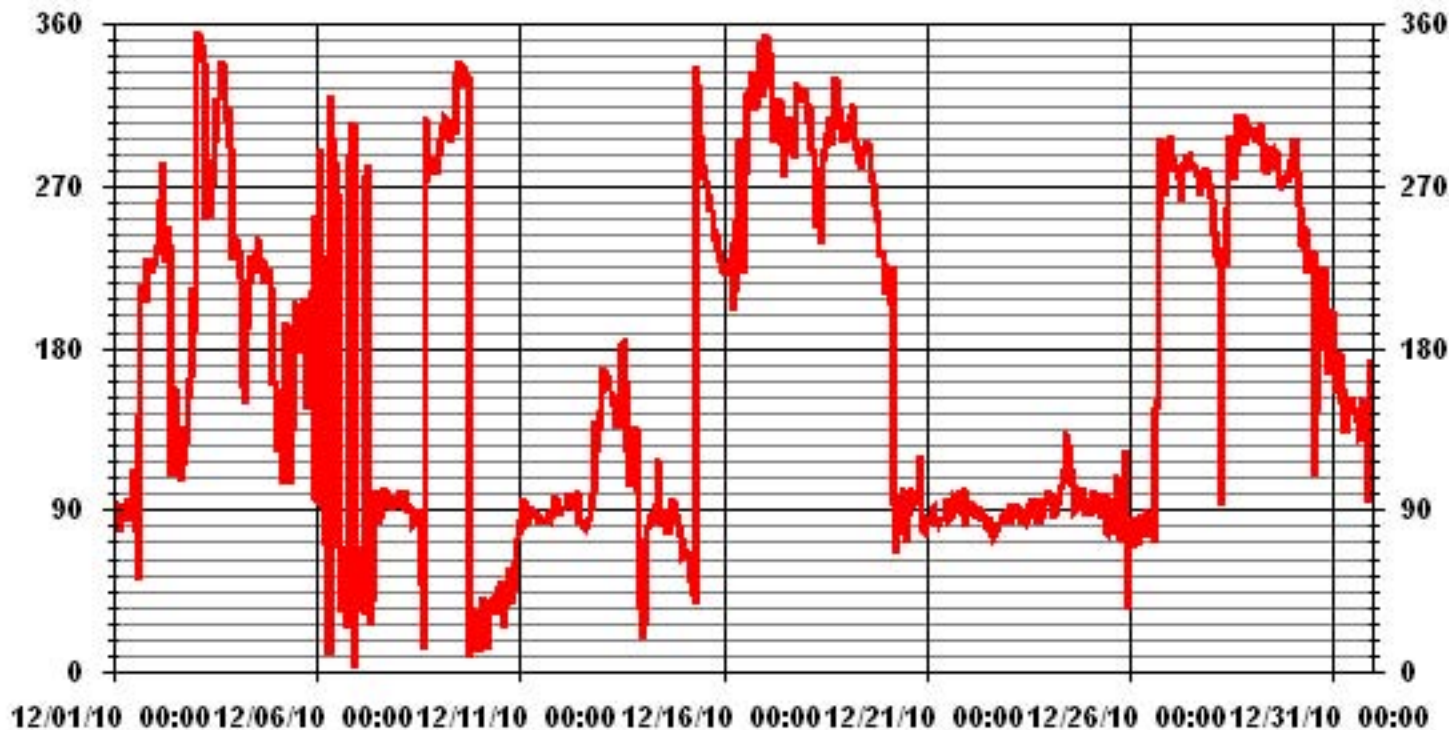
STATUS FLAG CODES

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

LAST CALIBRATION:	September 24, 2009
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION	96.30	AMD OPERATION UPTIME	100.0 %
		MONTHLY AVERAGE	68 DEG

01 Hour Averages



— LICA33 WDR DEG

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

DECEMBER 2010

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	6	5	6	7	6	6	6	7	5	6	9	6	13	37	24	45	37	23	22	23	9	11	12	13
2	9	10	8	8	9	14	6	7	12	36	32	12	16	29	23	30	19	24	18	26	22	20	22	20
3	31	17	11	11	14	12	10	9	9	9	9	8	9	12	12	12	13	13	14	12	27	15	19	10
4	14	9	11	15	14	12	15	22	20	9	8	9	8	10	7	4	12	22	5	13	18	22	18	16
5	11	16	28	11	14	29	37	30	24	13	20	24	21	19	19	20	20	28	10	8	12	12	28	16
6	38	9	23	13	21	37	7	20	25	14	6	56	10	46	44	8	9	50	18	19	20	16	26	15
7	9	16	35	9	40	37	15	39	50	28	8	7	7	6	7	7	5	4	6	6	5	5	5	5
8	5	6	5	6	6	5	6	6	7	6	6	7	7	9	22	12	20	9	8	7	8	7	8	7
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16	6	14	6	13	6	9	19	17	10	9	4	20	20	54	10	14	12	10	13	12	14	12	16	15
17	16	18	14	13	12	11	8	9	15	15	11	12	10	10	9	11	8	7	6	12	8	9	9	10
18	8	6	5	5	6	5	7	8	8	20	9	9	8	10	10	9	7	11	12	11	11	10	7	8
19	8	10	9	10	11	8	8	8	7	8	8	9	8	8	7	7	6	6	8	8	8	6	8	22
20	16	17	14	9	14	39	22	7	13	8	3	6	6	6	6	5	3	5	3	6	7	7	6	4
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22	4	3	4	3	4	4	5	3	4	5	5	5	6	5	5	4	4	5	5	5	5	5	4	4
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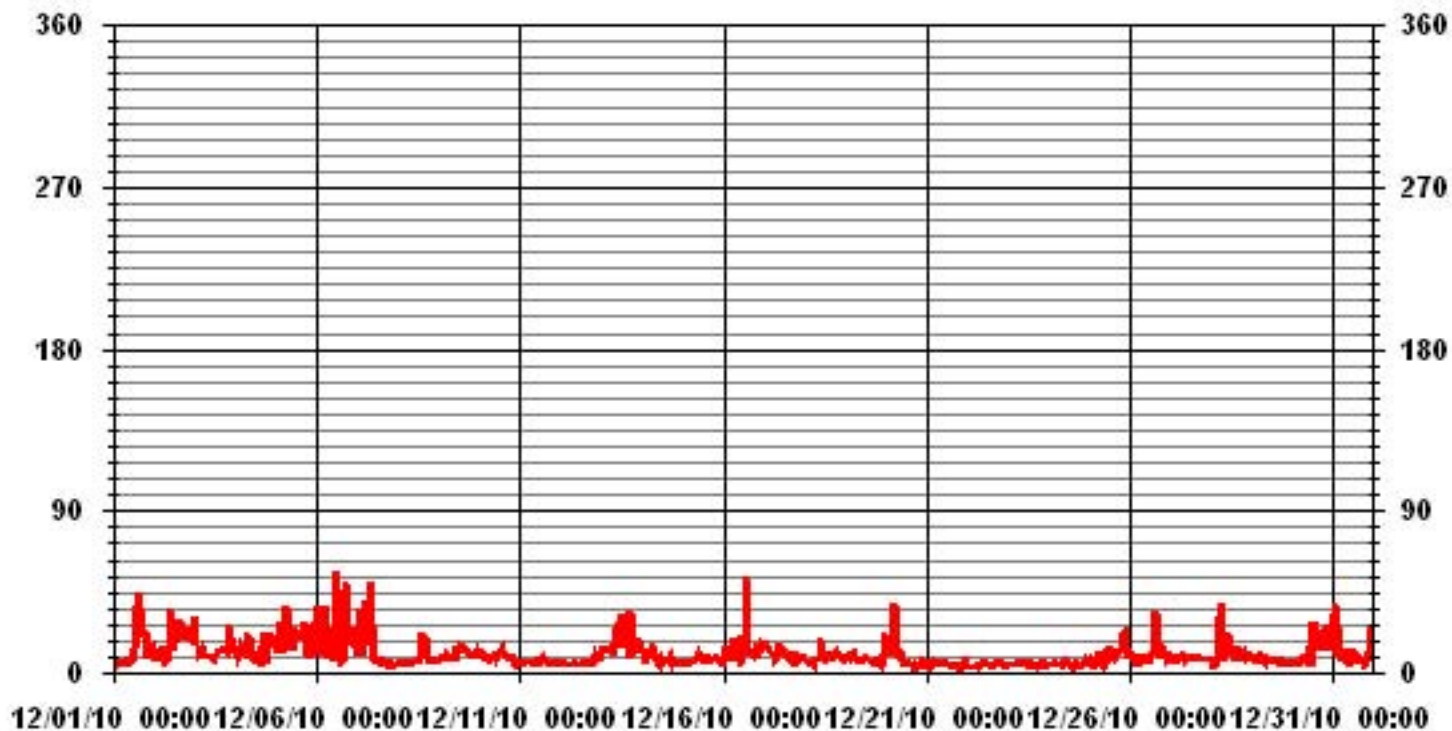
STATUS FLAG CODES

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

LAST CALIBRATION: September 24, 2009

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

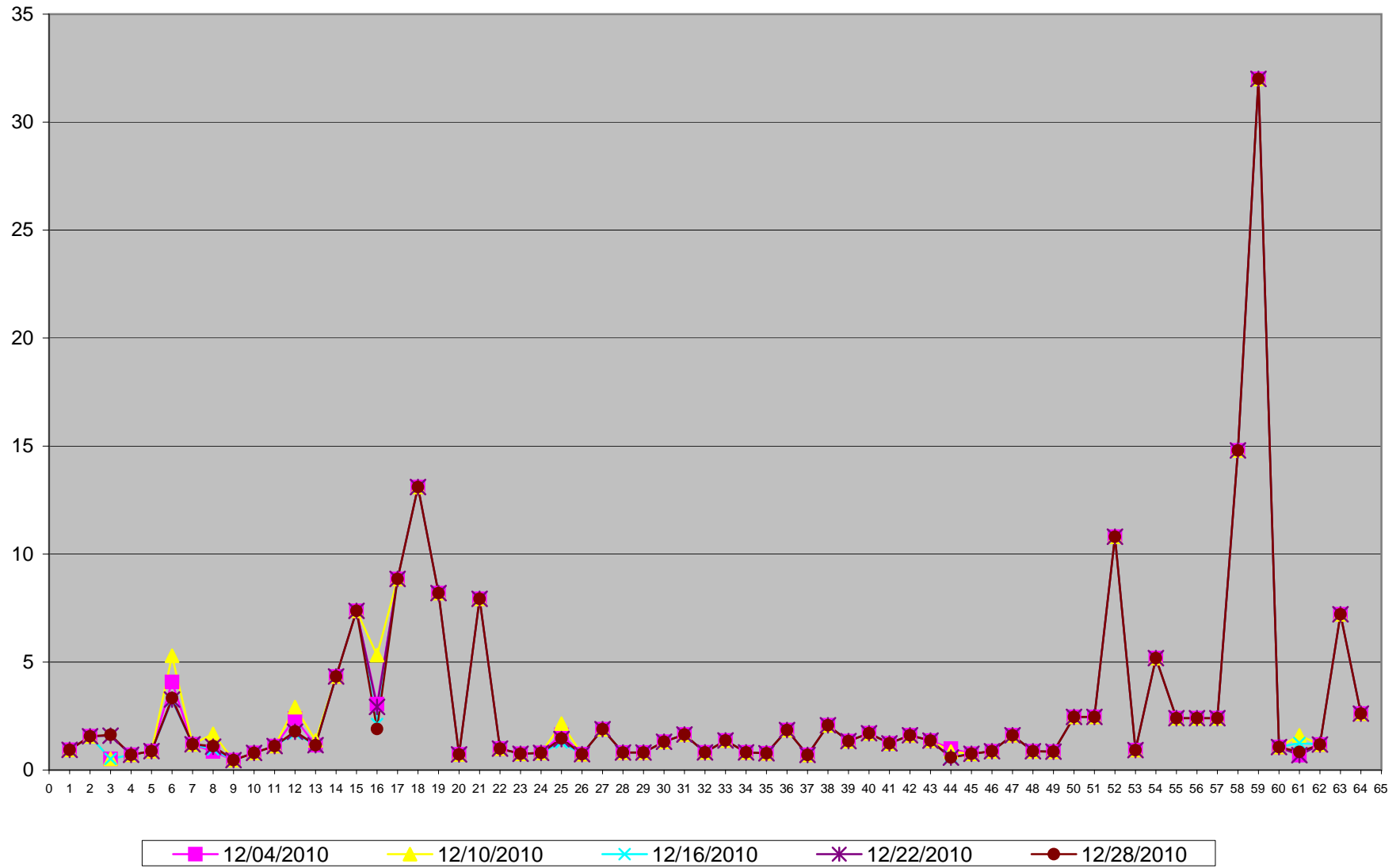
01 Hour Averages



— LICA33 STDWDIR DEG

Volatile Organics

Volatile Organics in ug/m3 Site: LICA - Portable Site



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

Polycyclic Aromatic Hydrocarbons

Polycyclic Aromatic Hydrocarbons (PAHs) Results for December 2010

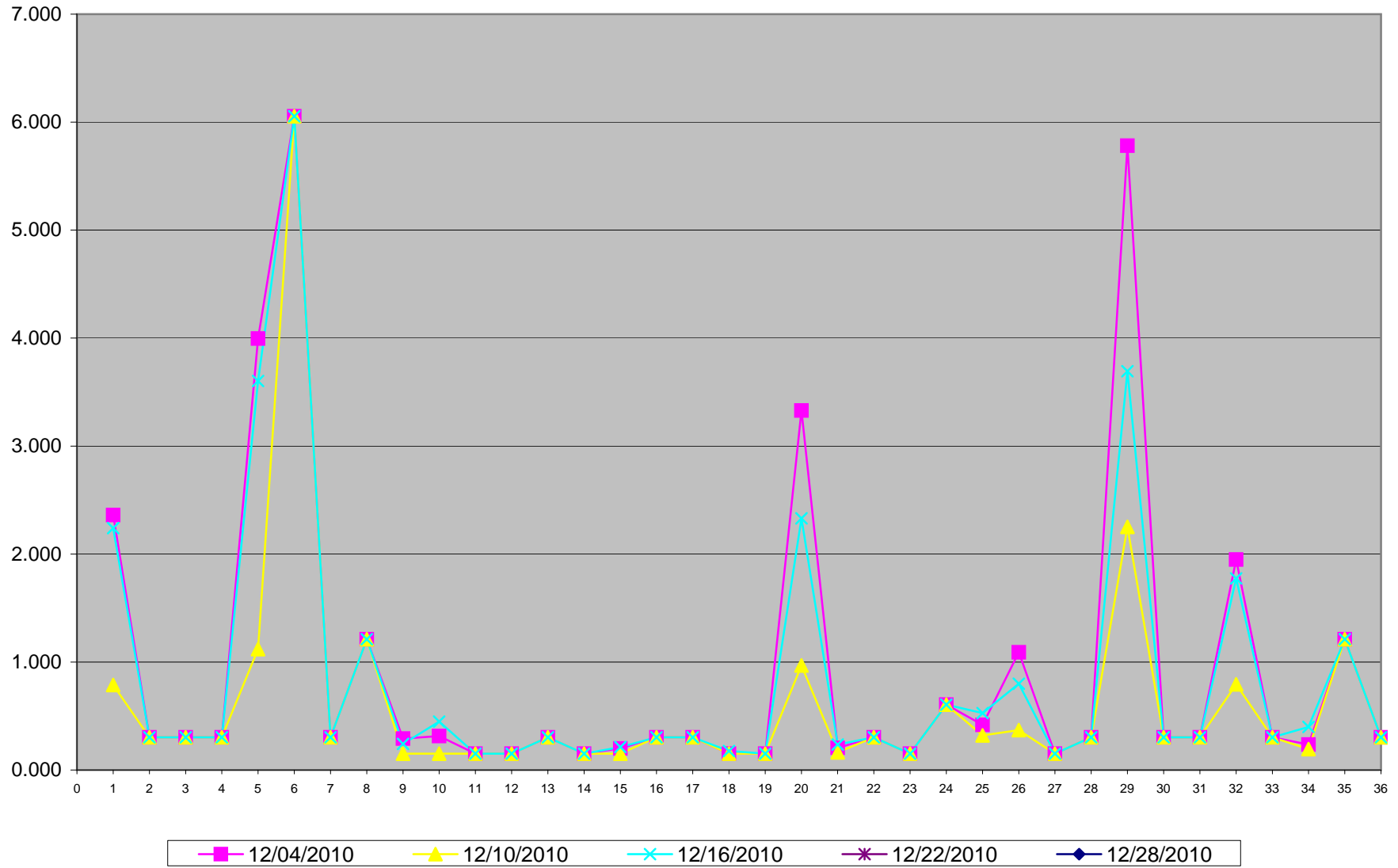
LICA- Portable Site

Unit: ng/m³

PAHs	12/04/2010	12/10/2010	12/16/2010	12/22/2010	12/28/2010
Sample Volume (unit: m3)	330.36	330.36	330.35	330.36	330.35
1 1-Methylnaphthalene	2.361	0.787	2.240	1.211	0.696
2 1-Methylphenanthrene	0.303	0.303	0.303	0.303	0.303
3 2-Chloronaphthalene	0.303	0.303	0.303	0.303	0.303
4 2-Methylantracene	0.303	0.303	0.303	0.303	0.303
5 2-Methylnaphthalene	3.996	1.120	3.602	1.937	0.999
6 3-Methylcholanthrene	6.054	6.054	6.054	6.054	6.054
7 7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.303	0.303	0.303
8 9,10-Dimethylantracene	1.211	1.211	1.211	1.211	1.211
9 Acenaphthene	0.291	0.151	0.242	0.151	0.151
10 Acenaphthylene	0.315	0.151	0.448	0.200	0.242
11 Anthracene	0.151	0.151	0.151	0.151	0.151
12 Benzo(a)anthracene	0.151	0.151	0.151	0.151	0.151
13 Benzo(a)fluorene	0.303	0.303	0.303	0.303	0.303
14 Benzo(a)pyrene	0.151	0.151	0.151	0.151	0.151
15 Benzo(b)fluoranthene	0.200	0.151	0.212	0.151	0.151
16 Benzo(b)fluorene	0.303	0.303	0.303	0.303	0.303
17 Benzo(e)pyrene	0.303	0.303	0.303	0.303	0.303
18 Benzo(g,h,i)perylene	0.151	0.151	0.176	0.151	0.157
19 Benzo(k)fluoranthene	0.151	0.151	0.151	0.151	0.151
20 Biphenyl	3.330	0.969	2.331	1.211	0.969
21 Chrysene	0.206	0.163	0.236	0.151	0.163
22 Coronene	0.303	0.303	0.303	0.303	0.303
23 Dibenz(a,h)anthracene	0.151	0.151	0.151	0.151	0.151
24 Dibenzo(a,e)pyrene	0.605	0.605	0.605	0.605	0.605
25 Fluoranthene	0.418	0.321	0.527	0.315	0.339
26 Fluorene	1.090	0.369	0.799	0.496	0.442
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	0.151	0.151	0.151
28 m-Terphenyl	0.303	0.303	0.303	0.303	0.303
29 Naphthalene	5.782	2.252	3.693	2.240	0.932
30 o-Terphenyl	0.303	0.303	0.303	0.303	0.303
31 Perylene	0.303	0.303	0.303	0.303	0.303
32 Phenanthrene	1.949	0.793	1.774	1.174	1.029
33 p-Terphenyl	0.303	0.303	0.303	0.303	0.303
34 Pyrene	0.236	0.194	0.400	0.151	0.218
35 Quinoline	1.211	1.211	1.211	1.211	1.211
36 Tetralin	0.303	0.303	0.303	0.303	0.303

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

PAHs in ng/m3 Site: LICA - Portable Site



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

Calibration Reports

Sulphur Dioxide

SO₂ Calibration Report

Station Information

Calibration Date	December 8, 2010	Previous Calibration	November 5, 2010
Company	Lakeland Community and Industry Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	8:09	End Time (MST)	11:41
Reason:	Monthly Calibration		
Barometric Pressure	0.935 atm	Station Temperature	22 Deg C
Cal Gas	51.4 ppm	Cal Gas Expiry date	5/8/2010
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	467	Method:	UV absorbtion
Converter Make / Model:	-	S/N :	-		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO 717		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 1000	ppb	
Sample Flow / Box Temp	583 ccm, 33.2 Deg C	579 ccm, 33.5 Deg C	
HVPS / Lamp Setting	604, 2303	604, 2304	
PMT / RxCell Temp	8.1 Deg C, 50.0 Deg C	8.1 Deg C, 50.0 Deg C	
Converter / IZS Temp	NA Deg C, 45.0 Deg C	NA Deg C, 45.0 Deg C	
Offset / Slope	69.5, 0.955	71.3, 0.956	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4998	0	0	1	N/A
4998	0	0	0	N/A
4926	73	751	756	0.9928
4961	38.9	400	403	0.9923
4982	16.6	171	172	0.9924
4998	0	0	0	N/A
Sum of Least Squares				0.2494
New Correction Factor				0.9928

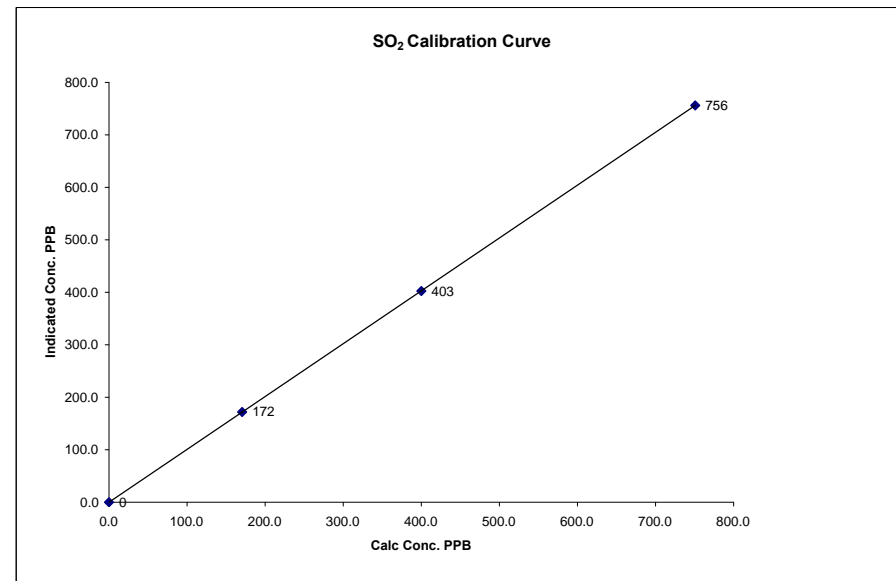
	Before Calibration	After Calibration
Auto Zero	1.1	0.9
Auto Span	366	374
Sample Lines Connected		YES
Percent Change from Previous Calibration		-0.1%

Calibration Performed by: Ting Xu

SO₂ Calibration Curve

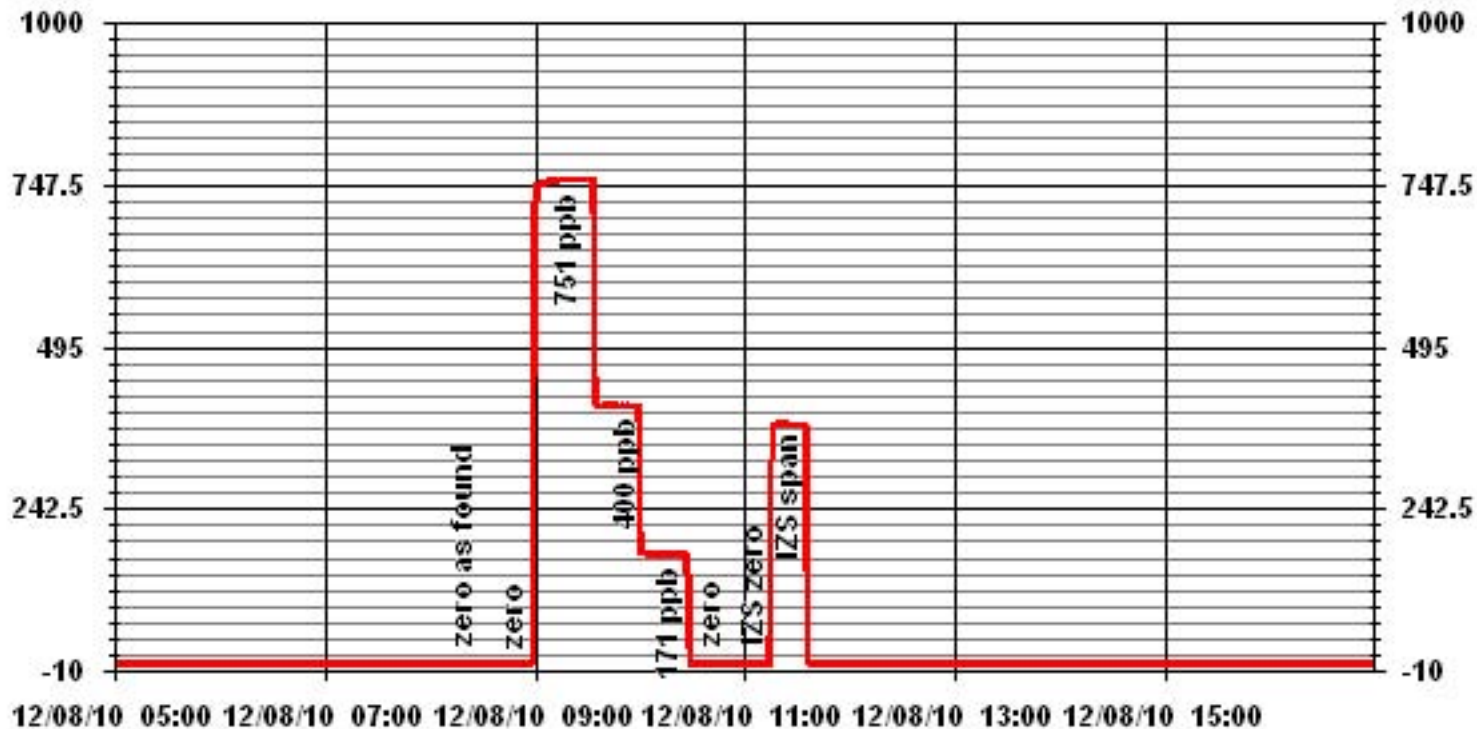
Calibration Date	December 8, 2010
Company	Lakeland Community and Industry Association
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M
Start Time (MST)	8:09
End Time (MST)	11:41

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope (≥ 0.995) (0.85 to 1.15)	Intercept (± 3% F.S.)	
0	0	n/a			1.00000
171	172	0.9924			1.007218
400	403	0.9923			0.069400
751	756	0.9928			



Notes:

01 Minute Averages



Hydrogen Sulphide

H₂S Calibration Report

Station Information

Calibration Date	December 7, 2010	Previous Calibration	November 4, 2010
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Portable/ Devon Wellsite 13-16-62-5-W4M		
Start Time (MST)	9:11	End Time (MST)	12:47
Reason:	Monthly Calibration		
Barometric Pressure	0.945 atm	Station Temperature	22 Deg C
Cal Gas	10.6 ppm	Cal Gas Expiry date	05/12/2011
DAS Output Voltage	0 - 1 Volts		

Equipment Information

Analyzer Make / Model:	API 101E	S/N :	509	Method:	Fluorescent
Converter Make / Model:	Internal	S/N :	N/A		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

		Before Calibration		After Calibration	
Concentration Range		0 - 100		ppb	
Sample Flow / Box Temp	545 ccm	32.5 Deg C	542 ccm	33.3 Deg C	
HVPS / Lamp Setting	528	2276	528	2274	
PMT / RxCell Temp	7.9 Deg C	50 Deg C	7.9 Deg C	50 Deg C	
Converter / IZS Temp	315.7 Deg C	45 Deg C	315.6 Deg C	45 Deg C	
Offset / Slope	52	0.974	52	0.961	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4998	0	0	0	N/A
4961	37.7	80	81	0.9870
4961	37.7	80	80	1.0000
4981	18.8	40	40	0.9964
4987	10.9	23	23	1.0051
4998	0	0	0	N/A
Sum of Least Squares				0.9991
New Correction Factor				1.0000

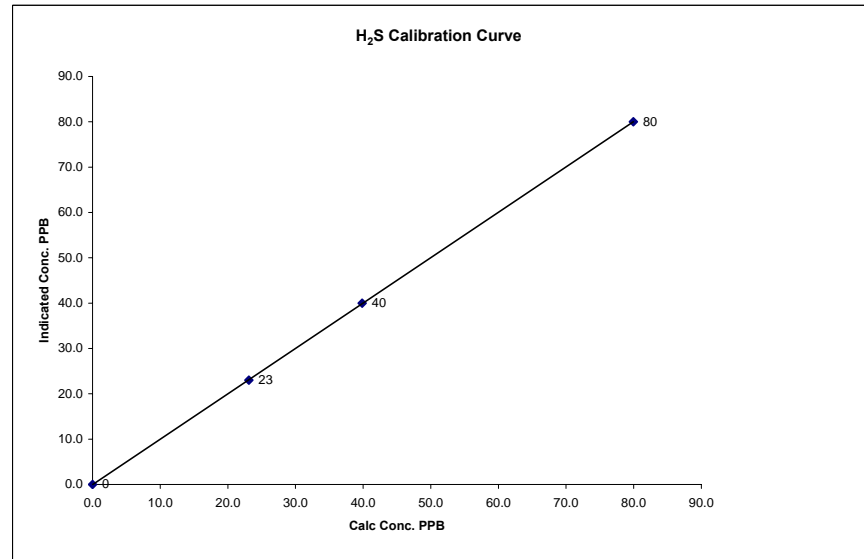
		Before Calibration	After Calibration
Auto Zero		0.7	0.4
Auto Span		56	56
Sample Lines Connected			YES
Percent Change from Previous Calibration			1.3%

Calibration Performed by: Ting Xu

H₂S Calibration Curve

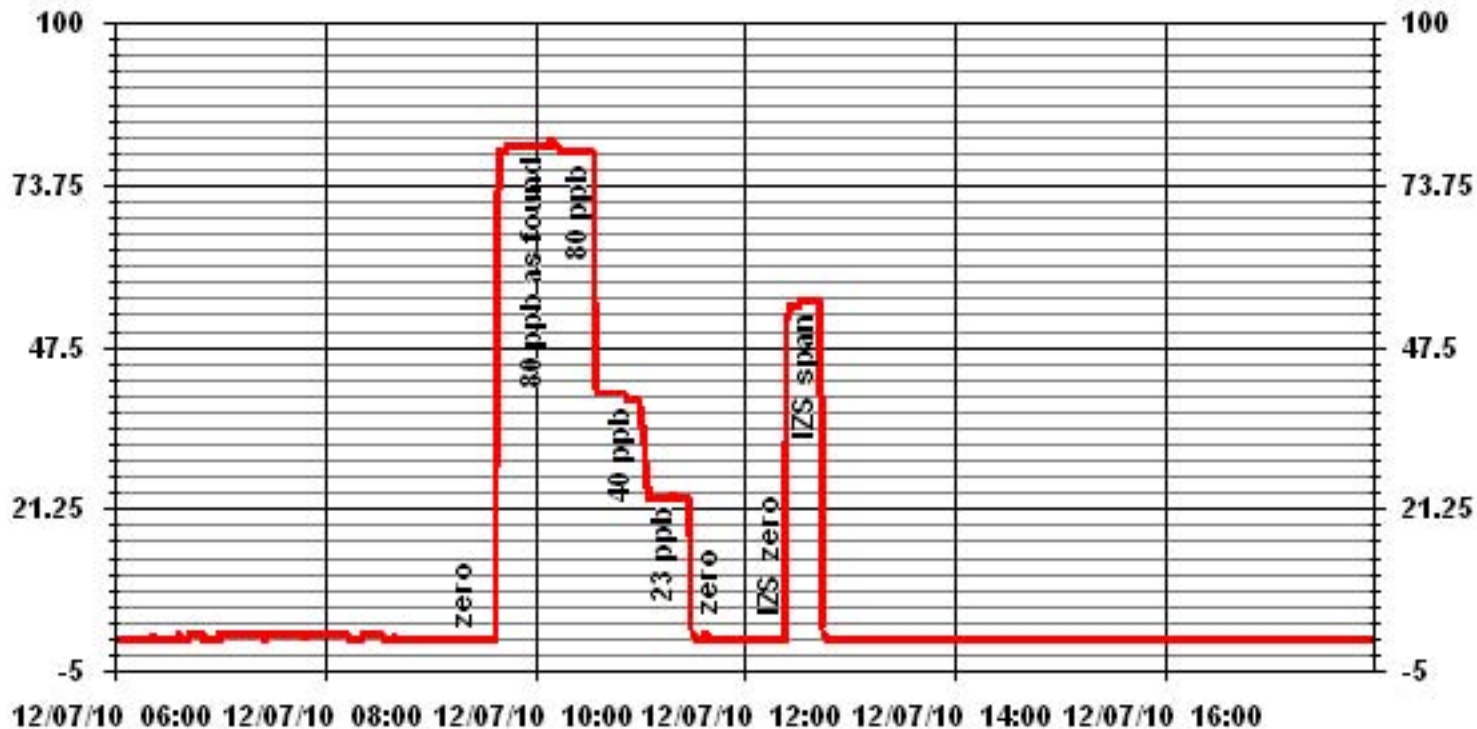
Calibration Date	December 7, 2010
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	Portable/ Devon Wellsite 13-16-62-5-W4M
Start Time (MST)	9:11
End Time (MST)	12:47

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999991
0	0	n/a	Intercept	(± 3% F.S.)	-0.027349
23	23	1.0051			
40	40	0.9964			
80	80	0.9993			



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOM 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	<u>December 16, 2010</u>	Make/Model:	<u>Streamline FTS</u>
Station Name:	<u>Lica Portable (CASA # 33)</u>	Serial Number:	<u>Hi 091001</u>
Location:	<u>Devon Wellsite 13-16-62-5 W4M</u>	Cell s/n:	<u>Lo 091099</u>
Operator:	<u>LICA</u>	Thermometer s/n:	<u>VWR 90758398</u>

	<u>Sampler</u>		<u>Set-up and current Sampler readings</u>
Make/Model	<u>Thermo Scientific Series 1405F</u>	F-Main Set Pt (l/min)	<u>3.00</u>
Unit #	<u>NA</u>	F-Aux Set Pt (l/min)	<u>13.67</u>
Unit s/n	<u>1405A207691003</u>	Filter Load (%)	<u>40.8%</u>
Firmware Ver.	<u>1.51</u>	K _o Factor	<u>15634.0</u>
Parameter	<u>PM 2.5 (with FDMS)</u>	Temp (°C)	<u>-16.9</u>
		Press (ATM)	<u>0.947</u>

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Audit

Status			
Noise <0.10ug	<u>0.003</u>	Warnings	<u>None</u>
Pump Vacuum <0.40atm	<u>0.39</u>	Pump Gauge (inHg)	<u>-17</u>
Temperature/Pressure		D °C	
Measured Temp (± 2 °C)	<u>-15.3</u>		<u>-1.6</u>
Measured Press (± 0.01atm)	<u>0.949</u>	DATM	<u>-0.002</u>
Flow Audit			
Indicated Main Flow (l/min)	<u>3.00</u>	Main Flow Drift (±10.0%)	<u>1.67%</u>
Measured Main Flow (l/min)	<u>3.02</u>	Flow Adjusted to Measured?	<u>Yes</u>
Indicated Bypass Flow (l/min)	<u>13.67</u>	Bypass Flow Drift (±10.0%)	<u>2.47%</u>
Measured Bypass Flow (l/min)	<u>13.87</u>	Flow Adjusted to Measured?	<u>Yes</u>
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	<u>Base=0.00, Ref=0.00</u>	<u>Flow Control = Active</u>	
Aux (< 0.6 l/min)	<u>Base=0.00, Ref=0.00</u>	<u>Report Conditions = Standard (25.0 C and 1atm)</u>	
K_o Factor			
Measured	<u>NA</u>		
K _o Difference (± 2.5%)	<u>NA</u>		

Start Time: 12:40 **Finish Time:** 14:40

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

Comments: Observed an intermittent warning for "Pump pressure" - the pump pressure wa between 0.38 and 0.40 atm. Following the audit the pump was rebuilt, allowed the Teom to stabilize for a while. Following pump rebuilt the pump pressure value was 0.32-0.33 atm and the pump gauge read -21inHg.

Auditor/s: Shea Beaton

Nitrogen Dioxide

NOx - NO- NO₂ Calibration Report

Station Information

Calibration Date	December 7, 2010	Previous Calibration	November 4, 2010
Company	LICA	Plant/Location	Portable/ 13-16-62-5W4M
Start Time (MST)	9:11	End Time (MST)	15:24
Reason:	Monthly Calibration	Other	
Barometric Pressure	0.945 atm	Station Temperature	22 Deg C
Cal Gas Concentration	NOx 50.8 ppm	NO 50.4 ppm	Cal Gas Expiry date 05-Aug-12
DAS Output Voltage	0 - 1	Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	API 200E	S/N :	593	Method:	Chemiluminescent
Calibrator Make / Model:	Envionics 5100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO 717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Envionics 5100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0-1000			ppb			
Sample Flow/Conv. Temp	488 ccm	314 Deg C		483 ccm	313.9 Deg C		
Ozone Flow / Vacuum	79 ccm	5.3 "Hg-A		79 ccm	5.5 "Hg-A		
HVPS / A ZERO	634 Volts	5.3 MV		634 Volts	5.5 MV		
Rx/ Temp / PMT Temp	50.0 Deg C	6.7 Deg C		50.0 Deg C	6.8 Deg C		
Box Temp / IZS Temp	30.1 Deg C	45.1 Deg C		33.3 Deg C	45.2 Deg C		
Offset	0.2 NOx	0.1 NO		0.2 NOx	0.1 NO		
Slope	1.137 NOx	1.120 NO		1.179 NOx	1.161 NO		
NO ₂ COEF / Conv Efficiency	NA	0.996		NA	0.996		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO ₂	NOx	NO	NO ₂	NOx	NO
4994	0.0	----	0	0	0	0	0	0	----	----
4919	74.2	----	755	749	----	727	722	5	1.0384	1.0373
4919	74.2	----	755	749	----	756	750	6	0.9985	0.9986
4960	34.6	----	352	349	----	353	350	3	0.9969	0.9976
4975	19.8	----	201	200	----	202	200	2	0.9969	0.9990
4995	0.0	----	0	0	0	0	0	0	----	----

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO ₂ Correction Factor	NO ₂ Conv Efficiency
			NOx	NO	NO ₂	NOx	NO	NO ₂		
4919	74.2	----	755	749	----	758	751	7	----	----
4919	74.2	600	755	----	564	759	194	565	0.9982	100.18%
4919	74.2	250	755	----	242	759	516	243	0.9959	100.43%
4919	74.2	140	755	----	138	759	620	139	0.9928	100.76%

Linearity	Sum of Least Squares	NOx= 0.998	NO= 0.998	NO ₂ = 0.998
OK?	Correction Factors:	NOx= 0.9985	NO= 0.9986	NO ₂ = 0.9982
	Average Converter Efficiency=	100.46%		

	Before Calibration				After Calibration			
Auto Zero	1.6	NOx	1.6	NO ₂	0.3	NOx	-0.3	NO ₂
Auto Span	619	NOx	606	NO ₂	633	NOx	622	NO ₂
	Sample Lines Connected				YES			

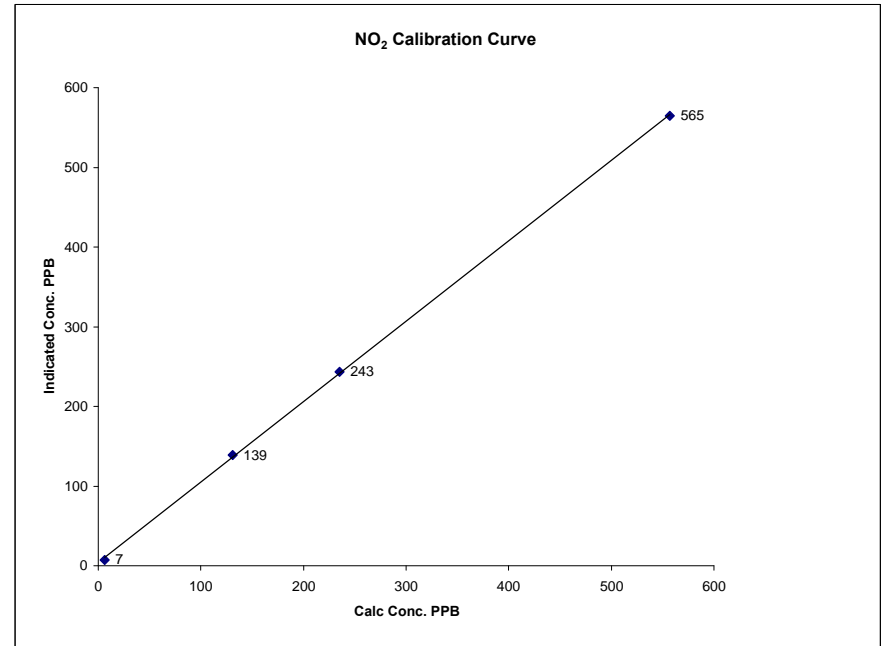
Notes Additional point done for ozone cal (O3 set point= 420), NOx=760, NO=355, NO₂=405.

Calibration Performed by: Ting Xu

NO₂ Calibration Curve

Calibration Date	December 7, 2010	Company	LICA
Plant / Location	Portable/ 13-16-62-5W4M	Start Time (MST)	9:11
End Time (MST)	15:24		

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	
6	7	N/A	Slope	0.999872
131	139	0.9424	Intercept	1.009489
235	243	0.9671		4.04627
557	565	0.9858		

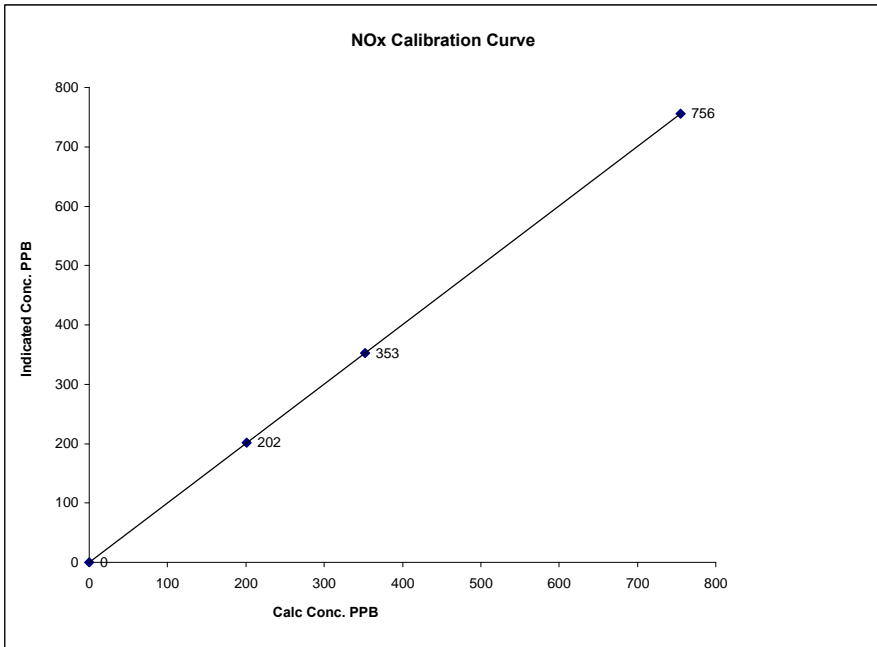


Notes:

NOx Calibration Curve

Calibration Date	December 7, 2010	
Company	LICA	
Plant / Location	Portable/ 13-16-62-5W4M	
Start Time (MST)	9:11	End Time (MST) 15:24

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	1.001370
0	0	N/A	Slope (± 3% F.S.)	0.25378
201	202	0.9969	Intercept	
352	353	0.9969		
755	756	0.9985		

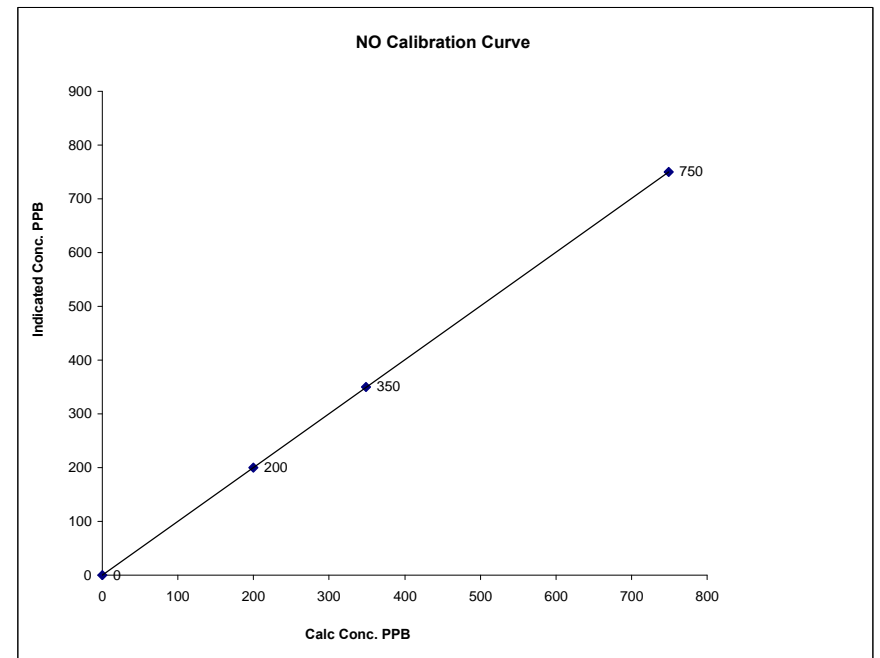


Notes:

NO Calibration Curve

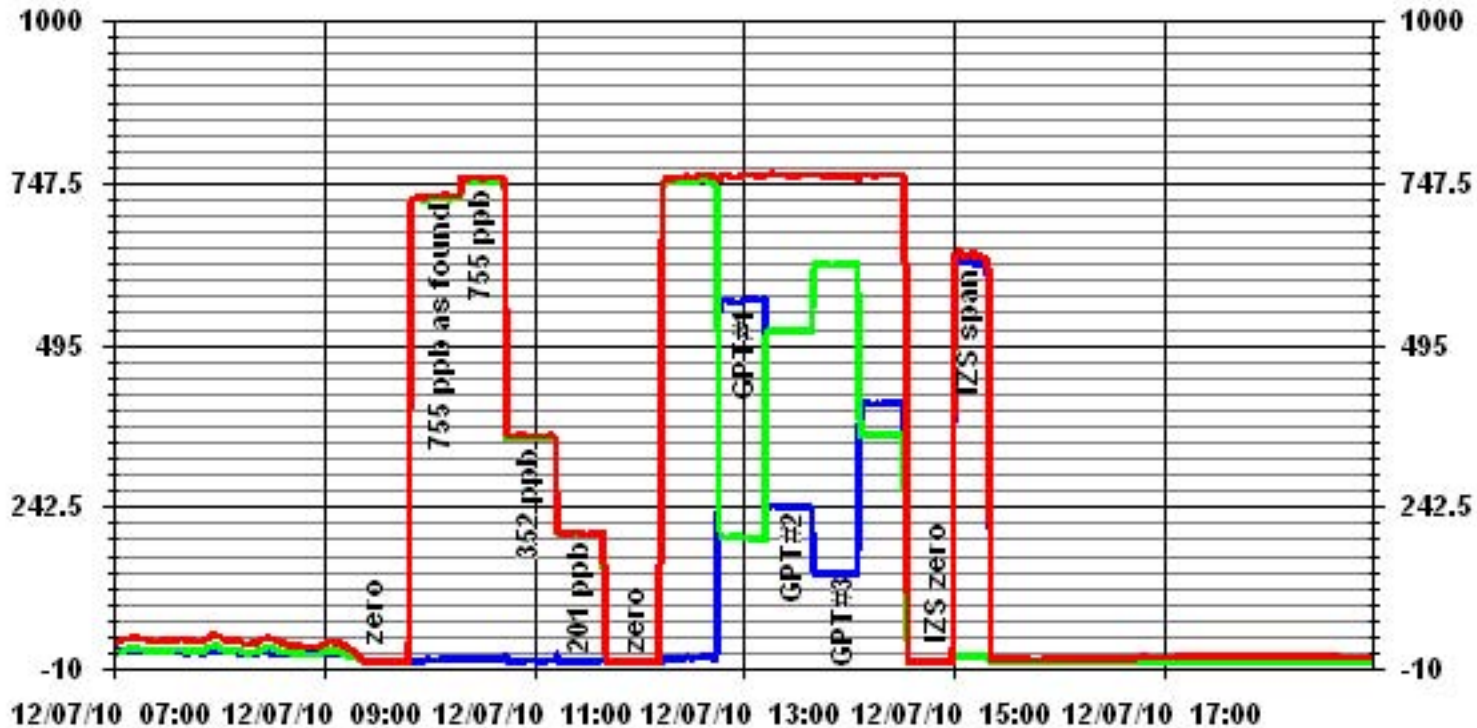
Calibration Date	December 7, 2010	
Company	LICA	
Plant / Location	Portable/ 13-16-62-5W4M	
Start Time (MST)	9:11	End Time (MST) 15:24

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	1.000000
0	0	N/A	Slope (± 3% F.S.)	1.001308
200	200	0.9990	Intercept	0.6886
349	350	0.9976		
749	750	0.9986		



Notes:

01 Minute Averages



— LICA33 NOX_ PPB
 — LICA33 NO_ PPB
 — LICA33 NO2_ PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	December 8, 2010	Previous Calibration	November 5, 2010
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	8:09	End Time (MST)	11:17
Reason:	Monthly Calibration		
Barometric Pressure	0.934 mm Hg	Station Temperature	22 Deg C
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	1002240372	Method:	Photometric
Calibrator Make / Model:	Enviroincs 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO717		

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 500			
Cell A Flow / Cell B Flow	755 ccm	757 ccm	752 ccm	755 Deg C
Pressure	696 mmHg		691 mmHg	
Bench Lamp Temp	54.1 Deg C		54.1 Deg C	
O3 Lamp / Box Temp	68.2 Deg C	31.6 Deg C	68.2 Deg C	32.6 Deg C
Offset/Slop	0	0.99	0	0.99

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	N/A
4995	420	396	397	0.9975
4995	250	235	238	0.9874
4995	140	131	134	0.9776
4995	0	0	0	N/A
Sum of Least Squares				N/A
New Correction Factor				0.9975

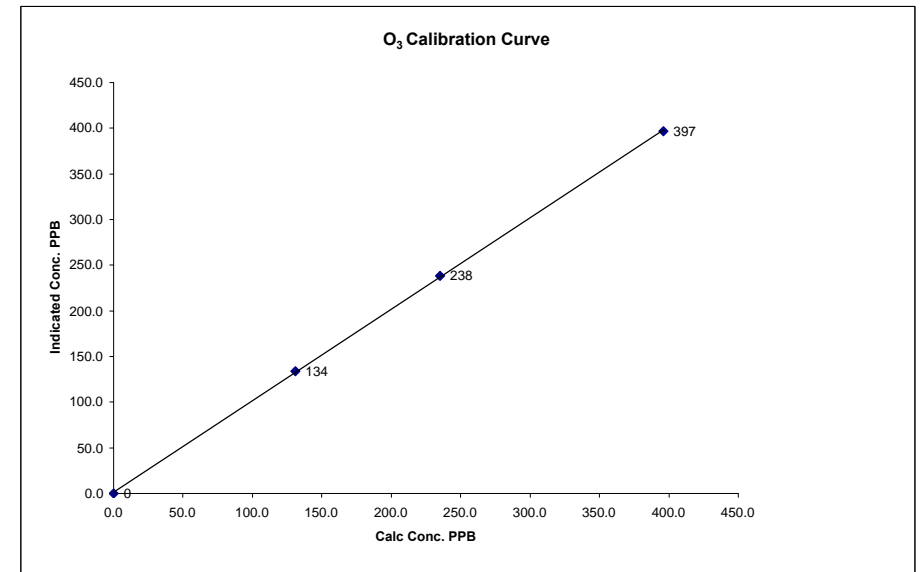
	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	344	345
Sample Lines Connected		YES
Percent Change from Previous Calibration		0.8%

Calibration Performed by: Ting Xu

O₃ Calibration Curve

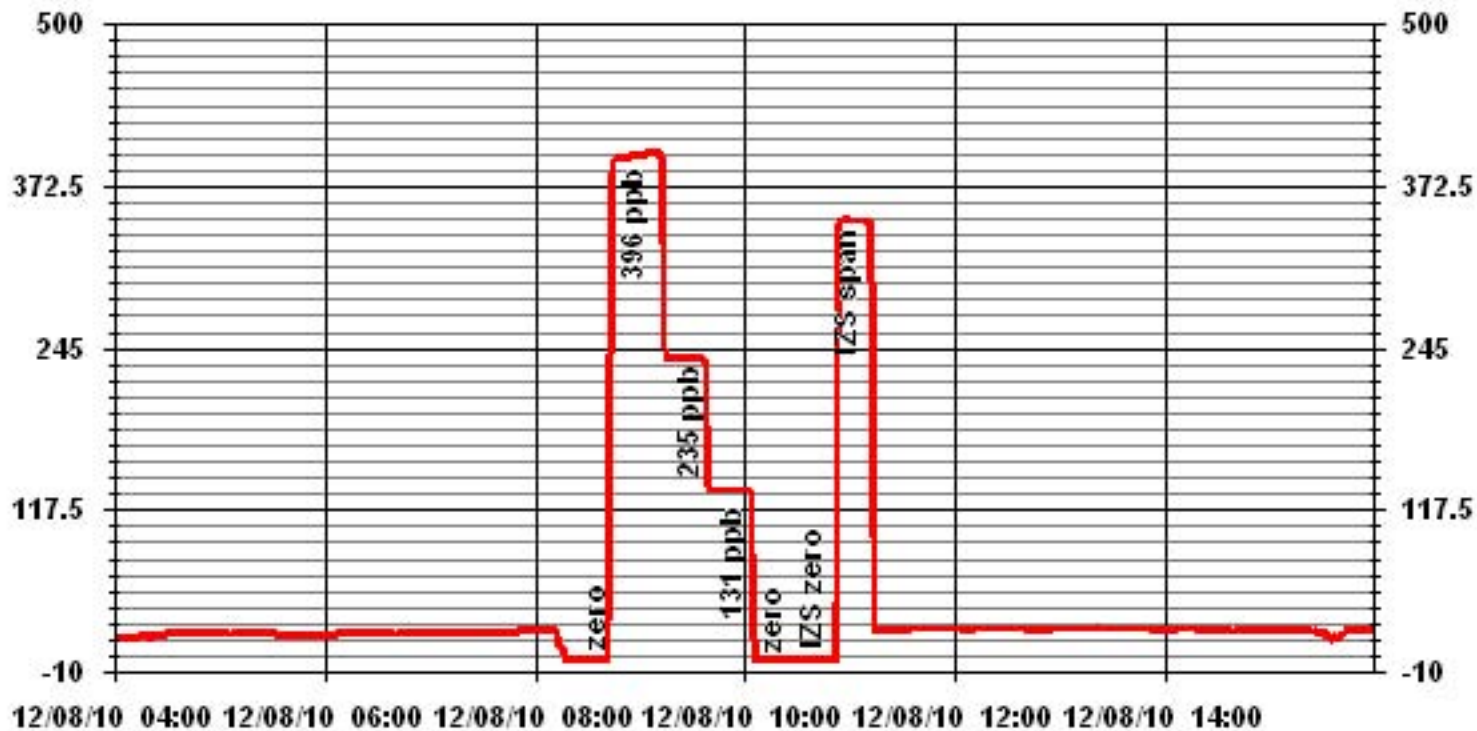
Calibration Date	December 8, 2010		
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	8:09	End Time (MST)	11:17

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope (≥ 0.995)	0.999924
0	0	n/a	Intercept (± 3% F.S.)	1.001910
131	134	0.9776		
235	238	0.9874		
396	397	0.9975		



Notes:

01 Minute Averages



O₃ Calibration Report

Station Information

Calibration Date	December 28, 2010	Previous Calibration	December 8, 2010
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	16:00	End Time (MST)	17:03
Reason:	Monthly Calibration		
Barometric Pressure	0.921 mm Hg	Station Temperature	22 Deg C
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	1002240372	Method:	Photometric
Calibrator Make / Model:	Enviro-nics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO717		

Analyzer Settings

	Before Calibration			After Calibration		
Concentration Range	0 - 500 ppb					
Cell A Flow / Cell B Flow	744 ccm	745 ccm	744 ccm	744 ccm	752 ccm	Deg C
Pressure	679 mmHg			679 mmHg		
Bench Lamp Temp	54.1 Deg C			54.1 Deg C		
O3 Lamp / Box Temp	68.2	68.2	31.4 Deg C	68.2	29.1	Deg C
Offset/Slop	0 0.99			0 0.99		

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	N/A
4995	420	396	403	0.9826
Sum of Least Squares				N/A
New Correction Factor				0.9826

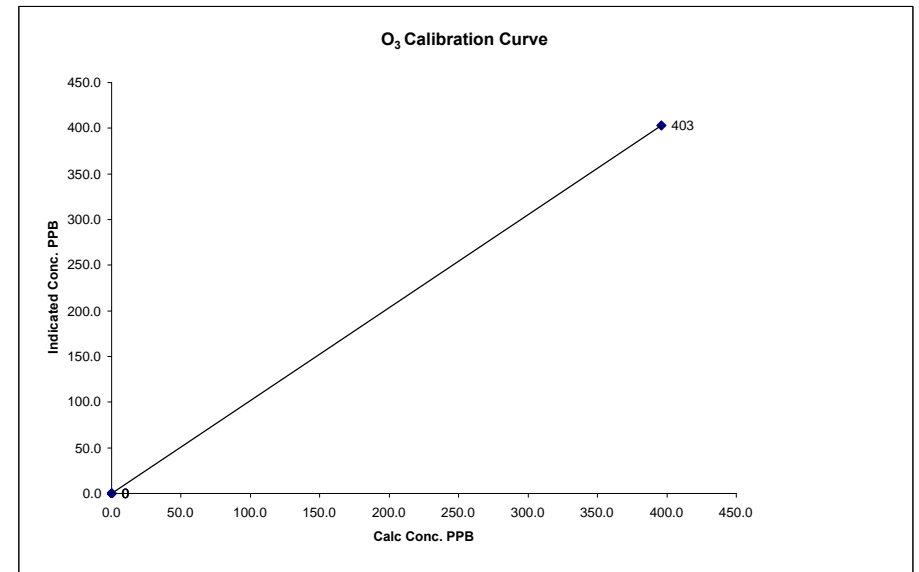
	Before Calibration	After Calibration
Auto Zero	0.0	-
Auto Span	409	-
Sample Lines Connected		YES
Percent Change from Previous Calibration		1.5%

Calibration Performed by: Ting Xu

O₃ Calibration Curve

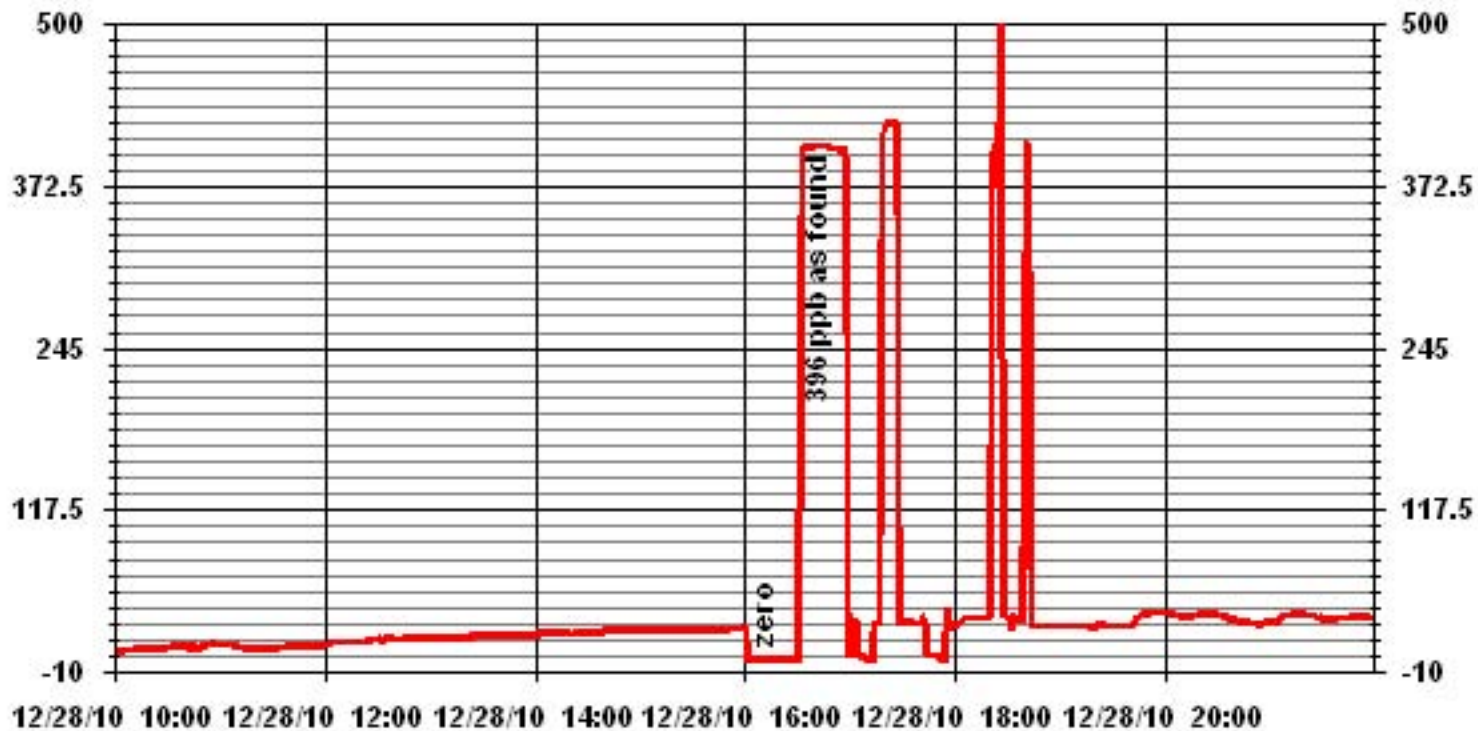
Calibration Date	December 28, 2010		
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	16:00	End Time (MST)	17:03

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope (≥ 0.995)	(0.85 to 1.15)	
0	0	n/a	Intercept	(± 3% F.S.)	1.000000
0	0	#DIV/0!			1.017677
0	0	#DIV/0!			0.000000
396	403	0.9826			



Notes:

01 Minute Averages



O₃ Calibration Report

Station Information

Calibration Date	December 29, 2010	Previous Calibration	December 8, 2010
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	9:51	End Time (MST)	13:22
Reason:	Monthly Calibration		
Barometric Pressure	0.924 mm Hg	Station Temperature	22 Deg C
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	1002240372	Method:	Photometric
Calibrator Make / Model:	Enviroconics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO717		

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 500			
Cell A Flow / Cell B Flow	749 ccm	757 ccm	749 ccm	755 Deg C
Pressure	689 mmHg	686 mmHg	686 mmHg	686 mmHg
Bench Lamp Temp	54.1 Deg C	54.1 Deg C	54.1 Deg C	54.1 Deg C
O3 Lamp / Box Temp	68.2 Deg C	29.8 Deg C	68.3 Deg C	31.8 Deg C
Offset/Slop	0	0.99	0	0.975

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4993	0	0	0	N/A
4993	0	396	400	0.9900
4993	420	396	396	1.0000
4994	250	235	237	0.9916
4995	140	131	133	0.9850
4995	0	0	0	N/A
Sum of Least Squares				N/A
New Correction Factor				1.0000

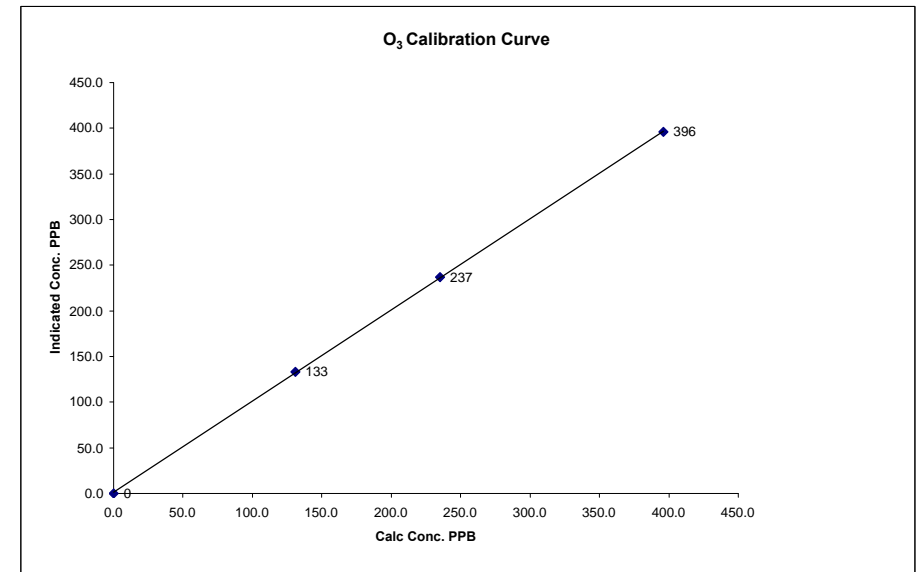
	Before Calibration	After Calibration
Auto Zero	0.1	0.1
Auto Span	411	417
Sample Lines Connected		YES
Percent Change from Previous Calibration		-

Calibration Performed by: Ting Xu

O₃ Calibration Curve

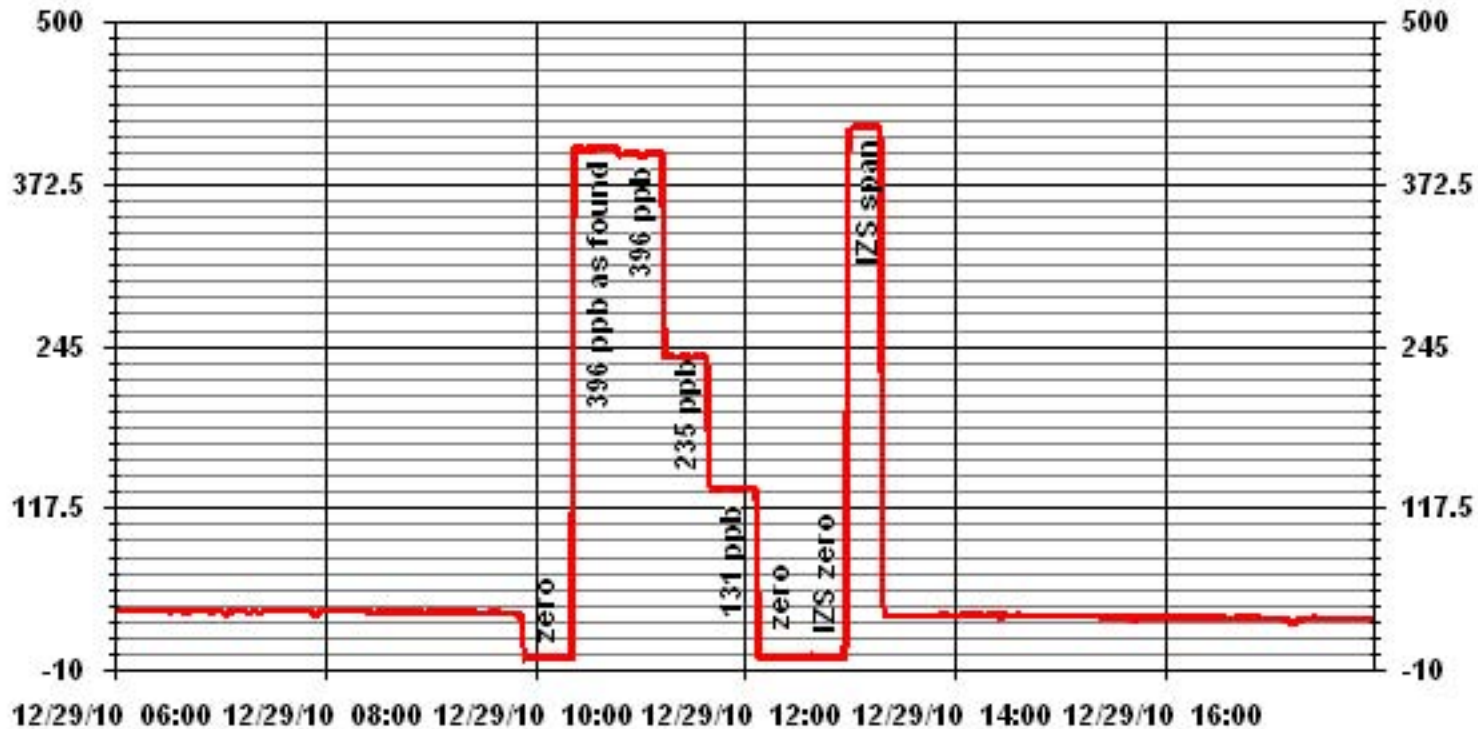
Calibration Date	December 29, 2010		
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Devon Wellsite 13-16-62-5 W4M		
Start Time (MST)	9:51	End Time (MST)	13:22

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999952
0	0	n/a	Intercept	($\pm 3\% F.S.$)	1.068003
131	133	0.9850			
235	237	0.9916			
396	396	1.0000			



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information

Calibration Date:	December 7, 2010	Previous Calibration	November 4, 2010
Company:	Lakeland Industry and Community Association		
Plant / Location:	Portable Station Devon Wellsite 13-16-62-5W4M		
Start Time (MST)	12:13	End Time (MST)	15:57
Reason:	Monthly Calibration		
Barometric Pressure:	0.943 atm	Station Temperature:	22 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	207Prop/602Meth/1171.25THC ppm	Cal Gas Expiry Date:	9/21/2011
DAS make & Model:	ESC 8832	S/N :	AO717
Output Voltage Range:	0 - 10 VDC		

Analyzer Information

Make / Model	TECO 51C	S/N :	04366-09739	Method	Flame Ionization
--------------	----------	-------	-------------	--------	------------------

Analyzer Settings

	Before Calibration	After Calibration
Concentration Range	0 - 50 ppm	0 - 50 ppm
Sample Pressure	6.8 psi	6.8 psi
Hydrogen Pressure	8 psi	8 psi
Air Pressure	21 psi	21 psi

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
1999	0	0.0	0.2	N/A
1999	0	0.0	0.0	N/A
1999	70.0	39.6	40.2	0.9857
1999	70.0	39.6	39.9	0.9931
1999	35.0	20.2	20.1	1.0027
1999	20.0	11.6	11.5	1.0089
2000	0	0.0	0.0	N/A
Correction Factor:				0.9931

Percent Change

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

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.1	0.1
Auto Span	33.4	33.0
Sample Lines Connected		YES

Cylinder Pressures

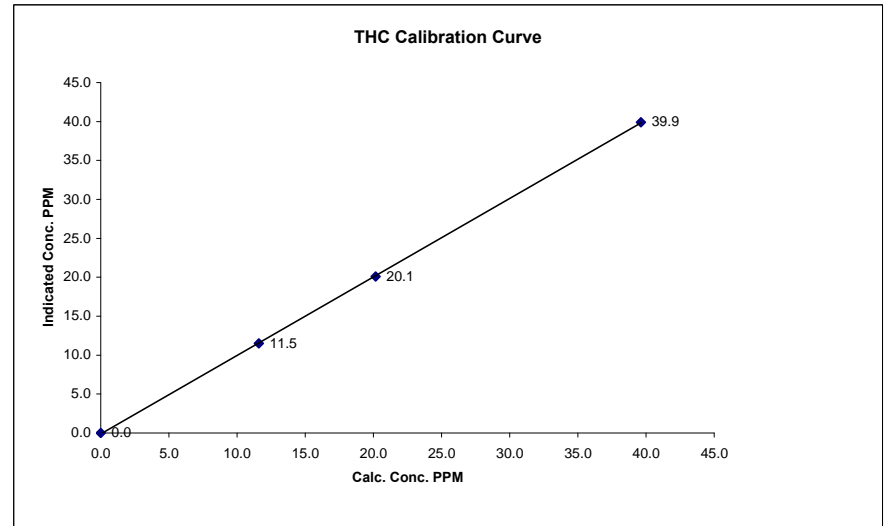
Span	900 psi
Hydrogen	700 psi
Zero Air	30 psi Using API 700

Calibration Performed by: Ting Xu

THC Calibration Curve

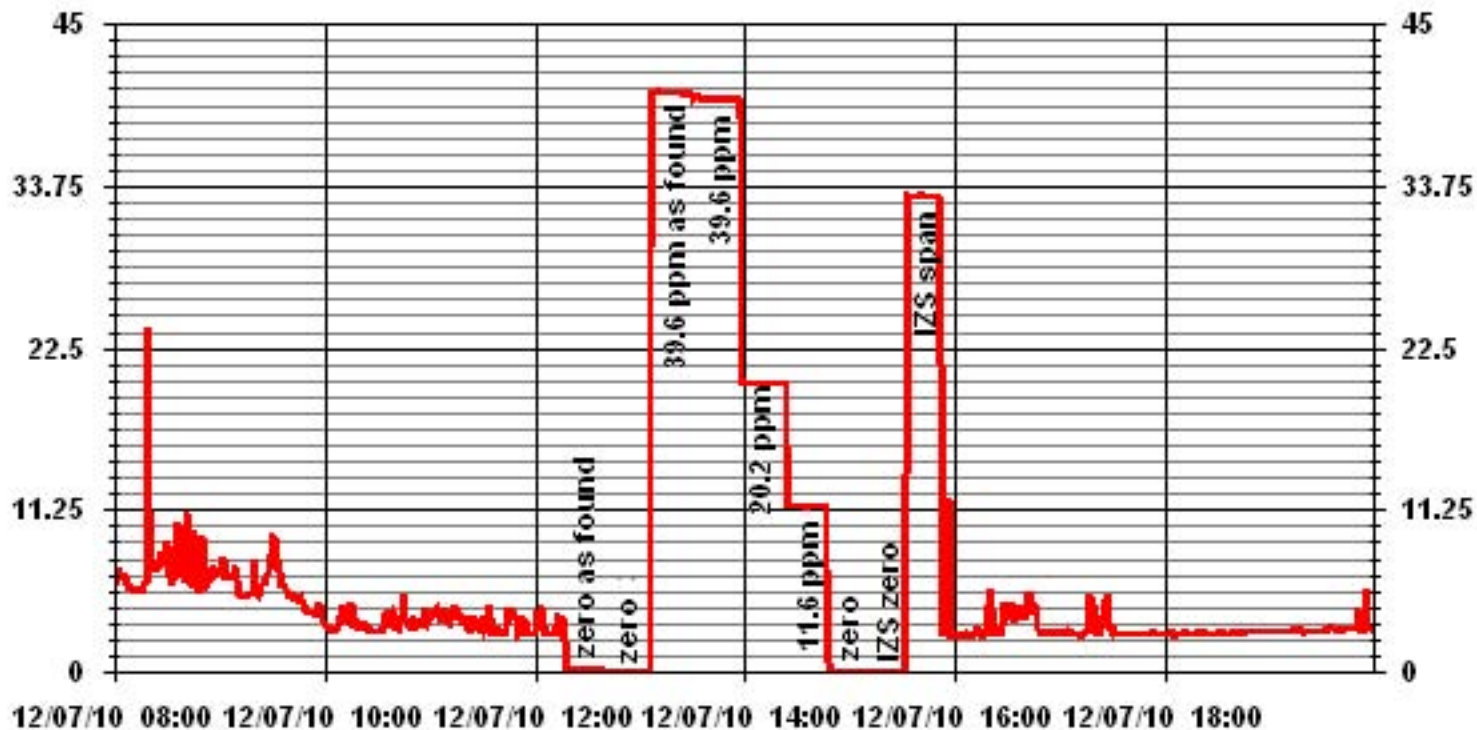
Calibration Date	December 7, 2010
Company	Lakeland Industry and Community Association
Plant / Location	Portable Station Devon Wellsite 13-16-62-5W4M
Start Time (MST)	12:13
End Time (MST)	15:57

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999959
0.0	0.0		Intercept	(0.85 to 1.15)	1.007725
11.6	11.5	1.0089		(± 3% F.S.)	-0.108655
20.2	20.1	1.0027			
39.6	39.9	0.9931			



Notes:

01 Minute Averages



— LICA33 THC PPM

Volatile Organics Laboratory Analysis

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: 13-16-62-5 W4M Canister ID: 7808
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Dec 03, 2010 @ 10:21 mst
Field Sample ID: LICA VOC/PORT/Dec 04 ,10 Canister Removal Date/Time: Dec 06, 2010 @ 9:43 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
04-Dec-10	04/12/2010 0:00	05/12/2010 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1481	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	20

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

Comments: System leak check prior to sampling. COC #2335

Technician Signiture: Ting Xu_____



Your C.O.C. #: 2335

Attention: Michael Bisaga

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

Report Date: 2010/12/16

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0H6966

Received: 2010/12/08, 10:15

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2010/12/10	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2010/12/10	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Maxxam Job #: B0H6966
 Report Date: 2010/12/16

RESULTS OF ANALYSES OF AIR

Maxxam ID		IC2344	IC2345	
Sampling Date		2010/12/04	2010/12/04	
COC Number		2335	2335	
	Units	LICA VOC/CLS/DEC 04, 10	LICA VOC/PORT/DEC 04, 10	QC Batch

Volatile Organics				
Pressure on Receipt	psig	24	21	2357489

QC Batch = Quality Control Batch

Maxxam Job #: B0H6966
 Report Date: 2010/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IC2344			IC2345				
Sampling Date		2010/12/04			2010/12/04				
COC Number		2335			2335				
	Units	LICA VOC/CLS/DEC 04, 10	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 04, 10	RDL	ug/m3	DL (ug/m3)	QC Batch
Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2357634
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2357634
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2357634
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2357634
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2357634
Dichlorodifluoromethane (FREON 12)	ppbv	0.80	3.95	0.989	0.83	0.20	4.08	0.989	2357634
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2357634
Chloromethane	ppbv	0.43	0.886	0.620	0.42	0.30	0.858	0.620	2357634
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2357634
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2357634
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2357634
Trichlorofluoromethane (FREON 11)	ppbv	0.39	2.18	1.12	0.42	0.20	2.38	1.12	2357634
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2357634
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2357634
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2357634
2-Propanone	ppbv	1.14	2.70	1.90	1.29	0.80	3.05	1.90	2357634
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2357634
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2357634
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2357634
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2357634
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2357634
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2357634
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2357634
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2357634
Methylene Chloride(Dichloromethane)	ppbv	0.52	1.80	1.04	0.47	0.30	1.63	1.04	2357634
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2357634
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2357634
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2357634
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2357634
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2357634
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2357634

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B0H6966
 Report Date: 2010/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IC2344			IC2345				
Sampling Date		2010/12/04			2010/12/04				
COC Number		2335			2335				
	Units	LICA VOC/CLS/DEC 04, 10	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 04, 10	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2357634
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2357634
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2357634
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2357634
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2357634
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2357634
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2357634
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2357634
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2357634
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2357634
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2357634
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2357634
Benzene	ppbv	0.29	0.925	0.575	0.31	0.18	0.991	0.575	2357634
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2357634
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2357634
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2357634
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2357634
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2357634
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2357634
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2357634
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2357634
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2357634
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2357634
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2357634
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2357634
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2357634
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2357634
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2357634
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2357634
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2357634
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2357634
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2357634
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2357634
QC Batch = Quality Control Batch									

Maxxam Job #: B0H6966
 Report Date: 2010/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IC2344			IC2345				
Sampling Date		2010/12/04			2010/12/04				
COC Number		2335			2335				
	Units	LICA VOC/CLS/DEC 04, 10	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 04, 10	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	82	N/A	N/A	81		N/A	N/A	2357634
D5-Chlorobenzene	%	67	N/A	N/A	66		N/A	N/A	2357634
Difluorobenzene	%	82	N/A	N/A	81		N/A	N/A	2357634

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

Maxxam Job #: B0H6966
 Report Date: 2010/12/16

Test Summary

Maxxam ID IC2344
Sample ID LICA VOC/CLS/DEC 04, 10
Matrix AIR
Collected 2010/12/04
Shipped
Received 2010/12/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2357489	N/A	2010/12/10	LSY
Volatile Organics in Air (TO-15)	GC/MS	2357634	N/A	2010/12/10	LSY

Maxxam ID IC2345
Sample ID LICA VOC/PORT/DEC 04, 10
Matrix AIR
Collected 2010/12/04
Shipped
Received 2010/12/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2357489	N/A	2010/12/10	LSY
Volatile Organics in Air (TO-15)	GC/MS	2357634	N/A	2010/12/10	LSY

Maxxam Job #: B0H6966
Report Date: 2010/12/16

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB0H6966

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2357634 LSY	Spiked Blank	Bromochloromethane	2010/12/10		109	%	60 - 140
		D5-Chlorobenzene	2010/12/10		105	%	60 - 140
		Difluorobenzene	2010/12/10		113	%	60 - 140
		2,2,4-Trimethylpentane	2010/12/10		95	%	70 - 130
		Carbon Disulfide	2010/12/10		83	%	70 - 130
		Propene	2010/12/10		93	%	70 - 130
		Vinyl Acetate	2010/12/10		102	%	70 - 130
		Vinyl Bromide	2010/12/10		96	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2010/12/10		107	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2010/12/10		108	%	70 - 130
		Chloromethane	2010/12/10		95	%	70 - 130
		Vinyl Chloride	2010/12/10		90	%	70 - 130
		Chloroethane	2010/12/10		82	%	70 - 130
		1,3-Butadiene	2010/12/10		81	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2010/12/10		100	%	70 - 130
		Trichlorotrifluoroethane	2010/12/10		91	%	70 - 130
		Ethanol	2010/12/10		83	%	70 - 130
		2-propanol	2010/12/10		94	%	70 - 130
		2-Propanone	2010/12/10		100	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2010/12/10		99	%	70 - 130
		Methyl Isobutyl Ketone	2010/12/10		98	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2010/12/10		102	%	70 - 130
		Methyl t-butyl ether (MTBE)	2010/12/10		100	%	70 - 130
		Ethyl Acetate	2010/12/10		97	%	70 - 130
		1,1-Dichloroethylene	2010/12/10		93	%	70 - 130
		cis-1,2-Dichloroethylene	2010/12/10		93	%	70 - 130
		trans-1,2-Dichloroethylene	2010/12/10		98	%	70 - 130
		Methylene Chloride(Dichloromethane)	2010/12/10		83	%	70 - 130
		Chloroform	2010/12/10		97	%	70 - 130
		Carbon Tetrachloride	2010/12/10		109	%	70 - 130
		1,1-Dichloroethane	2010/12/10		90	%	70 - 130
		1,2-Dichloroethane	2010/12/10		105	%	70 - 130
		Ethylene Dibromide	2010/12/10		96	%	70 - 130
		1,1,1-Trichloroethane	2010/12/10		101	%	70 - 130
		1,1,2-Trichloroethane	2010/12/10		92	%	70 - 130
		1,1,2,2-Tetrachloroethane	2010/12/10		83	%	70 - 130
		cis-1,3-Dichloropropene	2010/12/10		99	%	70 - 130
		trans-1,3-Dichloropropene	2010/12/10		108	%	70 - 130
		1,2-Dichloropropane	2010/12/10		85	%	70 - 130
		Bromomethane	2010/12/10		86	%	70 - 130
		Bromoform	2010/12/10		110	%	70 - 130
		Bromodichloromethane	2010/12/10		106	%	70 - 130
		Dibromochloromethane	2010/12/10		113	%	70 - 130
		Heptane	2010/12/10		93	%	70 - 130
		Trichloroethylene	2010/12/10		90	%	70 - 130
		Tetrachloroethylene	2010/12/10		100	%	70 - 130
		Benzene	2010/12/10		85	%	70 - 130
		Toluene	2010/12/10		92	%	70 - 130
		Ethylbenzene	2010/12/10		90	%	70 - 130
		p+m-Xylene	2010/12/10		91	%	70 - 130
		o-Xylene	2010/12/10		91	%	70 - 130
		Styrene	2010/12/10		92	%	70 - 130
		1,3,5-Trimethylbenzene	2010/12/10		89	%	70 - 130
		1,2,4-Trimethylbenzene	2010/12/10		86	%	70 - 130
		4-ethyltoluene	2010/12/10		96	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB0H6966

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2357634 LSY	Spiked Blank	Chlorobenzene	2010/12/10		90	%	70 - 130
		Benzyl chloride	2010/12/10		114	%	70 - 130
		1,3-Dichlorobenzene	2010/12/10		86	%	70 - 130
		1,4-Dichlorobenzene	2010/12/10		87	%	70 - 130
		1,2-Dichlorobenzene	2010/12/10		80	%	70 - 130
		1,2,4-Trichlorobenzene	2010/12/10		117	%	70 - 130
		Hexachlorobutadiene	2010/12/10		125	%	70 - 130
		Hexane	2010/12/10		89	%	70 - 130
		Cyclohexane	2010/12/10		92	%	70 - 130
		Tetrahydrofuran	2010/12/10		91	%	70 - 130
		1,4-Dioxane	2010/12/10		89	%	70 - 130
	Method Blank	Bromochloromethane	2010/12/10		90	%	60 - 140
		D5-Chlorobenzene	2010/12/10		71	%	60 - 140
		Difluorobenzene	2010/12/10		89	%	60 - 140
		2,2,4-Trimethylpentane	2010/12/10	<0.20		ppbv	
		Carbon Disulfide	2010/12/10	<0.50		ppbv	
		Propene	2010/12/10	<0.30		ppbv	
		Vinyl Acetate	2010/12/10	<0.20		ppbv	
		Vinyl Bromide	2010/12/10	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2010/12/10	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2010/12/10	<0.17		ppbv	
		Chloromethane	2010/12/10	<0.30		ppbv	
		Vinyl Chloride	2010/12/10	<0.18		ppbv	
		Chloroethane	2010/12/10	<0.30		ppbv	
		1,3-Butadiene	2010/12/10	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2010/12/10	<0.20		ppbv	
		Trichlorotrifluoroethane	2010/12/10	<0.15		ppbv	
		Ethanol	2010/12/10	<2.3		ppbv	
		2-propanol	2010/12/10	<3.0		ppbv	
		2-Propanone	2010/12/10	0.80, RDL=0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2010/12/10	<3.0		ppbv	
		Methyl Isobutyl Ketone	2010/12/10	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2010/12/10	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2010/12/10	<0.20		ppbv	
		Ethyl Acetate	2010/12/10	<2.2		ppbv	
		1,1-Dichloroethylene	2010/12/10	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2010/12/10	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2010/12/10	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2010/12/10	0.40, RDL=0.30		ppbv	
		Chloroform	2010/12/10	<0.15		ppbv	
		Carbon Tetrachloride	2010/12/10	<0.30		ppbv	
		1,1-Dichloroethane	2010/12/10	<0.20		ppbv	
		1,2-Dichloroethane	2010/12/10	<0.20		ppbv	
		Ethylene Dibromide	2010/12/10	<0.17		ppbv	
		1,1,1-Trichloroethane	2010/12/10	<0.30		ppbv	
		1,1,2-Trichloroethane	2010/12/10	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2010/12/10	<0.20		ppbv	
		cis-1,3-Dichloropropene	2010/12/10	<0.18		ppbv	
		trans-1,3-Dichloropropene	2010/12/10	<0.17		ppbv	
		1,2-Dichloropropane	2010/12/10	<0.40		ppbv	
		Bromomethane	2010/12/10	<0.18		ppbv	
		Bromoform	2010/12/10	<0.20		ppbv	
		Bromodichloromethane	2010/12/10	<0.20		ppbv	
		Dibromochloromethane	2010/12/10	<0.20		ppbv	
		Heptane	2010/12/10	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB0H6966

QA/QC Batch			Date Analyzed					
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2357634	LSY	Method Blank						
		Trichloroethylene	2010/12/10	<0.30		ppbv		
		Tetrachloroethylene	2010/12/10	<0.20		ppbv		
		Benzene	2010/12/10	<0.18		ppbv		
		Toluene	2010/12/10	<0.20		ppbv		
		Ethylbenzene	2010/12/10	<0.20		ppbv		
		p+m-Xylene	2010/12/10	<0.37		ppbv		
		o-Xylene	2010/12/10	<0.20		ppbv		
		Styrene	2010/12/10	<0.20		ppbv		
		1,3,5-Trimethylbenzene	2010/12/10	<0.50		ppbv		
		1,2,4-Trimethylbenzene	2010/12/10	<0.50		ppbv		
		4-ethyltoluene	2010/12/10	<2.2		ppbv		
		Chlorobenzene	2010/12/10	<0.20		ppbv		
		Benzyl chloride	2010/12/10	<1.0		ppbv		
		1,3-Dichlorobenzene	2010/12/10	<0.40		ppbv		
		1,4-Dichlorobenzene	2010/12/10	<0.40		ppbv		
		1,2-Dichlorobenzene	2010/12/10	<0.40		ppbv		
		1,2,4-Trichlorobenzene	2010/12/10	<2.0		ppbv		
		Hexachlorobutadiene	2010/12/10	<3.0		ppbv		
		Hexane	2010/12/10	<0.30		ppbv		
		Cyclohexane	2010/12/10	<0.20		ppbv		
		Tetrahydrofuran	2010/12/10	<0.40		ppbv		
		1,4-Dioxane	2010/12/10	<2.0		ppbv		
		Xylene (Total)	2010/12/10	<0.60		ppbv		

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: 13-16-62-5 W4M Canister ID: 7792
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Dec 09, 2010 @ 8:42 mst
Field Sample ID: LICA VOC/PORT/Dec 10 ,10 Canister Removal Date/Time: Dec 13, 2010 @ 10:42 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
10-Dec-10	10/12/2010 0:00	11/12/2010 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1481	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	21

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

Comments: System leak check prior to sampling. COC # 5034

Technician Signiture: Ting Xu_____



Your C.O.C. #: 5034

Attention: Michael Bisaga

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

Report Date: 2010/12/23

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B011572

Received: 2010/12/16, 09:45

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2010/12/21	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2010/12/21	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Maxxam Job #: B011572
 Report Date: 2010/12/23

RESULTS OF ANALYSES OF AIR

Maxxam ID		IE4370	IE4371	
Sampling Date		2010/12/10	2010/12/10	
COC Number		5034	5034	
	Units	LICA VOC/CLS/DEC 10,10 - 7801	LICA VOC/PORT/DEC 10,10 - 7792	QC Batch

Volatile Organics				
Pressure on Receipt	psig	22	21	2366342

QC Batch = Quality Control Batch

Maxxam Job #: B011572
 Report Date: 2010/12/23

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IE4370			IE4371				
Sampling Date		2010/12/10			2010/12/10				
COC Number		5034			5034				
	Units	LICA VOC/CLS/DEC 10,10 - 7801	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 10,10 - 7792	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2366348
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2366348
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2366348
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2366348
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2366348
Dichlorodifluoromethane (FREON 12)	ppbv	1.03	5.12	0.989	1.07	0.20	5.29	0.989	2366348
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2366348
Chloromethane	ppbv	0.79	1.62	0.620	0.81	0.30	1.67	0.620	2366348
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2366348
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2366348
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2366348
Trichlorofluoromethane (FREON 11)	ppbv	0.50	2.79	1.12	0.52	0.20	2.91	1.12	2366348
Trichlorotrifluoroethane	ppbv	0.17	1.34	1.15	0.18	0.15	1.37	1.15	2366348
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2366348
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2366348
2-Propanone	ppbv	1.69	4.03	1.90	2.24	0.80	5.32	1.90	2366348
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2366348
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2366348
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2366348
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2366348
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2366348
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2366348
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2366348
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2366348
Methylene Chloride(Dichloromethane)	ppbv	0.66	2.31	1.04	0.62	0.30	2.15	1.04	2366348
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2366348
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2366348
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2366348
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2366348
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2366348
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2366348

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B011572
 Report Date: 2010/12/23

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IE4370			IE4371				
Sampling Date		2010/12/10			2010/12/10				
COC Number		5034			5034				
	Units	LICA VOC/CLS/DEC 10,10 - 7801	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 10,10 - 7792	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2366348
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2366348
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2366348
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2366348
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2366348
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2366348
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2366348
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2366348
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2366348
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2366348
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2366348
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2366348
Benzene	ppbv	0.25	0.785	0.575	0.27	0.18	0.852	0.575	2366348
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2366348
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2366348
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2366348
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2366348
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2366348
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2366348
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2366348
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2366348
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2366348
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2366348
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2366348
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2366348
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2366348
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2366348
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2366348
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2366348
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.46	0.20	1.60	0.688	2366348
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2366348
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2366348
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2366348

QC Batch = Quality Control Batch

Maxxam Job #: B011572
 Report Date: 2010/12/23

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IE4370			IE4371				
Sampling Date		2010/12/10			2010/12/10				
COC Number		5034			5034				
	Units	LICA VOC/CLS/DEC 10,10 - 7801	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 10,10 - 7792	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	77	N/A	N/A	75		N/A	N/A	2366348
D5-Chlorobenzene	%	77	N/A	N/A	76		N/A	N/A	2366348
Difluorobenzene	%	76	N/A	N/A	74		N/A	N/A	2366348

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

Maxxam Job #: B011572
 Report Date: 2010/12/23

Test Summary

Maxxam ID IE4370 **Collected** 2010/12/10
Sample ID LICA VOC/CLS/DEC 10,10 - 7801 **Shipped**
Matrix AIR **Received** 2010/12/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2366342	N/A	2010/12/21	MMU
Volatile Organics in Air (TO-15)	GC/MS	2366348	N/A	2010/12/21	MMU

Maxxam ID IE4371 **Collected** 2010/12/10
Sample ID LICA VOC/PORT/DEC 10,10 - 7792 **Shipped**
Matrix AIR **Received** 2010/12/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2366342	N/A	2010/12/21	MMU
Volatile Organics in Air (TO-15)	GC/MS	2366348	N/A	2010/12/21	MMU

Maxxam Job #: B011572
Report Date: 2010/12/23

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB011572

QA/QC Batch			Date Analyzed					
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2366348	MMU	Spiked Blank						
		Bromochloromethane	2010/12/21		96	%	60 - 140	
		D5-Chlorobenzene	2010/12/21		97	%	60 - 140	
		Difluorobenzene	2010/12/21		97	%	60 - 140	
		2,2,4-Trimethylpentane	2010/12/21		97	%	70 - 130	
		Carbon Disulfide	2010/12/21		88	%	70 - 130	
		Propene	2010/12/21		93	%	70 - 130	
		Vinyl Acetate	2010/12/21		101	%	70 - 130	
		Vinyl Bromide	2010/12/21		100	%	70 - 130	
		Dichlorodifluoromethane (FREON 12)	2010/12/21		91	%	70 - 130	
		1,2-Dichlorotetrafluoroethane	2010/12/21		105	%	70 - 130	
		Chloromethane	2010/12/21		96	%	70 - 130	
		Vinyl Chloride	2010/12/21		98	%	70 - 130	
		Chloroethane	2010/12/21		92	%	70 - 130	
		1,3-Butadiene	2010/12/21		98	%	70 - 130	
		Trichlorofluoromethane (FREON 11)	2010/12/21		95	%	70 - 130	
		Trichlorotrifluoroethane	2010/12/21		95	%	70 - 130	
		Ethanol	2010/12/21		85	%	70 - 130	
		2-propanol	2010/12/21		98	%	70 - 130	
		2-Propanone	2010/12/21		102	%	70 - 130	
		Methyl Ethyl Ketone (2-Butanone)	2010/12/21		93	%	70 - 130	
		Methyl Isobutyl Ketone	2010/12/21		97	%	70 - 130	
		Methyl Butyl Ketone (2-Hexanone)	2010/12/21		100	%	70 - 130	
		Methyl t-butyl ether (MTBE)	2010/12/21		97	%	70 - 130	
		Ethyl Acetate	2010/12/21		100	%	70 - 130	
		1,1-Dichloroethylene	2010/12/21		92	%	70 - 130	
		cis-1,2-Dichloroethylene	2010/12/21		95	%	70 - 130	
		trans-1,2-Dichloroethylene	2010/12/21		96	%	70 - 130	
		Methylene Chloride(Dichloromethane)	2010/12/21		81	%	70 - 130	
		Chloroform	2010/12/21		93	%	70 - 130	
		Carbon Tetrachloride	2010/12/21		94	%	70 - 130	
		1,1-Dichloroethane	2010/12/21		94	%	70 - 130	
		1,2-Dichloroethane	2010/12/21		98	%	70 - 130	
		Ethylene Dibromide	2010/12/21		93	%	70 - 130	
		1,1,1-Trichloroethane	2010/12/21		93	%	70 - 130	
		1,1,2-Trichloroethane	2010/12/21		91	%	70 - 130	
		1,1,2,2-Tetrachloroethane	2010/12/21		86	%	70 - 130	
		cis-1,3-Dichloropropene	2010/12/21		94	%	70 - 130	
		trans-1,3-Dichloropropene	2010/12/21		95	%	70 - 130	
		1,2-Dichloropropane	2010/12/21		91	%	70 - 130	
		Bromomethane	2010/12/21		93	%	70 - 130	
		Bromoform	2010/12/21		97	%	70 - 130	
		Bromodichloromethane	2010/12/21		93	%	70 - 130	
		Dibromochloromethane	2010/12/21		99	%	70 - 130	
		Heptane	2010/12/21		90	%	70 - 130	
		Trichloroethylene	2010/12/21		93	%	70 - 130	
		Tetrachloroethylene	2010/12/21		93	%	70 - 130	
		Benzene	2010/12/21		91	%	70 - 130	
		Toluene	2010/12/21		91	%	70 - 130	
		Ethylbenzene	2010/12/21		91	%	70 - 130	
		p+m-Xylene	2010/12/21		96	%	70 - 130	
		o-Xylene	2010/12/21		91	%	70 - 130	
		Styrene	2010/12/21		90	%	70 - 130	
		1,3,5-Trimethylbenzene	2010/12/21		90	%	70 - 130	
		1,2,4-Trimethylbenzene	2010/12/21		87	%	70 - 130	
		4-ethyltoluene	2010/12/21		89	%	70 - 130	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB011572

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2366348 MMU	Spiked Blank	Chlorobenzene	2010/12/21		93	%	70 - 130
		Benzyl chloride	2010/12/21		90	%	70 - 130
		1,3-Dichlorobenzene	2010/12/21		90	%	70 - 130
		1,4-Dichlorobenzene	2010/12/21		92	%	70 - 130
		1,2-Dichlorobenzene	2010/12/21		88	%	70 - 130
		1,2,4-Trichlorobenzene	2010/12/21		95	%	70 - 130
		Hexachlorobutadiene	2010/12/21		94	%	70 - 130
		Hexane	2010/12/21		89	%	70 - 130
		Cyclohexane	2010/12/21		91	%	70 - 130
		Tetrahydrofuran	2010/12/21		96	%	70 - 130
		1,4-Dioxane	2010/12/21		88	%	70 - 130
	Method Blank	Bromochloromethane	2010/12/21		100	%	60 - 140
		D5-Chlorobenzene	2010/12/21		99	%	60 - 140
		Difluorobenzene	2010/12/21		99	%	60 - 140
		2,2,4-Trimethylpentane	2010/12/21	<0.20		ppbv	
		Carbon Disulfide	2010/12/21	<0.50		ppbv	
		Propene	2010/12/21	<0.30		ppbv	
		Vinyl Acetate	2010/12/21	<0.20		ppbv	
		Vinyl Bromide	2010/12/21	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2010/12/21	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2010/12/21	<0.17		ppbv	
		Chloromethane	2010/12/21	<0.30		ppbv	
		Vinyl Chloride	2010/12/21	<0.18		ppbv	
		Chloroethane	2010/12/21	<0.30		ppbv	
		1,3-Butadiene	2010/12/21	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2010/12/21	<0.20		ppbv	
		Trichlorotrifluoroethane	2010/12/21	<0.15		ppbv	
		Ethanol	2010/12/21	<2.3		ppbv	
		2-propanol	2010/12/21	<3.0		ppbv	
		2-Propanone	2010/12/21	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2010/12/21	<3.0		ppbv	
		Methyl Isobutyl Ketone	2010/12/21	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2010/12/21	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2010/12/21	<0.20		ppbv	
		Ethyl Acetate	2010/12/21	<2.2		ppbv	
		1,1-Dichloroethylene	2010/12/21	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2010/12/21	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2010/12/21	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2010/12/21	0.83, RDL=0.30		ppbv	
		Chloroform	2010/12/21	<0.15		ppbv	
		Carbon Tetrachloride	2010/12/21	<0.30		ppbv	
		1,1-Dichloroethane	2010/12/21	<0.20		ppbv	
		1,2-Dichloroethane	2010/12/21	<0.20		ppbv	
		Ethylene Dibromide	2010/12/21	<0.17		ppbv	
		1,1,1-Trichloroethane	2010/12/21	<0.30		ppbv	
		1,1,2-Trichloroethane	2010/12/21	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2010/12/21	<0.20		ppbv	
		cis-1,3-Dichloropropene	2010/12/21	<0.18		ppbv	
		trans-1,3-Dichloropropene	2010/12/21	<0.17		ppbv	
		1,2-Dichloropropane	2010/12/21	<0.40		ppbv	
		Bromomethane	2010/12/21	<0.18		ppbv	
		Bromoform	2010/12/21	<0.20		ppbv	
		Bromodichloromethane	2010/12/21	<0.20		ppbv	
		Dibromochloromethane	2010/12/21	<0.20		ppbv	
		Heptane	2010/12/21	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB011572

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2366348	MMU Method Blank	Trichloroethylene	2010/12/21	<0.30		ppbv	
		Tetrachloroethylene	2010/12/21	<0.20		ppbv	
		Benzene	2010/12/21	<0.18		ppbv	
		Toluene	2010/12/21	<0.20		ppbv	
		Ethylbenzene	2010/12/21	<0.20		ppbv	
		p+m-Xylene	2010/12/21	<0.37		ppbv	
		o-Xylene	2010/12/21	<0.20		ppbv	
		Styrene	2010/12/21	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2010/12/21	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2010/12/21	<0.50		ppbv	
		4-ethyltoluene	2010/12/21	<2.2		ppbv	
		Chlorobenzene	2010/12/21	<0.20		ppbv	
		Benzyl chloride	2010/12/21	<1.0		ppbv	
		1,3-Dichlorobenzene	2010/12/21	<0.40		ppbv	
		1,4-Dichlorobenzene	2010/12/21	<0.40		ppbv	
		1,2-Dichlorobenzene	2010/12/21	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2010/12/21	<2.0		ppbv	
		Hexachlorobutadiene	2010/12/21	<3.0		ppbv	
		Hexane	2010/12/21	<0.30		ppbv	
		Cyclohexane	2010/12/21	<0.20		ppbv	
		Tetrahydrofuran	2010/12/21	<0.40		ppbv	
		1,4-Dioxane	2010/12/21	<2.0		ppbv	
		Xylene (Total)	2010/12/21	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2010/12/21	NC		%	25
		Carbon Disulfide	2010/12/21	NC		%	25
		Propene	2010/12/21	3.9		%	25
		Vinyl Acetate	2010/12/21	NC		%	25
		Vinyl Bromide	2010/12/21	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2010/12/21	NC		%	25
		1,2-Dichlorotetrafluoroethane	2010/12/21	NC		%	25
		Chloromethane	2010/12/21	NC		%	25
		Vinyl Chloride	2010/12/21	NC		%	25
		Chloroethane	2010/12/21	NC		%	25
		1,3-Butadiene	2010/12/21	NC		%	25
		Trichlorofluoromethane (FREON 11)	2010/12/21	NC		%	25
		Trichlorotrifluoroethane	2010/12/21	NC		%	25
		Ethanol	2010/12/21	NC		%	25
		2-propanol	2010/12/21	NC		%	25
		2-Propanone	2010/12/21	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2010/12/21	NC		%	25
		Methyl Isobutyl Ketone	2010/12/21	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2010/12/21	NC		%	25
		Methyl t-butyl ether (MTBE)	2010/12/21	NC		%	25
		Ethyl Acetate	2010/12/21	NC		%	25
		1,1-Dichloroethylene	2010/12/21	NC		%	25
		cis-1,2-Dichloroethylene	2010/12/21	NC		%	25
		trans-1,2-Dichloroethylene	2010/12/21	NC		%	25
		Methylene Chloride(Dichloromethane)	2010/12/21	NC		%	25
		Chloroform	2010/12/21	NC		%	25
		Carbon Tetrachloride	2010/12/21	NC		%	25
		1,1-Dichloroethane	2010/12/21	NC		%	25
		1,2-Dichloroethane	2010/12/21	NC		%	25
		Ethylene Dibromide	2010/12/21	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB011572

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2366348 MMU	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2010/12/21	NC		%	25
		1,1,2-Trichloroethane	2010/12/21	NC		%	25
		1,1,2,2-Tetrachloroethane	2010/12/21	NC		%	25
		cis-1,3-Dichloropropene	2010/12/21	NC		%	25
		trans-1,3-Dichloropropene	2010/12/21	NC		%	25
		1,2-Dichloropropane	2010/12/21	NC		%	25
		Bromomethane	2010/12/21	NC		%	25
		Bromoform	2010/12/21	NC		%	25
		Bromodichloromethane	2010/12/21	NC		%	25
		Dibromochloromethane	2010/12/21	NC		%	25
		Heptane	2010/12/21	NC		%	25
		Trichloroethylene	2010/12/21	NC		%	25
		Tetrachloroethylene	2010/12/21	NC		%	25
		Benzene	2010/12/21	NC		%	25
		Toluene	2010/12/21	NC		%	25
		Ethylbenzene	2010/12/21	NC		%	25
		p+m-Xylene	2010/12/21	NC		%	25
		o-Xylene	2010/12/21	NC		%	25
		Styrene	2010/12/21	NC		%	25
		1,3,5-Trimethylbenzene	2010/12/21	NC		%	25
		1,2,4-Trimethylbenzene	2010/12/21	NC		%	25
		4-ethyltoluene	2010/12/21	NC		%	25
		Chlorobenzene	2010/12/21	NC		%	25
		Benzyl chloride	2010/12/21	NC		%	25
		1,3-Dichlorobenzene	2010/12/21	NC		%	25
		1,4-Dichlorobenzene	2010/12/21	NC		%	25
		1,2-Dichlorobenzene	2010/12/21	NC		%	25
		1,2,4-Trichlorobenzene	2010/12/21	NC		%	25
		Hexachlorobutadiene	2010/12/21	NC		%	25
		Hexane	2010/12/21	NC		%	25
		Cyclohexane	2010/12/21	NC		%	25
		Tetrahydrofuran	2010/12/21	NC		%	25
		1,4-Dioxane	2010/12/21	NC		%	25
		Xylene (Total)	2010/12/21	NC		%	25

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: 13-16-62-5 W4M Canister ID: 7788
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Dec 15, 2010 @ 9:32 mst
Field Sample ID: LICA VOC/PORT/Dec 16 ,10 Canister Removal Date/Time: Dec 17, 2010 @ 9:40 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
16-Dec-10	16/12/2010 0:00	17/12/2010 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1481	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	21

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

Comments: System leak check prior to sampling. COC # 06451

Technician Signiture: Ting Xu_____

Your C.O.C. #: 06451

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

Report Date: 2011/01/05

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B0I3817****Received: 2010/12/21, 10:25**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2010/12/29	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2010/12/29	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Page 1 of 10

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Maxxam Job #: B013817
 Report Date: 2011/01/05

RESULTS OF ANALYSES OF AIR

Maxxam ID		IF5927	IF5928	
Sampling Date		2010/12/16	2010/12/16	
COC Number		06451	06451	
	Units	LICA VOC /CLS/ DEC 16,10 - 7823	LICA VOC /PORT/ DEC 16,10 - 7788	QC Batch

Volatile Organics				
Pressure on Receipt	psig	22	21	2370613
QC Batch = Quality Control Batch				

Maxxam Job #: B013817
 Report Date: 2011/01/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IF5927			IF5928				
Sampling Date		2010/12/16			2010/12/16				
COC Number		06451			06451				
	Units	LICA VOC /CLS/ DEC 16,10 - 7823	ug/m3	DL (ug/m3)	LICA VOC /PORT/ DEC 16,10 - 7788	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	0.23	1.09	0.934	<0.20	0.20	<0.934	0.934	2370621
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2370621
Propene	ppbv	0.71	1.23	0.516	<0.30	0.30	<0.516	0.516	2370621
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2370621
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2370621
Dichlorodifluoromethane (FREON 12)	ppbv	0.65	3.21	0.989	0.66	0.20	3.24	0.989	2370621
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2370621
Chloromethane	ppbv	0.46	0.954	0.620	0.46	0.30	0.954	0.620	2370621
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2370621
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2370621
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2370621
Trichlorofluoromethane (FREON 11)	ppbv	0.29	1.65	1.12	0.30	0.20	1.70	1.12	2370621
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2370621
Ethanol	ppbv	3.7	6.99	4.33	<2.3	2.3	<4.33	4.33	2370621
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2370621
2-Propanone	ppbv	<0.80	<1.90	1.90	0.90	0.80	2.13	1.90	2370621
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2370621
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2370621
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2370621
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2370621
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2370621
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2370621
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2370621
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2370621
Methylene Chloride(Dichloromethane)	ppbv	0.38	1.31	1.04	0.37	0.30	1.28	1.04	2370621
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2370621
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2370621
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2370621
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2370621
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2370621
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2370621

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B013817
 Report Date: 2011/01/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IF5927			IF5928				
Sampling Date		2010/12/16			2010/12/16				
COC Number		06451			06451				
	Units	LICA VOC /CLS/ DEC 16,10 - 7823	ug/m3	DL (ug/m3)	LICA VOC /PORT/ DEC 16,10 - 7788	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2370621
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2370621
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2370621
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2370621
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2370621
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2370621
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2370621
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2370621
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2370621
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2370621
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2370621
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2370621
Benzene	ppbv	0.36	1.15	0.575	0.19	0.18	0.608	0.575	2370621
Toluene	ppbv	0.52	1.95	0.753	<0.20	0.20	<0.753	0.753	2370621
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2370621
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2370621
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2370621
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2370621
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2370621
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2370621
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2370621
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2370621
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2370621
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2370621
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2370621
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2370621
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2370621
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2370621
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2370621
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.36	0.20	1.25	0.688	2370621
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2370621
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2370621
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2370621
QC Batch = Quality Control Batch									

Maxxam Job #: B013817
 Report Date: 2011/01/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IF5927			IF5928				
Sampling Date		2010/12/16			2010/12/16				
COC Number		06451			06451				
	Units	LICA VOC /CLS/ DEC 16,10 - 7823	ug/m3	DL (ug/m3)	LICA VOC /PORT/ DEC 16,10 - 7788	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	85	N/A	N/A	85		N/A	N/A	2370621
D5-Chlorobenzene	%	81	N/A	N/A	83		N/A	N/A	2370621
Difluorobenzene	%	86	N/A	N/A	86		N/A	N/A	2370621

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

Maxxam Job #: B013817
 Report Date: 2011/01/05

Test Summary

Maxxam ID IF5927 **Collected** 2010/12/16
Sample ID LICA VOC /CLS/ DEC 16,10 - 7823 **Shipped**
Matrix AIR **Received** 2010/12/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2370613	N/A	2010/12/29	LSY
Volatile Organics in Air (TO-15)	GC/MS	2370621	N/A	2010/12/29	LSY

Maxxam ID IF5928 **Collected** 2010/12/16
Sample ID LICA VOC /PORT/ DEC 16,10 - 7788 **Shipped**
Matrix AIR **Received** 2010/12/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2370613	N/A	2010/12/29	LSY
Volatile Organics in Air (TO-15)	GC/MS	2370621	N/A	2010/12/29	LSY

Maxxam Job #: B013817
Report Date: 2011/01/05

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB0I3817

QA/QC Batch			Date Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2370621	LSY	Spiked Blank					
		Bromochloromethane	2010/12/29		103	%	60 - 140
		D5-Chlorobenzene	2010/12/29		102	%	60 - 140
		Difluorobenzene	2010/12/29		105	%	60 - 140
		2,2,4-Trimethylpentane	2010/12/29		89	%	70 - 130
		Carbon Disulfide	2010/12/29		88	%	70 - 130
		Propene	2010/12/29		82	%	70 - 130
		Vinyl Acetate	2010/12/29		91	%	70 - 130
		Vinyl Bromide	2010/12/29		94	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2010/12/29		88	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2010/12/29		102	%	70 - 130
		Chloromethane	2010/12/29		85	%	70 - 130
		Vinyl Chloride	2010/12/29		86	%	70 - 130
		Chloroethane	2010/12/29		82	%	70 - 130
		1,3-Butadiene	2010/12/29		72	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2010/12/29		89	%	70 - 130
		Trichlorotrifluoroethane	2010/12/29		88	%	70 - 130
		Ethanol	2010/12/29		65 (1)	%	70 - 130
		2-propanol	2010/12/29		77	%	70 - 130
		2-Propanone	2010/12/29		91	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2010/12/29		94	%	70 - 130
		Methyl Isobutyl Ketone	2010/12/29		81	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2010/12/29		77	%	70 - 130
		Methyl t-butyl ether (MTBE)	2010/12/29		91	%	70 - 130
		Ethyl Acetate	2010/12/29		87	%	70 - 130
		1,1-Dichloroethylene	2010/12/29		85	%	70 - 130
		cis-1,2-Dichloroethylene	2010/12/29		84	%	70 - 130
		trans-1,2-Dichloroethylene	2010/12/29		88	%	70 - 130
		Methylene Chloride(Dichloromethane)	2010/12/29		75	%	70 - 130
		Chloroform	2010/12/29		89	%	70 - 130
		Carbon Tetrachloride	2010/12/29		110	%	70 - 130
		1,1-Dichloroethane	2010/12/29		84	%	70 - 130
		1,2-Dichloroethane	2010/12/29		87	%	70 - 130
		Ethylene Dibromide	2010/12/29		93	%	70 - 130
		1,1,1-Trichloroethane	2010/12/29		96	%	70 - 130
		1,1,2-Trichloroethane	2010/12/29		91	%	70 - 130
		1,1,2,2-Tetrachloroethane	2010/12/29		78	%	70 - 130
		cis-1,3-Dichloropropene	2010/12/29		96	%	70 - 130
		trans-1,3-Dichloropropene	2010/12/29		101	%	70 - 130
		1,2-Dichloropropane	2010/12/29		84	%	70 - 130
		Bromomethane	2010/12/29		83	%	70 - 130
		Bromoform	2010/12/29		134 (1)	%	70 - 130
		Bromodichloromethane	2010/12/29		105	%	70 - 130
		Dibromochloromethane	2010/12/29		126	%	70 - 130
		Heptane	2010/12/29		83	%	70 - 130
		Trichloroethylene	2010/12/29		90	%	70 - 130
		Tetrachloroethylene	2010/12/29		93	%	70 - 130
		Benzene	2010/12/29		85	%	70 - 130
		Toluene	2010/12/29		88	%	70 - 130
		Ethylbenzene	2010/12/29		88	%	70 - 130
		p+m-Xylene	2010/12/29		87	%	70 - 130
		o-Xylene	2010/12/29		86	%	70 - 130
		Styrene	2010/12/29		89	%	70 - 130
		1,3,5-Trimethylbenzene	2010/12/29		80	%	70 - 130
		1,2,4-Trimethylbenzene	2010/12/29		76	%	70 - 130
		4-ethyltoluene	2010/12/29		84	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB013817

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2370621 LSY	Spiked Blank	Chlorobenzene	2010/12/29		90	%	70 - 130
		Benzyl chloride	2010/12/29		98	%	70 - 130
		1,3-Dichlorobenzene	2010/12/29		81	%	70 - 130
		1,4-Dichlorobenzene	2010/12/29		83	%	70 - 130
		1,2-Dichlorobenzene	2010/12/29		74	%	70 - 130
		1,2,4-Trichlorobenzene	2010/12/29		110	%	70 - 130
		Hexachlorobutadiene	2010/12/29		119	%	70 - 130
		Hexane	2010/12/29		79	%	70 - 130
		Cyclohexane	2010/12/29		86	%	70 - 130
		Tetrahydrofuran	2010/12/29		84	%	70 - 130
		1,4-Dioxane	2010/12/29		72	%	70 - 130
	Method Blank	Bromochloromethane	2010/12/29		92	%	60 - 140
		D5-Chlorobenzene	2010/12/29		90	%	60 - 140
		Difluorobenzene	2010/12/29		93	%	60 - 140
		2,2,4-Trimethylpentane	2010/12/29	<0.20		ppbv	
		Carbon Disulfide	2010/12/29	<0.50		ppbv	
		Propene	2010/12/29	<0.30		ppbv	
		Vinyl Acetate	2010/12/29	<0.20		ppbv	
		Vinyl Bromide	2010/12/29	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2010/12/29	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2010/12/29	<0.17		ppbv	
		Chloromethane	2010/12/29	<0.30		ppbv	
		Vinyl Chloride	2010/12/29	<0.18		ppbv	
		Chloroethane	2010/12/29	<0.30		ppbv	
		1,3-Butadiene	2010/12/29	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2010/12/29	<0.20		ppbv	
		Trichlorotrifluoroethane	2010/12/29	<0.15		ppbv	
		Ethanol	2010/12/29	<2.3		ppbv	
		2-propanol	2010/12/29	<3.0		ppbv	
		2-Propanone	2010/12/29	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2010/12/29	<3.0		ppbv	
		Methyl Isobutyl Ketone	2010/12/29	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2010/12/29	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2010/12/29	<0.20		ppbv	
		Ethyl Acetate	2010/12/29	<2.2		ppbv	
		1,1-Dichloroethylene	2010/12/29	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2010/12/29	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2010/12/29	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2010/12/29	0.34, RDL=0.30		ppbv	
		Chloroform	2010/12/29	<0.15		ppbv	
		Carbon Tetrachloride	2010/12/29	<0.30		ppbv	
		1,1-Dichloroethane	2010/12/29	<0.20		ppbv	
		1,2-Dichloroethane	2010/12/29	<0.20		ppbv	
		Ethylene Dibromide	2010/12/29	<0.17		ppbv	
		1,1,1-Trichloroethane	2010/12/29	<0.30		ppbv	
		1,1,2-Trichloroethane	2010/12/29	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2010/12/29	<0.20		ppbv	
		cis-1,3-Dichloropropene	2010/12/29	<0.18		ppbv	
		trans-1,3-Dichloropropene	2010/12/29	<0.17		ppbv	
		1,2-Dichloropropane	2010/12/29	<0.40		ppbv	
		Bromomethane	2010/12/29	<0.18		ppbv	
		Bromoform	2010/12/29	<0.20		ppbv	
		Bromodichloromethane	2010/12/29	<0.20		ppbv	
		Dibromochloromethane	2010/12/29	<0.20		ppbv	
		Heptane	2010/12/29	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB013817

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2370621 LSY	Method Blank	Trichloroethylene	2010/12/29	<0.30		ppbv	
		Tetrachloroethylene	2010/12/29	<0.20		ppbv	
		Benzene	2010/12/29	<0.18		ppbv	
		Toluene	2010/12/29	<0.20		ppbv	
		Ethylbenzene	2010/12/29	<0.20		ppbv	
		p+m-Xylene	2010/12/29	<0.37		ppbv	
		o-Xylene	2010/12/29	<0.20		ppbv	
		Styrene	2010/12/29	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2010/12/29	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2010/12/29	<0.50		ppbv	
		4-ethyltoluene	2010/12/29	<2.2		ppbv	
		Chlorobenzene	2010/12/29	<0.20		ppbv	
		Benzyl chloride	2010/12/29	<1.0		ppbv	
		1,3-Dichlorobenzene	2010/12/29	<0.40		ppbv	
		1,4-Dichlorobenzene	2010/12/29	<0.40		ppbv	
		1,2-Dichlorobenzene	2010/12/29	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2010/12/29	<2.0		ppbv	
		Hexachlorobutadiene	2010/12/29	<3.0		ppbv	
		Hexane	2010/12/29	<0.30		ppbv	
		Cyclohexane	2010/12/29	<0.20		ppbv	
		Tetrahydrofuran	2010/12/29	<0.40		ppbv	
		1,4-Dioxane	2010/12/29	<2.0		ppbv	
		Xylene (Total)	2010/12/29	<0.60		ppbv	

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: 13-16-62-5 W4M Canister ID: 7910
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Dec 21, 2010 @ 10:47 mst
Field Sample ID: LICA VOC/PORT/Dec 22 ,10 Canister Removal Date/Time: Dec 23, 2010 @ 9:53 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
22-Dec-10	22/12/2010 0:00	23/12/2010 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1481	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	20

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

Comments: System leak check prior to sampling. COC # 2337

Technician Signiture: Ting Xu_____



Your C.O.C. #: 2337

Attention: Michael Bisaga

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

Report Date: 2011/01/07

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0I6171

Received: 2010/12/29, 08:45

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/01/05	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/01/05	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Maxxam Job #: B0I6171
 Report Date: 2011/01/07

RESULTS OF ANALYSES OF AIR

Maxxam ID		IG6160	IG6161	
Sampling Date		2010/12/22	2010/12/22	
COC Number		2337	2337	
	Units	LICA VOC/CLS/DEC 22,2010 - 7832	LICA VOC/PORT/DEC 22,2010 - 7910	QC Batch

Volatile Organics				
Pressure on Receipt	psig	21	21	2374448

QC Batch = Quality Control Batch

Maxxam Job #: B016171
 Report Date: 2011/01/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IG6160			IG6161				
Sampling Date		2010/12/22			2010/12/22				
COC Number		2337			2337				
	Units	LICA VOC/CLS/DEC 22,2010 - 7832	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 22,2010 - 7910	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2374464
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2374464
Propene	ppbv	0.89	1.53	0.516	0.93	0.30	1.59	0.516	2374464
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2374464
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2374464
Dichlorodifluoromethane (FREON 12)	ppbv	0.66	3.27	0.989	0.66	0.20	3.26	0.989	2374464
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2374464
Chloromethane	ppbv	0.49	1.00	0.620	0.52	0.30	1.08	0.620	2374464
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2374464
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2374464
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2374464
Trichlorofluoromethane (FREON 11)	ppbv	0.30	1.71	1.12	0.32	0.20	1.77	1.12	2374464
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2374464
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2374464
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2374464
2-Propanone	ppbv	1.16	2.76	1.90	1.23	0.80	2.92	1.90	2374464
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2374464
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2374464
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2374464
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2374464
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2374464
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2374464
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2374464
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2374464
Methylene Chloride(Dichloromethane)	ppbv	0.40	1.38	1.04	0.41	0.30	1.43	1.04	2374464
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2374464
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2374464
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2374464
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2374464
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2374464
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2374464

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B016171
 Report Date: 2011/01/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IG6160			IG6161					
Sampling Date		2010/12/22			2010/12/22					
COC Number		2337			2337					
	Units	LICA VOC/CLS/DEC 22,2010 - 7832	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 22,2010 - 7910	RDL	ug/m3	DL (ug/m3)	QC Batch	
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2374464	
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2374464	
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2374464	
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2374464	
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2374464	
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2374464	
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2374464	
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2374464	
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2374464	
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2374464	
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2374464	
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2374464	
Benzene	ppbv	0.21	0.665	0.575	<0.18	0.18	<0.575	0.575	2374464	
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2374464	
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2374464	
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2374464	
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2374464	
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2374464	
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2374464	
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2374464	
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2374464	
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2374464	
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2374464	
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2374464	
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2374464	
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2374464	
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2374464	
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2374464	
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2374464	
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2374464	
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2374464	
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2374464	
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2374464	
QC Batch = Quality Control Batch										

Maxxam Job #: B016171
 Report Date: 2011/01/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IG6160			IG6161				
Sampling Date		2010/12/22			2010/12/22				
COC Number		2337			2337				
	Units	LICA	ug/m3	DL (ug/m3)	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/CLS/DEC			VOC/PORT/DEC				
		22,2010 - 7832			22,2010 - 7910				

Surrogate Recovery (%)									
Bromochloromethane	%	87	N/A	N/A	86		N/A	N/A	2374464
D5-Chlorobenzene	%	83	N/A	N/A	83		N/A	N/A	2374464
Difluorobenzene	%	88	N/A	N/A	87		N/A	N/A	2374464

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

Maxxam Job #: B0I6171
 Report Date: 2011/01/07

Test Summary

Maxxam ID IG6160 **Collected** 2010/12/22
Sample ID LICA VOC/CLS/DEC 22,2010 - 7832 **Shipped**
Matrix AIR **Received** 2010/12/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2374448	N/A	2011/01/05	LSY
Volatile Organics in Air (TO-15)	GC/MS	2374464	N/A	2011/01/05	LSY

Maxxam ID IG6161 **Collected** 2010/12/22
Sample ID LICA VOC/PORT/DEC 22,2010 - 7910 **Shipped**
Matrix AIR **Received** 2010/12/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2374448	N/A	2011/01/05	LSY
Volatile Organics in Air (TO-15)	GC/MS	2374464	N/A	2011/01/05	LSY

Maxxam Job #: B016171
Report Date: 2011/01/07

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB016171

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2374464 LSY	Spiked Blank	Bromochloromethane	2011/01/05		99	%	60 - 140
		D5-Chlorobenzene	2011/01/05		98	%	60 - 140
		Difluorobenzene	2011/01/05		100	%	60 - 140
		2,2,4-Trimethylpentane	2011/01/05		81	%	70 - 130
		Carbon Disulfide	2011/01/05		81	%	70 - 130
		Propene	2011/01/05		77	%	70 - 130
		Vinyl Acetate	2011/01/05		86	%	70 - 130
		Vinyl Bromide	2011/01/05		86	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/01/05		86	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/01/05		97	%	70 - 130
		Chloromethane	2011/01/05		82	%	70 - 130
		Vinyl Chloride	2011/01/05		81	%	70 - 130
		Chloroethane	2011/01/05		78	%	70 - 130
		1,3-Butadiene	2011/01/05		69 (1)	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/01/05		87	%	70 - 130
		Trichlorotrifluoroethane	2011/01/05		83	%	70 - 130
		Ethanol	2011/01/05		71	%	70 - 130
		2-propanol	2011/01/05		77	%	70 - 130
		2-Propanone	2011/01/05		80	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/01/05		86	%	70 - 130
		Methyl Isobutyl Ketone	2011/01/05		76	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/01/05		74	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/01/05		84	%	70 - 130
		Ethyl Acetate	2011/01/05		82	%	70 - 130
		1,1-Dichloroethylene	2011/01/05		82	%	70 - 130
		cis-1,2-Dichloroethylene	2011/01/05		81	%	70 - 130
		trans-1,2-Dichloroethylene	2011/01/05		83	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/01/05		73	%	70 - 130
		Chloroform	2011/01/05		85	%	70 - 130
		Carbon Tetrachloride	2011/01/05		109	%	70 - 130
		1,1-Dichloroethane	2011/01/05		80	%	70 - 130
		1,2-Dichloroethane	2011/01/05		85	%	70 - 130
		Ethylene Dibromide	2011/01/05		87	%	70 - 130
		1,1,1-Trichloroethane	2011/01/05		93	%	70 - 130
		1,1,2-Trichloroethane	2011/01/05		85	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/01/05		73	%	70 - 130
		cis-1,3-Dichloropropene	2011/01/05		92	%	70 - 130
		trans-1,3-Dichloropropene	2011/01/05		97	%	70 - 130
		1,2-Dichloropropane	2011/01/05		80	%	70 - 130
		Bromomethane	2011/01/05		77	%	70 - 130
		Bromoform	2011/01/05		126	%	70 - 130
		Bromodichloromethane	2011/01/05		101	%	70 - 130
		Dibromochloromethane	2011/01/05		121	%	70 - 130
		Heptane	2011/01/05		79	%	70 - 130
		Trichloroethylene	2011/01/05		84	%	70 - 130
		Tetrachloroethylene	2011/01/05		86	%	70 - 130
		Benzene	2011/01/05		80	%	70 - 130
		Toluene	2011/01/05		83	%	70 - 130
		Ethylbenzene	2011/01/05		81	%	70 - 130
		p+m-Xylene	2011/01/05		80	%	70 - 130
		o-Xylene	2011/01/05		80	%	70 - 130
		Styrene	2011/01/05		83	%	70 - 130
		1,3,5-Trimethylbenzene	2011/01/05		75	%	70 - 130
		1,2,4-Trimethylbenzene	2011/01/05		71	%	70 - 130
		4-ethyltoluene	2011/01/05		78	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB016171

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2374464 LSY	Spiked Blank	Chlorobenzene	2011/01/05		83	%	70 - 130
		Benzyl chloride	2011/01/05		96	%	70 - 130
		1,3-Dichlorobenzene	2011/01/05		76	%	70 - 130
		1,4-Dichlorobenzene	2011/01/05		78	%	70 - 130
		1,2-Dichlorobenzene	2011/01/05		69 (1)	%	70 - 130
		1,2,4-Trichlorobenzene	2011/01/05		96	%	70 - 130
		Hexachlorobutadiene	2011/01/05		101	%	70 - 130
		Hexane	2011/01/05		74	%	70 - 130
		Cyclohexane	2011/01/05		80	%	70 - 130
		Tetrahydrofuran	2011/01/05		78	%	70 - 130
		1,4-Dioxane	2011/01/05		72	%	70 - 130
	Method Blank	Bromochloromethane	2011/01/05		87	%	60 - 140
		D5-Chlorobenzene	2011/01/05		84	%	60 - 140
		Difluorobenzene	2011/01/05		88	%	60 - 140
		2,2,4-Trimethylpentane	2011/01/05	<0.20		ppbv	
		Carbon Disulfide	2011/01/05	<0.50		ppbv	
		Propene	2011/01/05	<0.30		ppbv	
		Vinyl Acetate	2011/01/05	<0.20		ppbv	
		Vinyl Bromide	2011/01/05	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/01/05	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/01/05	<0.17		ppbv	
		Chloromethane	2011/01/05	<0.30		ppbv	
		Vinyl Chloride	2011/01/05	<0.18		ppbv	
		Chloroethane	2011/01/05	<0.30		ppbv	
		1,3-Butadiene	2011/01/05	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/01/05	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/01/05	<0.15		ppbv	
		Ethanol	2011/01/05	<2.3		ppbv	
		2-propanol	2011/01/05	<3.0		ppbv	
		2-Propanone	2011/01/05	0.93, RDL=0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/01/05	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/01/05	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/01/05	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/01/05	<0.20		ppbv	
		Ethyl Acetate	2011/01/05	<2.2		ppbv	
		1,1-Dichloroethylene	2011/01/05	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/01/05	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/01/05	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/01/05	0.35, RDL=0.30		ppbv	
		Chloroform	2011/01/05	<0.15		ppbv	
		Carbon Tetrachloride	2011/01/05	<0.30		ppbv	
		1,1-Dichloroethane	2011/01/05	<0.20		ppbv	
		1,2-Dichloroethane	2011/01/05	<0.20		ppbv	
		Ethylene Dibromide	2011/01/05	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/01/05	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/01/05	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/01/05	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/01/05	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/01/05	<0.17		ppbv	
		1,2-Dichloropropane	2011/01/05	<0.40		ppbv	
		Bromomethane	2011/01/05	<0.18		ppbv	
		Bromoform	2011/01/05	<0.20		ppbv	
		Bromodichloromethane	2011/01/05	<0.20		ppbv	
		Dibromochloromethane	2011/01/05	<0.20		ppbv	
		Heptane	2011/01/05	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB016171

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2374464 LSY	Method Blank	Trichloroethylene	2011/01/05	<0.30		ppbv	
		Tetrachloroethylene	2011/01/05	<0.20		ppbv	
		Benzene	2011/01/05	<0.18		ppbv	
		Toluene	2011/01/05	<0.20		ppbv	
		Ethylbenzene	2011/01/05	<0.20		ppbv	
		p+m-Xylene	2011/01/05	<0.37		ppbv	
		o-Xylene	2011/01/05	<0.20		ppbv	
		Styrene	2011/01/05	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/01/05	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/01/05	<0.50		ppbv	
		4-ethyltoluene	2011/01/05	<2.2		ppbv	
		Chlorobenzene	2011/01/05	<0.20		ppbv	
		Benzyl chloride	2011/01/05	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/01/05	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/01/05	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/01/05	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/01/05	<2.0		ppbv	
		Hexachlorobutadiene	2011/01/05	<3.0		ppbv	
		Hexane	2011/01/05	<0.30		ppbv	
		Cyclohexane	2011/01/05	<0.20		ppbv	
		Tetrahydrofuran	2011/01/05	<0.40		ppbv	
		1,4-Dioxane	2011/01/05	<2.0		ppbv	
		Xylene (Total)	2011/01/05	<0.60		ppbv	

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: 13-16-62-5 W4M Canister ID: 7821
Station ID: Lica 33 (Portable) Canister Installation Date/Time: Dec 23, 2010 @ 11:42 mst
Field Sample ID: LICA VOC/PORT/Dec 28 ,10 Canister Removal Date/Time: Dec 29, 2010 @ 10:09 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
28-Dec-10	28/12/2010 0:00	29/12/2010 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1481	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	21

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

Comments: System leak check prior to sampling. COC # 06479

Technician Signiture: Ting Xu

Your C.O.C. #: 06479

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2011/01/07****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B100032****Received: 2011/01/04, 08:55**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/01/05	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/01/05	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

=====

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

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Total cover pages: 1

Maxxam Job #: B100032
 Report Date: 2011/01/07

RESULTS OF ANALYSES OF AIR

Maxxam ID		IH2137	IH2138	
Sampling Date		2010/12/28	2010/12/28	
COC Number		06479	06479	
	Units	LICA VOC\CLS\DEC 28,10 - 7813	LICA VOC\PORT\ DEC 28,10 - 7821	QC Batch

Volatile Organics				
Pressure on Receipt	psig	22	21	2374448
QC Batch = Quality Control Batch				

Maxxam Job #: B100032
 Report Date: 2011/01/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IH2137			IH2138				
Sampling Date		2010/12/28			2010/12/28				
COC Number		06479			06479				
	Units	LICA VOC\CLS\DEC 28,10 - 7813	ug/m3	DL (ug/m3)	LICA VOC\PORT\ DEC 28,10 - 7821	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2374464
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2374464
Propene	ppbv	1.21	2.08	0.516	0.95	0.30	1.63	0.516	2374464
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2374464
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2374464
Dichlorodifluoromethane (FREON 12)	ppbv	0.66	3.25	0.989	0.67	0.20	3.33	0.989	2374464
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2374464
Chloromethane	ppbv	0.49	1.02	0.620	0.54	0.30	1.11	0.620	2374464
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2374464
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2374464
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2374464
Trichlorofluoromethane (FREON 11)	ppbv	0.31	1.73	1.12	0.32	0.20	1.79	1.12	2374464
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2374464
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2374464
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2374464
2-Propanone	ppbv	1.07	2.53	1.90	<0.80	0.80	<1.90	1.90	2374464
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2374464
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2374464
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2374464
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2374464
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2374464
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2374464
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2374464
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2374464
Methylene Chloride(Dichloromethane)	ppbv	0.42	1.45	1.04	0.42	0.30	1.46	1.04	2374464
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2374464
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2374464
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2374464
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2374464
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2374464

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B100032
 Report Date: 2011/01/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IH2137			IH2138				
Sampling Date		2010/12/28			2010/12/28				
COC Number		06479			06479				
	Units	LICA VOC\CLS\DEC 28,10 - 7813	ug/m3	DL (ug/m3)	LICA VOC\PORT\ DEC 28,10 - 7821	RDL	ug/m3	DL (ug/m3)	QC Batch

1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2374464
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2374464
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2374464
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2374464
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2374464
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2374464
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2374464
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2374464
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2374464
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2374464
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2374464
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2374464
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2374464
Benzene	ppbv	<0.18	<0.575	0.575	0.18	0.18	0.579	0.575	2374464
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2374464
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2374464
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2374464
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2374464
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2374464
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2374464
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2374464
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2374464
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2374464
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2374464
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2374464
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2374464
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2374464
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2374464
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2374464
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2374464
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.24	0.20	0.837	0.688	2374464
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2374464

QC Batch = Quality Control Batch

Maxxam Job #: B100032
 Report Date: 2011/01/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IH2137			IH2138				
Sampling Date		2010/12/28			2010/12/28				
COC Number		06479			06479				
	Units	LICA VOC\CLS\DEC 28,10 - 7813	ug/m3	DL (ug/m3)	LICA VOC\PORT\ DEC 28,10 - 7821	RDL	ug/m3	DL (ug/m3)	QC Batch

1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2374464
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2374464
Surrogate Recovery (%)									
Bromochloromethane	%	86	N/A	N/A	85		N/A	N/A	2374464
D5-Chlorobenzene	%	84	N/A	N/A	81		N/A	N/A	2374464
Difluorobenzene	%	87	N/A	N/A	86		N/A	N/A	2374464

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

Maxxam Job #: B100032
 Report Date: 2011/01/07

Test Summary

Maxxam ID	IH2137	Collected	2010/12/28
Sample ID	LICA VOC\CLS\DEC 28,10 - 7813	Shipped	
Matrix	AIR	Received	2011/01/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2374448	N/A	2011/01/05	LSY
Volatile Organics in Air (TO-15)	GC/MS	2374464	N/A	2011/01/05	LSY

Maxxam ID	IH2138	Collected	2010/12/28
Sample ID	LICA VOC\PORT\ DEC 28,10 - 7821	Shipped	
Matrix	AIR	Received	2011/01/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2374448	N/A	2011/01/05	LSY
Volatile Organics in Air (TO-15)	GC/MS	2374464	N/A	2011/01/05	LSY

Maxxam Job #: B100032
Report Date: 2011/01/07

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB100032

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2374464 LSY	Spiked Blank	Bromochloromethane	2011/01/05		99	%	60 - 140
		D5-Chlorobenzene	2011/01/05		98	%	60 - 140
		Difluorobenzene	2011/01/05		100	%	60 - 140
		2,2,4-Trimethylpentane	2011/01/05		81	%	70 - 130
		Carbon Disulfide	2011/01/05		81	%	70 - 130
		Propene	2011/01/05		77	%	70 - 130
		Vinyl Acetate	2011/01/05		86	%	70 - 130
		Vinyl Bromide	2011/01/05		86	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/01/05		86	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/01/05		97	%	70 - 130
		Chloromethane	2011/01/05		82	%	70 - 130
		Vinyl Chloride	2011/01/05		81	%	70 - 130
		Chloroethane	2011/01/05		78	%	70 - 130
		1,3-Butadiene	2011/01/05		69 (1)	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/01/05		87	%	70 - 130
		Trichlorotrifluoroethane	2011/01/05		83	%	70 - 130
		Ethanol	2011/01/05		71	%	70 - 130
		2-propanol	2011/01/05		77	%	70 - 130
		2-Propanone	2011/01/05		80	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/01/05		86	%	70 - 130
		Methyl Isobutyl Ketone	2011/01/05		76	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/01/05		74	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/01/05		84	%	70 - 130
		Ethyl Acetate	2011/01/05		82	%	70 - 130
		1,1-Dichloroethylene	2011/01/05		82	%	70 - 130
		cis-1,2-Dichloroethylene	2011/01/05		81	%	70 - 130
		trans-1,2-Dichloroethylene	2011/01/05		83	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/01/05		73	%	70 - 130
		Chloroform	2011/01/05		85	%	70 - 130
		Carbon Tetrachloride	2011/01/05		109	%	70 - 130
		1,1-Dichloroethane	2011/01/05		80	%	70 - 130
		1,2-Dichloroethane	2011/01/05		85	%	70 - 130
		Ethylene Dibromide	2011/01/05		87	%	70 - 130
		1,1,1-Trichloroethane	2011/01/05		93	%	70 - 130
		1,1,2-Trichloroethane	2011/01/05		85	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/01/05		73	%	70 - 130
		cis-1,3-Dichloropropene	2011/01/05		92	%	70 - 130
		trans-1,3-Dichloropropene	2011/01/05		97	%	70 - 130
		1,2-Dichloropropane	2011/01/05		80	%	70 - 130
		Bromomethane	2011/01/05		77	%	70 - 130
		Bromoform	2011/01/05		126	%	70 - 130
		Bromodichloromethane	2011/01/05		101	%	70 - 130
		Dibromochloromethane	2011/01/05		121	%	70 - 130
		Heptane	2011/01/05		79	%	70 - 130
		Trichloroethylene	2011/01/05		84	%	70 - 130
		Tetrachloroethylene	2011/01/05		86	%	70 - 130
		Benzene	2011/01/05		80	%	70 - 130
		Toluene	2011/01/05		83	%	70 - 130
		Ethylbenzene	2011/01/05		81	%	70 - 130
		p+m-Xylene	2011/01/05		80	%	70 - 130
		o-Xylene	2011/01/05		80	%	70 - 130
		Styrene	2011/01/05		83	%	70 - 130
		1,3,5-Trimethylbenzene	2011/01/05		75	%	70 - 130
		1,2,4-Trimethylbenzene	2011/01/05		71	%	70 - 130
		4-ethyltoluene	2011/01/05		78	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB100032

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2374464 LSY	Spiked Blank	Chlorobenzene	2011/01/05		83	%	70 - 130
		Benzyl chloride	2011/01/05		96	%	70 - 130
		1,3-Dichlorobenzene	2011/01/05		76	%	70 - 130
		1,4-Dichlorobenzene	2011/01/05		78	%	70 - 130
		1,2-Dichlorobenzene	2011/01/05		69 (1)	%	70 - 130
		1,2,4-Trichlorobenzene	2011/01/05		96	%	70 - 130
		Hexachlorobutadiene	2011/01/05		101	%	70 - 130
		Hexane	2011/01/05		74	%	70 - 130
		Cyclohexane	2011/01/05		80	%	70 - 130
		Tetrahydrofuran	2011/01/05		78	%	70 - 130
		1,4-Dioxane	2011/01/05		72	%	70 - 130
	Method Blank	Bromochloromethane	2011/01/05		87	%	60 - 140
		D5-Chlorobenzene	2011/01/05		84	%	60 - 140
		Difluorobenzene	2011/01/05		88	%	60 - 140
		2,2,4-Trimethylpentane	2011/01/05	<0.20		ppbv	
		Carbon Disulfide	2011/01/05	<0.50		ppbv	
		Propene	2011/01/05	<0.30		ppbv	
		Vinyl Acetate	2011/01/05	<0.20		ppbv	
		Vinyl Bromide	2011/01/05	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/01/05	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/01/05	<0.17		ppbv	
		Chloromethane	2011/01/05	<0.30		ppbv	
		Vinyl Chloride	2011/01/05	<0.18		ppbv	
		Chloroethane	2011/01/05	<0.30		ppbv	
		1,3-Butadiene	2011/01/05	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/01/05	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/01/05	<0.15		ppbv	
		Ethanol	2011/01/05	<2.3		ppbv	
		2-propanol	2011/01/05	<3.0		ppbv	
		2-Propanone	2011/01/05	0.93, RDL=0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/01/05	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/01/05	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/01/05	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/01/05	<0.20		ppbv	
		Ethyl Acetate	2011/01/05	<2.2		ppbv	
		1,1-Dichloroethylene	2011/01/05	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/01/05	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/01/05	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/01/05	0.35, RDL=0.30		ppbv	
		Chloroform	2011/01/05	<0.15		ppbv	
		Carbon Tetrachloride	2011/01/05	<0.30		ppbv	
		1,1-Dichloroethane	2011/01/05	<0.20		ppbv	
		1,2-Dichloroethane	2011/01/05	<0.20		ppbv	
		Ethylene Dibromide	2011/01/05	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/01/05	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/01/05	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/01/05	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/01/05	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/01/05	<0.17		ppbv	
		1,2-Dichloropropane	2011/01/05	<0.40		ppbv	
		Bromomethane	2011/01/05	<0.18		ppbv	
		Bromoform	2011/01/05	<0.20		ppbv	
		Bromodichloromethane	2011/01/05	<0.20		ppbv	
		Dibromochloromethane	2011/01/05	<0.20		ppbv	
		Heptane	2011/01/05	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB100032

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2374464 LSY	Method Blank	Trichloroethylene	2011/01/05	<0.30		ppbv	
		Tetrachloroethylene	2011/01/05	<0.20		ppbv	
		Benzene	2011/01/05	<0.18		ppbv	
		Toluene	2011/01/05	<0.20		ppbv	
		Ethylbenzene	2011/01/05	<0.20		ppbv	
		p+m-Xylene	2011/01/05	<0.37		ppbv	
		o-Xylene	2011/01/05	<0.20		ppbv	
		Styrene	2011/01/05	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/01/05	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/01/05	<0.50		ppbv	
		4-ethyltoluene	2011/01/05	<2.2		ppbv	
		Chlorobenzene	2011/01/05	<0.20		ppbv	
		Benzyl chloride	2011/01/05	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/01/05	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/01/05	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/01/05	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/01/05	<2.0		ppbv	
		Hexachlorobutadiene	2011/01/05	<3.0		ppbv	
		Hexane	2011/01/05	<0.30		ppbv	
		Cyclohexane	2011/01/05	<0.20		ppbv	
		Tetrahydrofuran	2011/01/05	<0.40		ppbv	
		1,4-Dioxane	2011/01/05	<2.0		ppbv	
		Xylene (Total)	2011/01/05	<0.60		ppbv	

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

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

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

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

Polycyclic Aromatic Hydrocarbons Laboratory Analysis

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: 13-16-62-5 W4M
Station ID: Lica 33 (Portable)
Field Sample ID: LICA PUF/PORT/Dec 04, 10

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Dec 03, 2010 @ 10:34 mst
Removal Date/Time: Dec 06, 2010 @ 9:54 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
04-Dec-10	04/12/2010 0:00	05/12/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
03-Dec-10	06-Dec-10	14-Dec-10	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 29-Mar-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
719	229	-11.6	330.36

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

Comments: COC # 2336

GB0D9096 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Dec 04, 10

- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 2336

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

Report Date: 2010/12/21

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B0H6923****Received: 2010/12/08, 09:20**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2010/12/09	2010/12/18	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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

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Total cover pages: 1

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Maxxam Job #: B0H6923
 Report Date: 2010/12/21

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

Maxxam ID		IC2214		IC2215		
Sampling Date		2010/12/04		2010/12/04		
COC Number		2336		2336		
	Units	LICA PUFF+QFF/CLS/DEC 04, 10	RDL	LICA PUFF+QFF/PORT/DEC 04, 10	RDL	QC Batch

Semivolatile Organics						
1-Methylnaphthalene	ug	0.78	0.10	0.73	0.10	2354921
1-Methylphenanthrene	ug	<0.10	0.10	<0.10	0.10	2354921
2-Chloronaphthalene	ug	<0.10	0.10	<0.10	0.10	2354921
2-Methylantracene	ug	<0.10	0.10	<0.10	0.10	2354921
2-Methylnaphthalene	ug	1.32	0.10	1.07	0.10	2354921
3-Methylcholanthrene	ug	<2.0	2.0	<2.0	2.0	2354921
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	<0.10	0.10	2354921
9,10-Dimethylantracene	ug	<0.40	0.40	<0.40	0.40	2354921
Acenaphthene	ug	0.096	0.050	<0.10	0.10	2354921
Acenaphthylene	ug	0.104	0.050	0.162	0.050	2354921
Anthracene	ug	<0.050	0.050	<0.050	0.050	2354921
Benzo(a)anthracene	ug	<0.050	0.050	<0.050	0.050	2354921
Benzo(a)fluorene	ug	<0.10	0.10	<0.10	0.10	2354921
Benzo(a)pyrene	ug	<0.050	0.050	<0.050	0.050	2354921
Benzo(b)fluoranthene	ug	0.066	0.050	0.072	0.050	2354921
Benzo(b)fluorene	ug	<0.10	0.10	<0.10	0.10	2354921
Benzo(e)pyrene	ug	<0.10	0.10	<0.10	0.10	2354921
Benzo(g,h,i)perylene	ug	<0.050	0.050	<0.050	0.050	2354921
Benzo(k)fluoranthene	ug	<0.050	0.050	<0.050	0.050	2354921
Biphenyl	ug	1.10	0.10	1.30	0.10	2354921
Chrysene	ug	0.068	0.050	0.090	0.050	2354921
Coronene	ug	<0.10	0.10	<0.10	0.10	2354921
Dibenz(a,h)anthracene	ug	<0.050	0.050	<0.050	0.050	2354921
Dibenzo(a,e)pyrene	ug	<0.20	0.20	<0.20	0.20	2354921
Fluoranthene	ug	0.138	0.050	0.166	0.050	2354921
Fluorene	ug	0.360	0.050	0.400	0.050	2354921
Indeno(1,2,3-cd)pyrene	ug	<0.050	0.050	<0.050	0.050	2354921
m-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2354921
Naphthalene	ug	1.91	0.072	1.78	0.072	2354921
o-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2354921
Perylene	ug	<0.10	0.10	<0.10	0.10	2354921

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B0H6923
 Report Date: 2010/12/21

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

Maxxam ID		IC2214		IC2215		
Sampling Date		2010/12/04		2010/12/04		
COC Number		2336		2336		
	Units	LICA PUFF+QFF/CLS/DEC 04, 10	RDL	LICA PUFF+QFF/PORT/DEC 04, 10	RDL	QC Batch

Phenanthrene	ug	0.644	0.050	0.742	0.050	2354921
p-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2354921
Pyrene	ug	0.078	0.050	0.096	0.050	2354921
Quinoline	ug	<0.40	0.40	<0.40	0.40	2354921
Tetralin	ug	<0.10	0.10	<0.10	0.10	2354921
Surrogate Recovery (%)						
D10-2-Methylnaphthalene	%	72		74		2354921
D10-Fluoranthene	%	88		88		2354921
D10-Fluorene (FS)	%	66		64		2354921
D10-Phenanthrene	%	80		80		2354921
D12-Benzo(a)anthracene	%	90		88		2354921
D12-Benzo(a)pyrene	%	88		86		2354921
D12-Benzo(b)fluoranthene	%	86		84		2354921
D12-Benzo(ghi)perylene	%	88		88		2354921
D12-Benzo(k)fluoranthene	%	86		82		2354921
D12-Chrysene	%	86		82		2354921
D12-Indeno(1,2,3-cd)pyrene	%	86		86		2354921
D12-Perylene	%	88		84		2354921
D14-Dibenzo(a,h)anthracene	%	86		86		2354921
D14-Terphenyl (FS)	%	87		86		2354921
D8-Acenaphthylene	%	76		78		2354921
D8-Naphthalene	%	70		72		2354921

QC Batch = Quality Control Batch

Maxxam Job #: B0H6923
 Report Date: 2010/12/21

Test Summary

Maxxam ID IC2214 **Collected** 2010/12/04
Sample ID LICA PUFF+QFF/CLS/DEC 04, 10 **Shipped**
Matrix PUF AND FILTER **Received** 2010/12/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2354921	2010/12/09	2010/12/18	JIW

Maxxam ID IC2215 **Collected** 2010/12/04
Sample ID LICA PUFF+QFF/PORT/DEC 04, 10 **Shipped**
Matrix PUF AND FILTER **Received** 2010/12/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2354921	2010/12/09	2010/12/18	JIW

Maxxam Job #: B0H6923
Report Date: 2010/12/21

GENERAL COMMENTS

PAHMS-F(WS:2354921)

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

9.10-Dimethylanthracene and 7,12-Dimethylbenzo(a)anthracene are above 25% RSD in continuing calibration.

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

Sample IC2214-01: PAHMS-F(WS:2354921)

Since Triphenylene co-elutes with Chrysene, the maximum possible value for this compound would be 0.068ug, which is the value reported for Chrysene.

Since Dibenzo(a,c) anthracene co-elutes with Dibenzo(a,h) anthracene it would have a value below the estimated mdl.

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

Sample IC2215-01: PAHMS-F(WS:2354921)

Since Triphenylene co-elutes with Chrysene, the maximum possible value for this compound would be 0.09ug, which is the value reported for Chrysene.

Since Dibenzo(a,c) anthracene co-elutes with Dibenzo(a,h) anthracene it would have a value below the estimated mdl.

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

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

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB0H6923

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2354921 JIW	Spiked Blank	D10-2-Methylnaphthalene	2010/12/18		78	%	50 - 150
		D10-Fluoranthene	2010/12/18		88	%	50 - 150
		D10-Phenanthrene	2010/12/18		80	%	50 - 150
		D12-Benzo(a)anthracene	2010/12/18		84	%	50 - 150
		D12-Benzo(a)pyrene	2010/12/18		88	%	50 - 150
		D12-Benzo(b)fluoranthene	2010/12/18		84	%	50 - 150
		D12-Benzo(ghi)perylene	2010/12/18		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2010/12/18		86	%	50 - 150
		D12-Chrysene	2010/12/18		86	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2010/12/18		84	%	50 - 150
		D12-Perylene	2010/12/18		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2010/12/18		82	%	50 - 150
		D8-Acenaphthylene	2010/12/18		80	%	50 - 150
		D8-Naphthalene	2010/12/18		78	%	50 - 150
		Acenaphthene	2010/12/18		73	%	60 - 130
	RPD	Acenaphthene	2010/12/18	5.6		%	50
	Spiked Blank	Acenaphthylene	2010/12/18		78	%	60 - 130
	RPD	Acenaphthylene	2010/12/18	6.5		%	50
	Spiked Blank	Anthracene	2010/12/18		76	%	60 - 130
	RPD	Anthracene	2010/12/18	3.4		%	50
	Spiked Blank	Benzo(a)anthracene	2010/12/18		72	%	60 - 130
	RPD	Benzo(a)anthracene	2010/12/18	5.1		%	50
	Spiked Blank	Benzo(a)pyrene	2010/12/18		66	%	60 - 130
	RPD	Benzo(a)pyrene	2010/12/18	5.2		%	50
	Spiked Blank	Benzo(b)fluoranthene	2010/12/18		72	%	60 - 130
	RPD	Benzo(b)fluoranthene	2010/12/18	7.1		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2010/12/18		77	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2010/12/18	6.3		%	50
	Spiked Blank	Benzo(k)fluoranthene	2010/12/18		82	%	60 - 130
	RPD	Benzo(k)fluoranthene	2010/12/18	6.6		%	50
	Spiked Blank	Chrysene	2010/12/18		80	%	60 - 130
	RPD	Chrysene	2010/12/18	1.6		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2010/12/18		72	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2010/12/18	7.7		%	50
	Spiked Blank	Fluoranthene	2010/12/18		82	%	60 - 130
	RPD	Fluoranthene	2010/12/18	3.0		%	50
	Spiked Blank	Fluorene	2010/12/18		70	%	60 - 130
	RPD	Fluorene	2010/12/18	7.9		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2010/12/18		74	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2010/12/18	7.2		%	50
	Spiked Blank	Naphthalene	2010/12/18		65	%	60 - 130
	RPD	Naphthalene	2010/12/18	13.3		%	50
	Spiked Blank	Phenanthrene	2010/12/18		72	%	60 - 130
	RPD	Phenanthrene	2010/12/18	4.4		%	50
	Spiked Blank	Pyrene	2010/12/18		75	%	60 - 130
	RPD	Pyrene	2010/12/18	5.2		%	50
	Method Blank	D10-2-Methylnaphthalene	2010/12/18		78	%	50 - 150
		D10-Fluoranthene	2010/12/18		90	%	50 - 150
		D10-Phenanthrene	2010/12/18		78	%	50 - 150
		D12-Benzo(a)anthracene	2010/12/18		82	%	50 - 150
		D12-Benzo(a)pyrene	2010/12/18		86	%	50 - 150
		D12-Benzo(b)fluoranthene	2010/12/18		82	%	50 - 150
		D12-Benzo(ghi)perylene	2010/12/18		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2010/12/18		84	%	50 - 150
		D12-Chrysene	2010/12/18		82	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB0H6923

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2354921	JIW	Method Blank					
		D12-Indeno(1,2,3-cd)pyrene	2010/12/18		84	%	50 - 150
		D12-Perylene	2010/12/18		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2010/12/18		82	%	50 - 150
		D8-Acenaphthylene	2010/12/18		80	%	50 - 150
		D8-Naphthalene	2010/12/18		78	%	50 - 150
		1-Methylnaphthalene	2010/12/18	<0.10		ug	
		1-Methylphenanthrene	2010/12/18	<0.10		ug	
		2-Chloronaphthalene	2010/12/18	<0.10		ug	
		2-Methylantracene	2010/12/18	<0.10		ug	
		2-Methylnaphthalene	2010/12/18	<0.10		ug	
		3-Methylcholanthrene	2010/12/18	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2010/12/18	<0.10		ug	
		9,10-Dimethylantracene	2010/12/18	<0.40		ug	
		Acenaphthene	2010/12/18	<0.050		ug	
		Acenaphthylene	2010/12/18	<0.050		ug	
		Anthracene	2010/12/18	<0.050		ug	
		Benzo(a)anthracene	2010/12/18	<0.050		ug	
		Benzo(a)fluorene	2010/12/18	<0.10		ug	
		Benzo(a)pyrene	2010/12/18	<0.050		ug	
		Benzo(b)fluoranthene	2010/12/18	<0.050		ug	
		Benzo(b)fluorene	2010/12/18	<0.10		ug	
		Benzo(e)pyrene	2010/12/18	<0.10		ug	
		Benzo(g,h,i)perylene	2010/12/18	<0.050		ug	
		Benzo(k)fluoranthene	2010/12/18	<0.050		ug	
		Biphenyl	2010/12/18	<0.10		ug	
		Chrysene	2010/12/18	<0.050		ug	
		Coronene	2010/12/18	<0.10		ug	
		Dibenz(a,h)anthracene	2010/12/18	<0.050		ug	
		Dibenzo(a,e)pyrene	2010/12/18	<0.20		ug	
		Fluoranthene	2010/12/18	<0.050		ug	
		Fluorene	2010/12/18	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2010/12/18	<0.050		ug	
		m-Terphenyl	2010/12/18	<0.10		ug	
		Naphthalene	2010/12/18	<0.072		ug	
		o-Terphenyl	2010/12/18	<0.10		ug	
		Perylene	2010/12/18	<0.10		ug	
		Phenanthrene	2010/12/18	<0.050		ug	
		p-Terphenyl	2010/12/18	<0.10		ug	
		Pyrene	2010/12/18	<0.050		ug	
		Quinoline	2010/12/18	<0.40		ug	
		Tetralin	2010/12/18	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: 13-16-62-5 W4M
Station ID: Lica 33 (Portable)
Field Sample ID: LICA PUF/PORT/Dec 10, 10

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Dec 09, 2010 @ 9:04 mst
Removal Date/Time: Dec 13, 2010 @ 10:48 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
10-Dec-10	10/12/2010 0:00	11/12/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
08-Dec-10	13-Dec-10	19-Dec-10	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 29-Mar-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
718	229	-20.3	330.36

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

Comments: COC # 5035

GB0H1747 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Dec 10, 10

- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 5035

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2010/12/23****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B011562****Received: 2010/12/16, 09:06**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2010/12/17	2010/12/22	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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Total cover pages: 1

Page 1 of 7

Page 190 of 220

Maxxam Job #: B011562
 Report Date: 2010/12/23

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

Maxxam ID		IE4311	IE4312		
Sampling Date		2010/12/10	2010/12/10		
COC Number		5035	5035		
	Units	LICA PUFF+QFF/CLS/DEC 10,10	LICA PUFF+QFF/PORT/DEC 10,10	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.39	0.26	0.10	2362953
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2362953
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2362953
2-Methylantracene	ug	<0.10	<0.10	0.10	2362953
2-Methylnaphthalene	ug	0.79	0.37	0.10	2362953
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2362953
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2362953
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2362953
Acenaphthene	ug	<0.050	<0.050	0.050	2362953
Acenaphthylene	ug	0.066	<0.050	0.050	2362953
Anthracene	ug	<0.050	<0.050	0.050	2362953
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2362953
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2362953
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2362953
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2362953
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2362953
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2362953
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2362953
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2362953
Biphenyl	ug	0.21	0.32	0.10	2362953
Chrysene	ug	<0.050	0.054	0.050	2362953
Coronene	ug	<0.10	<0.10	0.10	2362953
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2362953
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2362953
Fluoranthene	ug	0.068	0.106	0.050	2362953
Fluorene	ug	0.082	0.122	0.050	2362953
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2362953
m-Terphenyl	ug	<0.10	<0.10	0.10	2362953
Naphthalene	ug	0.974	0.744	0.072	2362953
o-Terphenyl	ug	<0.10	<0.10	0.10	2362953
Perylene	ug	<0.10	<0.10	0.10	2362953

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B011562
 Report Date: 2010/12/23

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

Maxxam ID		IE4311	IE4312		
Sampling Date		2010/12/10	2010/12/10		
COC Number		5035	5035		
	Units	LICA PUFF+QFF/CLS/DEC 10,10	LICA PUFF+QFF/PORT/DEC 10,10	RDL	QC Batch
Phenanthrene	ug	0.200	0.262	0.050	2362953
p-Terphenyl	ug	<0.10	<0.10	0.10	2362953
Pyrene	ug	<0.050	0.064	0.050	2362953
Quinoline	ug	<0.40	<0.40	0.40	2362953
Tetralin	ug	<0.10	<0.10	0.10	2362953
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	66	68		2362953
D10-Fluoranthene	%	92	90		2362953
D10-Fluorene (FS)	%	62	70		2362953
D10-Phenanthrene	%	80	80		2362953
D12-Benzo(a)anthracene	%	98	100		2362953
D12-Benzo(a)pyrene	%	98	98		2362953
D12-Benzo(b)fluoranthene	%	94	92		2362953
D12-Benzo(ghi)perylene	%	98	96		2362953
D12-Benzo(k)fluoranthene	%	90	92		2362953
D12-Chrysene	%	88	90		2362953
D12-Indeno(1,2,3-cd)pyrene	%	98	96		2362953
D12-Perylene	%	96	96		2362953
D14-Dibenzo(a,h)anthracene	%	100	98		2362953
D14-Terphenyl (FS)	%	83	86		2362953
D8-Acenaphthylene	%	72	74		2362953
D8-Naphthalene	%	62	66		2362953
QC Batch = Quality Control Batch					

Maxxam Job #: B011562
 Report Date: 2010/12/23

Test Summary

Maxxam ID	IE4311	Collected	2010/12/10
Sample ID	LICA PUFF+QFF/CLS/DEC 10,10	Shipped	
Matrix	PUF AND FILTER	Received	2010/12/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2362953	2010/12/17	2010/12/22	JIW

Maxxam ID	IE4312	Collected	2010/12/10
Sample ID	LICA PUFF+QFF/PORT/DEC 10,10	Shipped	
Matrix	PUF AND FILTER	Received	2010/12/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2362953	2010/12/17	2010/12/22	JIW

Maxxam Job #: B011562
Report Date: 2010/12/23

GENERAL COMMENTS

PAHMS-F(WS:2362953)

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

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

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

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

Sample IE4311-01: PAHMS-F(WS:2362953)

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

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

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

Sample IE4312-01: PAHMS-F(WS:2362953)

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

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene it would have a value below the estimated mdl.

Since Triphenylene co-elutes with Chrysene, the maximum possible value for this compound would be 0.054ug, which is the value reported for Chrysene.

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

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB011562

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2362953 JIW	Spiked Blank	D10-2-Methylnaphthalene	2010/12/21		78	%	50 - 150
		D10-Fluoranthene	2010/12/21		92	%	50 - 150
		D10-Phenanthrene	2010/12/21		84	%	50 - 150
		D12-Benzo(a)anthracene	2010/12/21		94	%	50 - 150
		D12-Benzo(a)pyrene	2010/12/21		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2010/12/21		92	%	50 - 150
		D12-Benzo(ghi)perylene	2010/12/21		96	%	50 - 150
		D12-Benzo(k)fluoranthene	2010/12/21		86	%	50 - 150
		D12-Chrysene	2010/12/21		84	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2010/12/21		96	%	50 - 150
		D12-Perylene	2010/12/21		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2010/12/21		96	%	50 - 150
		D8-Acenaphthylene	2010/12/21		78	%	50 - 150
		D8-Naphthalene	2010/12/21		78	%	50 - 150
		Acenaphthene	2010/12/21		74	%	60 - 130
	RPD	Acenaphthene	2010/12/21	0.3		%	50
	Spiked Blank	Acenaphthylene	2010/12/21		77	%	60 - 130
	RPD	Acenaphthylene	2010/12/21	1.6		%	50
	Spiked Blank	Anthracene	2010/12/21		72	%	60 - 130
	RPD	Anthracene	2010/12/21	4.4		%	50
	Spiked Blank	Benzo(a)anthracene	2010/12/21		82	%	60 - 130
	RPD	Benzo(a)anthracene	2010/12/21	6.8		%	50
	Spiked Blank	Benzo(a)pyrene	2010/12/21		74	%	60 - 130
	RPD	Benzo(a)pyrene	2010/12/21	4.3		%	50
	Spiked Blank	Benzo(b)fluoranthene	2010/12/21		77	%	60 - 130
	RPD	Benzo(b)fluoranthene	2010/12/21	5.7		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2010/12/21		91	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2010/12/21	1.6		%	50
	Spiked Blank	Benzo(k)fluoranthene	2010/12/21		87	%	60 - 130
	RPD	Benzo(k)fluoranthene	2010/12/21	4.2		%	50
	Spiked Blank	Chrysene	2010/12/21		79	%	60 - 130
	RPD	Chrysene	2010/12/21	6.7		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2010/12/21		92	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2010/12/21	1.9		%	50
	Spiked Blank	Fluoranthene	2010/12/21		84	%	60 - 130
	RPD	Fluoranthene	2010/12/21	1.5		%	50
	Spiked Blank	Fluorene	2010/12/21		75	%	60 - 130
	RPD	Fluorene	2010/12/21	1		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2010/12/21		90	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2010/12/21	3.0		%	50
	Spiked Blank	Naphthalene	2010/12/21		73	%	60 - 130
	RPD	Naphthalene	2010/12/21	1.7		%	50
	Spiked Blank	Phenanthrene	2010/12/21		75	%	60 - 130
	RPD	Phenanthrene	2010/12/21	0.7		%	50
	Spiked Blank	Pyrene	2010/12/21		79	%	60 - 130
	RPD	Pyrene	2010/12/21	0.6		%	50
	Method Blank	D10-2-Methylnaphthalene	2010/12/22		66	%	50 - 150
		D10-Fluoranthene	2010/12/22		90	%	50 - 150
		D10-Phenanthrene	2010/12/22		76	%	50 - 150
		D12-Benzo(a)anthracene	2010/12/22		92	%	50 - 150
		D12-Benzo(a)pyrene	2010/12/22		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2010/12/22		92	%	50 - 150
		D12-Benzo(ghi)perylene	2010/12/22		96	%	50 - 150
		D12-Benzo(k)fluoranthene	2010/12/22		88	%	50 - 150
		D12-Chrysene	2010/12/22		86	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB011562

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2362953 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2010/12/22		96	%	50 - 150
		D12-Perylene	2010/12/22		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2010/12/22		96	%	50 - 150
		D8-Acenaphthylene	2010/12/22		66	%	50 - 150
		D8-Naphthalene	2010/12/22		66	%	50 - 150
		1-Methylnaphthalene	2010/12/22	<0.10		ug	
		1-Methylphenanthrene	2010/12/22	<0.10		ug	
		2-Chloronaphthalene	2010/12/22	<0.10		ug	
		2-Methylantracene	2010/12/22	<0.10		ug	
		2-Methylnaphthalene	2010/12/22	<0.10		ug	
		3-Methylcholanthrene	2010/12/22	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2010/12/22	<0.10		ug	
		9,10-Dimethylantracene	2010/12/22	<0.40		ug	
		Acenaphthene	2010/12/22	<0.050		ug	
		Acenaphthylene	2010/12/22	<0.050		ug	
		Anthracene	2010/12/22	<0.050		ug	
		Benzo(a)anthracene	2010/12/22	<0.050		ug	
		Benzo(a)fluorene	2010/12/22	<0.10		ug	
		Benzo(a)pyrene	2010/12/22	<0.050		ug	
		Benzo(b)fluoranthene	2010/12/22	<0.050		ug	
		Benzo(b)fluorene	2010/12/22	<0.10		ug	
		Benzo(e)pyrene	2010/12/22	<0.10		ug	
		Benzo(g,h,i)perylene	2010/12/22	<0.050		ug	
		Benzo(k)fluoranthene	2010/12/22	<0.050		ug	
		Biphenyl	2010/12/22	<0.10		ug	
		Chrysene	2010/12/22	<0.050		ug	
		Coronene	2010/12/22	<0.10		ug	
		Dibenz(a,h)anthracene	2010/12/22	<0.050		ug	
		Dibenzo(a,e)pyrene	2010/12/22	<0.20		ug	
		Fluoranthene	2010/12/22	<0.050		ug	
		Fluorene	2010/12/22	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2010/12/22	<0.050		ug	
		m-Terphenyl	2010/12/22	<0.10		ug	
		Naphthalene	2010/12/22	<0.072		ug	
		o-Terphenyl	2010/12/22	<0.10		ug	
		Perylene	2010/12/22	<0.10		ug	
		Phenanthrene	2010/12/22	<0.050		ug	
		p-Terphenyl	2010/12/22	<0.10		ug	
		Pyrene	2010/12/22	<0.050		ug	
		Quinoline	2010/12/22	<0.40		ug	
		Tetralin	2010/12/22	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: 13-16-62-5 W4M
Station ID: Lica 33 (Portable)
Field Sample ID: LICA PUF/PORT/Dec 16, 10

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Dec 15, 2010 @ 9:54 mst
Removal Date/Time: Dec 17, 2010 @ 9:47 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
16-Dec-10	16/12/2010 0:00	17/12/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
14-Dec-10	17-Dec-10	24-Dec-10	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 29-Mar-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
721	229	-17.6	330.35

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

Comments: COC # 06452

GB0H1753 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Dec 16, 10

- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 06452

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2011/01/04****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B0I3837****Received: 2010/12/21, 09:15**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2010/12/23	2010/12/30	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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Total cover pages: 1

Maxxam Job #: B013837
 Report Date: 2011/01/04

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

Maxxam ID		IF6016		IF6017		
Sampling Date		2010/12/16		2010/12/16		
COC Number		06452		06452		
	Units	LICA PUFF+QFF/CLS/DEC 16, 10	RDL	LICA PUFF+QFF/PORT/DEC 16, 10	RDL	QC Batch

Semivolatile Organics						
1-Methylnaphthalene	ug	1.53	0.10	0.74	0.10	2367433
1-Methylphenanthrene	ug	<0.10	0.10	<0.10	0.10	2367433
2-Chloronaphthalene	ug	<0.10	0.10	<0.10	0.10	2367433
2-Methylantracene	ug	<0.10	0.10	<0.10	0.10	2367433
2-Methylnaphthalene	ug	2.94	0.10	1.19	0.10	2367433
3-Methylcholanthrene	ug	<2.0	2.0	<2.0	2.0	2367433
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	<0.10	0.10	2367433
9,10-Dimethylantracene	ug	<0.40	0.40	<0.40	0.40	2367433
Acenaphthene	ug	0.166	0.050	<0.080	0.080	2367433
Acenaphthylene	ug	0.398	0.050	0.148	0.050	2367433
Anthracene	ug	<0.050	0.050	<0.050	0.050	2367433
Benzo(a)anthracene	ug	0.086	0.050	<0.050	0.050	2367433
Benzo(a)fluorene	ug	<0.10	0.10	<0.10	0.10	2367433
Benzo(a)pyrene	ug	0.074	0.050	<0.050	0.050	2367433
Benzo(b)fluoranthene	ug	0.128	0.050	0.070	0.050	2367433
Benzo(b)fluorene	ug	<0.10	0.10	<0.10	0.10	2367433
Benzo(e)pyrene	ug	<0.10	0.10	<0.10	0.10	2367433
Benzo(g,h,i)perylene	ug	0.096	0.050	0.058	0.050	2367433
Benzo(k)fluoranthene	ug	<0.050	0.050	<0.050	0.050	2367433
Biphenyl	ug	0.93	0.10	0.77	0.10	2367433
Chrysene	ug	0.128	0.050	0.078	0.050	2367433
Coronene	ug	<0.10	0.10	<0.10	0.10	2367433
Dibenz(a,h)anthracene	ug	<0.050	0.050	<0.050	0.050	2367433
Dibenzo(a,e)pyrene	ug	<0.20	0.20	<0.20	0.20	2367433
Fluoranthene	ug	0.324	0.050	0.174	0.050	2367433
Fluorene	ug	0.388	0.050	0.264	0.050	2367433
Indeno(1,2,3-cd)pyrene	ug	0.068	0.050	<0.050	0.050	2367433
m-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2367433
Naphthalene	ug	1.73	0.072	1.22	0.072	2367433
o-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2367433
Perylene	ug	<0.10	0.10	<0.10	0.10	2367433

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B013837
 Report Date: 2011/01/04

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

Maxxam ID		IF6016		IF6017		
Sampling Date		2010/12/16		2010/12/16		
COC Number		06452		06452		
	Units	LICA PUFF+QFF/CLS/DEC 16, 10	RDL	LICA PUFF+QFF/PORT/DEC 16, 10	RDL	QC Batch
Phenanthrene	ug	0.752	0.050	0.586	0.050	2367433
p-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2367433
Pyrene	ug	0.280	0.050	0.132	0.050	2367433
Quinoline	ug	<0.40	0.40	<0.40	0.40	2367433
Tetralin	ug	<0.10	0.10	<0.10	0.10	2367433
Surrogate Recovery (%)						
D10-2-Methylnaphthalene	%	60		72		2367433
D10-Fluoranthene	%	90		92		2367433
D10-Fluorene (FS)	%	58		68		2367433
D10-Phenanthrene	%	80		86		2367433
D12-Benzo(a)anthracene	%	94		96		2367433
D12-Benzo(a)pyrene	%	92		96		2367433
D12-Benzo(b)fluoranthene	%	90		94		2367433
D12-Benzo(ghi)perylene	%	92		96		2367433
D12-Benzo(k)fluoranthene	%	84		86		2367433
D12-Chrysene	%	82		84		2367433
D12-Indeno(1,2,3-cd)pyrene	%	94		96		2367433
D12-Perylene	%	92		94		2367433
D14-Dibenzo(a,h)anthracene	%	94		96		2367433
D14-Terphenyl (FS)	%	80		82		2367433
D8-Acenaphthylene	%	70		80		2367433
D8-Naphthalene	%	56		68		2367433
QC Batch = Quality Control Batch						

Maxxam Job #: B013837
 Report Date: 2011/01/04

Test Summary

Maxxam ID IF6016 **Collected** 2010/12/16
Sample ID LICA PUFF+QFF/CLS/DEC 16, 10 **Shipped**
Matrix PUF AND FILTER **Received** 2010/12/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2367433	2010/12/23	2010/12/30	JIW

Maxxam ID IF6017 **Collected** 2010/12/16
Sample ID LICA PUFF+QFF/PORT/DEC 16, 10 **Shipped**
Matrix PUF AND FILTER **Received** 2010/12/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2367433	2010/12/23	2010/12/30	JIW

Maxxam Job #: B013837
Report Date: 2011/01/04

GENERAL COMMENTS

PAHMS-F(WS:2367433)

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

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

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

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

Sample IF6016-01: PAHMS-F(WS:2367433)

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene it would have a value below the estimated mdl.

Since Triphenylene co-elutes with Chrysene, the maximum possible value for this compound would be 0.128ug, which is the value reported for Chrysene.

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

Sample IF6017-01: PAHMS-F(WS:2367433)

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

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene it would have a value below the estimated mdl.

Since Triphenylene co-elutes with Chrysene, the maximum possible value for this compound would be 0.078ug, which is the value reported for Chrysene.

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

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB013837

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2367433 JIW	Spiked Blank	D10-2-Methylnaphthalene	2010/12/30		68	%	50 - 150
		D10-Fluoranthene	2010/12/30		86	%	50 - 150
		D10-Phenanthrene	2010/12/30		76	%	50 - 150
		D12-Benzo(a)anthracene	2010/12/30		88	%	50 - 150
		D12-Benzo(a)pyrene	2010/12/30		92	%	50 - 150
		D12-Benzo(b)fluoranthene	2010/12/30		90	%	50 - 150
		D12-Benzo(ghi)perylene	2010/12/30		92	%	50 - 150
		D12-Benzo(k)fluoranthene	2010/12/30		84	%	50 - 150
		D12-Chrysene	2010/12/30		82	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2010/12/30		92	%	50 - 150
		D12-Perylene	2010/12/30		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2010/12/30		92	%	50 - 150
		D8-Acenaphthylene	2010/12/30		70	%	50 - 150
		D8-Naphthalene	2010/12/30		68	%	50 - 150
		RPD	Acenaphthene	2010/12/30		68	%
	Acenaphthene		2010/12/30	5.0		%	50
	Spiked Blank	Acenaphthylene	2010/12/30		68	%	60 - 130
		Acenaphthylene	2010/12/30	6.1		%	50
	RPD	Anthracene	2010/12/30		67	%	60 - 130
		Anthracene	2010/12/30	5.8		%	50
	Spiked Blank	Benzo(a)anthracene	2010/12/30		79	%	60 - 130
		Benzo(a)anthracene	2010/12/30	4.3		%	50
	RPD	Benzo(a)pyrene	2010/12/30		72	%	60 - 130
		Benzo(a)pyrene	2010/12/30	3.1		%	50
	Spiked Blank	Benzo(b)fluoranthene	2010/12/30		75	%	60 - 130
		Benzo(b)fluoranthene	2010/12/30	10.7		%	50
	RPD	Benzo(g,h,i)perylene	2010/12/30		84	%	60 - 130
		Benzo(g,h,i)perylene	2010/12/30	1.2		%	50
	Spiked Blank	Benzo(k)fluoranthene	2010/12/30		86	%	60 - 130
		Benzo(k)fluoranthene	2010/12/30	4.7		%	50
	RPD	Chrysene	2010/12/30		78	%	60 - 130
		Chrysene	2010/12/30	1		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2010/12/30		82	%	60 - 130
		Dibenz(a,h)anthracene	2010/12/30	1.5		%	50
	RPD	Fluoranthene	2010/12/30		83	%	60 - 130
		Fluoranthene	2010/12/30	3.6		%	50
	Spiked Blank	Fluorene	2010/12/30		69	%	60 - 130
		Fluorene	2010/12/30	5.0		%	50
	RPD	Indeno(1,2,3-cd)pyrene	2010/12/30		83	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2010/12/30	2.4		%	50
Spiked Blank	Naphthalene	2010/12/30		65	%	60 - 130	
	Naphthalene	2010/12/30	3.8		%	50	
RPD	Phenanthrene	2010/12/30		70	%	60 - 130	
	Phenanthrene	2010/12/30	5.2		%	50	
Spiked Blank	Pyrene	2010/12/30		77	%	60 - 130	
	Pyrene	2010/12/30	3.2		%	50	
Method Blank	D10-2-Methylnaphthalene	2010/12/30		66	%	50 - 150	
	D10-Fluoranthene	2010/12/30		80	%	50 - 150	
	D10-Phenanthrene	2010/12/30		70	%	50 - 150	
	D12-Benzo(a)anthracene	2010/12/30		80	%	50 - 150	
	D12-Benzo(a)pyrene	2010/12/30		82	%	50 - 150	
	D12-Benzo(b)fluoranthene	2010/12/30		80	%	50 - 150	
	D12-Benzo(ghi)perylene	2010/12/30		82	%	50 - 150	
	D12-Benzo(k)fluoranthene	2010/12/30		74	%	50 - 150	
	D12-Chrysene	2010/12/30		72	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB013837

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2367433 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2010/12/30		80	%	50 - 150
		D12-Perylene	2010/12/30		80	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2010/12/30		80	%	50 - 150
		D8-Acenaphthylene	2010/12/30		68	%	50 - 150
		D8-Naphthalene	2010/12/30		64	%	50 - 150
		1-Methylnaphthalene	2010/12/30	<0.10		ug	
		1-Methylphenanthrene	2010/12/30	<0.10		ug	
		2-Chloronaphthalene	2010/12/30	<0.10		ug	
		2-Methylanthracene	2010/12/30	<0.10		ug	
		2-Methylnaphthalene	2010/12/30	<0.10		ug	
		3-Methylcholanthrene	2010/12/30	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2010/12/30	<0.10		ug	
		9,10-Dimethylanthracene	2010/12/30	<0.40		ug	
		Acenaphthene	2010/12/30	<0.050		ug	
		Acenaphthylene	2010/12/30	<0.050		ug	
		Anthracene	2010/12/30	<0.050		ug	
		Benzo(a)anthracene	2010/12/30	<0.050		ug	
		Benzo(a)fluorene	2010/12/30	<0.10		ug	
		Benzo(a)pyrene	2010/12/30	<0.050		ug	
		Benzo(b)fluoranthene	2010/12/30	<0.050		ug	
		Benzo(b)fluorene	2010/12/30	<0.10		ug	
		Benzo(e)pyrene	2010/12/30	<0.10		ug	
		Benzo(g,h,i)perylene	2010/12/30	<0.050		ug	
		Benzo(k)fluoranthene	2010/12/30	<0.050		ug	
		Biphenyl	2010/12/30	<0.10		ug	
		Chrysene	2010/12/30	<0.050		ug	
		Coronene	2010/12/30	<0.10		ug	
		Dibenz(a,h)anthracene	2010/12/30	<0.050		ug	
		Dibenzo(a,e)pyrene	2010/12/30	<0.20		ug	
		Fluoranthene	2010/12/30	<0.050		ug	
		Fluorene	2010/12/30	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2010/12/30	<0.050		ug	
		m-Terphenyl	2010/12/30	<0.10		ug	
		Naphthalene	2010/12/30	<0.072		ug	
		o-Terphenyl	2010/12/30	<0.10		ug	
		Perylene	2010/12/30	<0.10		ug	
		Phenanthrene	2010/12/30	<0.050		ug	
		p-Terphenyl	2010/12/30	<0.10		ug	
		Pyrene	2010/12/30	<0.050		ug	
		Quinoline	2010/12/30	<0.40		ug	
		Tetralin	2010/12/30	<0.10		ug	

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: 13-16-62-5 W4M
 Station ID: Lica 33 (Portable)
 Field Sample ID: LICA PUF/PORT/Dec 22, 10

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: Dec 21, 2010 @ 10:54 mst
 Removal Date/Time: Dec 23, 2010 @ 9:57 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
22-Dec-10	22/12/2010 0:00	23/12/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
20-Dec-10	23-Dec-10	30-Dec-10	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 29-Mar-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
718	229	-18.0	330.36

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

Comments: COC # 2338

GB0H1759 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Dec 22, 10

- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 2338

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

Report Date: 2011/01/05

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B0I6169****Received: 2010/12/29, 08:40**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2010/12/29	2011/01/04	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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Total cover pages: 1

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Maxxam Job #: B0I6169
 Report Date: 2011/01/05

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

Maxxam ID		IG6154	IG6155		
Sampling Date		2010/12/22	2010/12/22		
COC Number		2338	2338		
	Units	LICA PUFF+QFF/CLS/DEC 22,10	LICA PUFF+QFF/PORT/DEC 22,10	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.78	0.40	0.10	2369555
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2369555
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2369555
2-Methylantracene	ug	<0.10	<0.10	0.10	2369555
2-Methylnaphthalene	ug	1.51	0.64	0.10	2369555
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2369555
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2369555
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2369555
Acenaphthene	ug	0.124	<0.050	0.050	2369555
Acenaphthylene	ug	0.268	0.066	0.050	2369555
Anthracene	ug	<0.050	<0.050	0.050	2369555
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2369555
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2369555
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2369555
Benzo(b)fluoranthene	ug	0.072	<0.050	0.050	2369555
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2369555
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2369555
Benzo(g,h,i)perylene	ug	0.070	<0.050	0.050	2369555
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2369555
Biphenyl	ug	0.50	0.40	0.10	2369555
Chrysene	ug	0.074	<0.050	0.050	2369555
Coronene	ug	<0.10	<0.10	0.10	2369555
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2369555
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2369555
Fluoranthene	ug	0.190	0.104	0.050	2369555
Fluorene	ug	0.250	0.164	0.050	2369555
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2369555
m-Terphenyl	ug	<0.10	<0.10	0.10	2369555
Naphthalene	ug	1.19	0.740	0.072	2369555
o-Terphenyl	ug	<0.10	<0.10	0.10	2369555
Perylene	ug	<0.10	<0.10	0.10	2369555

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B0I6169
 Report Date: 2011/01/05

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

Maxxam ID		IG6154	IG6155		
Sampling Date		2010/12/22	2010/12/22		
COC Number		2338	2338		
	Units	LICA PUFF+QFF/CLS/DEC 22,10	LICA PUFF+QFF/PORT/DEC 22,10	RDL	QC Batch
Phenanthrene	ug	0.614	0.388	0.050	2369555
p-Terphenyl	ug	<0.10	<0.10	0.10	2369555
Pyrene	ug	0.144	<0.050	0.050	2369555
Quinoline	ug	<0.40	<0.40	0.40	2369555
Tetralin	ug	<0.10	<0.10	0.10	2369555
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	62	74		2369555
D10-Fluoranthene	%	86	88		2369555
D10-Fluorene (FS)	%	61	74		2369555
D10-Phenanthrene	%	76	80		2369555
D12-Benzo(a)anthracene	%	92	88		2369555
D12-Benzo(a)pyrene	%	94	92		2369555
D12-Benzo(b)fluoranthene	%	90	86		2369555
D12-Benzo(ghi)perylene	%	94	94		2369555
D12-Benzo(k)fluoranthene	%	88	92		2369555
D12-Chrysene	%	86	86		2369555
D12-Indeno(1,2,3-cd)pyrene	%	94	92		2369555
D12-Perylene	%	94	94		2369555
D14-Dibenzo(a,h)anthracene	%	92	92		2369555
D14-Terphenyl (FS)	%	82	82		2369555
D8-Acenaphthylene	%	68	78		2369555
D8-Naphthalene	%	60	72		2369555
QC Batch = Quality Control Batch					

Maxxam Job #: B0I6169
 Report Date: 2011/01/05

Test Summary

Maxxam ID	IG6154	Collected	2010/12/22
Sample ID	LICA PUFF+QFF/CLS/DEC 22,10	Shipped	
Matrix	PUF AND FILTER	Received	2010/12/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2369555	2010/12/29	2011/01/04	JIW

Maxxam ID	IG6155	Collected	2010/12/22
Sample ID	LICA PUFF+QFF/PORT/DEC 22,10	Shipped	
Matrix	PUF AND FILTER	Received	2010/12/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2369555	2010/12/29	2011/01/04	JIW

Maxxam Job #: B0I6169
Report Date: 2011/01/05

GENERAL COMMENTS

PAHMS-F(WS:2369555)

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

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

Sample IG6154-01: PAHMS-F(WS:2369555)

Since Dibenzo(a,c) anthracene co-elutes with Dibenzo(a,h) anthracene it would have a value below the estimated mdl.

Since Triphenylene co-elutes with Chrysene, the maximum possible value for this compound would be 0.074ug, which is the value reported for Chrysene.

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

Sample IG6155-01: PAHMS-F(WS:2369555)

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

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

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB016169

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2369555 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/01/04		72	%	50 - 150
		D10-Fluoranthene	2011/01/04		88	%	50 - 150
		D10-Phenanthrene	2011/01/04		76	%	50 - 150
		D12-Benzo(a)anthracene	2011/01/04		86	%	50 - 150
		D12-Benzo(a)pyrene	2011/01/04		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/01/04		92	%	50 - 150
		D12-Benzo(ghi)perylene	2011/01/04		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/01/04		88	%	50 - 150
		D12-Chrysene	2011/01/04		88	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/01/04		94	%	50 - 150
		D12-Perylene	2011/01/04		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/01/04		92	%	50 - 150
		D8-Acenaphthylene	2011/01/04		74	%	50 - 150
		D8-Naphthalene	2011/01/04		72	%	50 - 150
		Acenaphthene	2011/01/04		73	%	60 - 130
	RPD	Acenaphthene	2011/01/04	4.7		%	50
	Spiked Blank	Acenaphthylene	2011/01/04		74	%	60 - 130
	RPD	Acenaphthylene	2011/01/04	6.6		%	50
	Spiked Blank	Anthracene	2011/01/04		70	%	60 - 130
	RPD	Anthracene	2011/01/04	2.9		%	50
	Spiked Blank	Benzo(a)anthracene	2011/01/04		77	%	60 - 130
	RPD	Benzo(a)anthracene	2011/01/04	1.9		%	50
	Spiked Blank	Benzo(a)pyrene	2011/01/04		74	%	60 - 130
	RPD	Benzo(a)pyrene	2011/01/04	0		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/01/04		77	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/01/04	1		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/01/04		86	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/01/04	0.3		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/01/04		90	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/01/04	0.3		%	50
	Spiked Blank	Chrysene	2011/01/04		81	%	60 - 130
	RPD	Chrysene	2011/01/04	2.2		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/01/04		83	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/01/04	1.5		%	50
	Spiked Blank	Fluoranthene	2011/01/04		85	%	60 - 130
	RPD	Fluoranthene	2011/01/04	2.0		%	50
	Spiked Blank	Fluorene	2011/01/04		71	%	60 - 130
	RPD	Fluorene	2011/01/04	5.9		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/01/04		84	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/01/04	1.8		%	50
	Spiked Blank	Naphthalene	2011/01/04		67	%	60 - 130
	RPD	Naphthalene	2011/01/04	9.6		%	50
	Spiked Blank	Phenanthrene	2011/01/04		68	%	60 - 130
	RPD	Phenanthrene	2011/01/04	4.3		%	50
	Spiked Blank	Pyrene	2011/01/04		79	%	60 - 130
	RPD	Pyrene	2011/01/04	1.3		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/01/04		68	%	50 - 150
		D10-Fluoranthene	2011/01/04		88	%	50 - 150
		D10-Phenanthrene	2011/01/04		70	%	50 - 150
		D12-Benzo(a)anthracene	2011/01/04		84	%	50 - 150
		D12-Benzo(a)pyrene	2011/01/04		92	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/01/04		94	%	50 - 150
		D12-Benzo(ghi)perylene	2011/01/04		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/01/04		86	%	50 - 150
		D12-Chrysene	2011/01/04		88	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB016169

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2369555 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/01/04		92	%	50 - 150
		D12-Perylene	2011/01/04		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/01/04		92	%	50 - 150
		D8-Acenaphthylene	2011/01/04		72	%	50 - 150
		D8-Naphthalene	2011/01/04		68	%	50 - 150
		1-Methylnaphthalene	2011/01/04	<0.10		ug	
		1-Methylphenanthrene	2011/01/04	<0.10		ug	
		2-Chloronaphthalene	2011/01/04	<0.10		ug	
		2-Methylanthracene	2011/01/04	<0.10		ug	
		2-Methylnaphthalene	2011/01/04	<0.10		ug	
		3-Methylcholanthrene	2011/01/04	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/01/04	<0.10		ug	
		9,10-Dimethylanthracene	2011/01/04	<0.40		ug	
		Acenaphthene	2011/01/04	<0.050		ug	
		Acenaphthylene	2011/01/04	<0.050		ug	
		Anthracene	2011/01/04	<0.050		ug	
		Benzo(a)anthracene	2011/01/04	<0.050		ug	
		Benzo(a)fluorene	2011/01/04	<0.10		ug	
		Benzo(a)pyrene	2011/01/04	<0.050		ug	
		Benzo(b)fluoranthene	2011/01/04	<0.050		ug	
		Benzo(b)fluorene	2011/01/04	<0.10		ug	
		Benzo(e)pyrene	2011/01/04	<0.10		ug	
		Benzo(g,h,i)perylene	2011/01/04	<0.050		ug	
		Benzo(k)fluoranthene	2011/01/04	<0.050		ug	
		Biphenyl	2011/01/04	<0.10		ug	
		Chrysene	2011/01/04	<0.050		ug	
		Coronene	2011/01/04	<0.10		ug	
		Dibenz(a,h)anthracene	2011/01/04	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/01/04	<0.20		ug	
		Fluoranthene	2011/01/04	<0.050		ug	
		Fluorene	2011/01/04	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/01/04	<0.050		ug	
		m-Terphenyl	2011/01/04	<0.10		ug	
		Naphthalene	2011/01/04	<0.072		ug	
		o-Terphenyl	2011/01/04	<0.10		ug	
		Perylene	2011/01/04	<0.10		ug	
		Phenanthrene	2011/01/04	<0.050		ug	
		p-Terphenyl	2011/01/04	<0.10		ug	
		Pyrene	2011/01/04	<0.050		ug	
		Quinoline	2011/01/04	<0.40		ug	
		Tetralin	2011/01/04	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: 13-16-62-5 W4M
Station ID: Lica 33 (Portable)
Field Sample ID: LICA PUF/PORT/Dec 28, 10

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Dec 23, 2010 @ 11:58 mst
Removal Date/Time: Dec 29, 2010 @ 11:11 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
28-Dec-10	28/12/2010 0:00	29/12/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
21-Dec-10	29-Dec-10	31-Dec-10	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 29-Mar-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
700	229	-15.5	330.35

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

Comments: COC # 06480

GB0H1763 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Dec 28, 10

- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 06480

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2011/01/13****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B100046****Received: 2011/01/04, 08:45**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/01/08	2011/01/11	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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Total cover pages: 1

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Maxxam Job #: B100046
 Report Date: 2011/01/13

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

Maxxam ID		IH2180	IH2181		
Sampling Date		2010/12/28	2010/12/28		
COC Number		06480	06480		
	Units	LICA PUFF+QFF/CLS/DEC 28,10	LICA PUFF+QFF/PORT/DEC 28,10	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.21	0.23	0.10	2375782
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2375782
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2375782
2-Methylantracene	ug	<0.10	<0.10	0.10	2375782
2-Methylnaphthalene	ug	0.34	0.33	0.10	2375782
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2375782
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2375782
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2375782
Acenaphthene	ug	0.076	<0.050	0.050	2375782
Acenaphthylene	ug	0.116	0.080	0.050	2375782
Anthracene	ug	<0.050	<0.050	0.050	2375782
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2375782
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2375782
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2375782
Benzo(b)fluoranthene	ug	0.052	<0.050	0.050	2375782
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2375782
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2375782
Benzo(g,h,i)perylene	ug	<0.050	0.052	0.050	2375782
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2375782
Biphenyl	ug	0.34	0.32	0.10	2375782
Chrysene	ug	0.052	0.054	0.050	2375782
Coronene	ug	<0.10	<0.10	0.10	2375782
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2375782
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2375782
Fluoranthene	ug	0.132	0.112	0.050	2375782
Fluorene	ug	0.148	0.146	0.050	2375782
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2375782
m-Terphenyl	ug	<0.10	<0.10	0.10	2375782
Naphthalene	ug	0.200	0.308	0.072	2375782
o-Terphenyl	ug	<0.10	<0.10	0.10	2375782
Perylene	ug	<0.10	<0.10	0.10	2375782

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

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

Maxxam ID		IH2180	IH2181		
Sampling Date		2010/12/28	2010/12/28		
COC Number		06480	06480		
	Units	LICA PUFF+QFF/CLS/DEC 28,10	LICA PUFF+QFF/PORT/DEC 28,10	RDL	QC Batch

Phenanthrene	ug	0.340	0.340	0.050	2375782
p-Terphenyl	ug	<0.10	<0.10	0.10	2375782
Pyrene	ug	0.092	0.072	0.050	2375782
Quinoline	ug	<0.40	<0.40	0.40	2375782
Tetralin	ug	<0.10	<0.10	0.10	2375782
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	46 (1)	62		2375782
D10-Fluoranthene	%	90	86		2375782
D10-Fluorene (FS)	%	50	59		2375782
D10-Phenanthrene	%	74	78		2375782
D12-Benzo(a)anthracene	%	90	92		2375782
D12-Benzo(a)pyrene	%	90	92		2375782
D12-Benzo(b)fluoranthene	%	84	90		2375782
D12-Benzo(ghi)perylene	%	96	94		2375782
D12-Benzo(k)fluoranthene	%	88	86		2375782
D12-Chrysene	%	86	88		2375782
D12-Indeno(1,2,3-cd)pyrene	%	92	92		2375782
D12-Perylene	%	90	92		2375782
D14-Dibenzo(a,h)anthracene	%	94	94		2375782
D14-Terphenyl (FS)	%	89	84		2375782
D8-Acenaphthylene	%	54	68		2375782
D8-Naphthalene	%	40 (1)	58		2375782

QC Batch = Quality Control Batch

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

Maxxam Job #: B100046
 Report Date: 2011/01/13

Test Summary

Maxxam ID	IH2180	Collected	2010/12/28
Sample ID	LICA PUFF+QFF/CLS/DEC 28,10	Shipped	
Matrix	PUF AND FILTER	Received	2011/01/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2375782	2011/01/08	2011/01/11	WZ

Maxxam ID	IH2181	Collected	2010/12/28
Sample ID	LICA PUFF+QFF/PORT/DEC 28,10	Shipped	
Matrix	PUF AND FILTER	Received	2011/01/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2375782	2011/01/08	2011/01/11	WZ

Maxxam Job #: B100046
Report Date: 2011/01/13

GENERAL COMMENTS

PAHMS-F

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

Low recovery of Naphthalene in Spike:dup and spike is OK.

Low recoveries of surrogates for the blank was due to some of the extract spilt before cleanup.

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

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

Sample IH2180-01: PAHMS-F

Low recovery of surrogate D10-2-Methylnaphthalene and D8-Naphthalene in sample.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB100046

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2375782 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/01/11		74	%	50 - 150
		D10-Fluoranthene	2011/01/11		88	%	50 - 150
		D10-Phenanthrene	2011/01/11		80	%	50 - 150
		D12-Benzo(a)anthracene	2011/01/11		90	%	50 - 150
		D12-Benzo(a)pyrene	2011/01/11		92	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/01/11		86	%	50 - 150
		D12-Benzo(ghi)perylene	2011/01/11		96	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/01/11		90	%	50 - 150
		D12-Chrysene	2011/01/11		90	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/01/11		92	%	50 - 150
		D12-Perylene	2011/01/11		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/01/11		94	%	50 - 150
		RPD	Acenaphthylene	2011/01/11		74	%
	D8-Naphthalene		2011/01/11		70	%	50 - 150
	Acenaphthene		2011/01/11		72	%	60 - 130
	Acenaphthene		2011/01/11	11.1		%	50
	Acenaphthylene		2011/01/11		75	%	60 - 130
	Acenaphthylene		2011/01/11	12.1		%	50
	Anthracene		2011/01/11		76	%	60 - 130
	Anthracene		2011/01/11	3.9		%	50
	Benzo(a)anthracene		2011/01/11		84	%	60 - 130
	Benzo(a)anthracene		2011/01/11	1.2		%	50
	Benzo(a)pyrene		2011/01/11		76	%	60 - 130
	Benzo(a)pyrene		2011/01/11	2.7		%	50
	Benzo(b)fluoranthene		2011/01/11		80	%	60 - 130
	Benzo(b)fluoranthene		2011/01/11	3.1		%	50
	Benzo(g,h,i)perylene		2011/01/11		86	%	60 - 130
	Benzo(g,h,i)perylene		2011/01/11	2.3		%	50
	Benzo(k)fluoranthene		2011/01/11		88	%	60 - 130
	Benzo(k)fluoranthene	2011/01/11	1.1		%	50	
	Spiked Blank	Chrysene	2011/01/11		84	%	60 - 130
		Chrysene	2011/01/11	3.2		%	50
		Dibenz(a,h)anthracene	2011/01/11		83	%	60 - 130
		Dibenz(a,h)anthracene	2011/01/11	0.3		%	50
		Fluoranthene	2011/01/11		84	%	60 - 130
		Fluoranthene	2011/01/11	3.8		%	50
		Fluorene	2011/01/11		74	%	60 - 130
		Fluorene	2011/01/11	5.2		%	50
		Indeno(1,2,3-cd)pyrene	2011/01/11		82	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/01/11	0		%	50
Naphthalene		2011/01/11		67	%	60 - 130	
Naphthalene		2011/01/11	20.0		%	50	
Phenanthrene		2011/01/11		73	%	60 - 130	
Phenanthrene		2011/01/11	0.3		%	50	
Method Blank		Pyrene	2011/01/11		78	%	60 - 130
		Pyrene	2011/01/11	2.5		%	50
	D10-2-Methylnaphthalene	2011/01/11		48 (1)	%	50 - 150	
	D10-Fluoranthene	2011/01/11		62	%	50 - 150	
	D10-Phenanthrene	2011/01/11		52	%	50 - 150	
	D12-Benzo(a)anthracene	2011/01/11		62	%	50 - 150	
	D12-Benzo(a)pyrene	2011/01/11		66	%	50 - 150	
	D12-Benzo(b)fluoranthene	2011/01/11		62	%	50 - 150	
	D12-Benzo(ghi)perylene	2011/01/11		68	%	50 - 150	
	D12-Benzo(k)fluoranthene	2011/01/11		60	%	50 - 150	
	D12-Chrysene	2011/01/11		60	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB100046

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2375782 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/01/11		64	%	50 - 150
		D12-Perylene	2011/01/11		66	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/01/11		64	%	50 - 150
		D8-Acenaphthylene	2011/01/11		48 (1)	%	50 - 150
		D8-Naphthalene	2011/01/11		46 (1)	%	50 - 150
		1-Methylnaphthalene	2011/01/11	<0.10		ug	
		1-Methylphenanthrene	2011/01/11	<0.10		ug	
		2-Chloronaphthalene	2011/01/11	<0.10		ug	
		2-Methylanthracene	2011/01/11	<0.10		ug	
		2-Methylnaphthalene	2011/01/11	<0.10		ug	
		3-Methylcholanthrene	2011/01/11	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/01/11	<0.10		ug	
		9,10-Dimethylanthracene	2011/01/11	<0.40		ug	
		Acenaphthene	2011/01/11	<0.050		ug	
		Acenaphthylene	2011/01/11	<0.050		ug	
		Anthracene	2011/01/11	<0.050		ug	
		Benzo(a)anthracene	2011/01/11	<0.050		ug	
		Benzo(a)fluorene	2011/01/11	<0.10		ug	
		Benzo(a)pyrene	2011/01/11	<0.050		ug	
		Benzo(b)fluoranthene	2011/01/11	<0.050		ug	
		Benzo(b)fluorene	2011/01/11	<0.10		ug	
		Benzo(e)pyrene	2011/01/11	<0.10		ug	
		Benzo(g,h,i)perylene	2011/01/11	<0.050		ug	
		Benzo(k)fluoranthene	2011/01/11	<0.050		ug	
		Biphenyl	2011/01/11	<0.10		ug	
		Chrysene	2011/01/11	<0.050		ug	
		Coronene	2011/01/11	<0.10		ug	
		Dibenz(a,h)anthracene	2011/01/11	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/01/11	<0.20		ug	
		Fluoranthene	2011/01/11	<0.050		ug	
		Fluorene	2011/01/11	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/01/11	<0.050		ug	
		m-Terphenyl	2011/01/11	<0.10		ug	
		Naphthalene	2011/01/11	<0.072		ug	
		o-Terphenyl	2011/01/11	<0.10		ug	
		Perylene	2011/01/11	<0.10		ug	
		Phenanthrene	2011/01/11	<0.050		ug	
		p-Terphenyl	2011/01/11	<0.10		ug	
		Pyrene	2011/01/11	<0.050		ug	
		Quinoline	2011/01/11	<0.40		ug	
		Tetralin	2011/01/11	<0.10		ug	

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

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

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

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

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

Lakeland Industry & Community Association

St. Lina Monitoring Site
Ambient Air Monitoring
Data Report
For
December 2010

Prepared By:



January 7, 2011

Lakeland Industry & Community Association

St. Lina

Ambient Air Monitoring

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Introduction

The following Ambient Air Monitoring report was prepared for:

Mr. Mike Bisaga

Lakeland Industry & Community Association

Box 8237

5107W – 50 Street

Bonnyville, Alberta

T9N 2J5

Monitoring Location: St. Lina

Data Period: December 2010

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

Calibration Procedure

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

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

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

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

The calibrations conducted at the LICA – St. Lina Air Monitoring Stations conform to the following Maxxam Standard Operation Procedures:

- CAL SOP-00211
- CAL SOP-00209
- CAL SOP-00213
- CAL SOP-00214
- CAL SOP-00208
- CAL SOP-00215

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

MONTHLY CONTINUOUS DATA SUMMARY

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – ST. LINA

Continuous Ambient Monitoring – December 2010

LICA ST. LINA SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)		
						OBJECTIVES					EXCEEDENCES				
PARAMETER	1-HR	24-HR	1-HR	24-HR	MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY			
SO2 (PPB)	172	57	0	0	0.33	4	12, 13	VAR	VAR	VAR	1.9	13	100.0		
H2S (PPB)	10	3	0	0	0.05	1	VAR	VAR	VAR	VAR	0.7	8	99.7		
THC (PPM)	-	-	-	-	2.40	6.0	8	0	10.9	108(ESE)	3.4	7	99.7		
OZONE (PPB)	82	-	0	-	22.32	37	29	4	10.1	258(WSW)	33.1	29	100.0		
NOx (PPB)	-	-	-	-	4.92	36	6	18	14.4	134(SE)	21.1	6	99.7		
NO (PPB)	-	-	-	-	0.41	13	6	18	14.4	134(SE)	3.5	6	99.7		
NO2 (PPB)	212	106	0	0	4.25	28	6	VAR	VAR	VAR	17.3	6	99.7		
PM2.5 (ug/m3)	-	30	-	0	8.47	43.0	6	1	11.1	321(NW)	21.2	6	99.7		
TEMPERATURE (DEGREE C)	-	-	-	-	-14.43	-4.2	25	12, 13	12.2, 13.1	16(NNE), 16(NNE)	-7.6	25	100.0		
BP (MILLIBAR)	-	-	-	-	924	939	16, 17	VAR	VAR	VAR	937.2	17	100.0		
RH (%)	-	-	-	-	73.96	84	2	VAR	VAR	VAR	82.3	2	100.0		
PRECIPITATION (MM)	-	-	-	-	0.01	1.1	15	0	3.7	341(NNW)	3.5	15	100.0		
VECTOR WS (KPH)	-	-	-	-	10.59	20.8	12	11	-	116(ESE)	13.5	27	100.0		
VECTOR WD (DEGREES)	-	-	-	-	124(ESE)	-	-	-	-	-	-	-	100.0		

VAR-VARIOUS

General Monthly Summary

Equipment Operation

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

AQM STATION – LICA – St. Lina

Sulphur Dioxide (PPB)

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

No operational issue was observed during this month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration reading was invalidated due to a power failure on December 17th. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

No operational issue was observed during this month. The permeation tube was replaced following the as found points on December 14th. The flow orifice, the IZS orifice and the SO₂ scrubbing material were replaced on December 14th. A multi-point calibration was performed on December 15th. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration reading was invalidated due to a power failure on December 17th. Data was corrected using daily zero information.

Total HydroCarbon (PPM)

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

No operational issue was observed during this month. The pump diaphragm and small capillary tube running from the internal filter to the pump were replaced following the as found points on December 15th. The analyzer then was relit and allowed time to stabilize. A post-repair calibration was performed on December 15th. The inlet filter was changed and pressures were optimized before the monthly calibration was started. One hour of the maximum concentration reading was invalidated due to a power failure on December 17th. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – St. Lina

Ozone (PPB)

- Analyzer make / model –Thermo 49i, S/N: 1002240371 replaced to Thermo 49C, S/N: 49C-54926-302

No operational issue was observed during this month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration reading was invalidated due to a power failure on December 17th. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

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

No operational issue was observed during this month. The permeation tube was replaced and a new pump was installed following the as found points on December 14th. A post-repair calibration was performed on December 15th. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration reading was invalidated due to a power failure on December 17th. Data was corrected using daily zero information.

Particulate Matter 2.5 (UG/M3)

- Analyzer make / model – Thermo Scientific Series 1405F, S/N: 1405A208301003

No operational issue was observed during this month. A routine Teom audit with a leak check was performed on December 14th. After the audit, the Teom was put back into the “ Maintenance” mode and the Teom time was set the same as the logger; it was 4 minutes slower than the logger time. Data was corrected using Alberta air quality guideline. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. All hourly data were above 0 ug/m3 this month.

Temperature (Degree C)

- Analyzer make / model – Met One 060

No operational issue was observed during the month.

General Monthly Summary

AQM STATION – LICA – St. Lina

Barometric Pressure (Millibar)

- Analyzer make / model - Met One 092

No operational issue was observed during this month.

Relative Humidity (%)

- Analyzer make / model - Met One 083

No operational issue was observed during this month.

Precipitation (MM)

- Analyzer make / model - Met One 387

No operational issue was observed during this month.

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

- System make / model – Met 50.5, S/N: H12635

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

No operational issue was observed during this month.

Datalogger

- System make / model - ESC 8832, S/N: AO717
- Software make/version - ESC v 5.51a

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

General Monthly Summary

AQM STATION – LICA – St. Lina

Trailer

No issue was observed this month.

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. Four hours of AQI values recorded in December 2010 were in the Fair range, and they were all due to PM2.5. Others were within the Good range. The highest hourly concentration of PM2.5 was 43.0 ug/m³ and an AQI value of 32, hour 1 on December 6th. The highest hourly concentration of Ozone was 37 ppb and an AQI value of 19, hour of 4, on December 29th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

DECEMBER 2010

AIR QUALITY INDEX (AQI)

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

STATUS FLAG CODES

NA - NOT APPLICABLE

V - VARIOUS

AQI CLASS	OZONE (O ₃)					PARTICULATE MATTER 2.5 (PM _{2.5})					NITROGEN DIOXIDE (NO ₂)					SULPHUR DIOXIDE (SO ₂)					FREQUENCY	
	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	0	0.0%	-	-	-	4	0.5%	32	1	6	0	0.0%	-	-	-	0	0.0%	-	-	-	4	0.5%
GOOD (1-25)	536	72.0%	19	4	29	159	21.4%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	695	93.4%
OVERALL	519	72.0%	-	-	-	163	21.9%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	744	100.0%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45	6.0%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	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	MAX.	AVG.	RDGS.		
DAY																												
1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
3	0	0	0	0	0	0	0	0	0	0	0	IZS	0	2	2	3	1	0	0	0	0	0	0	0	0	3	0.3	24
4	0	0	0	0	1	1	0	0	0	0	IZS	1	2	1	1	1	0	0	0	1	1	2	3	2	2	3	0.8	24
5	1	1	1	1	1	1	0	0	IZS	0	0	1	2	2	1	1	1	1	1	1	1	0	0	0	0	2	0.8	24
6	0	0	0	0	0	1	1	IZS	1	1	2	2	2	2	2	1	1	1	1	1	1	0	0	0	0	2	0.9	24
7	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0	24	
8	1	1	1	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24
9	1	1	3	2	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.3	24
10	0	2	1	IZS	2	3	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0.7	24	
11	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
12	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3	2	2	2	3	4	4	0.9	24	
13	IZS	4	4	4	3	2	2	2	2	1	1	1	1	1	2	2	2	2	1	1	1	1	1	2	IZS	4	1.9	24
14	1	1	0	1	1	2	2	1	1	1	1	0	1	0	0	0	0	0	0	0	1	0	IZS	2	2	0.7	24	
15	2	2	1	1	1	1	1	1	2	2	2	C	C	C	C	0	0	0	C	0	0	0	IZS	0	0	2	0.9	24
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0.0	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0.0	24
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0.0	24
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0.0	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0.0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	1	1	1	0	0	0	1	0.2	24
24	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
27	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
28	0	0	0	0	1	1	2	1	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24
29	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
30	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
31	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	0	2	3	1	1	1	1	1	1	1	3	0.5	24
HOURLY MAX	2	4	4	4	3	3	3	2	2	2	2	2	2	2	3	2	2	3	3	2	2	3	3	4				
HOURLY AVG	0.3	0.5	0.4	0.3	0.3	0.4	0.4	0.3	0.2	0.2	0.3	0.3	0.4	0.3	0.4	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4				

STATUS FLAG CODES

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

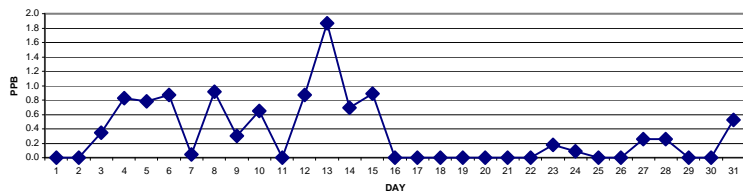
OBJECTIVE LIMIT:

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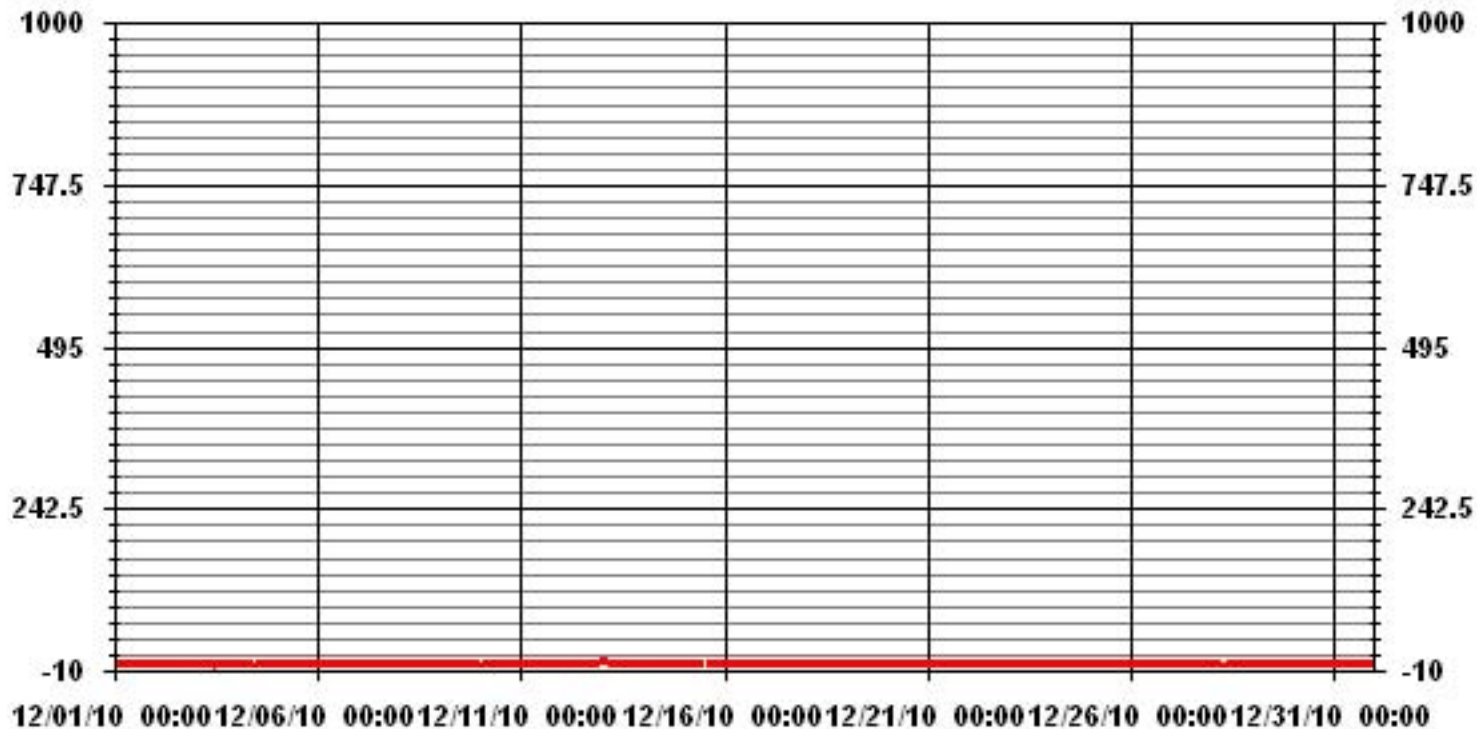
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	161		
MAXIMUM 1-HR AVERAGE:	4 PPB @ HOUR(S) VAR ON DAY(S) 12, 13		
MAXIMUM 24-HR AVERAGE:	1.9 PPB ON DAY(S) 13		
IZS CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	5 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.69	MONTHLY AVERAGE:	0.33 PPB

24 HOUR AVERAGES FOR DECEMBER 2010



01 Hour Averages



— LICA31 SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

DECEMBER 2010

SULPHUR DIOXIDE MAX instantaneous maximum in ppt

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.3	24	
4	0	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4	4	3	4	1.7	24	
5	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	3	1.8	24	
6	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	4	1.9	24	
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1.0	24
8	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1.8	24	
9	2	2	4	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.6	24	
10	2	3	2	1	1	3	4	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	4	1.7	24	
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	24	
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2.0	24	
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2.8	24	
14	2	2	1	1	2	3	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.5	24	
15	3	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	3	3	1.5	24	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	23	
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	24	
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	24	
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	24	
21	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	24	
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	24	
24	1	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	24	
25	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	24	
26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
27	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.3	24	
28	1	1	1	1	2	2	3	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.3	24	
29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.3	24	
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	24	
31	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	2	1	4	4	3	2	1	1	2	2	4	1.5	24	
HOURLY MAX	3	5	5	5	4	4	4	4	3	3	3	3	3	3	4	5	3	4	4	4	4	4	3	4	4	5			
HOURLY AVG	0.9	1.2	1.1	1.0	1.0	1.0	1.0	1.0	0.9	0.8	0.7	0.9	0.9	0.9	1.0	1.1	0.9	1.0	1.0	1.0	1.0	1.0	0.9	1.0	1.0	1.0			

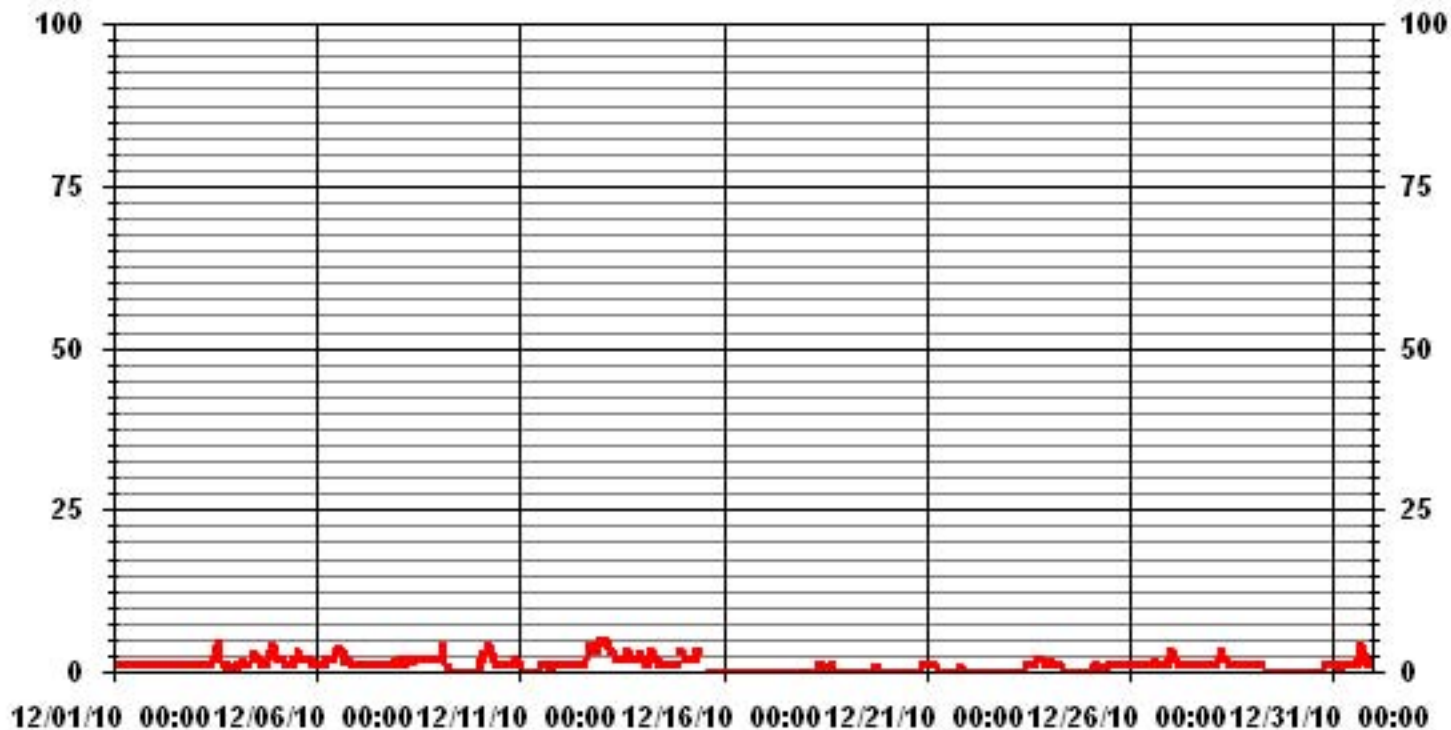
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	456					
MAXIMUM INSTANTANEOUS VALUE:	5	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
IZS CALIBRATION TIME:	32	HRS		OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	1.00					

01 Hour Averages



— LICA31 SO2MAX PPB

LICA31
 SO2_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : SO2_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	3.53	2.26	2.68	9.61	11.31	8.91	6.08	4.38	5.51	3.67	8.06	6.64	5.09	6.78	8.62	6.78	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.53	2.26	2.68	9.61	11.31	8.91	6.08	4.38	5.51	3.67	8.06	6.64	5.09	6.78	8.62	6.78	

Calm : .00 %

Total # Operational Hours : 707

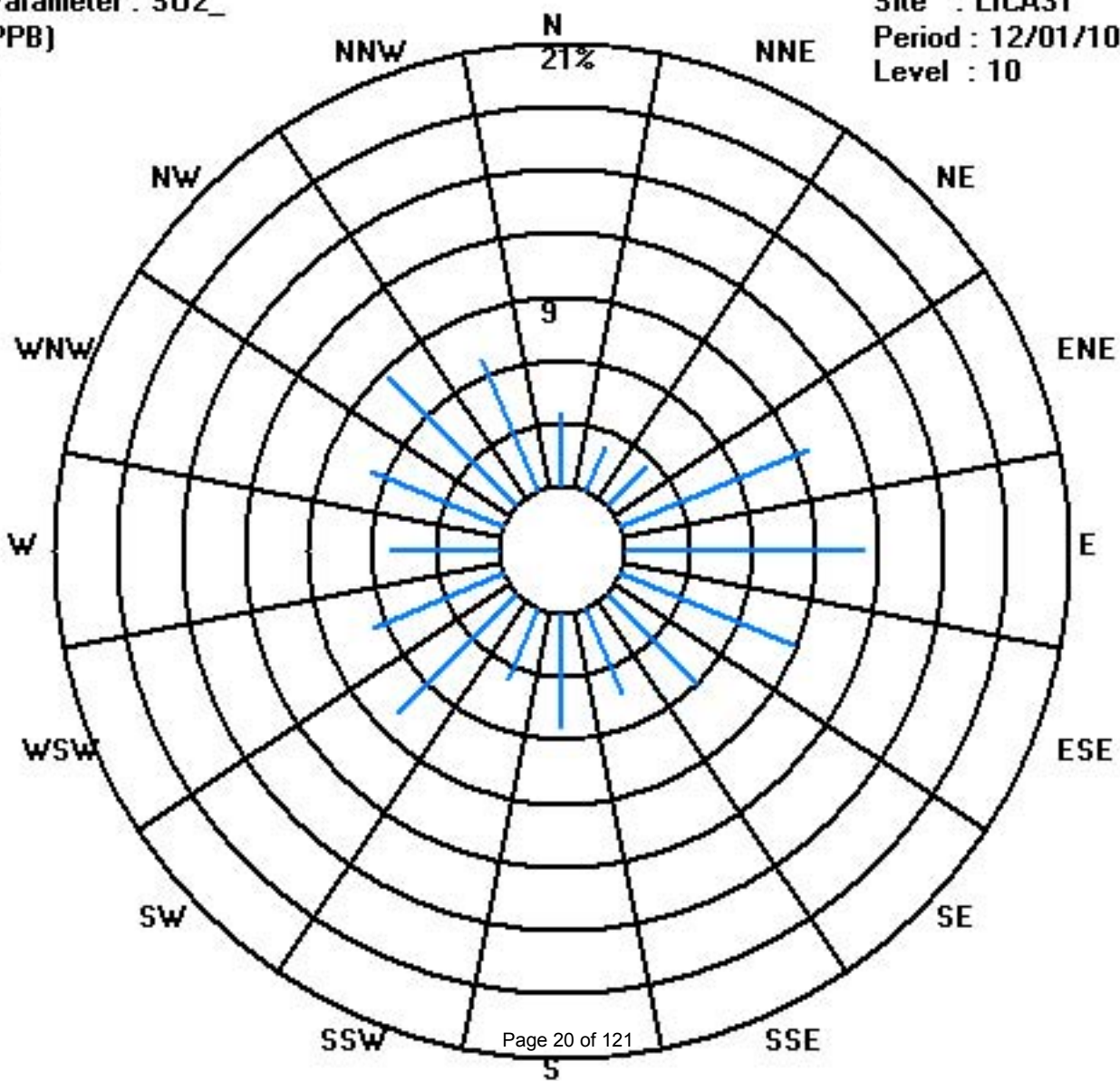
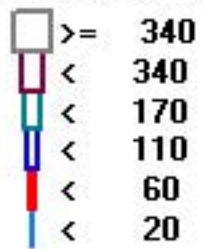
Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	25	16	19	68	80	63	43	31	39	26	57	47	36	48	61	48	707
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	25	16	19	68	80	63	43	31	39	26	57	47	36	48	61	48	

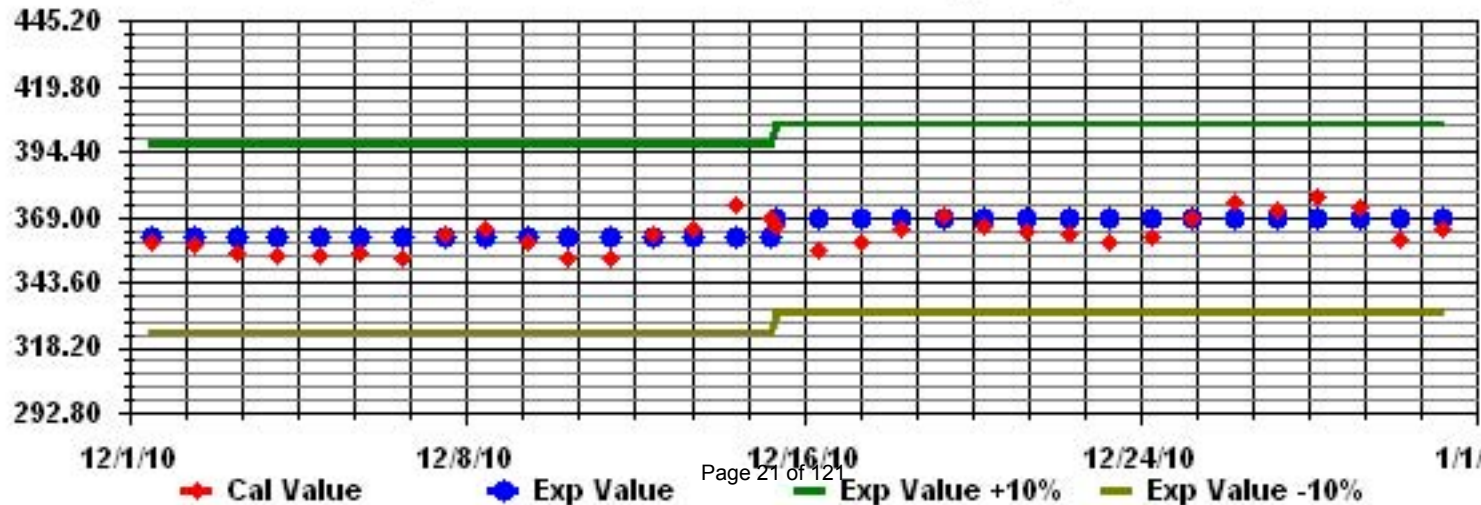
Calm : .00 %

Total # Operational Hours : 707

Class Limits (PPB)



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

HYDROGEN SULPHIDE (H₂S) hourly averages in ppb

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

STATUS FLAG CODES

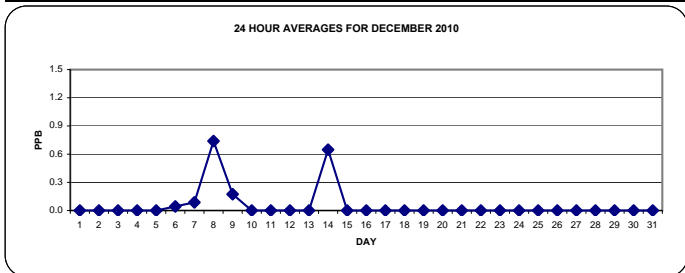
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

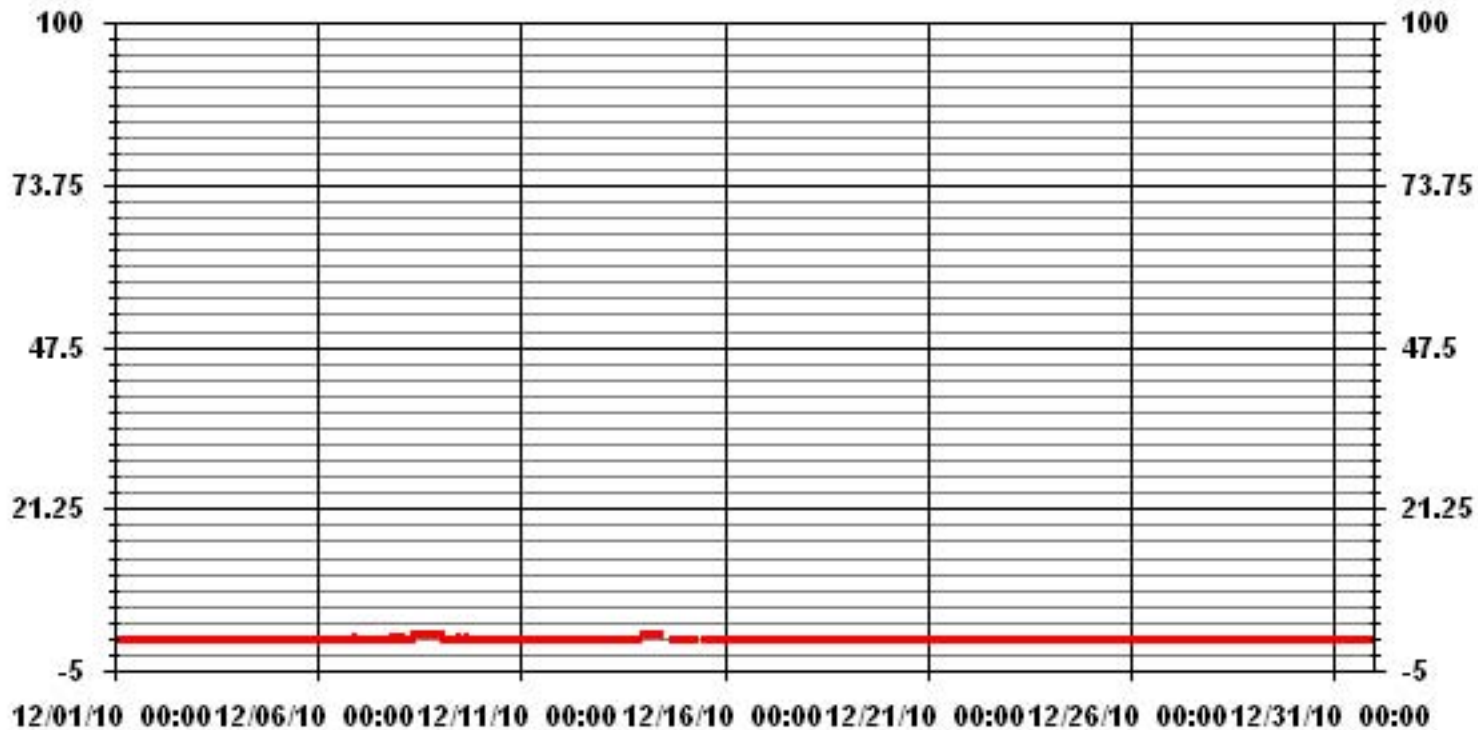
ALBERTA ENVIRONMENT: 1-HR 10 PPB 24-HR 3 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	35
MAXIMUM 1-HR AVERAGE:	1 PPB @ HOUR(S) VAR ON DAY(S) VAR
MAXIMUM 24-HR AVERAGE:	0.7 PPB ON DAY(S) 8 VAR-VARIOUS
IZS CALIBRATION TIME:	32 HRS OPERATIONAL TIME: 742 HRS
MONTHLY CALIBRATION TIME:	8 HRS AMD OPERATION UPTIME: 99.7 %
STANDARD DEVIATION:	0.22 MONTHLY AVERAGE: 0.05 PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST.LINA

DECEMBER 2010

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

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

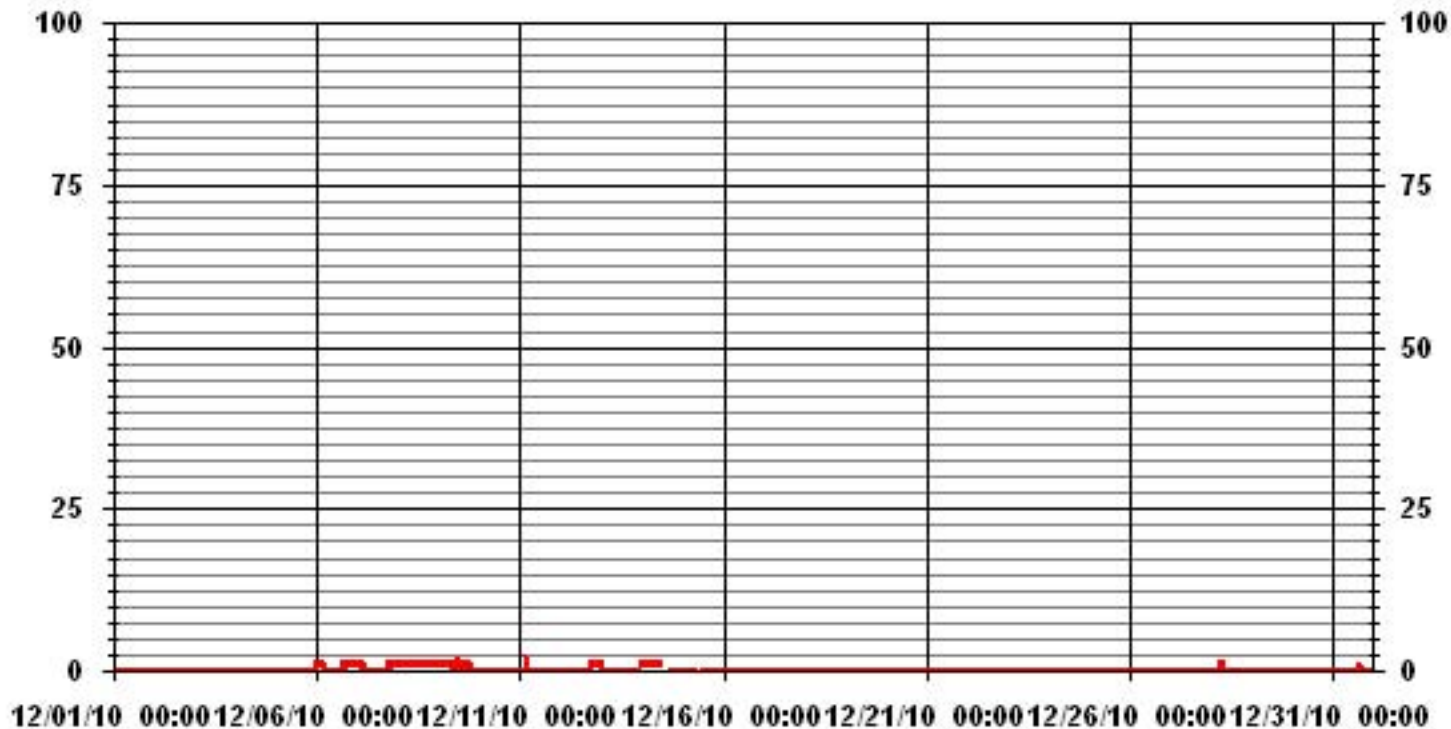
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	79					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	11, 3	ON DAY(S)	9, 11
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	0.33					

01 Hour Averages



— LICA31 H2S MAX PPB

LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : H2S_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	3.56	2.27	2.70	9.68	11.11	8.97	5.84	4.41	5.41	3.56	8.11	6.69	5.12	6.69	8.54	7.26	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.56	2.27	2.70	9.68	11.11	8.97	5.84	4.41	5.41	3.56	8.11	6.69	5.12	6.69	8.54	7.26	

Calm : .00 %

Total # Operational Hours : 702

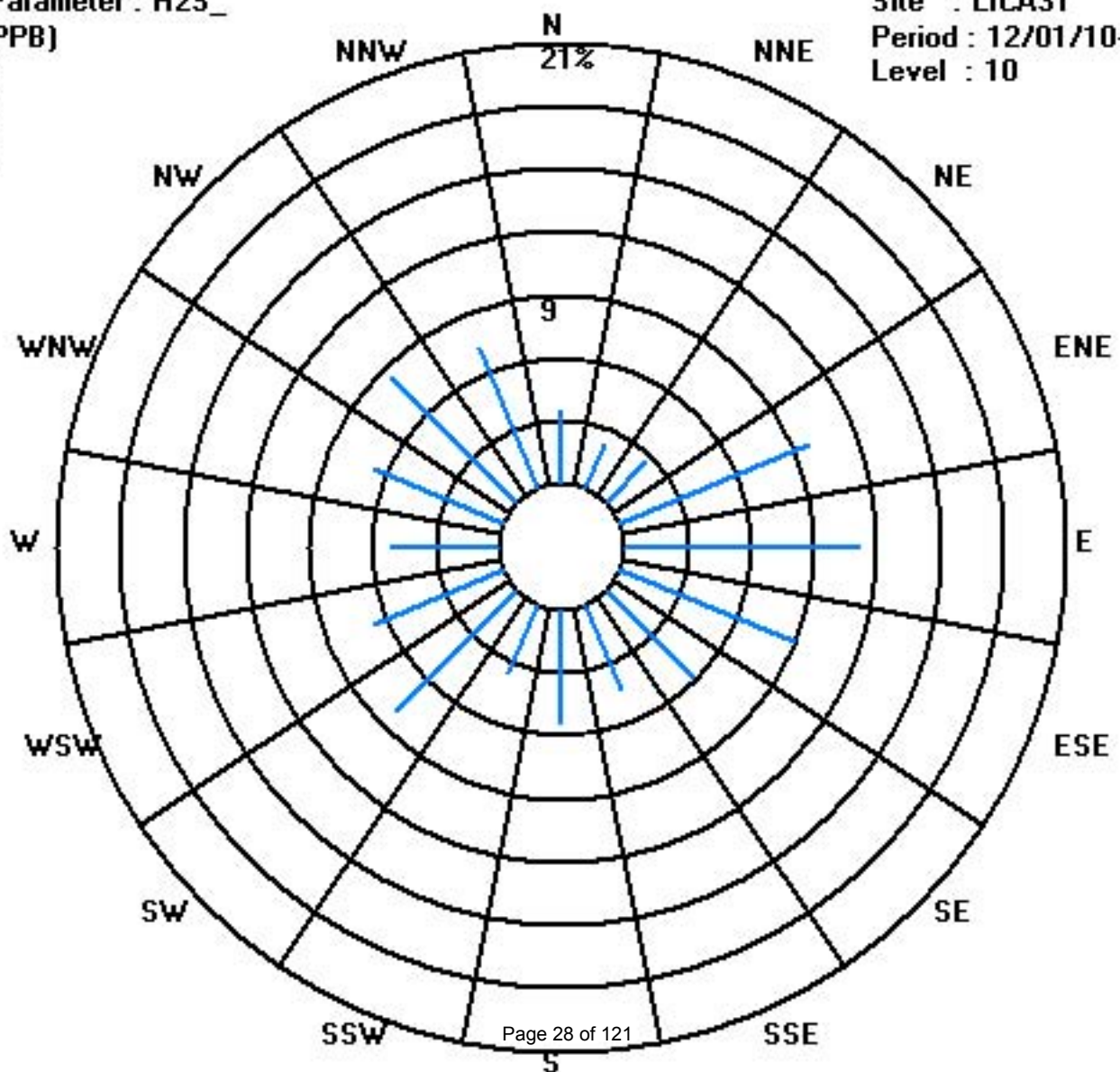
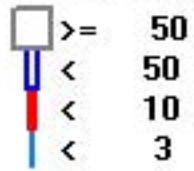
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	25	16	19	68	78	63	41	31	38	25	57	47	36	47	60	51	702
< 10																	
< 50																	
>= 50																	
Totals	25	16	19	68	78	63	41	31	38	25	57	47	36	47	60	51	

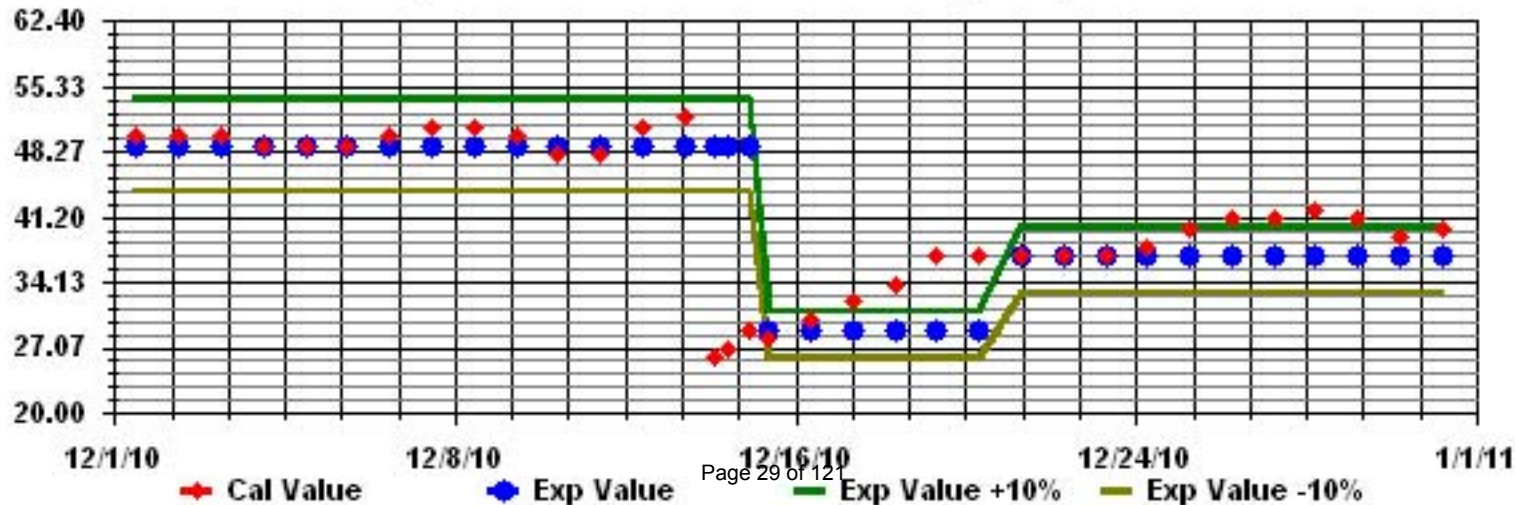
Calm : .00 %

Total # Operational Hours : 702

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST.LINA

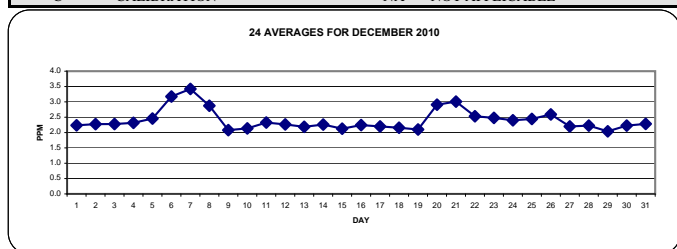
DECEMBER 2010

TOTAL HYDROCARBONS hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1		2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.2	IZS	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.3	2.2	2.1	2.3	2.2	2.1	2.3	2.2	24
2		2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	IZS	2.1	2.1	2.1	2.1	2.2	2.4	2.5	2.6	2.4	2.4	2.5	2.4	2.6	2.3	2.4	2.4	24
3		2.5	2.5	2.5	2.5	2.6	2.6	2.5	2.5	2.4	2.3	IZS	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.6	2.3	2.4	24
4		2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.3	IZS	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.3	2.4	24
5		2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.4	IZS	2.5	2.5	2.5	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.5	2.4	24	
6		2.7	2.7	2.7	2.7	2.5	2.3	2.2	IZS	2.7	2.7	2.8	2.7	2.6	2.4	2.5	3.2	3.8	4.3	5.1	4.4	4.4	3.9	4	3.7	5.1	3.2	2.4	24	
7		3.6	3.5	3.4	3.5	3.4	3.6	IZS	3.2	3.2	3	2.8	2.8	2.8	2.9	2.7	2.8	2.9	2.6	3.1	3.9	4.3	4.6	4.7	5.4	5.4	3.4	2.4	24	
8	6	5	4	3.2	2.8	IZS	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.8	2.9	3.1	3.2	2.8	6.0	2.9	2.4	24		
9		2.6	2.5	2.3	2.2	IZS	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.6	2.1	2.4	24
10		2.1	2.1	2.1	IZS	2.1	2.1	2.1	2.1	2	2	2	2	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.2	2.4	2.3	2.2	2.2	2.4	2.1	2.4	24	
11		2.3	2.3	IZS	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.3	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.4	24	
12	2.4	IZS	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.5	2.3	2.4	24	
13	IZS	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.2	2.2	IZS	2.3	2.2	2.4	24	
14		2.2	2.1	2.2	2.4	2.5	2.6	2.6	2.7	2.5	2.5	2.4	2.3	2.1	2.1	2.2	2.1	2	2	2.1	2.1	2.1	IZS	2.1	2.7	2.3	2.4	24		
15		2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.1	2.1	C	C	M	M	C	C	C	C	2.1	2.1	2.1	IZS	2.1	2.1	2.3	2.1	2.2	24	
16		2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	IZS	2.3	2.3	2.3	2.2	2.4	24	
17		2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	IZS	2.2	2.2	2.2	2.2	2.2	2.4	24	
18		2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.4	24	
19		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	24	
20		2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.6	2.8	IZS	3	4	4.3	4.8	4.3	4.9	5.6	5.6	2.9	2.4	24	
21		5.4	4.3	3.9	4.1	4	3.6	3.2	3	2.9	2.8	2.6	2.6	2.5	2.4	2.4	IZS	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	5.4	3.0	2.4	24	
22		2.5	2.6	2.5	2.7	2.7	2.6	2.7	2.6	2.6	2.5	2.6	2.6	2.6	2.5	IZS	2.4	2.3	2.4	2.4	2.6	2.5	2.5	2.3	2.5	2.7	2.5	2.4	24	
23		2.5	2.4	2.4	2.3	2.4	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.6	IZS	2.5	2.4	2.6	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.5	2.4	24	
24		2.7	2.6	2.8	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	IZS	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.8	2.4	2.4	24	
25		2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	IZS	2.3	2.3	2.4	2.5	2.4	2.5	2.5	2.5	2.5	2.6	2.7	2.9	2.9	2.4	2.4	24	
26		3	2.9	3.1	3.1	3.1	3	2.8	2.7	2.6	2.5	IZS	2.4	2.4	2.5	2.6	2.8	2.5	2.5	2.4	2.3	2.1	2.1	2.1	3.1	2.6	2.4	24		
27		2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	IZS	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	24	
28		2.2	2.3	2.4	2.6	2.5	2.5	2.6	2.5	IZS	2.5	2.3	2.2	2.2	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2.6	2.2	2.4	24	
29		2	2	2	2	2	2	2	IZS	2	2	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.4	24	
30		2.2	2.1	2.2	2.1	2.2	2.2	IZS	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.4	24	
31		2.3	2.3	2.3	2.3	2.3	IZS	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.4	24	
HOURLY MAX		6.0	5.0	4.0	4.1	4.0	3.6	3.2	3.2	3.2	3.0	2.8	2.8	2.8	2.9	2.7	3.2	3.8	4.3	5.1	4.4	4.8	4.6	4.9	5.6					
HOURLY AVG		2.6	2.5	2.5	2.5	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.6					

STATUS FLAG CODES

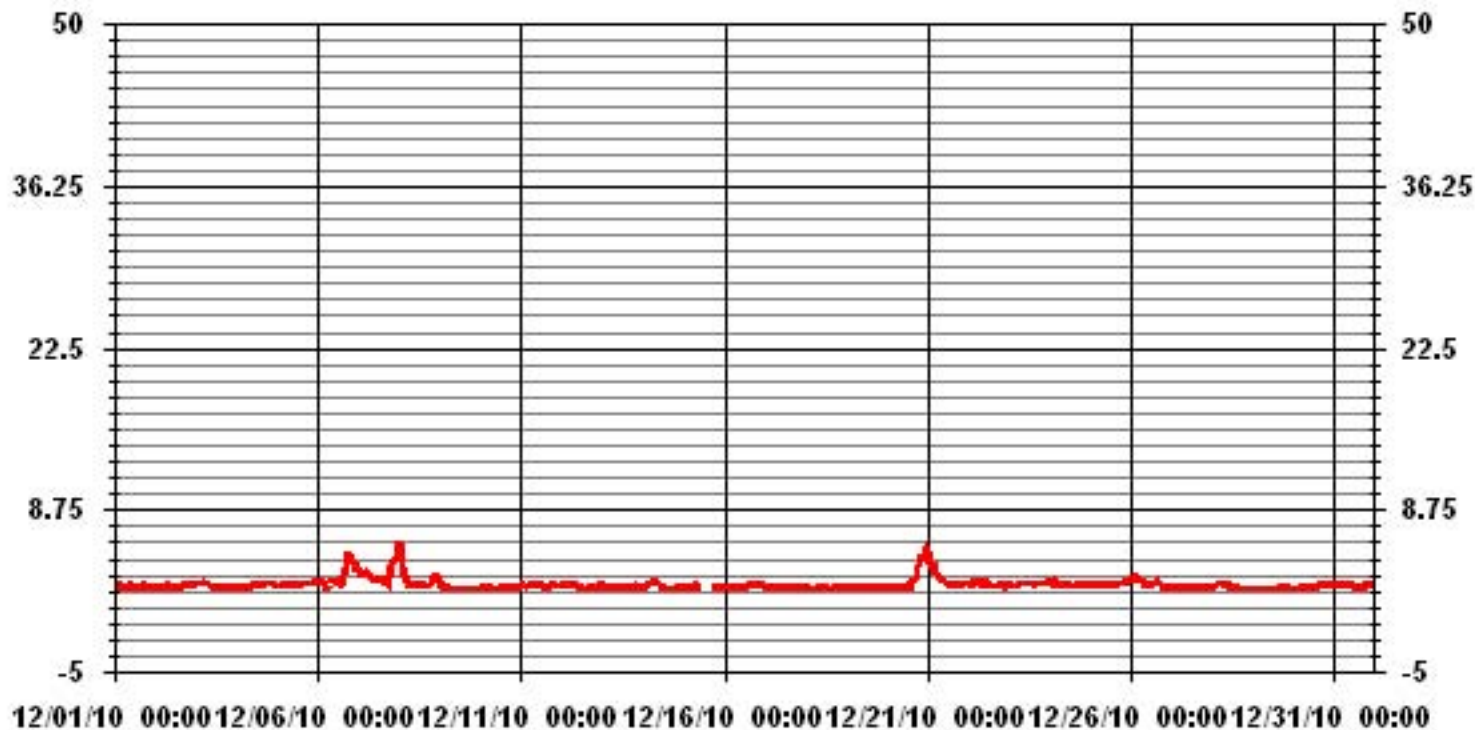
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704
MAXIMUM 1-HR AVERAGE:	6.0 PPM @ HOUR(S) 0 ON DAY(S) 8
MAXIMUM 24-HR AVERAGE:	3.4 PPM ON DAY(S) 7
	VAR- VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	0.50
OPERATIONAL TIME:	742 HRS
AMD OPERATION UPTIME:	99.7 %
MONTHLY AVERAGE:	2.40 PPM

01 Hour Averages



— LICA31 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1		2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	IZS	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.4	2.2	2.2	2.4	2.3	24
2		2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.5	2.9	2.6	IZS	2.1	2.5	2.1	2.3	2.4	2.5	2.6	2.7	2.5	2.4	2.5	2.5	2.9	2.4	24
3		2.9	2.5	2.5	2.6	4	2.9	2.6	2.5	2.5	2.4	IZS	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.2	2.5	2.2	2.1	2.1	4	2.4	24
4		2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	IZS	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	24
5		2.4	2.3	2.4	2.4	2.4	2.4	2.5	IZS	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	3	2.7	3	2.5	24
6		2.8	2.8	2.8	2.8	2.7	2.4	2.3	IZS	4.1	2.9	3.6	3.1	2.8	2.8	3.5	3.8	4	5.2	5.3	4.5	4.7	4.3	6	3.8	6	3.6	24
7		3.9	3.8	3.8	4.1	3.6	3.7	IZS	3.3	3.6	3.2	3.2	3.2	3.1	3.4	3	3.6	4.3	2.7	3.6	4.7	5.1	5.6	5.1	6	6	3.9	24
8		6.2	5.5	4.7	3.5	3	IZS	2.4	2.6	2.7	2.5	2.3	2.6	2.3	2.7	2.6	2.4	2.3	2.5	2.5	3	3.1	3.2	3.3	3.1	6.2	3.1	24
9		2.7	2.6	2.5	2.4	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2	2.2	2.1	2.2	2.1	2	2.1	2	2	2.1	2	2.1	2.1	2.7	2.2	24
10		2.2	2.3	2.3	IZS	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.5	2.4	2.4	2.8	3.1	3.4	3.3	3	2.9	2.6	2.8	3.4	2.5	24
11		2.8	2.9	IZS	2.8	2.9	2.8	2.9	2.9	2.8	2.8	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.7	2.6	2.5	2.3	2.4	2.4	2.9	2.7	24
12		2.4	IZS	2.5	2.5	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.5	2.3	24
13		IZS	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	IZS	2.3	2.2	24
14		2.2	2.1	2.3	2.5	2.6	2.6	2.7	2.7	2.6	2.6	2.4	2.6	2.3	2.3	2.4	2.4	2.5	2.2	2.1	2.9	2.6	2.5	IZS	2.9	2.9	2.5	24
15		2.5	2.6	2.3	2.2	2.2	2.2	2.3	2.4	2.2	2.1	C	C	M	M	C	C	C	C	2.1	2.1	2.1	IZS	2.1	2.2	2.6	2.2	22
16		2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	4.2	2.7	2.6	2.4	2.3	2.3	3.1	2.9	3.1	3	2.3	2.3	IZS	2.3	2.4	2.4	4.2	2.5	24
17		2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.2	P	2.2	2.2	2.2	2.2	2.2	2.2	2.6	3	2.2	2.2	IZS	2.2	2.2	2.2	2.2	3	2.3	23
18		2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.4	2.3	2.2	2.2	2.3	IZS	2.2	2.1	2.3	2.2	2.2	2.4	2.2	24
19		2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	IZS	2.1	2.1	2.1	2.2	2.2	2.4	2.4	2.2	24
20		2.2	2.3	2.4	2.2	2.2	2.2	2.3	3.1	2.2	2.2	2.2	2.2	2.2	2.7	2.7	3.3	IZS	3.5	4.2	5.8	5.7	4.9	5.7	7.1	7.1	3.3	24
21		6.7	4.8	4.9	4.6	4.7	4	3.6	3.6	3.3	3.5	2.9	3.1	2.5	2.5	2.4	IZS	2.5	2.5	2.4	2.4	2.5	2.5	2.5	2.7	6.7	3.4	24
22		3.1	2.9	2.9	3.1	3.1	3	3.5	3.3	2.9	2.8	3.1	3	2.9	2.8	IZS	2.8	2.7	2.8	2.8	3.5	3.6	3	2.6	3.3	3.6	3.0	24
23		3	2.8	3.2	2.7	2.9	2.6	3.1	3	3	3.1	2.9	2.9	IZS	2.8	2.8	3.3	3	2.8	2.6	2.8	3.2	2.9	3.1	3.3	2.9	2.4	24
24		2.7	3.1	3.7	2.6	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	IZS	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.3	3.7	2.5	24
25		2.3	2.3	2.4	2.4	2.4	2.4	3	2.6	3.4	2.4	2.4	IZS	2.4	2.3	3.1	3.5	2.7	2.5	3.2	2.5	2.6	3.2	4.1	5.7	5.7	2.9	24
26		3.8	3.5	3.5	3.5	3.5	3.3	3	3.2	2.7	2.9	IZS	2.5	2.5	3.3	4	11	2.8	2.6	2.7	2.4	2.2	2.2	2.1	2.2	11	3.3	24
27		2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	IZS	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	24
28		2.3	2.5	2.5	2.6	2.6	2.6	2.6	2.7	IZS	2.8	2.4	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.3	24
29		2.1	2	2.1	2.1	2	2.1	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.1	24
30		2.3	2.3	2.3	2.3	2.2	2.3	IZS	2.4	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.3	24
31		2.4	2.3	2.3	2.3	2.3	IZS	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	24
HOURLY MAX		7	6	5	5	5	4	4	4	4	4	4	3	3	3	4	11	4	5	5	6	6	6	6	7			
HOURLY AVG		2.8	2.7	2.7	2.6	2.6	2.5	2.5	2.6	2.6	2.5	2.5	2.4	2.4	2.4	2.5	2.8	2.6	2.6	2.6	2.7	2.7	2.7	2.8	2.9			

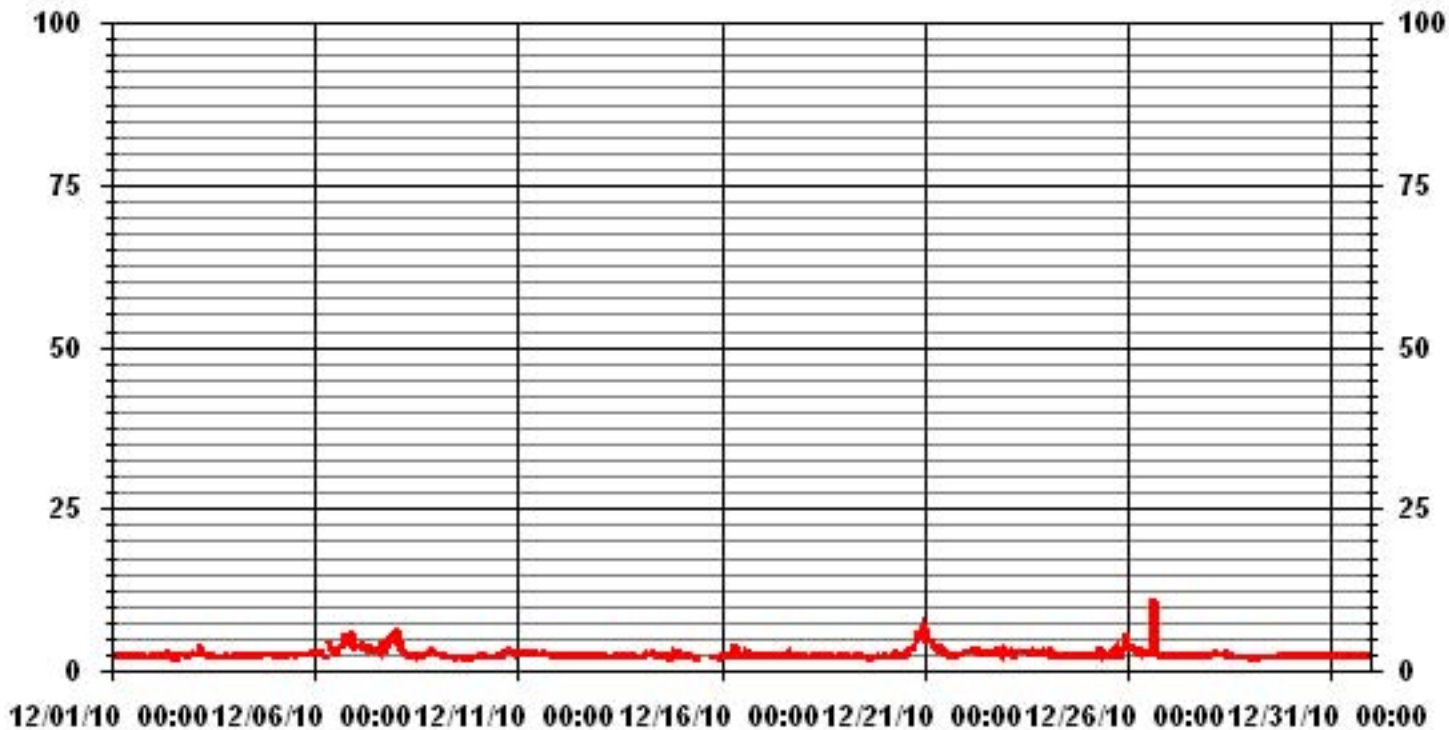
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	703					
MAXIMUM INSTANTANEOUS VALUE:	11.0	PPM	@ HOUR(S)	15	ON DAY(S)	26
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.75					

01 Hour Averages



— LICA31 THCMAX PPM

LICA31
 THC / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : THC
 Units : PPM

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	3.55	2.27	1.98	7.81	10.08	6.81	5.39	4.26	5.53	3.69	7.81	6.67	5.11	6.81	8.66	6.39	92.89
< 10.0	.00	.00	.71	1.84	1.27	2.13	.71	.14	.00	.00	.28	.00	.00	.00	.00	.00	7.10
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.55	2.27	2.69	9.65	11.36	8.94	6.10	4.40	5.53	3.69	8.09	6.67	5.11	6.81	8.66	6.39	

Calm : .00 %

Total # Operational Hours : 704

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	25	16	14	55	71	48	38	30	39	26	55	47	36	48	61	45	654
< 10.0			5	13	9	15	5	1			2						50
< 50.0																	
>= 50.0																	
Totals	25	16	19	68	80	63	43	31	39	26	57	47	36	48	61	45	

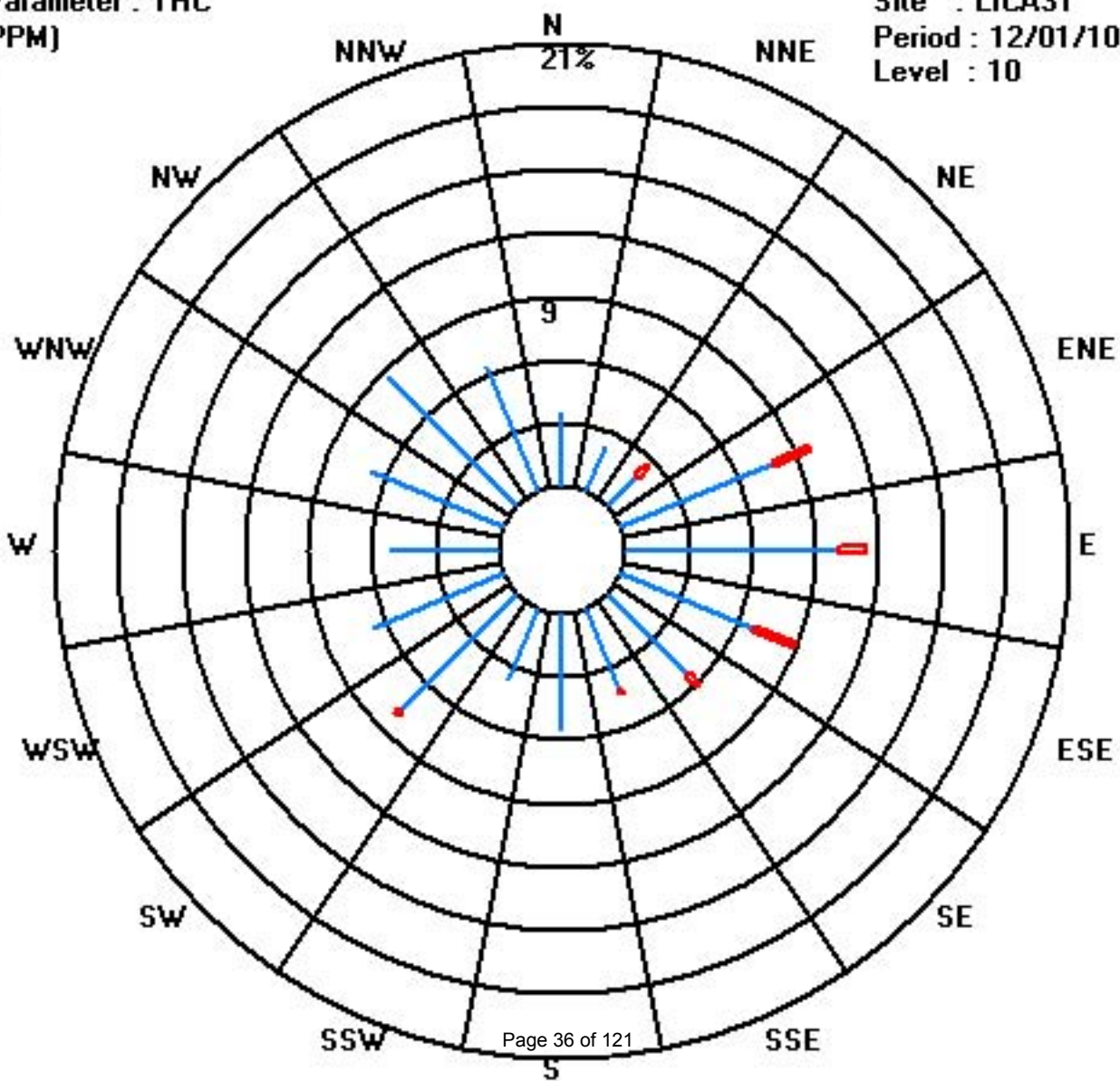
Calm : .00 %

Total # Operational Hours : 704

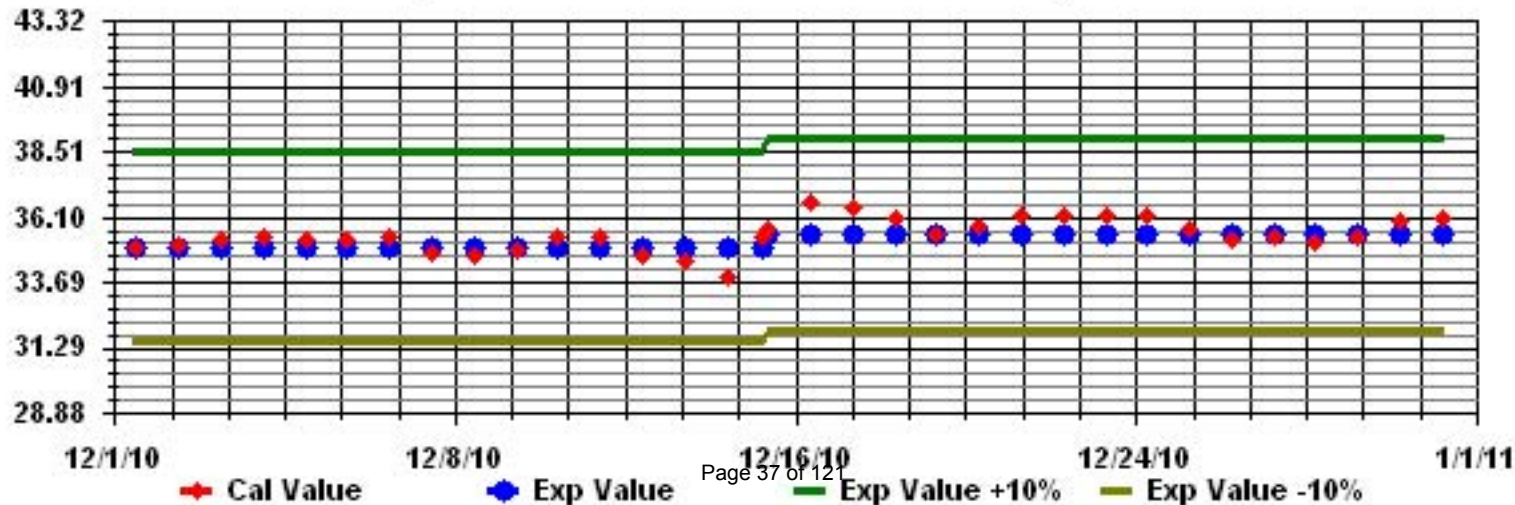
Class Limits (PPM)

Period : 12/01/10-12/31/10

Level : 10



Calibration Graph for Site: LICA31 Parameter: THC Sequence: THC Phase: SPAll



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

OZONE (O₃) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.		
DAY																												
1	30	30	30	29	29	29	29	28	27	27	27	28	IZS	28	28	28	25	26	25	25	26	26	27	27	27	30	27.6	24
2	25	24	25	24	24	24	22	21	21	21	24	IZS	27	29	29	29	29	27	26	26	27	27	27	27	27	29	25.4	24
3	25	25	25	25	25	24	23	23	23	24	IZS	14	13	15	18	19	20	21	21	22	21	22	24	23	25	21.5	24	
4	23	20	19	18	17	23	24	23	20	IZS	19	18	19	19	18	17	16	8	7	7	6	9	13	24	16.5	24		
5	16	17	16	14	13	12	13	12	IZS	14	17	19	20	20	18	15	12	10	10	10	8	6	5	5	20	13.1	24	
6	4	4	3	5	14	23	25	IZS	9	16	18	21	25	28	28	15	3	1	0	1	0	0	0	1	28	10.6	24	
7	0	0	1	2	2	2	IZS	5	6	9	12	13	13	13	13	10	9	9	8	7	4	4	5	4	13	6.6	24	
8	2	6	12	14	17	IZS	20	20	19	20	21	21	20	21	20	20	20	19	19	16	14	12	11	13	21	16.4	24	
9	12	11	12	12	IZS	15	16	17	17	18	19	20	21	21	21	21	21	21	21	21	21	21	22	22	22	22	18.4	24
10	19	19	23	IZS	26	24	23	23	26	27	29	30	30	30	30	30	30	28	28	28	28	27	26	26	28	30	26.5	24
11	30	29	IZS	27	27	27	27	26	27	27	28	28	28	28	28	28	28	28	27	27	27	27	28	28	28	30	27.6	24
12	27	IZS	26	26	26	26	27	28	28	28	28	28	28	28	27	27	26	26	25	25	25	24	23	22	28	26.2	24	
13	IZS	22	22	22	22	21	20	20	20	20	20	20	19	18	17	16	15	15	16	15	15	15	17	19	IZS	22	18.7	24
14	21	25	25	23	22	21	20	21	22	22	23	24	24	24	24	24	24	25	25	25	24	23	IZS	23	25	23.2	24	
15	22	21	20	19	20	19	16	13	10	12	14	15	16	C	C	C	C	C	21	22	23	IZS	23	22	23	18.1	24	
16	22	22	22	21	21	21	21	21	21	22	22	22	22	22	22	22	22	21	21	19	IZS	20	20	21	22	21.3	24	
17	21	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	20	IZS	19	20	19	20	22	21.4	24	
18	21	23	26	29	35	33	29	28	27	27	28	28	29	28	28	27	27	26	IZS	27	28	28	29	29	35	27.8	24	
19	29	28	28	28	28	27	27	27	26	27	28	28	28	29	29	30	29	29	IZS	28	27	27	27	26	26	30	27.7	24
20	26	25	24	23	22	22	23	24	24	26	26	26	28	29	25	24	IZS	20	13	13	12	15	13	9	29	21.4	24	
21	10	15	18	16	14	15	17	19	20	19	21	22	25	27	28	IZS	27	28	28	27	27	26	26	25	28	21.7	24	
22	25	26	26	25	25	25	25	25	25	25	25	25	25	25	IZS	24	24	25	24	24	25	25	26	26	26	25.0	24	
23	26	27	27	28	28	28	28	28	27	27	27	27	27	IZS	25	25	24	24	24	24	24	23	22	23	28	25.7	24	
24	24	25	23	25	27	27	27	28	28	28	28	28	IZS	29	29	29	29	29	29	29	31	31	32	32	32	28.1	24	
25	32	32	32	32	32	32	33	33	33	34	35	IZS	36	36	35	34	34	34	33	33	33	33	32	31	29	36	33.0	24
26	28	26	24	23	22	22	24	25	25	IZS	25	25	26	26	26	26	25	24	22	22	23	22	21	21	28	23.9	24	
27	17	17	17	18	18	18	16	16	16	IZS	18	16	17	17	16	16	16	15	16	17	17	17	17	16	18	16.7	24	
28	16	14	10	4	4	3	0	5	IZS	11	15	17	20	23	25	27	29	31	32	31	31	33	34	32	34	19.4	24	
29	34	35	35	36	37	36	36	IZS	36	36	36	34	34	34	34	33	32	30	30	29	29	29	28	28	37	33.1	24	
30	28	28	28	27	27	IZS	26	26	25	22	22	24	25	25	23	21	19	18	17	17	16	15	17	28	22.7	24		
31	19	21	21	23	26	IZS	25	25	24	25	27	28	30	31	31	31	30	29	26	24	23	23	21	21	31	25.4	24	
HOURLY MAX	34	35	35	36	37	36	36	33	36	36	36	34	36	36	35	34	34	34	33	33	33	33	33	34	32			
HOURLY AVG	21.1	21.3	21.4	21.3	22.4	22.3	22.6	21.8	22.6	22.9	23.4	23.1	24.0	24.7	24.9	23.8	23.1	22.3	21.5	21.3	21.1	21.0	21.0	21.1				

STATUS FLAG CODES

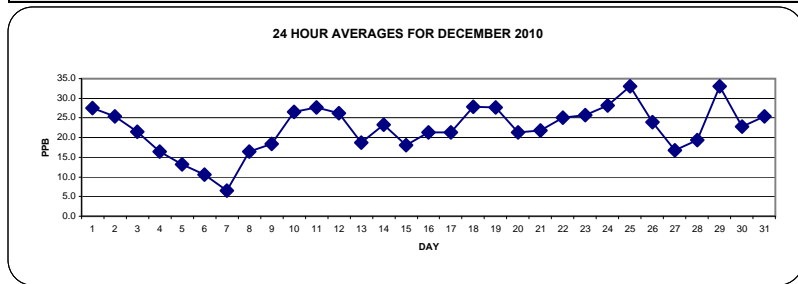
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

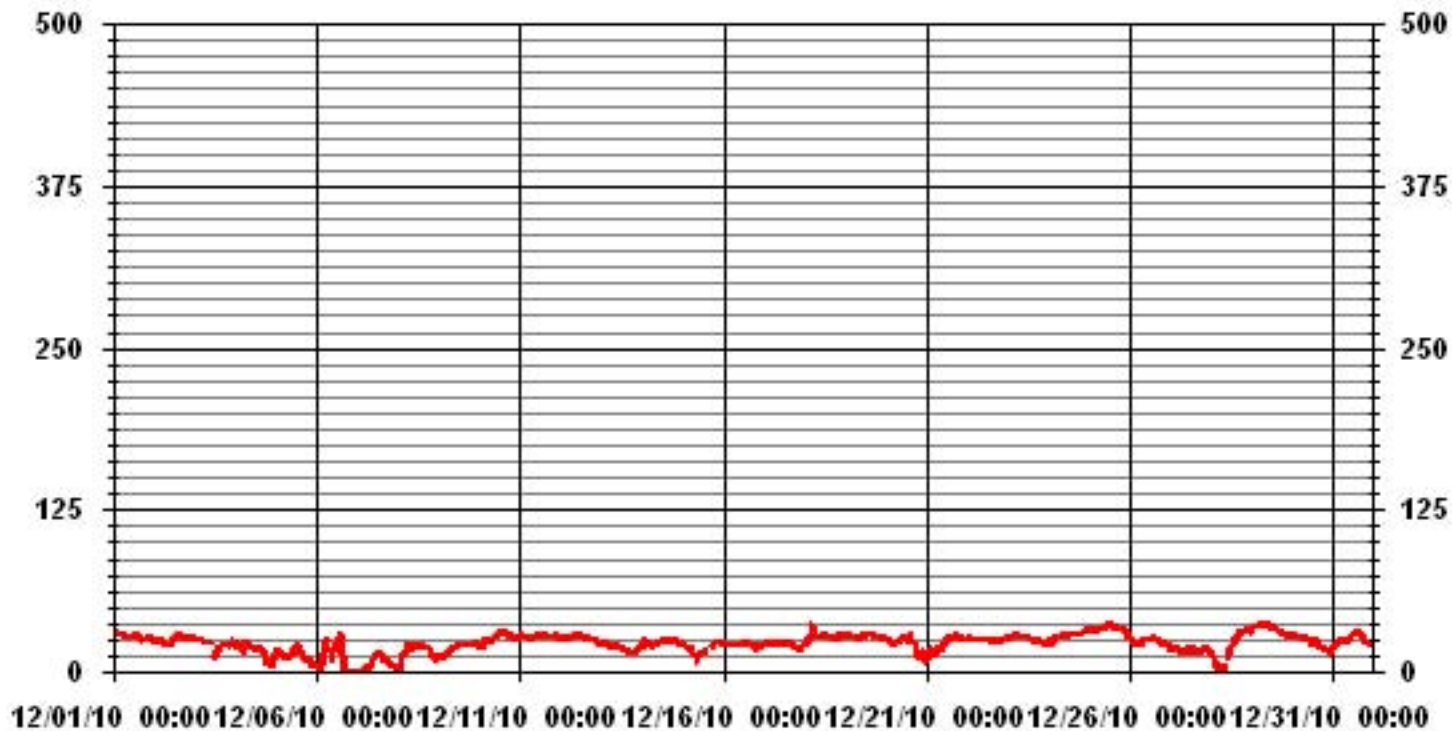
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	701				
MAXIMUM 1-HR AVERAGE:	37	PPB	@ HOUR(S)	4	ON DAY(S) 29
MAXIMUM 24-HR AVERAGE:	33.1	PPB			ON DAY(S) 29
					VAR-VARIOUS
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME	100.0	%
STANDARD DEVIATION	7.20		MONTHLY AVERAGE	22.32	PPB



01 Hour Averages



— LICA31 03_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

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	30	30	30	30	30	30	30	28	28	28	28	29	IZS	29	29	29	28	27	26	27	26	27	27	27	30	28.4	24	
2	27	26	25	25	25	25	23	22	22	22	33	IZS	28	30	30	30	29	27	27	27	27	27	28	28	33	26.8	24	
3	26	26	26	27	25	25	24	24	24	25	IZS	15	14	17	19	20	21	23	22	23	22	24	25	24	27	22.7	24	
4	25	22	20	19	21	24	25	25	21	IZS	20	19	19	20	19	18	19	19	11	8	9	7	11	15	25	18.1	24	
5	18	17	17	16	13	13	13	13	IZS	16	18	20	21	21	20	17	13	11	11	11	10	7	6	5	21	14.2	24	
6	5	4	4	11	20	25	27	IZS	11	17	21	23	27	30	29	26	7	3	2	2	1	1	2	30	13.0	24		
7	1	2	2	3	3	2	IZS	6	9	11	13	14	14	14	12	10	11	9	8	6	5	6	5	14	7.8	24		
8	3	9	14	15	19	IZS	21	21	20	22	22	22	21	21	21	20	20	19	18	14	13	13	13	22	17.5	24		
9	13	13	13	13	IZS	16	17	17	18	19	20	21	21	22	22	22	22	22	21	21	23	23	23	23	23	19.3	24	
10	22	21	25	IZS	28	25	24	26	27	29	30	31	30	31	31	30	29	28	28	28	28	28	27	30	31	27.8	24	
11	30	30	IZS	28	28	28	27	27	28	28	28	28	28	29	28	28	28	28	27	28	28	29	28	28	30	28.2	24	
12	28	IZS	27	27	27	26	28	29	29	29	28	28	28	28	28	27	27	27	26	26	26	25	24	23	29	27.0	24	
13	IZS	22	22	22	22	22	21	20	20	20	20	20	20	19	18	18	16	16	17	16	16	18	19	IZS	22	19.3	24	
14	24	26	27	24	23	21	21	22	23	23	24	25	25	25	24	25	25	26	26	25	25	24	IZS	23	27	24.2	24	
15	23	22	22	20	20	20	16	15	11	13	15	16	16	17	C	C	C	C	C	23	23	IZS	23	22	23	18.7	24	
16	22	22	22	21	21	21	21	21	22	22	22	23	23	23	23	22	21	22	21	IZS	21	21	21	21	23	21.8	24	
17	22	23	23	23	23	22	22	22	P	22	22	23	23	23	22	23	23	22	21	IZS	20	20	20	21	23	22.0	23	
18	22	25	28	33	36	35	31	29	28	28	28	30	30	29	28	28	28	27	IZS	28	29	28	29	29	36	29.0	24	
19	29	29	29	29	29	28	28	27	27	28	28	29	29	30	30	30	29	IZS	28	28	28	28	27	27	30	28.4	24	
20	27	26	24	24	23	24	24	24	25	27	28	27	29	30	26	25	IZS	23	16	15	12	16	16	11	30	22.7	24	
21	12	18	20	18	14	16	18	20	22	20	22	23	27	28	29	IZS	28	28	28	28	27	27	26	26	29	22.8	24	
22	26	26	26	26	26	26	26	25	25	26	26	25	26	25	IZS	24	25	26	24	24	25	26	27	27	27	25.6	24	
23	27	27	28	29	29	29	29	27	28	28	27	27	IZS	26	26	25	24	24	24	24	24	24	23	25	29	26.5	24	
24	25	26	24	27	27	27	28	28	28	28	29	29	IZS	29	29	30	29	29	30	31	32	33	33	33	33	28.7	24	
25	33	33	32	33	32	33	33	34	34	35	35	IZS	36	36	36	35	35	35	34	34	33	33	32	31	36	33.8	24	
26	29	28	25	25	22	23	25	25	25	IZS	26	26	26	31	36	29	25	25	22	23	22	22	22	36	25.4	24		
27	19	18	18	19	19	19	17	17	17	IZS	18	17	17	18	17	17	16	16	18	18	18	18	17	19	17.7	24		
28	16	15	14	8	6	5	1	13	IZS	17	17	19	21	24	26	30	31	32	33	32	34	35	35	33	35	21.6	24	
29	35	36	35	37	37	37	37	IZS	37	36	36	35	35	35	35	33	33	32	30	30	30	30	29	28	37	33.8	24	
30	28	28	28	28	27	28	IZS	27	27	27	23	23	25	25	26	24	22	21	18	18	17	17	16	18	28	23.5	24	
31	20	22	22	24	27	IZS	26	25	24	26	28	30	31	31	32	32	31	30	28	25	24	23	22	21	32	26.3	24	
HOURLY MAX	35	36	35	37	37	37	37	34	37	36	36	35	36	36	36	35	35	35	34	34	34	35	35	33				
HOURLY AVG	22.2	22.4	22.4	22.8	23.4	23.3	23.5	22.8	23.5	24.0	24.5	24.0	24.7	25.5	25.8	25.5	24.2	23.5	22.4	22.3	22.0	21.9	21.9	21.9				

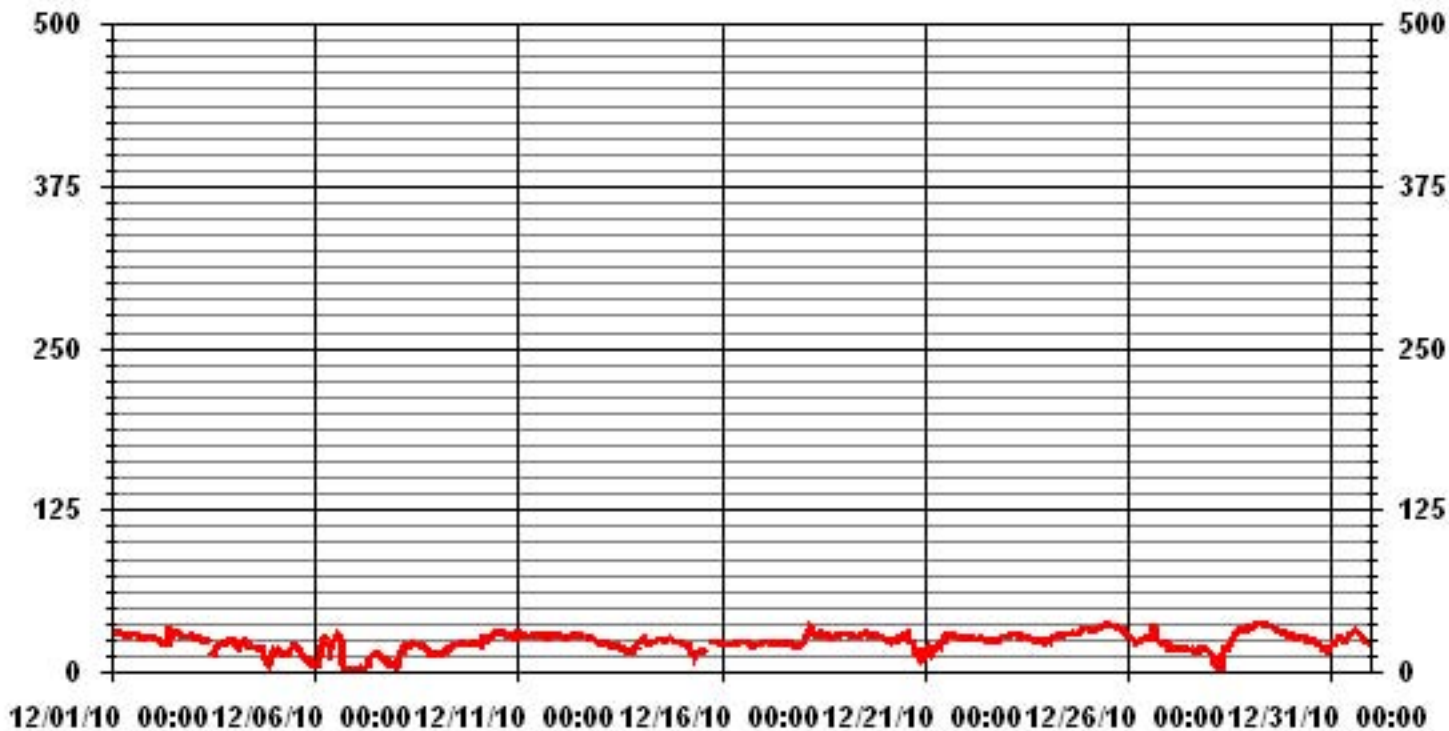
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706				
MAXIMUM INSTANTANEOUS VALUE:	37	PPB	@ HOUR(S)	VAR	ON DAY(S) 29
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	5	HRS			
STANDARD DEVIATION	7.03				

01 Hour Averages



— LICA31 O3MAX PPB

LICA31
 O3_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : O3_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	3.53	2.25	2.68	9.60	11.29	8.89	6.07	4.37	5.50	3.67	8.05	6.63	5.08	6.77	8.61	6.92	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.53	2.25	2.68	9.60	11.29	8.89	6.07	4.37	5.50	3.67	8.05	6.63	5.08	6.77	8.61	6.92	

Calm : .00 %

Total # Operational Hours : 708

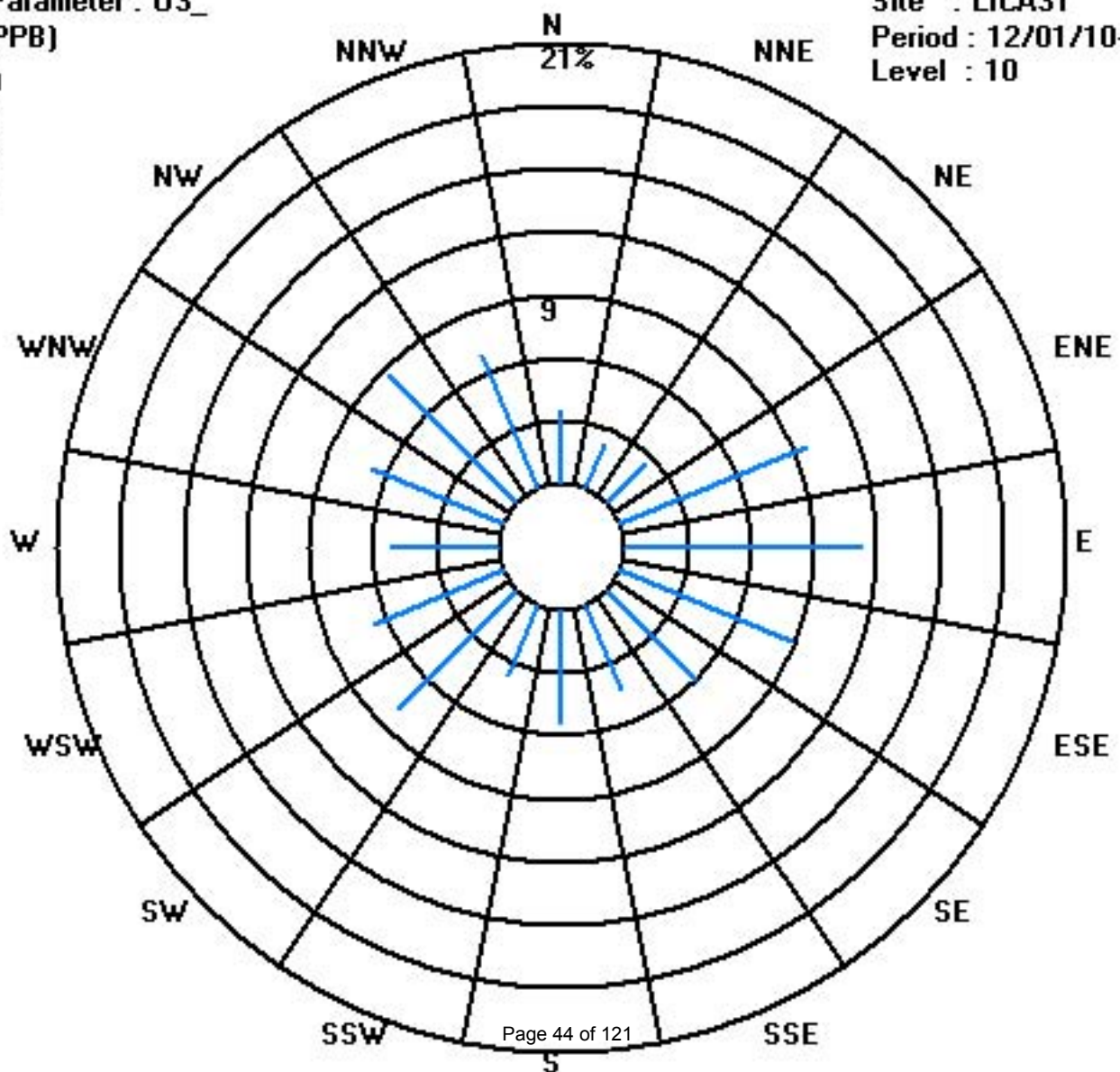
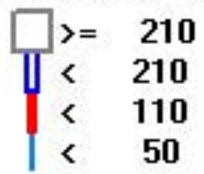
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	25	16	19	68	80	63	43	31	39	26	57	47	36	48	61	49	708
< 110																	
< 210																	
>= 210																	
Totals	25	16	19	68	80	63	43	31	39	26	57	47	36	48	61	49	

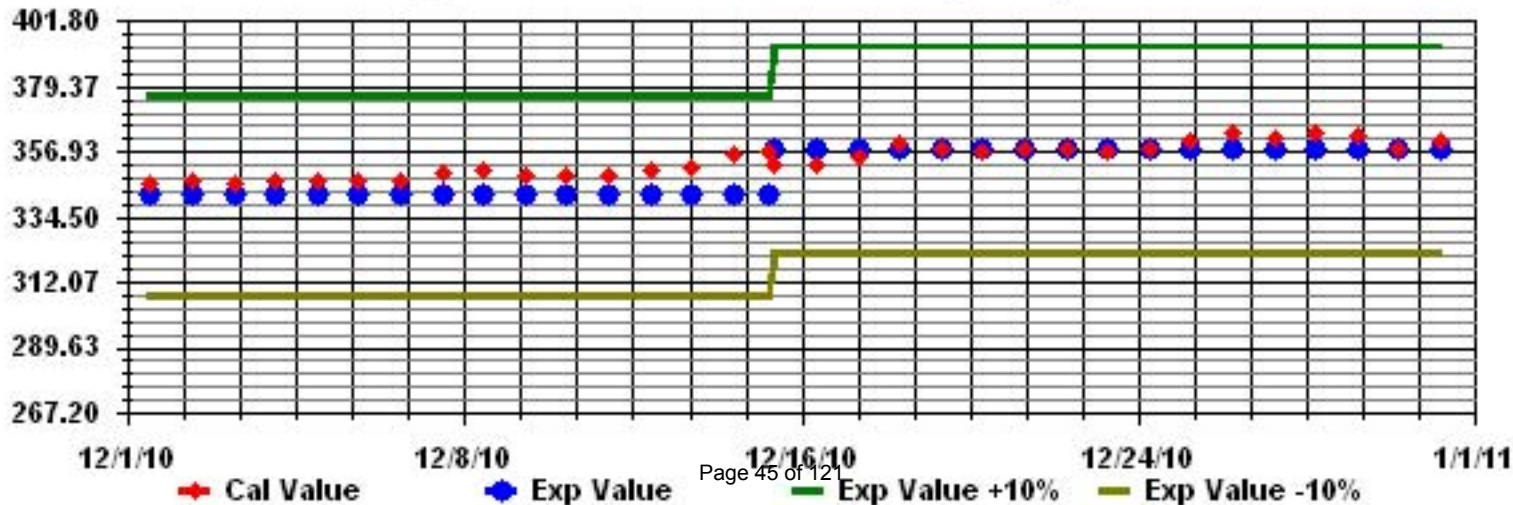
Calm : .00 %

Total # Operational Hours : 708

Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: 03_ Sequence: 03 Phase: SPAN



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

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	2	2	2	2	2	2	2	2	2	3	3	2	IZS	2	3	2	5	4	4	4	3	3	3	3	5	2.7	24	
2	3	4	3	3	3	3	3	3	3	3	3	IZS	2	1	2	1	1	2	3	3	2	2	2	2	4	2.5	24	
3	2	2	2	2	2	2	2	1	1	1	IZS	4	4	3	2	2	1	1	1	1	1	1	1	1	4	1.7	24	
4	1	2	3	4	5	4	3	4	6	IZS	6	7	7	8	10	11	11	11	20	21	24	20	15	24	9.7	24		
5	12	12	12	13	15	15	15	15	IZS	12	11	10	10	11	12	14	17	19	20	20	22	23	25	26	26	15.7	24	
6	28	28	28	25	17	10	8	IZS	16	11	9	8	7	6	7	12	20	22	22	23	23	23	23	22	28	17.3	24	
7	22	22	20	19	18	18	IZS	13	11	8	5	4	5	6	5	8	8	7	9	13	17	20	19	19	22	12.9	24	
8	21	17	12	9	7	IZS	3	3	4	3	3	3	3	3	4	4	3	3	4	6	7	8	8	6	21	6.3	24	
9	5	4	3	2	IZS	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.7	24	
10	3	4	2	IZS	2	3	4	3	2	1	1	0	1	1	1	2	2	3	3	2	3	4	5	3	5	2.4	24	
11	2	2	IZS	2	3	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2.1	24	
12	3	IZS	3	3	3	3	3	2	2	2	2	2	2	2	2	3	3	4	3	3	4	4	5	5	5	2.8	24	
13	IZS	4	4	4	4	3	3	4	4	3	3	4	4	5	7	9	11	12	10	10	10	10	8	IZS	12	6.2	24	
14	6	4	4	4	5	5	5	4	3	3	3	C	C	M	M	C	C	1	1	2	2	2	IZS	2	6	3.3	22	
15	2	2	2	1	1	2	3	3	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	IZS	0	3	1.0	24
16	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1	2	IZS	1	1	1	2	0.4	24	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	IZS	1	1	1	1	1	1	0.4	24
18	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	2	1	IZS	1	0	0	0	0	2	0.4	24	
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0.0	24	
20	1	0	1	1	1	1	1	0	1	1	1	1	1	1	3	4	IZS	5	12	12	14	11	13	15	15	4.4	24	
21	15	10	8	9	10	9	7	6	5	5	4	3	3	3	3	IZS	3	3	3	4	4	4	4	5	15	5.7	24	
22	4	4	3	4	4	3	4	4	4	4	3	4	4	4	IZS	4	4	4	4	4	4	4	3	3	4	3.8	24	
23	3	3	3	2	2	2	2	2	3	3	2	3	3	IZS	4	4	4	5	5	4	4	5	5	5	5	3.4	24	
24	5	4	4	3	2	2	2	2	2	2	1	1	IZS	1	2	2	2	2	3	2	2	2	2	2	5	2.3	24	
25	2	2	2	2	2	2	2	2	1	1	2	IZS	1	2	2	3	2	3	3	2	2	3	3	3	3	2.1	24	
26	3	4	5	5	6	6	6	4	3	3	IZS	3	3	3	4	4	4	4	4	3	2	2	2	1	6	3.7	24	
27	3	3	2	1	1	0	0	0	0	IZS	0	0	0	0	0	0	1	1	0	0	0	1	1	1	3	0.7	24	
28	1	2	6	14	16	20	24	22	IZS	16	5	2	1	1	1	1	0	0	0	0	0	0	0	0	24	5.7	24	
29	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	
30	0	0	0	0	0	0	IZS	0	1	1	4	3	2	1	2	3	5	6	8	9	10	10	11	10	11	3.7	24	
31	9	8	8	8	7	IZS	7	8	8	8	6	5	5	4	4	3	6	6	6	6	6	7	8	8	9	6.6	24	
HOURLY MAX	28	28	28	25	18	20	24	22	16	16	11	10	10	11	12	14	20	22	22	23	23	24	25	26				
HOURLY AVG	5.3	5.0	4.8	4.7	4.6	4.1	3.9	3.8	3.0	3.4	2.8	2.7	2.6	2.5	3.0	3.4	4.1	4.4	5.1	5.4	5.5	5.9	5.8	5.4				

STATUS FLAG CODES

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

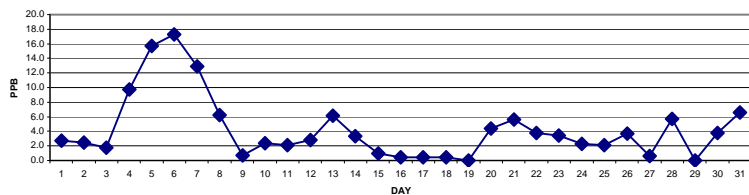
OBJECTIVE LIMIT:

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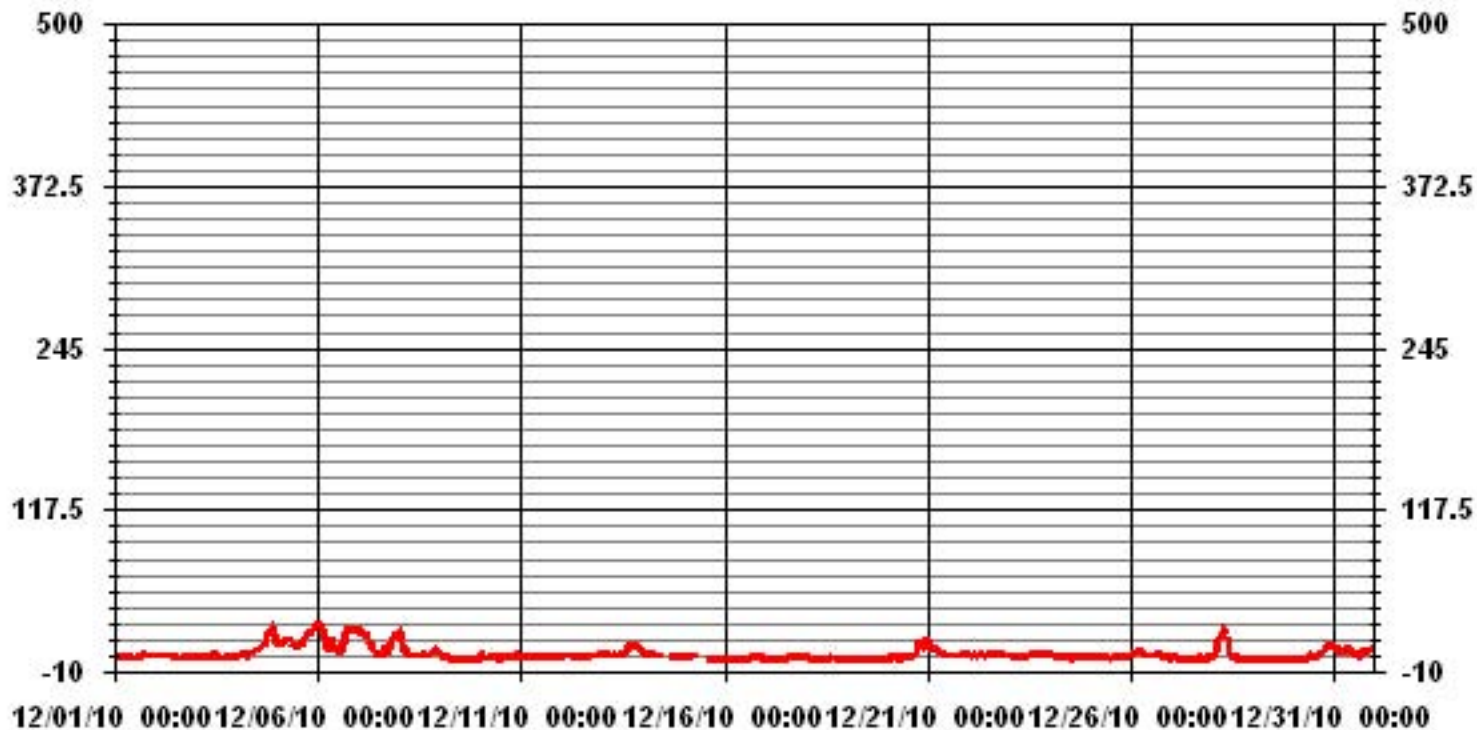
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	556		
MAXIMUM 1-HR AVERAGE:	28 PPB @ HOUR(S) VAR ON DAY(S) 6		
MAXIMUM 24-HR AVERAGE:	17.3 PPB ON DAY(S) 6		
IZS CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	742 HRS
MONTHLY CALIBRATION TIME:	11 HRS	AMD OPERATION UPTIME:	99.7 %
STANDARD DEVIATION:	5.44	MONTHLY AVERAGE:	4.25 PPB

24 HOUR AVERAGES FOR DECEMBER 2010



01 Hour Averages



— LICA31 IIO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	3	2	2	2	2	2	2	3	3	16	4	3	IZS	3	5	3	19	19	6	12	4	4	4	3	19	5.5	24	
2	4	5	4	5	5	3	3	4	4	4	4	IZS	3	2	3	2	2	3	3	4	3	2	2	3	5	3.3	24	
3	2	3	2	2	3	2	2	2	2	2	2	IZS	5	5	4	3	3	2	2	1	2	2	2	2	5	2.5	24	
4	2	2	4	4	6	4	4	6	8	IZS	7	7	8	10	11	12	12	15	22	22	24	26	23	18	26	11.2	24	
5	14	12	12	15	16	16	16	16	IZS	13	17	10	11	11	13	16	19	22	21	21	23	25	26	28	28	17.1	24	
6	29	29	29	28	24	13	9	IZS	18	14	11	10	9	8	8	17	23	23	23	24	25	24	23	23	29	19.3	24	
7	23	23	21	20	20	19	IZS	15	15	10	6	5	6	7	7	10	10	9	11	15	22	22	20	20	23	14.6	24	
8	22	20	15	10	9	IZS	4	4	5	4	3	3	4	4	5	6	5	4	5	7	7	8	9	7	22	7.4	24	
9	6	5	5	4	IZS	2	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	0	0	6	1.6	24	
10	5	5	3	IZS	3	4	5	4	3	2	1	1	2	2	2	2	3	4	3	3	4	5	5	5	5	3.3	24	
11	2	3	IZS	3	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3	3	3	2	3	3	3	3	2.8	24
12	3	IZS	3	3	3	4	3	3	2	2	2	2	2	3	2	3	3	4	4	4	4	4	5	5	5	3.2	24	
13	IZS	5	4	4	4	4	4	4	22	8	7	5	15	7	9	21	13	13	11	11	11	12	9	IZS	22	9.2	24	
14	7	5	4	5	5	6	5	5	5	4	3	C	C	M	M	C	C	2	2	2	2	3	IZS	3	7	4.0	22	
15	3	3	2	2	2	3	3	6	C	C	C	C	C	C	C	1	1	16	1	0	IZS	1	1	16	3.0	24		
16	1	1	1	1	1	1	1	1	1	2	1	3	3	1	1	19	1	2	2	3	IZS	2	2	2	19	2.3	24	
17	1	1	1	1	1	1	1	1	P	0	1	1	1	1	1	21	2	2	2	IZS	2	2	2	2	21	2.2	23	
18	2	3	2	1	0	0	1	1	2	1	1	2	1	1	2	2	3	2	IZS	2	1	1	1	0	3	1.4	24	
19	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	IZS	1	1	1	1	1	1	1	0.5	24	
20	2	1	1	2	4	3	3	1	2	2	2	2	2	3	4	5	IZS	10	14	13	15	14	16	16	16	6.0	24	
21	17	13	9	10	12	11	9	7	6	6	4	4	4	3	3	IZS	4	4	4	4	4	4	5	5	5	17	6.7	24
22	5	5	4	5	5	4	5	4	4	4	4	4	4	5	IZS	5	5	4	5	5	5	5	4	3	5	4.5	24	
23	4	4	4	3	3	3	3	3	3	3	3	3	4	4	IZS	4	5	5	6	5	5	5	6	5	6	4.2	24	
24	5	5	5	5	3	3	3	3	3	3	2	2	IZS	2	2	3	3	3	3	3	3	3	2	2	5	3.1	24	
25	2	2	3	3	2	2	2	2	2	2	2	2	IZS	2	3	3	3	3	3	3	3	3	3	3	4	4	2.6	24
26	4	6	6	6	7	8	7	5	4	4	IZS	4	3	4	5	6	5	5	5	4	3	3	2	3	8	4.7	24	
27	4	4	3	3	1	1	1	1	1	IZS	0	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1.4	24	
28	2	3	9	16	18	23	26	27	IZS	18	12	4	2	1	2	1	1	1	0	0	1	1	0	0	27	7.3	24	
29	0	0	0	0	0	0	0	IZS	0	0	0	17	11	0	5	8	1	1	1	1	1	1	1	1	17	2.1	24	
30	1	0	1	1	1	1	IZS	1	37	3	7	4	2	7	2	4	7	8	9	10	11	12	12	12	37	6.7	24	
31	10	9	9	9	8	IZS	9	8	9	9	7	6	5	5	4	4	8	7	8	7	7	8	9	9	10	7.6	24	
HOURLY MAX	29	29	29	28	24	23	26	27	37	18	17	17	15	11	13	21	23	23	23	24	25	26	26	28				
HOURLY AVG	6.2	6.0	5.6	5.8	5.7	5.0	4.7	4.9	6.1	5.0	4.1	4.2	4.2	3.6	4.0	6.7	5.7	6.1	6.5	6.5	6.6	7.0	6.6	6.3				

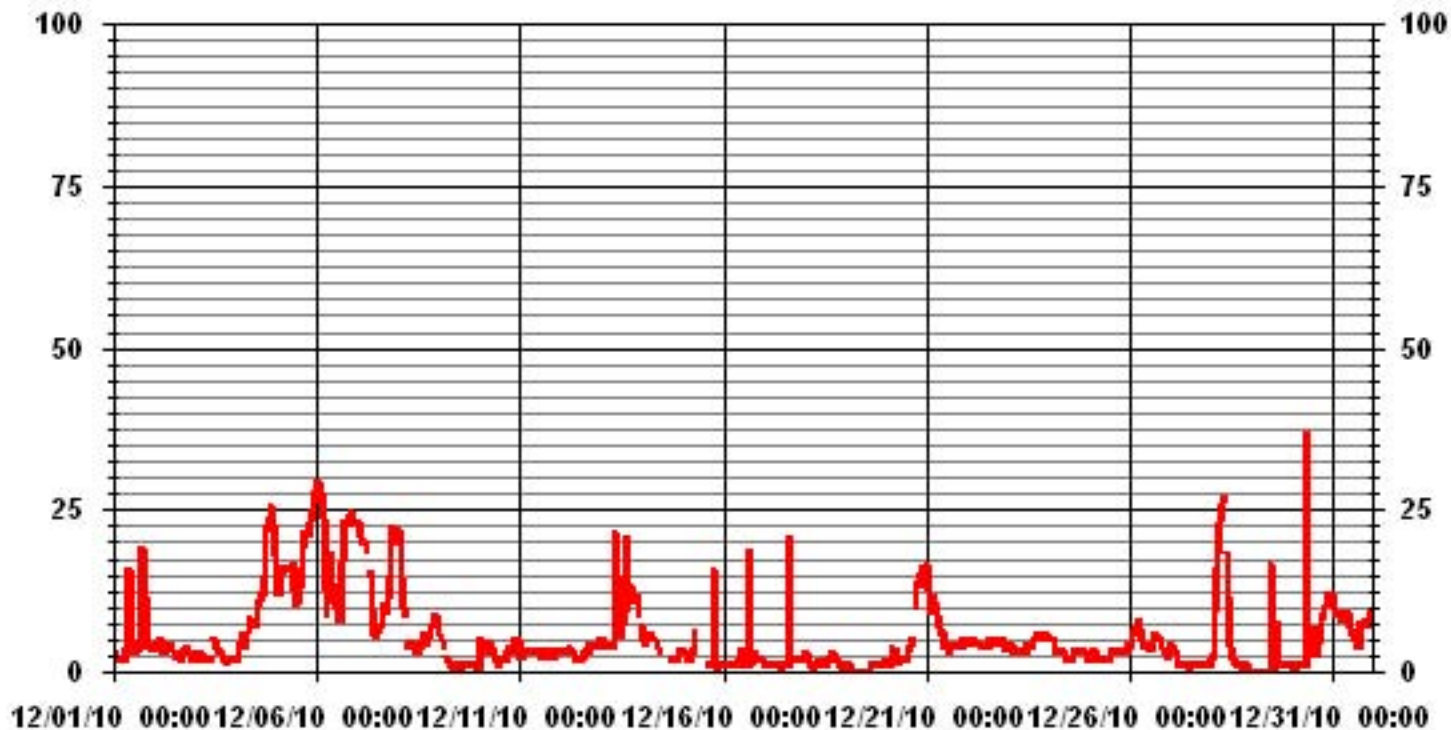
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	660					
MAXIMUM INSTANTANEOUS VALUE:	37	PPB	@ HOUR(S)	8	ON DAY(S)	30
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	12	HRS				
STANDARD DEVIATION	6.13					

01 Hour Averages



LICA31
NO2_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : NO2_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	3.57	2.28	2.71	9.72	11.15	9.01	5.86	4.43	5.43	3.57	8.15	6.72	5.15	6.72	8.58	6.86	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.57	2.28	2.71	9.72	11.15	9.01	5.86	4.43	5.43	3.57	8.15	6.72	5.15	6.72	8.58	6.86	

Calm : .00 %

Total # Operational Hours : 699

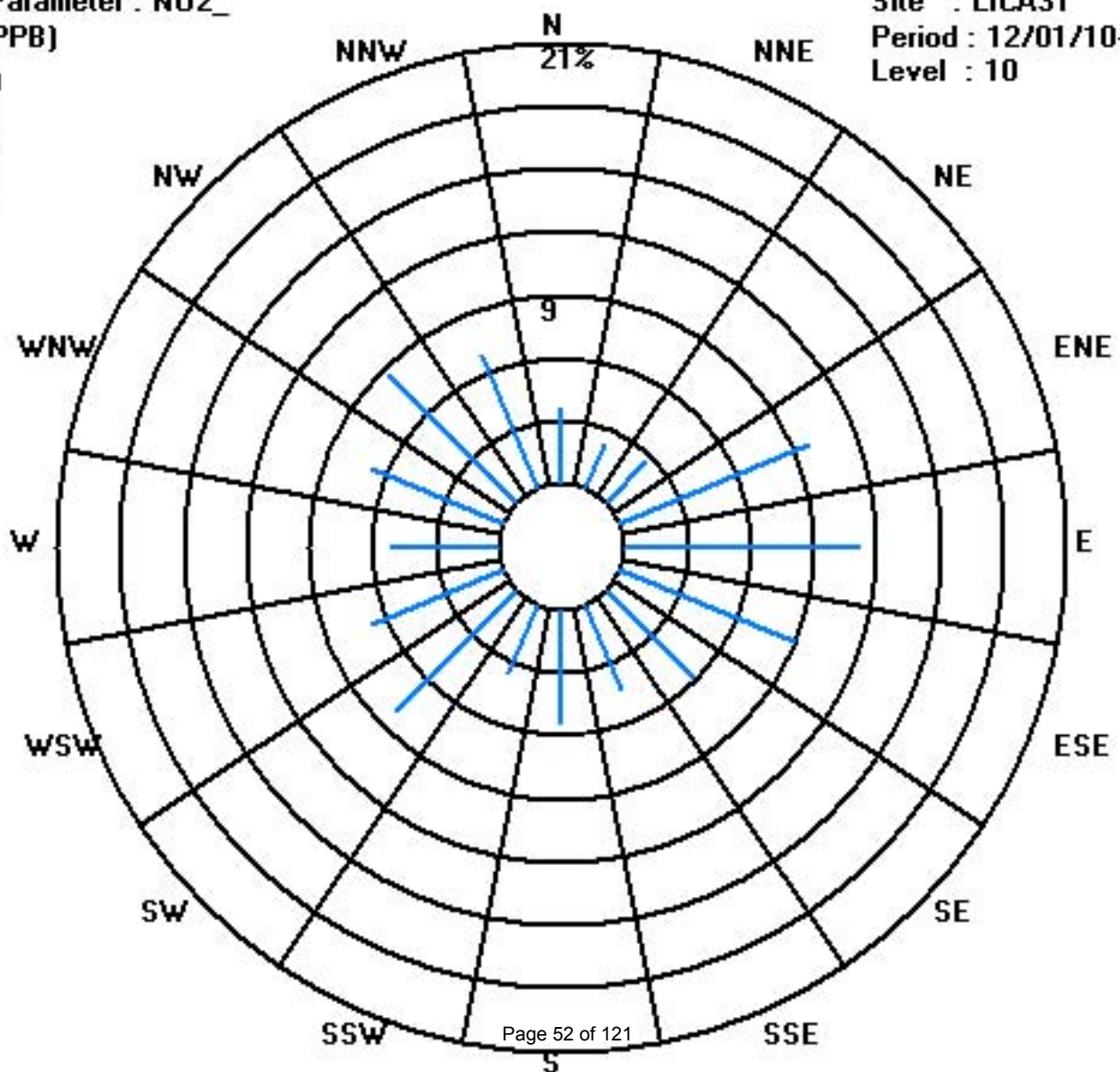
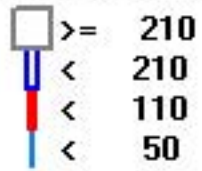
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	25	16	19	68	78	63	41	31	38	25	57	47	36	47	60	48	699
< 110																	
< 210																	
>= 210																	
Totals	25	16	19	68	78	63	41	31	38	25	57	47	36	47	60	48	

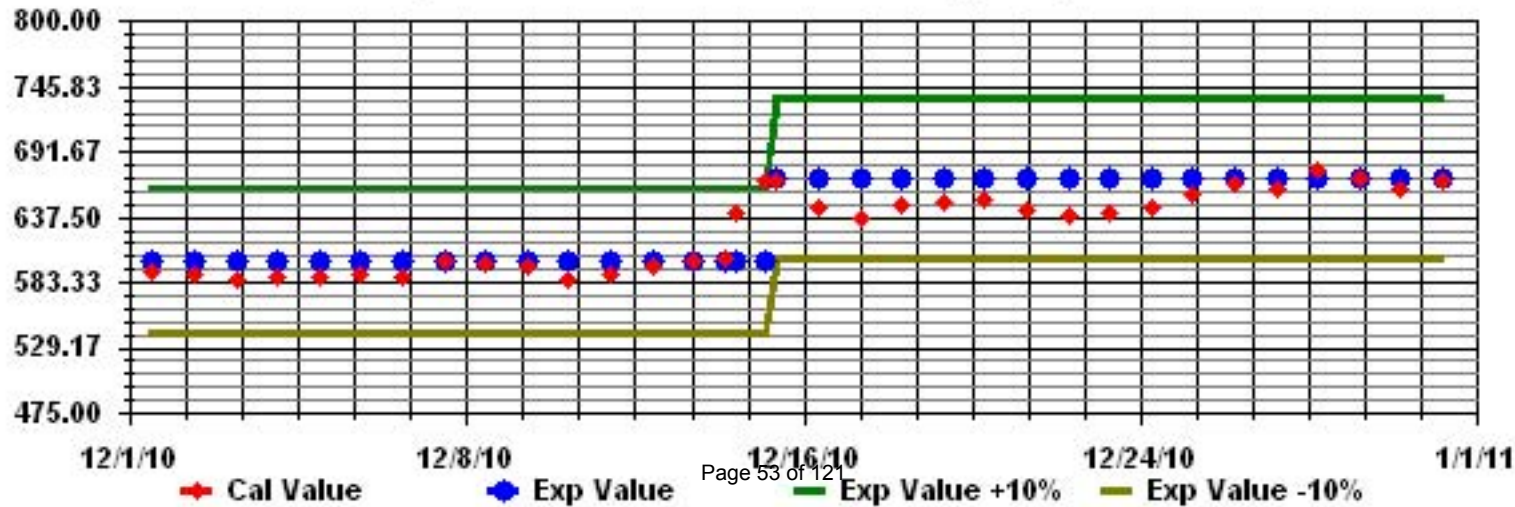
Calm : .00 %

Total # Operational Hours : 699

Class Limits (PPB)



Calibration Graph for Site: LICA31 Parameter: NO2_ Sequence: NO2 Phase: SPAN



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOICATION - ST. LINA

DECEMBER 2010

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	1	0	0	IZS	1	1	0	1	1	0	0	0	0	0	0	0	1	0.2	24	
2	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
3	0	0	0	0	0	0	0	0	0	0	0	IZS	2	2	2	1	0	0	0	0	0	0	0	0	0	2	0.3	24	
4	0	0	0	0	0	0	0	0	0	0	IZS	3	4	4	5	4	2	0	0	1	1	1	1	1	0	5	1.2	24	
5	0	0	0	0	0	0	0	0	IZS	5	7	7	6	6	5	2	1	1	0	0	1	1	1	1	1	7	1.9	24	
6	1	1	1	1	1	0	0	IZS	2	3	5	4	4	2	2	2	3	6	13	6	8	5	6	4	13	3.5	24		
7	4	6	3	2	2	2	IZS	1	1	3	3	3	4	5	3	2	0	0	0	0	1	1	1	1	1	6	2.1	24	
8	2	1	1	0	0	0	IZS	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	2	0.3	24	
9	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
10	0	0	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	
11	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
12	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
13	IZS	0	0	0	0	0	0	0	0	0	1	2	2	2	2	3	0	0	0	0	0	0	0	0	0	IZS	3	0.5	24
14	0	0	0	0	0	0	0	0	0	0	1	C	C	M	M	C	C	1	0	0	0	0	0	IZS	0	1	0.1	22	
15	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	IZS	0	0	0.0	24		
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0.0	24		
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0.0	24	
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0.0	24	
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0.0	24	
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	IZS	0	1	0	0	0	0	0	0	1	0.1	24	
21	0	0	0	0	0	0	0	0	0	1	2	2	2	1	0	IZS	0	0	0	0	0	0	0	0	0	2	0.3	24	
22	0	0	0	0	0	0	0	0	0	0	1	2	2	2	IZS	1	0	0	0	0	0	0	0	0	0	2	0.3	24	
23	0	0	0	0	0	0	0	0	0	0	0	1	1	IZS	1	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
24	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
25	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
26	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
27	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
28	0	0	0	0	1	1	4	2	IZS	6	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0.8	24	
29	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
30	0	0	0	0	0	0	IZS	0	0	0	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
31	0	0	0	0	0	IZS	0	0	0	1	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
HOURLY MAX	4	6	3	2	2	2	4	2	2	6	7	7	6	6	5	3	3	6	13	6	8	5	6	4					
HOURLY AVG	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.7	1.1	1.2	1.1	1.1	0.8	0.4	0.2	0.3	0.5	0.2	0.4	0.3	0.3	0.2					

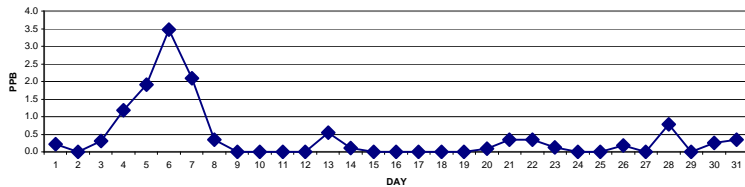
STATUS FLAG CODES

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

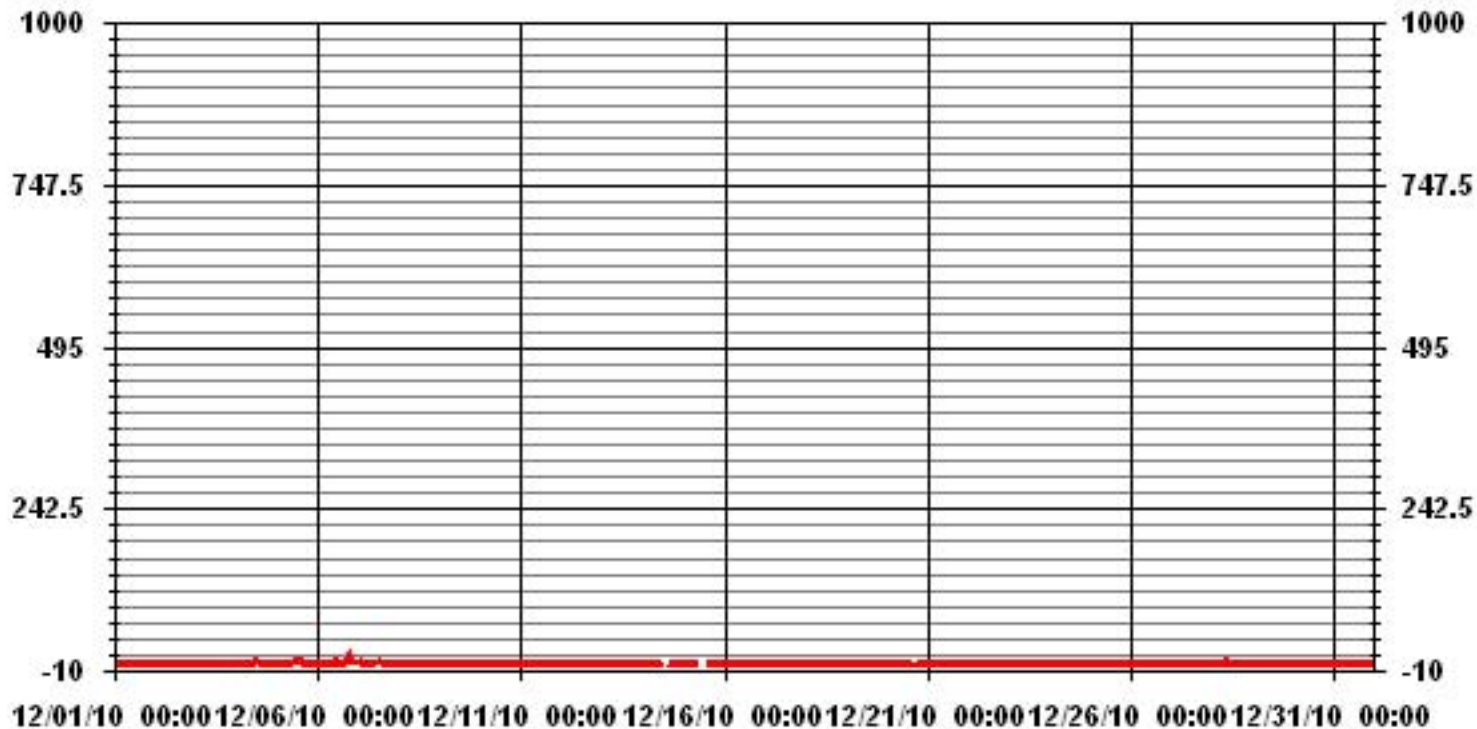
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	124
MAXIMUM 1-HR AVERAGE:	13 PPB @ HOUR(S) 18 ON DAY(S) 6
MAXIMUM 24-HR AVERAGE:	3.5 PPB ON DAY(S) 6
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	11 HRS
OPERATIONAL TIME:	742 HRS
AMD OPERATION UPTIME:	99.7 %
STANDARD DEVIATION:	1.21
MONTHLY AVERAGE:	0.41 PPB

24 HOUR AVERAGES FOR DECEMBER 2010



01 Hour Averages



— LICA31 NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

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	0	22	1	1	IZS	2	3	1	24	15	2	14	1	1	0	0	24	3.8	24
2	0	0	0	0	0	0	0	1	0	0	1	IZS	1	0	0	0	0	1	1	0	0	0	0	0	1	0.2	24
3	0	0	0	0	0	1	0	0	0	0	0	IZS	3	3	3	2	1	1	1	1	1	0	1	0	3	0.8	24
4	0	0	0	1	0	1	0	1	3	IZS	4	5	5	6	5	3	1	1	1	1	3	2	1	1	6	2.0	24
5	1	1	1	1	1	1	1	1	IZS	7	20	7	8	8	6	4	1	12	1	1	1	1	1	2	20	3.8	24
6	2	2	2	2	1	1	1	IZS	4	5	6	6	5	4	2	3	4	13	15	8	11	8	7	5	15	5.1	24
7	6	7	4	4	4	3	IZS	2	3	4	4	4	6	6	3	3	1	0	1	1	2	1	1	2	7	3.1	24
8	3	2	1	1	1	IZS	1	1	0	1	1	1	1	2	4	5	2	1	1	1	1	1	1	1	5	1.5	24
9	1	1	0	0	IZS	0	0	1	0	0	1	1	1	1	0	1	1	0	0	0	0	0	0	1	1	0.5	24
10	1	1	1	IZS	1	1	0	0	0	0	0	0	1	1	0	1	1	0	0	0	1	1	1	1	1	0.6	24
11	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	0	0	0	0	1	0.6	24
12	0	IZS	1	1	1	0	1	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0.4	24
13	IZS	1	0	0	1	1	1	2	27	3	13	3	11	3	4	70	1	2	1	1	1	2	1	IZS	70	6.8	24
14	1	0	0	0	0	0	1	1	0	1	1	C	C	M	M	C	C	1	1	1	1	0	IZS	1	1	0.6	22
15	1	1	0	0	1	1	1	1	C	C	C	C	C	C	C	0	0	9	0	0	IZS	0	0	9	1.0	24	
16	0	0	0	0	0	0	0	1	1	1	1	4	3	0	0	17	0	0	0	0	IZS	1	0	0	17	1.3	24
17	0	0	0	0	0	0	0	0	P	0	0	1	1	1	1	26	0	0	1	IZS	1	0	1	0	26	1.5	23
18	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	1	0	IZS	1	0	0	0	0	1	0.3	24
19	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	IZS	1	0	1	0	0	0	1	0.3	24
20	0	0	0	0	1	0	0	0	0	0	1	1	1	1	2	1	IZS	1	1	1	1	1	1	1	2	0.7	24
21	1	1	0	0	1	1	1	1	1	2	2	3	3	2	1	IZS	1	0	0	0	0	0	0	0	3	0.9	24
22	0	0	0	0	0	0	0	0	0	1	1	3	3	2	IZS	2	1	1	0	1	0	0	0	0	3	0.7	24
23	0	0	0	0	0	0	0	0	0	1	1	1	1	IZS	2	1	0	0	0	0	0	1	0	0	2	0.3	24
24	0	0	0	0	0	0	0	0	0	0	1	1	IZS	1	1	0	0	0	0	0	0	0	0	0	1	0.2	24
25	0	0	0	0	0	0	0	0	0	0	1	IZS	1	1	1	0	0	0	0	0	0	0	0	0	1	0.2	24
26	0	0	0	0	0	0	0	0	0	1	IZS	2	2	2	2	1	1	1	1	0	0	0	0	0	2	0.6	24
27	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0.2	24
28	0	0	0	1	1	3	5	5	IZS	9	6	3	1	1	2	1	0	0	0	0	0	0	0	0	9	1.7	24
29	0	0	0	0	0	0	0	IZS	1	0	0	7	14	1	11	10	0	0	0	0	0	1	0	0	14	2.0	24
30	0	0	0	0	0	0	IZS	2	2	1	4	3	2	16	1	1	2	1	0	1	1	0	1	1	16	1.7	24
31	0	1	1	1	0	IZS	1	1	1	2	2	3	2	2	2	1	1	1	2	0	0	0	1	3	1.1	24	
HOURLY MAX	6	7	4	4	4	3	5	5	27	22	20	7	14	16	11	70	24	15	15	14	11	8	7	5			
HOURLY AVG	0.6	0.6	0.4	0.4	0.5	0.5	0.5	0.8	1.7	2.2	2.7	2.5	2.9	2.5	2.1	5.5	1.6	1.8	1.3	1.1	0.9	0.7	0.6	0.6			

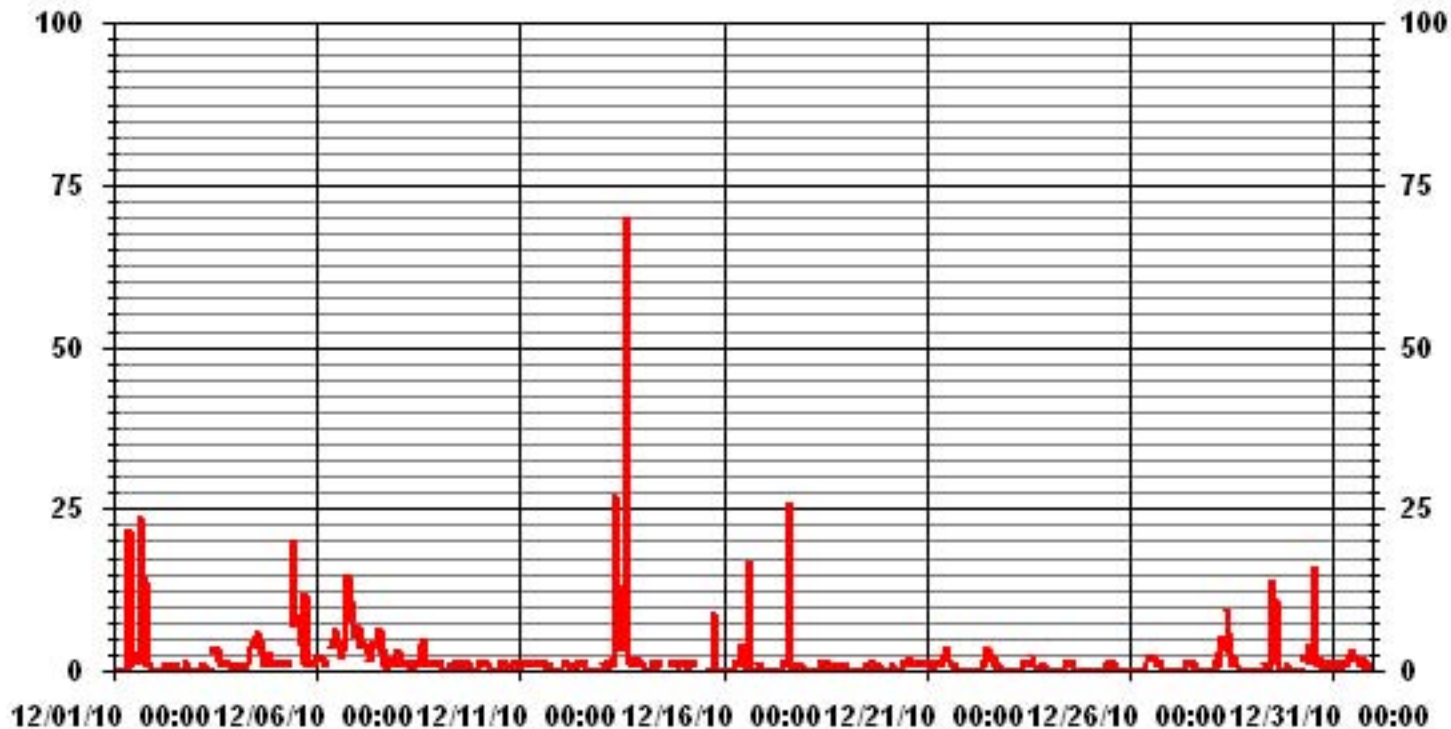
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	366					
MAXIMUM INSTANTANEOUS VALUE:	70	PPB	@ HOUR(S)	15	ON DAY(S)	13
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	12	HRS				
STANDARD DEVIATION	3.92					

01 Hour Averages



LICA31
 NO_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : NO_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	3.57	2.28	2.71	9.72	11.15	9.01	5.86	4.43	5.43	3.57	8.15	6.72	5.15	6.72	8.58	6.86	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.57	2.28	2.71	9.72	11.15	9.01	5.86	4.43	5.43	3.57	8.15	6.72	5.15	6.72	8.58	6.86	

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
< 50	25	16	19	68	78	63	41	31	38	25	57	47	36	47	60	48	699
< 110																	
< 210																	
>= 210																	
Totals	25	16	19	68	78	63	41	31	38	25	57	47	36	47	60	48	

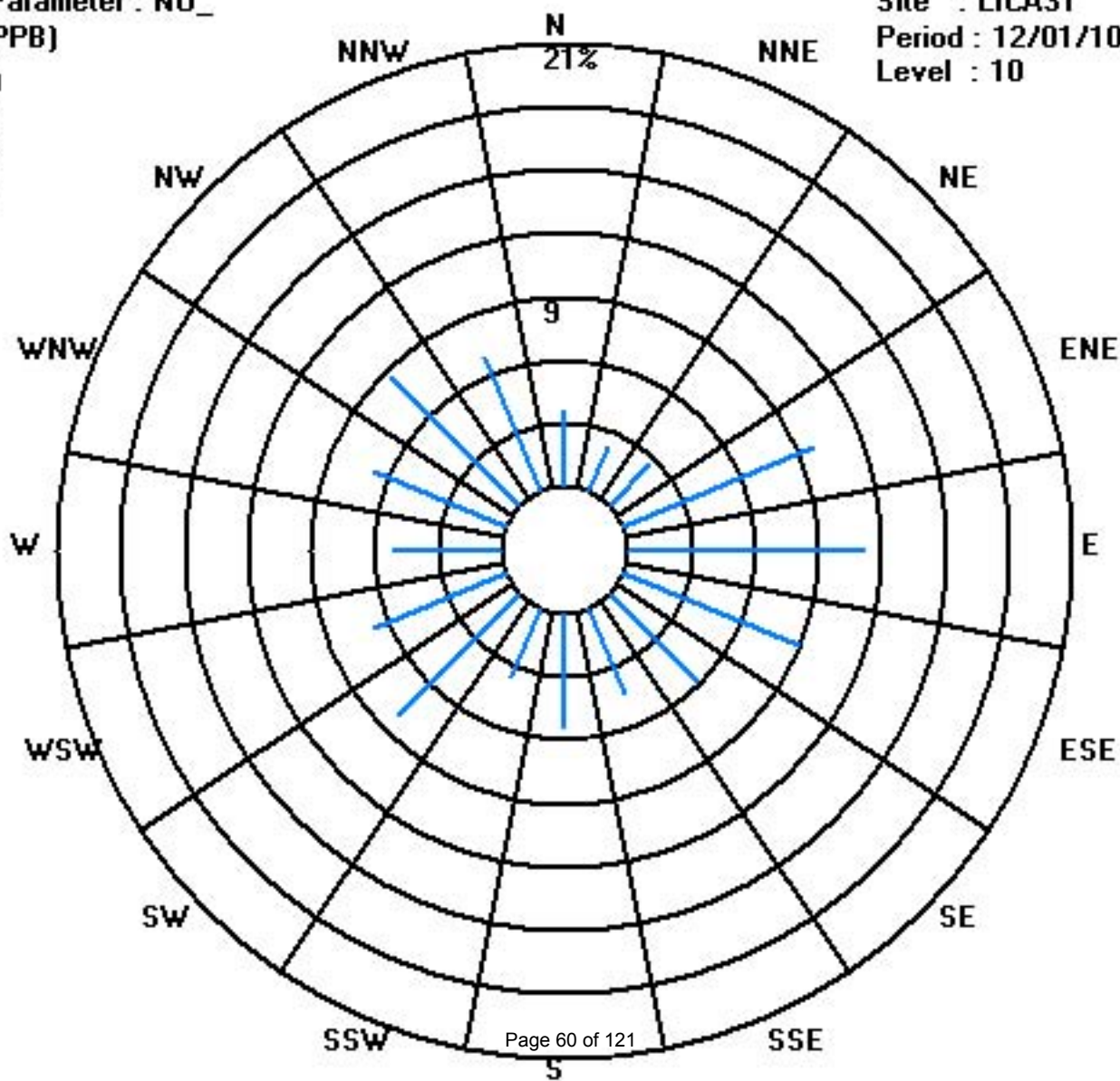
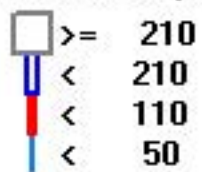
Calm : .00 %

Total # Operational Hours : 699

Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

OXIDES OF NITROGEN hourly averages in ppb

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	2	2	2	2	2	2	2	2	2	4	3	3	IZS	3	3	2	6	5	5	4	4	3	3	3	3	6	3.0	24
2	3	4	3	3	3	3	3	4	3	3	3	IZS	3	2	3	2	2	3	4	4	3	3	3	3	4	3.0	24	
3	3	3	3	3	3	3	2	2	2	2	IZS	6	7	5	3	2	1	1	1	1	1	1	1	1	7	2.5	24	
4	1	1	3	4	5	4	3	4	7	IZS	9	11	12	13	13	13	11	11	21	22	22	25	21	15	25	10.9	24	
5	12	12	12	13	15	16	15	15	IZS	17	18	17	16	16	16	16	18	20	20	20	23	24	26	27	27	17.6	24	
6	30	30	29	26	18	11	9	IZS	17	14	14	13	11	9	8	14	24	28	36	29	32	29	29	26	36	21.1	24	
7	26	28	24	21	20	20	IZS	14	12	10	7	7	9	10	7	9	8	6	8	13	17	20	18	20	28	14.5	24	
8	22	17	12	9	7	IZS	4	5	5	5	4	4	5	5	6	6	5	5	7	8	9	9	7	22	7.4	24		
9	6	5	4	4	IZS	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1.0	24	
10	3	4	2	IZS	3	3	4	3	2	1	1	0	1	1	1	2	2	3	3	3	3	4	5	3	5	2.5	24	
11	2	2	IZS	3	3	2	3	3	3	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	3	2.3	24	
12	3	IZS	3	3	3	3	3	2	2	2	2	2	2	2	2	3	3	4	3	3	4	4	4	5	5	2.8	24	
13	IZS	5	4	4	4	3	4	4	4	4	4	5	6	7	9	11	11	13	10	10	11	11	8	IZS	13	6.9	24	
14	7	5	5	5	6	6	6	5	5	5	4	C	C	M	M	C	C	C	2	2	2	2	2	IZS	3	7	4.2	22
15	3	2	2	2	2	2	3	4	C	C	C	C	C	C	C	1	0	0	1	0	0	0	IZS	0	0	4	1.4	24
16	0	0	0	0	0	1	1	1	1	1	0	1	1	0	0	1	1	1	1	2	2	IZS	2	2	1	2	0.8	24
17	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	1	1	1	1	IZS	2	2	2	1	2	0.7	24
18	1	1	1	0	0	0	0	0	0	0	1	1	0	0	1	2	2	1	IZS	1	1	1	0	0	2	0.6	24	
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	1	0	0	0	1	0.1	24	
20	1	0	1	1	2	2	1	0	1	1	2	2	2	2	4	5	IZS	6	13	13	15	12	14	16	16	5.0	24	
21	16	11	8	9	11	10	8	6	6	7	6	6	5	4	4	IZS	4	4	3	4	4	4	5	5	16	6.5	24	
22	5	4	4	4	4	4	4	4	4	4	4	6	6	6	IZS	5	4	4	5	5	4	4	3	3	6	4.3	24	
23	4	3	3	2	2	2	2	2	3	3	3	4	4	IZS	5	4	4	5	5	5	5	5	5	5	5	5	3.7	24
24	5	4	4	3	2	2	2	2	2	2	2	2	IZS	2	2	2	2	2	2	3	2	2	2	2	5	2.4	24	
25	2	2	2	2	2	2	2	2	1	2	2	IZS	2	2	2	3	3	3	3	2	2	3	3	3	3	2.3	24	
26	4	4	5	5	6	6	6	4	4	4	IZS	4	4	5	5	5	4	4	5	4	2	2	2	2	6	4.2	24	
27	4	3	2	1	1	0	0	1	0	IZS	0	0	0	1	0	1	1	1	1	0	1	1	1	1	4	0.9	24	
28	1	2	6	14	17	21	28	25	IZS	22	8	4	1	1	1	1	0	0	0	0	0	0	0	0	28	6.7	24	
29	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	
30	0	0	0	0	1	0	IZS	1	1	1	6	5	4	3	3	3	6	7	9	9	10	10	12	11	12	4.4	24	
31	10	9	9	8	7	IZS	8	8	9	9	8	8	7	6	5	4	6	6	6	7	7	7	8	8	10	7.4	24	
HOURLY MAX	30	30	29	26	20	21	28	25	17	22	18	17	16	16	16	16	24	28	36	29	32	29	29	27				
HOURLY AVG	5.9	5.4	5.1	5.0	5.0	4.4	4.3	4.3	3.4	4.5	4.0	4.3	4.1	3.9	3.8	4.1	4.6	4.9	5.9	5.9	6.2	6.4	6.3	5.8				

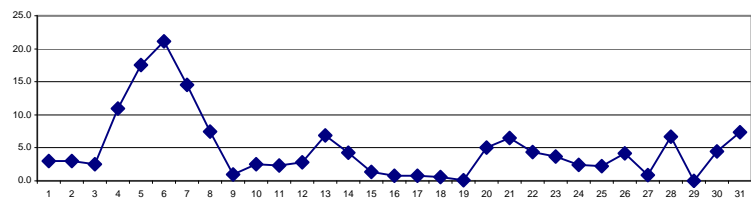
STATUS FLAG CODES

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

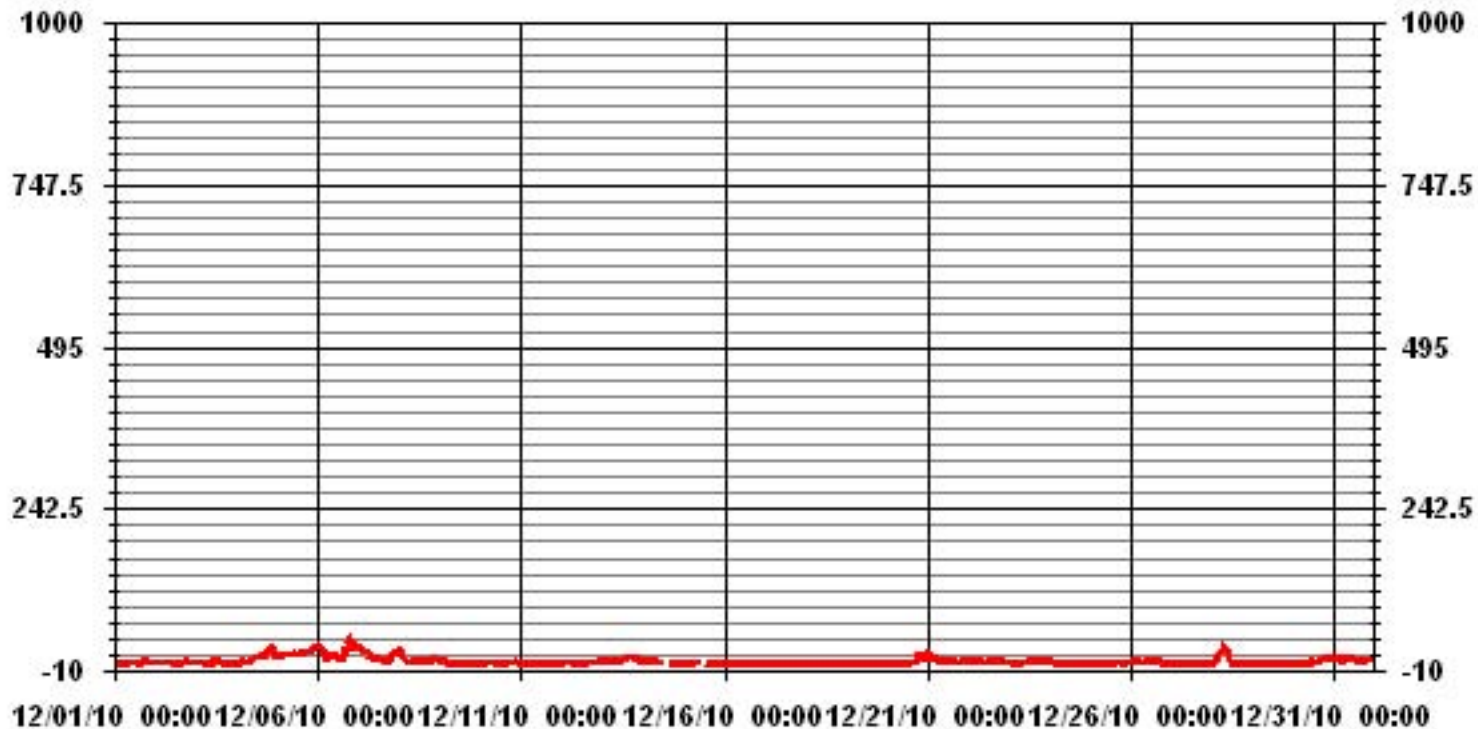
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	581					
MAXIMUM 1-HR AVERAGE:	36	PPB	@ HOUR(S)	18	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	21.1	PPB			ON DAY(S)	6
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	11	HRS	AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	6.12		MONTHLY AVERAGE:	4.92	PPB	

24 HOUR AVERAGES FOR DECEMBER 2010



01 Hour Averages



— LICA31 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	2	2	2	2	2	2	2	3	3	35	5	5	IZS	5	8	4	39	31	6	23	4	4	4	3	39	8.5	24
2	4	5	4	5	5	3	4	5	4	4	4	IZS	4	3	4	3	3	4	5	5	4	3	3	3	5	4.0	24
3	3	4	3	3	4	3	3	3	3	3	IZS	8	8	7	5	3	2	2	3	3	2	2	1	8	3.5	24	
4	1	2	4	4	6	5	4	6	9	IZS	11	13	13	15	15	15	13	16	23	23	25	26	24	19	26	12.7	24
5	14	13	13	15	16	16	16	16	IZS	18	36	17	18	18	17	17	20	30	21	21	24	25	27	29	36	19.9	24
6	31	30	31	31	25	13	9	IZS	19	18	15	15	14	11	9	20	26	36	37	31	34	32	30	28	37	23.7	24
7	29	29	25	23	24	21	IZS	15	15	12	8	8	11	11	8	10	10	8	11	15	22	22	20	21	29	16.4	24
8	23	20	14	10	8	IZS	6	6	6	6	5	5	6	6	9	11	8	6	6	9	9	10	11	8	23	9.0	24
9	7	6	6	5	IZS	2	1	2	1	1	1	1	1	1	2	1	3	2	1	1	1	1	0	0	7	2.0	24
10	5	5	4	IZS	4	4	5	4	3	2	1	1	2	2	2	3	3	4	4	3	4	4	6	4	6	3.4	24
11	2	3	IZS	4	4	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	2	3	3	3	4	3.0	24
12	3	IZS	4	3	4	4	3	3	2	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	3.5	24
13	IZS	5	4	4	4	4	4	6	49	11	16	7	26	10	13	87	14	15	12	12	11	14	9	IZS	87	15.3	24
14	9	6	5	6	7	7	6	6	5	5	5	C	C	M	M	C	C	3	2	2	3	3	IZS	4	9	4.9	22
15	3	3	3	2	2	3	4	6	C	C	C	C	C	C	C	1	1	22	0	0	IZS	1	1	22	3.5	24	
16	1	1	1	1	1	1	2	2	2	2	1	8	6	1	1	36	1	1	1	3	IZS	3	2	2	36	3.5	24
17	1	1	0	1	1	1	1	1	P	0	1	1	2	2	2	45	2	2	3	IZS	3	3	2	2	45	3.5	23
18	2	3	2	1	0	0	1	1	2	1	2	2	1	1	2	2	5	2	IZS	3	1	1	1	1	5	1.6	24
19	1	1	1	1	0	0	0	0	0	0	1	1	0	1	1	1	1	IZS	2	1	2	1	1	1	2	0.8	24
20	2	1	1	2	5	3	3	1	2	2	3	3	3	4	6	6	IZS	10	15	14	16	14	17	17	17	6.5	24
21	17	14	9	11	12	11	9	8	7	8	6	7	7	5	4	IZS	5	4	4	4	5	5	6	6	17	7.6	24
22	5	5	5	5	5	4	4	5	5	5	5	7	7	7	IZS	6	6	5	5	5	5	4	4	4	7	5.1	24
23	5	4	4	3	3	3	2	3	4	4	4	5	5	IZS	6	5	5	6	6	5	6	6	6	6	6	4.6	24
24	5	5	5	5	3	3	3	3	3	3	3	3	3	IZS	3	3	3	3	3	3	3	3	2	2	5	3.3	24
25	2	3	3	3	2	2	3	2	2	2	3	IZS	3	4	3	3	3	3	4	3	3	3	3	4	4	2.9	24
26	4	6	7	6	7	7	7	6	4	5	IZS	5	5	5	7	7	6	6	6	4	3	3	3	3	7	5.3	24
27	4	4	3	3	1	1	1	1	1	IZS	1	1	2	2	1	2	1	1	1	1	1	1	1	2	4	1.6	24
28	2	3	10	17	18	26	31	31	IZS	26	18	7	2	2	4	2	1	1	1	0	1	0	1	0	31	8.9	24
29	0	0	0	0	0	0	0	IZS	0	0	0	24	19	1	16	16	1	1	1	1	1	1	1	1	24	3.7	24
30	0	0	1	1	1	1	IZS	3	39	4	10	7	4	24	4	4	9	9	9	11	12	12	13	12	39	8.3	24
31	10	10	10	9	8	IZS	10	9	9	10	9	9	8	7	6	5	9	8	9	7	8	8	9	9	10	8.5	24
HOURLY MAX	31	30	31	31	25	26	31	31	49	35	36	24	26	24	17	87	39	36	37	31	34	32	30	29			
HOURLY AVG	6.6	6.5	6.1	6.2	6.1	5.3	5.1	5.5	7.5	6.9	6.4	6.5	6.8	5.9	5.9	11.5	7.1	7.6	7.6	7.3	7.3	7.4	7.2	6.7			

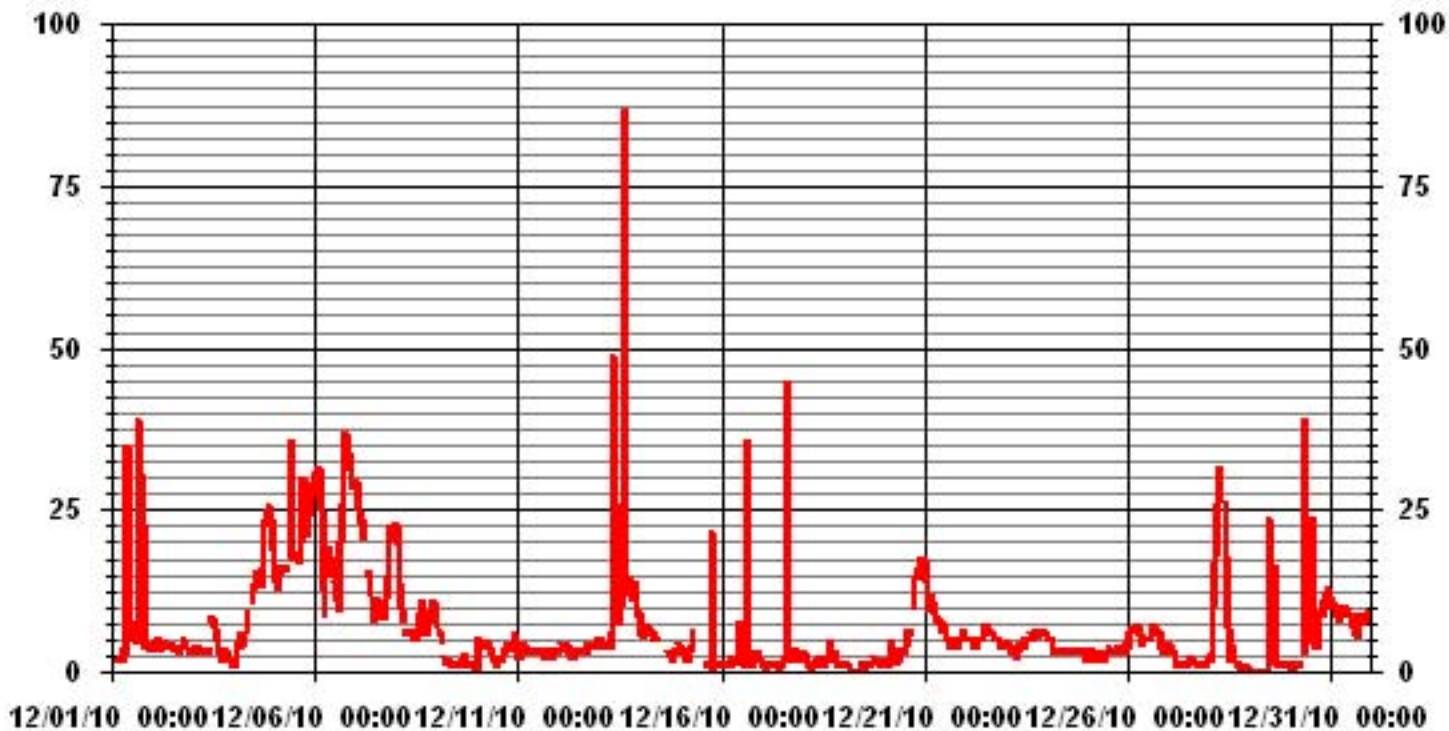
STATUS FLAG CODES

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:	667					
MAXIMUM INSTANTANEOUS VALUE:	87	PPB	@ HOUR(S)	15	ON DAY(S)	13
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	741	HRS	
MONTHLY CALIBRATION TIME:	12	HRS				
STANDARD DEVIATION	8.24					

01 Hour Averages



LICA31
 NOX_ / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : NOX_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	3.57	2.28	2.71	9.72	11.15	9.01	5.86	4.43	5.43	3.57	8.15	6.72	5.15	6.72	8.58	6.86	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.57	2.28	2.71	9.72	11.15	9.01	5.86	4.43	5.43	3.57	8.15	6.72	5.15	6.72	8.58	6.86	

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
< 50	25	16	19	68	78	63	41	31	38	25	57	47	36	47	60	48	699
< 110																	
< 210																	
>= 210																	
Totals	25	16	19	68	78	63	41	31	38	25	57	47	36	47	60	48	

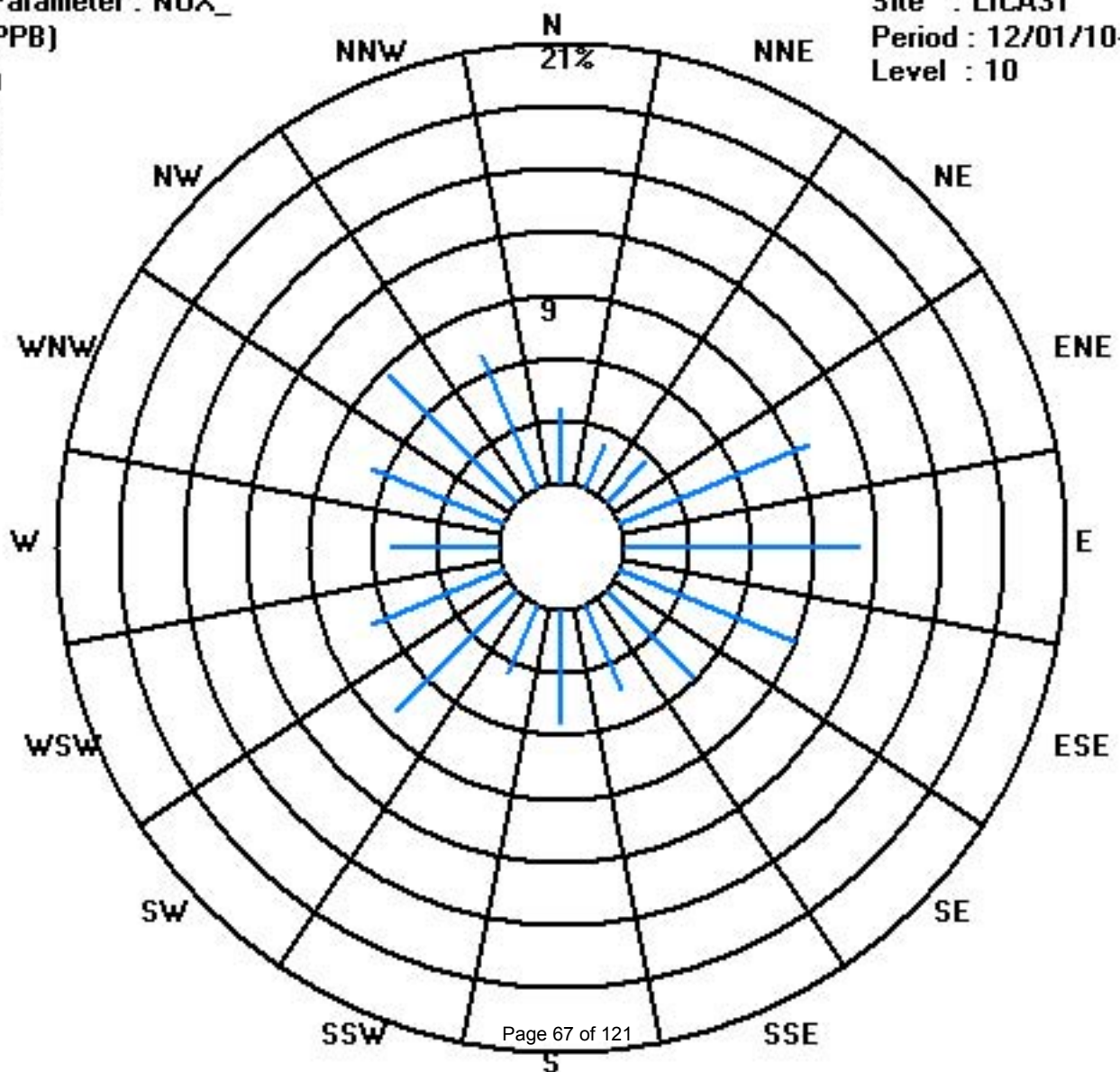
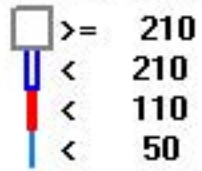
Calm : .00 %

Total # Operational Hours : 699

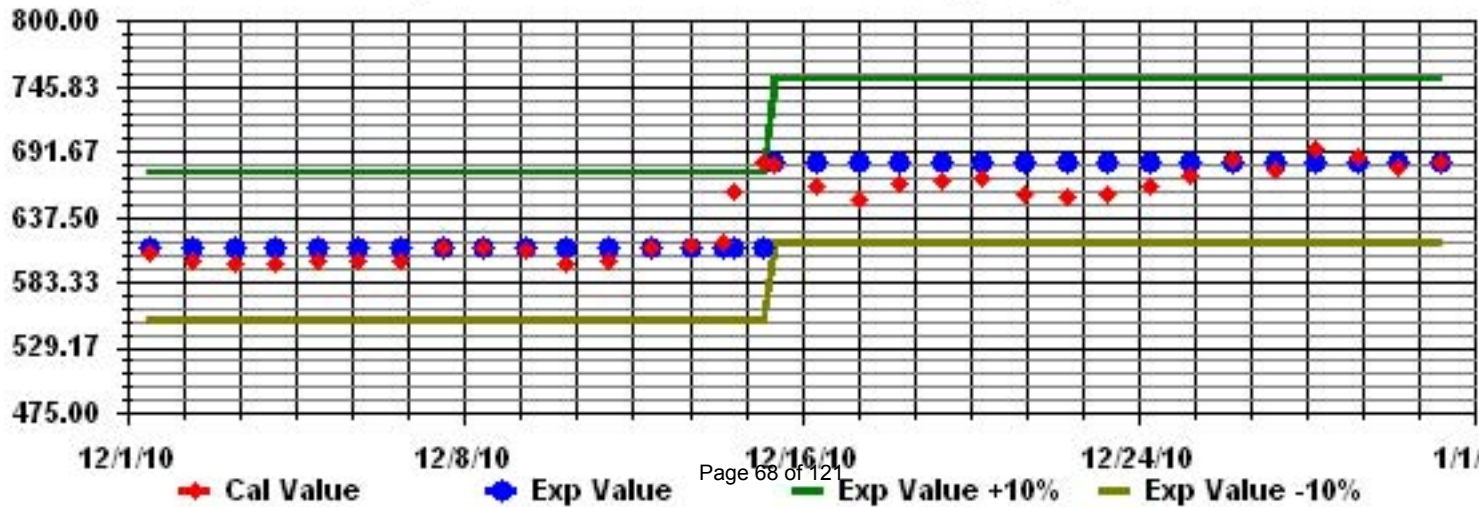
Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



Calibration Graph for Site: LICA31 Parameter: NOX_ Sequence: NO2 Phase: SPAN



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY	24-HOUR	
HOURLY START	HOURLY END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		6.8	8.4	9.5	8.4	8.1	8.7	7.6	7.6	10	4.2	2	7.3	7.1	7.4	9.7	8.2	9.1	10.5	11	12.1	12.1	14.7	13.5	12.5	14.7	9.0	24	
2		12.6	15.4	13.1	13.3	13.2	14.4	15.7	15.1	15.2	13.1	13.5	8.8	6.3	6.5	7.3	9.2	9.3	9	8.7	9.5	8.7	8.2	10.1	10.1	15.7	11.1	24	
3		8.6	7.9	8.7	9.2	7.5	8	10.3	14.4	13.7	12.1	9.7	6.3	4.9	3.9	4.9	4.7	3.2	2.1	3	3.3	4.1	6.4	4.7	4.6	14.4	6.9	24	
4		5.4	9.3	14.3	16.8	18.2	14.9	12	13.8	17.2	19.4	16.5	21	21.8	20.2	18.2	19.9	19.3	15.7	16.8	19.6	20.2	19.5	18.7	21.9	21.9	17.1	24	
5		21.5	21.3	17.8	16	17	16.9	17.3	18.4	18	19.9	18.2	19.7	18.4	18.2	17.8	16.8	18	21.8	20.1	18	21	23	22.6	25	25.0	19.3	24	
6		33	43	37.7	34.4	29.7	18.8	11.4	11.7	16.5	19.8	20.1	17	13.7	13.8	10.7	12.1	20.6	20.6	20.5	20.1	22.1	22.1	20.4	19.4	43.0	21.2	24	
7		18.4	20.2	18.1	19	17.4	17.3	15.4	14.7	14.7	14.9	11.9	14.1	19.4	16.5	12.5	14.7	14.7	13.4	13.8	15.6	19.3	21.5	19.8	19.7	21.5	16.5	24	
8		15.8	16.5	16.1	15.2	15.5	11.4	11.6	9.8	10.1	14.2	13.1	10.9	10.8	10.5	10.2	9.4	9.6	13	13.6	13.7	16.9	17.8	17.8	16.4	17.8	13.3	24	
9		12.2	10	9.6	9.2	6.7	6.8	6	5.1	6.2	4	3.2	5.1	6.1	3.6	2.8	4.6	3.3	2.8	4.2	2.8	4.3	2.4	3.9	3	12.2	5.3	24	
10		3.4	4.1	3.7	2.8	0.6	7.5	11	14.2	9.9	5.4	3.6	2.3	0.7	0.5	0	3.5	3.1	1.6	0.5	1	2.9	3.3	3.1	3.4	14.2	3.8	24	
11		1.1	0.9	0.4	1.7	2.3	0.3	2	0.4	0.2	1	2.8	2.4	3	1.9	2.2	2.5	4.8	0	1	5.3	1.9	1.3	2.5	2.6	5.3	1.9	24	
12		1.5	1	0.8	2.7	0	0.1	1.7	0.3	0.8	3.9	3.2	1.8	3.7	3.2	5.3	4.9	0.7	4.2	5	4.2	6	8	6.6	6.7	8.0	3.2	24	
13		10.1	6.3	6.1	8.7	7	7.5	8.2	10.7	8.7	8.5	9.1	11.9	14.9	16.2	13.6	14.5	16.3	28.7	24	18.6	16.7	21.1	19	14.5	28.7	13.4	24	
14		10.1	7.7	3.9	6	6.1	9.1	6.5	7.9	5.6	7.3	4.7	7.8	C	C	M	M	5.1	11	14.3	10.8	9.2	9.6	12.4	13.2	14.3	8.4	22	
15		14.3	14	11.4	11.4	21.7	27.6	9.2	9.3	6.7	9.8	10.2	4	6.1	5.7	6.2	5.3	7	4.8	4.3	4.8	3.5	2.7	4.6	5.4	27.6	8.8	24	
16		4.6	4.1	5.7	3.8	2.4	3.7	4.3	3.5	2.2	2.4	3.9	2.6	3.4	5.1	4.5	4	4	5.9	4.5	6.9	5.6	6.1	5.2	3.6	6.9	4.3	24	
17		3.3	5.2	5.7	4	1.7	3.4	3.9	3.7	3.2	5.1	1.6	4.8	2.5	4.7	1.3	3.6	3.4	3.7	2.1	4.4	2.8	5.1	4.1	5.7	5.7	3.7	24	
18		4.5	6.9	5.4	6.2	3.2	3.6	2.6	3.2	2.9	5.2	2.5	3.7	1.7	5.9	1	3	3	5.5	2.4	5.3	2.3	3.2	2.4	3	6.9	3.7	24	
19		2.2	2.8	2.4	4	1.8	4.1	3.7	4	2.2	3.9	2.7	6	2.8	3.8	2.5	3.1	4.6	6.2	5	4.8	3.8	3.7	4.1	5.3	6.2	3.7	24	
20		5.1	5.3	7.4	7.2	5.5	6.3	6.9	6.4	6	5.5	6.5	5.8	5.5	5.9	6.8	6.8	7.7	8.6	9.5	10.1	8.1	8.8	7.4	8.6	10.1	7.0	24	
21		9.1	8.6	9.7	8.8	9.5	9.6	10.4	8.2	9.4	8	7.2	6.8	7.5	7.4	9.1	4.8	4.6	7	9.8	9.1	11.6	11.1	11.6	10.1	11.6	8.7	24	
22		10.3	9.3	10.2	9.7	12	7.2	7.2	7.2	8.7	9.1	9.2	6.1	7.8	6.5	8.1	8.9	9.8	6.4	6.9	6.4	6.2	5.3	7.6	5	12.0	8.0	24	
23		6.8	3.9	6.5	7	7.2	5.3	6.1	5.5	6.7	7.4	6	6.7	10.5	6.3	7.4	6.4	8.6	8.8	10	8	8.3	8.1	10.2	11.8	11.8	7.5	24	
24		16.6	15	10.5	9.2	9.9	6.8	10.3	9.2	11.4	10.5	11.3	10.8	12.4	11.3	10.6	10	7.5	8.3	7.6	8.5	8.1	5.4	4	4.3	16.6	9.6	24	
25		5.7	3.1	5.6	1.5	5.4	2.9	1.4	3.3	2	2.1	1.2	1.3	3.6	0.8	2.5	4.1	0	3.9	1.2	2.1	2.2	5.3	3.7	8.5	8.5	3.1	24	
26		6.4	7.8	8.4	7.8	2	2.4	4.3	5.2	4	6.9	4.7	3.8	7.7	8.6	11.1	15.7	10.3	5.5	7.2	6.8	5.7	19.5	10.9	8.2	19.5	7.5	24	
27		5	11.1	10.7	18.1	8.5	7.3	6.4	10.4	8.2	9.3	5.7	8.5	5	6.2	6.3	9.2	6.9	7.8	5.1	6.8	6.2	5.9	6.7	6.4	18.1	7.8	24	
28		6.7	8.2	8.5	21	28.4	24.1	22.5	18.6	16.7	17.3	19.4	13.3	7.8	5.3	2.2	3.8	3.8	3.4	2.7	0.5	2.3	1.5	1.6	3.6	28.4	10.1	24	
29		2.2	1.8	1.3	3.2	1.7	1.8	0.9	1	1	2.9	3.8	3.2	1.3	0.5	1.7	0.5	2.3	1	1.4	1.5	2.9	3.4	4.9	3.3	4.9	2.1	24	
30		3.5	4.3	3.6	0.2	3.7	4	3.5	4.1	3.5	1.3	5.1	5.9	6.4	3	5.9	5	8.8	8.3	12.8	14.7	15.4	15.5	16.2	14.3	16.2	7.0	24	
31		13.7	10.8	11.5	9.5	9.6	6.8	7.6	7	8.5	10	9.8	9	10.9	8.5	8.4	7.6	5.3	4.4	7.6	7.4	11.5	11.9	14.9	17	17.0	9.6	24	
HOURLY MAX		33	43	38	34	30	28	23	19	18	20	20	21	22	20	18	20	21	29	24	20	22	23	23	25				
HOURLY AVG		9.0	9.5	9.2	9.5	9.1	8.7	8.0	8.2	8.1	8.5	7.8	7.7	7.8	7.3	7.0	7.6	7.6	8.2	8.3	8.5	8.8	9.7	9.5	9.6				

STATUS FLAG CODES

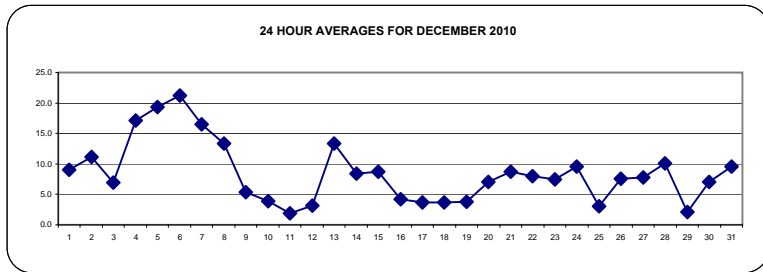
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

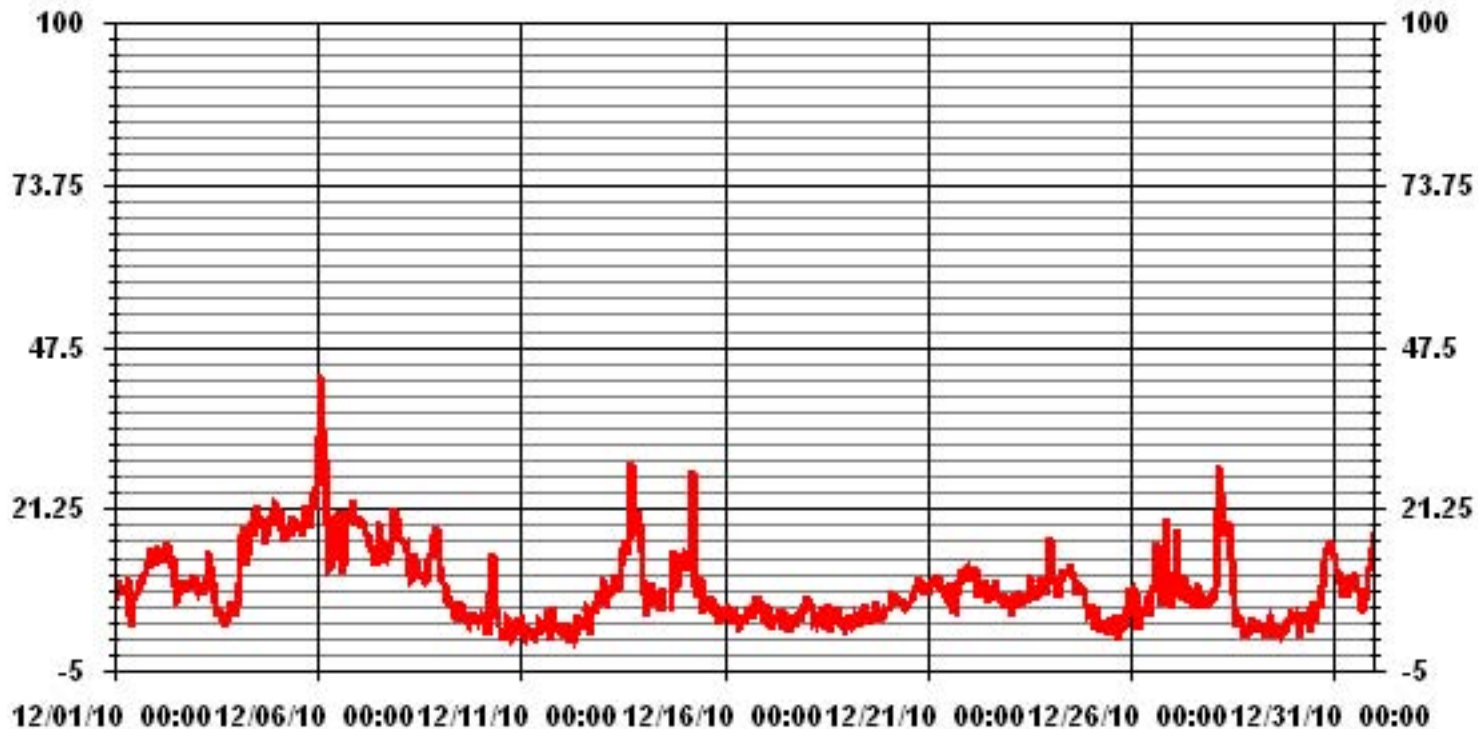
ALBERTA ENVIRONMENT:	1-HR	-	ug/m ³	24-HR	30	ug/m ³
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-		
NUMBER OF 24-HR EXCEEDENCES:	0 PROPOSED CANADA WIDE GUIDELINE		
NUMBER OF NON-ZERO READINGS:	736		
MAXIMUM 1-HR AVERAGE:	43.0 UG/M ³ @ HOUR(S) 1 ON DAY(S) 6		
MAXIMUM 24-HR AVERAGE:	21.2 UG/M ³ ON DAY(S) 6		
IZS CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	742 HRS
MONTHLY CALIBRATION TIME:	2 HRS	AMD OPERATION UPTIME:	99.7 %
STANDARD DEVIATION:	6.07	MONTHLY AVERAGE:	8.47 UG/M ³



01 Hour Averages



— LICA31 PM2 UG/M3

LICA31
 PM2 / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : PM2
 Units : UG/M3

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	3.37	2.29	2.83	9.59	10.94	8.91	5.81	4.45	5.27	3.51	8.24	6.48	5.13	6.89	8.24	7.43	99.45
< 60.0	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.27	.00	.54
< 80.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.51	2.29	2.83	9.59	10.94	8.91	5.81	4.45	5.27	3.51	8.24	6.48	5.27	6.89	8.51	7.43	

Calm : .00 %

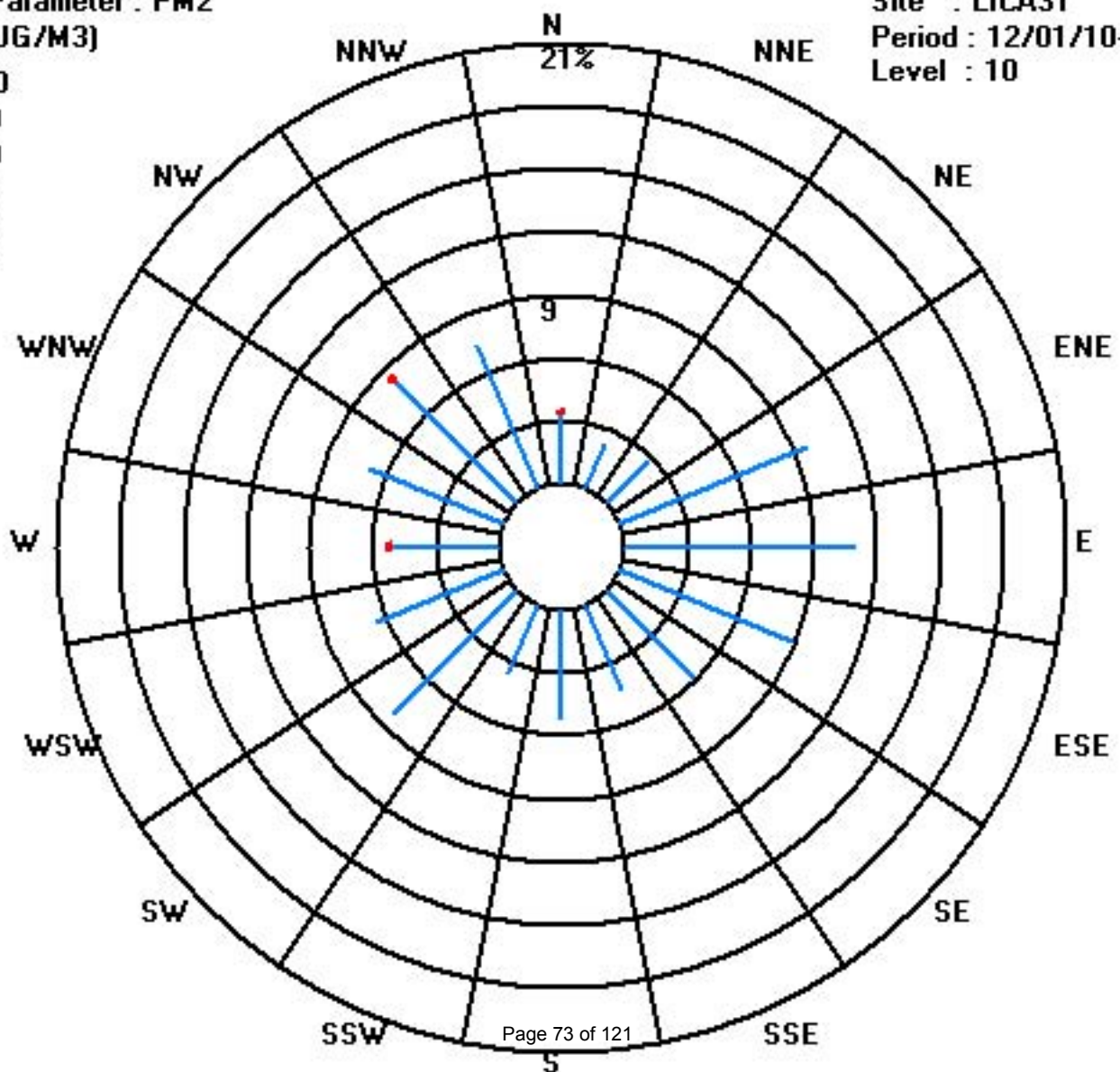
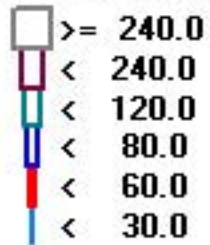
Total # Operational Hours : 740

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	25	17	21	71	81	66	43	33	39	26	61	48	38	51	61	55	736
< 60.0	1												1		2		4
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	26	17	21	71	81	66	43	33	39	26	61	48	39	51	63	55	

Calm : .00 %

Total # Operational Hours : 740



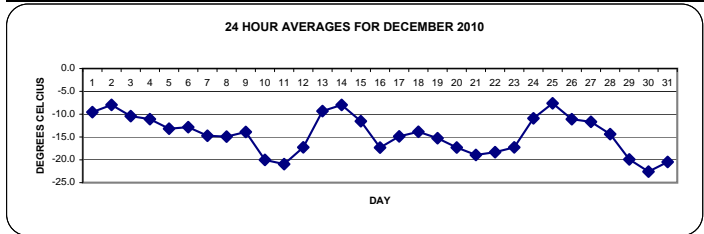
Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA
DECEMBER 2010
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY 24-HOUR	
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																												
1		-10.6	-10.7	-10.6	-10.5	-10.4	-10.3	-10.3	-10.8	-10.7	-10.2	-9	-7.6	-8	-8.1	-7.8	-7.9	-8.9	-9.1	-9.8	-10	-9.8	-9.6	-9.4	-9.2	-7.6	-9.6	24
2		-9.2	-9.2	-9.1	-9	-8.6	-8.5	-8.3	-8.3	-7.8	-7.2	-6.8	-6.8	-6.8	-6.7	-7	-7.3	-7.6	-7.9	-8.1	-8.1	-8.2	-8.3	-8.2	-8.1	-6.7	-8.0	24
3		-8.2	-8.2	-8.1	-8.1	-8.4	-8.6	-8.4	-8.4	-8.3	-7.7	-7.2	-8.4	-9.6	-10.2	-11.1	-12.3	-13.3	-13.4	-13.3	-13.3	-13.4	-13.7	-14.2	-14.4	-7.2	-10.4	24
4		-15	-14.4	-13.3	-12.5	-11.7	-10.5	-9.9	-10	-10.7	-10.8	-9.7	-8.5	-7.2	-7	-8.2	-9.3	-10.7	-11.6	-12	-12.2	-12.3	-12.5	-12.8	-13.3	-7.0	-11.1	24
5		-13.4	-13.2	-13.5	-14	-14.4	-14.8	-15.2	-15.7	-16.4	-15.1	-13.3	-11.2	-9.3	-7.9	-8.3	-9.5	-12	-13.2	-13.4	-13.4	-14	-14.8	-15.1	-15.2	-7.9	-13.2	24
6		-15.8	-16.3	-16.4	-15.3	-12.7	-10.4	-10	-11.4	-15.9	-13.9	-11.1	-9	-7.1	-5.2	-6	-10.1	-13.8	-14.5	-15	-14.9	-15.4	-15.7	-16.1	-16.1	-5.2	-12.8	24
7		-16.3	-16.2	-15.9	-15.5	-15.4	-15.6	-15.6	-15.9	-16.3	-15.9	-12.6	-10.8	-10.4	-10.9	-11.2	-12.5	-14.1	-14.5	-14.8	-15.6	-16.5	-16.5	-17.1	-17.3	-10.4	-14.7	24
8		-18	-17.8	-17.6	-17.4	-17.5	-17.4	-16.9	-16.4	-16	-15.3	-14.9	-14.4	-14.4	-13.9	-13.5	-13.4	-13.5	-13.4	-13.2	-13	-12.9	-12.7	-12.4	-12.1	-12.1	-14.9	24
9		-11.9	-11.8	-11.9	-11.9	-12.2	-12.7	-13.1	-13.6	-14	-13.6	-13.2	-13.3	-12.5	-13.2	-13.7	-14.2	-15.2	-15.3	-15.5	-15.7	-15.8	-16.1	-16.4	-16.7	-11.8	-13.9	24
10		-17.2	-17.9	-18.2	-18.6	-19	-19.4	-19.4	-19.6	-19.8	-19.5	-19.4	-18.6	-19.1	-19.2	-19.6	-20.3	-20.8	-21	-21.6	-22.1	-22.1	-22.3	-22.9	-22.7	-17.2	-20.0	24
11		-22.8	-22.8	-22.7	-22.4	-22.3	-22.3	-22.2	-22.2	-22	-21.6	-21.1	-20.7	-20.2	-20.2	-20.4	-20.5	-20.5	-20.5	-20	-19.4	-18.7	-18.7	-18.6	-18.6	-20.9	24	
12		-18.4	-18.4	-18.3	-18.5	-18.7	-19	-19	-19	-18.8	-18.8	-18.2	-17.5	-16.9	-16.3	-15.8	-15.9	-16.1	-16.1	-16.3	-16.3	-16	-15.6	-15.3	-15.1	-15.1	-17.3	24
13		-14.8	-14.2	-13.6	-13.3	-12.8	-12.4	-11.6	-11	-10.6	-10.3	-9.4	-7.6	-6.9	-6	-4.8	-4.6	-5.9	-6.6	-6.9	-7.4	-7.7	-8.3	-8.4	-8.6	-4.6	-9.3	24
14		-8.3	-6.7	-6.4	-7.6	-8.6	-9.4	-10.3	-11.6	-11.5	-10.5	-8.9	-8.3	-8	-8	-7.1	-6.9	-7	-6.8	-6.9	-6.7	-6.4	-6.5	-6.4	-6.6	-6.4	-8.0	24
15		-6.6	-6.5	-6.7	-6.9	-7.1	-7.3	-8	-8.5	-9.9	-10.8	-11.3	-11.6	-11.9	-12.2	-12.7	-13.4	-13.9	-14.5	-15.2	-15.7	-16.2	-16.4	-16.6	-17	-6.5	-11.5	24
16		-17.1	-17.6	-18	-18.5	-19	-18.9	-18.5	-18.3	-18.5	-18.2	-16.5	-16	-16.3	-16.2	-16.4	-16.7	-17.2	-17	-17	-16.9	-16.8	-16.7	-16.7	-16.7	-16.0	-17.3	24
17		-16.5	-16.5	-16.4	-16.3	-16.2	-16.1	-15.8	-15.8	-15.6	-15.3	-14.8	-14.3	-13.8	-13.7	-13.9	-14	-14	-14	-14	-14	-13.9	-14	-13.9	-13.9	-13.7	-14.9	24
18		-13.9	-13.7	-13.7	-13.7	-14.1	-13.9	-14.4	-15.2	-14.8	-14.4	-13.7	-12.9	-12.2	-11.7	-12.7	-13.6	-14.3	-15	-14.6	-14.4	-14.7	-14.6	-14.5	-11.7	-13.9	24	
19		-14.5	-14.4	-14.5	-14.6	-14.7	-15	-15.3	-15.4	-15.3	-15	-14.4	-14.1	-14	-13.8	-13.8	-14.7	-15.4	-15.8	-16.3	-16.6	-16.8	-16.6	-17.5	-17.8	-13.8	-15.3	24
20		-18	-17.7	-17.8	-17.5	-17.2	-16.9	-17	-17.4	-16.6	-16	-15.9	-14.1	-11.9	-14.9	-16.4	-17.5	-17.7	-18.5	-18.8	-19.7	-19.3	-20.1	-20.9	-11.9	-17.3	24	
21		-21.4	-20.4	-20.3	-21.6	-22.3	-22.4	-21.9	-22.1	-22	-22.2	-21	-19.8	-16.8	-14.8	-14.8	-15.4	-16.2	-16.2	-16.3	-16.7	-17.1	-17.4	-17.5	-22.8	-14.8	-18.9	24
22		-18.1	-18.5	-18.7	-19.3	-19.9	-20.4	-20.8	-20.8	-21.1	-19.7	-18	-16.6	-15.6	-15.7	-16.1	-17.1	-17.4	-17	-17.2	-17.6	-18.1	-18.5	-18.5	-19.1	-15.6	-18.3	24
23		-19.2	-19.1	-19.2	-19.3	-19.5	-19.9	-19.8	-18.6	-17.6	-16.8	-16.3	-16.1	-16	-16.4	-16.7	-16.6	-16.6	-16.3	-16.2	-15.9	-15.8	-15.5	-14.7	-14.7	-17.3	24	
24		-13.4	-12.9	-13.8	-12.6	-11.8	-11.8	-11.8	-11.8	-12	-11.7	-11.1	-9.8	-8.9	-9.3	-9.6	-10.4	-10.8	-10.7	-10.4	-10.1	-9.6	-9.3	-9.2	-8.9	-8.9	-10.9	24
25		-8.9	-8.9	-8.8	-8.9	-9.5	-9.1	-9.3	-9.4	-9.4	-7.3	-6.2	-5.4	-4.2	-4.2	-4.5	-6.9	-7.2	-7.5	-7.7	-7.3	-7.2	-7.3	-8.1	-9.6	-4.2	-7.6	24
26		-9.6	-10.5	-10.6	-11.2	-11.9	-11.9	-12.2	-12.4	-12.9	-12.6	-12.2	-11.8	-10.1	-8.9	-9.2	-10.6	-10.9	-10.9	-10.8	-10.6	-11.1	-11.2	-11.3	-8.9	-11.1	24	
27		-11.3	-11.1	-10.9	-10.8	-10.9	-11.5	-11.7	-12	-12.4	-12.9	-12.4	-11.6	-10.2	-9.5	-10.7	-11.4	-12.3	-11.9	-11.7	-11.9	-12.2	-12.2	-12.6	-14.1	-9.5	-11.7	24
28		-14.7	-15.2	-14.9	-15.8	-14.5	-14.4	-15.7	-13.9	-13.1	-13.4	-13.7	-14	-13.7	-12.4	-12.7	-13	-13.4	-14	-14.3	-14.4	-14.9	-15.9	-16.4	-16.5	-12.4	-14.4	24
29		-17.1	-18.2	-18.8	-19.2	-19.5	-19.7	-19.8	-19.5	-19.5	-19.3	-18.4	-18	-17.5	-17	-18.3	-19.9	-20.5	-21.1	-21.7	-22.2	-22.4	-22.8	-23.4	-24	-17.0	-19.9	24
30		-24.5	-24.5	-24.1	-24.1	-24.3	-24	-23	-23.6	-24.2	-25	-24.3	-22.8	-21.4	-20.5	-19.7	-20.6	-21.9	-22.3	-22.3	-21.9	-21.8	-21.1	-20.2	-19.8	-19.7	-22.6	24
31		-20	-20.3	-21.1	-22	-22.1	-22.4	-22.6	-22.5	-21.3	-19.9	-18.3	-17.5	-16.4	-16.4	-17.2	-18.9	-19.6	-20.5	-20.6	-21.4	-22	-22.7	-23.3	-16.4	-20.5	24	
HOURLY MAX		-6.6	-6.5	-6.4	-6.9	-7.1	-7.3	-8.0	-8.3	-7.8	-7.2	-6.2	-5.4	-4.2	-4.2	-4.5	-4.6	-5.9	-6.6	-6.9	-6.7	-6.4	-6.5	-6.4	-6.6			
HOURLY AVG		-15.0	-15.0	-15.0	-15.1	-15.1	-15.1	-15.1	-15.2	-15.4	-14.9	-14.0	-13.3	-12.6	-12.2	-12.5	-13.3	-14.1	-14.3	-14.6	-14.7	-14.8	-14.9	-15.1	-15.3			

STATUS FLAG CODES

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



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-25 °C	@ HOUR(S)	9	ON DAY(S)	30
MAXIMUM 1-HR AVERAGE:	-4.2 °C	@ HOUR(S)	12, 13	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	-7.6 °C			ON DAY(S)	25
CALIBRATION TIME:	0	HRS		OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION:	4.53			AMD OPERATION UPTIME:	100.0 %
				MONTHLY AVERAGE:	-14.43 °C

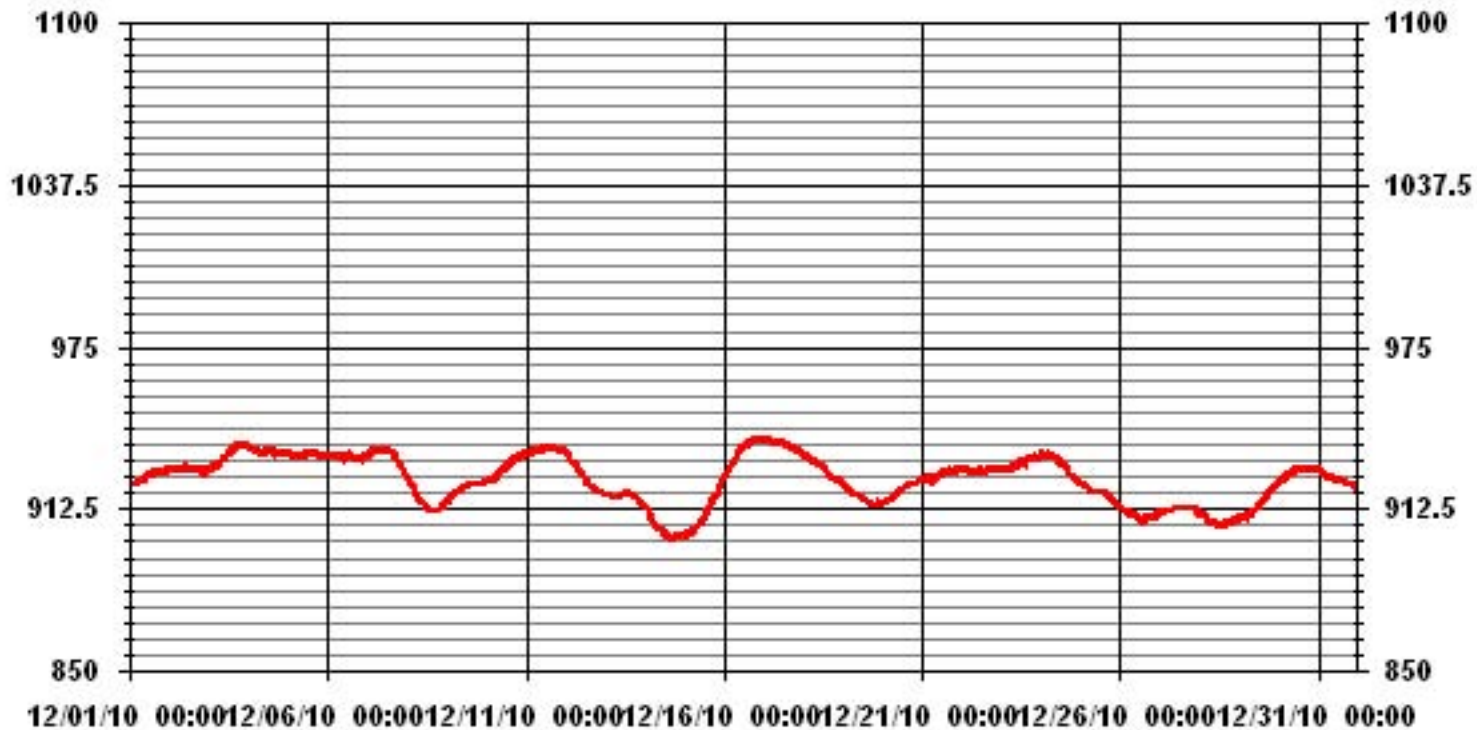
01 Hour Averages



— LICA31 TPX DGC

Barometric Pressure

01 Hour Averages



— LICA31 BP MB

Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

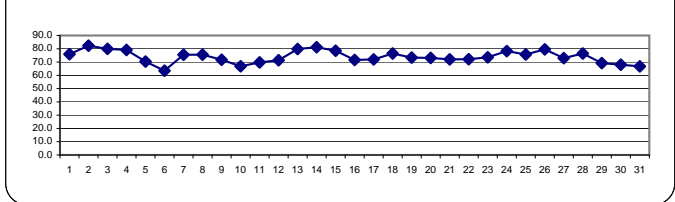
RELATIVE HUMIDITY hourly averages (%)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
DAY	HR	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1	79	79	79	79	79	79	78	78	79	78	76	72	67	69	72	71	71	75	75	77	78	78	78	77	77	79	75.9	24		
2	79	79	79	79	80	84	84	83	84	84	84	84	83	83	83	83	83	83	83	83	83	82	82	82	83	84	82.3	24		
3	82	82	82	82	82	82	82	82	82	83	83	81	80	79	78	78	77	77	78	78	78	78	77	77	77	83	80.0	24		
4	76	77	78	79	80	81	81	81	80	80	80	79	79	79	79	79	79	79	79	79	79	79	79	79	78	81	79.1	24		
5	78	77	77	77	76	76	75	75	74	71	70	69	67	63	61	61	65	66	66	66	66	68	70	71	70	78	70.4	24		
6	70	71	71	69	62	54	52	56	69	63	58	55	51	45	47	57	65	66	68	70	73	79	77	76	79	63.5	24			
7	76	77	76	76	76	76	76	76	76	75	75	74	73	72	74	76	78	78	77	76	75	75	75	74	78	75.5	24			
8	74	74	74	74	74	74	75	75	75	75	76	76	75	76	76	76	76	77	77	77	77	77	77	77	77	77	75.6	24		
9	76	76	75	75	75	76	75	75	75	72	70	67	63	65	65	67	70	71	72	73	72	72	72	72	73	76	71.8	24		
10	72	70	69	69	68	69	69	69	69	67	65	61	62	60	61	63	65	66	68	69	69	68	68	68	68	72	66.8	24		
11	68	68	68	69	69	69	69	69	69	69	69	69	69	69	70	70	70	71	71	71	71	72	72	72	72	72	69.8	24		
12	72	72	72	72	72	72	71	71	71	71	70	69	68	69	70	71	72	72	72	72	72	72	72	73	74	74	71.4	24		
13	75	77	78	78	78	79	79	80	80	81	81	81	82	81	79	80	80	80	81	82	80	80	80	82	82	82	79.8	24		
14	82	80	78	78	79	79	79	79	79	78	78	80	82	83	83	83	83	83	83	83	83	84	84	84	84	84	81.2	24		
15	84	83	83	83	83	83	82	81	80	80	79	78	78	77	77	76	76	76	75	75	74	74	74	74	74	84	78.5	24		
16	73	73	73	73	73	73	73	72	73	72	70	69	70	69	69	70	71	71	71	72	72	72	72	72	72	73	71.6	24		
17	72	71	71	71	71	70	71	72	71	71	71	70	70	70	72	73	73	73	74	74	74	74	74	74	75	75	72.0	24		
18	79	79	79	78	78	77	76	76	76	76	76	76	76	75	73	74	77	78	77	77	75	75	76	76	76	79	76.5	24		
19	75	75	76	76	75	74	74	74	74	73	72	71	69	68	68	70	74	75	75	75	75	74	74	74	75	76	73.4	24		
20	74	74	73	74	74	74	73	73	74	75	73	74	72	65	71	73	75	75	74	74	73	74	72	72	72	75	73.1	24		
21	72	72	72	71	70	70	70	70	68	68	69	72	73	73	74	75	75	75	74	74	74	74	74	74	74	74	75	72.0	24	
22	74	73	73	73	72	72	71	71	71	70	70	70	69	69	71	72	74	75	74	74	74	74	73	73	73	75	72.1	24		
23	73	73	72	72	72	72	72	73	74	74	74	73	73	73	74	74	74	74	75	75	75	75	75	76	76	76	73.6	24		
24	78	78	77	78	79	79	79	79	79	79	79	79	78	79	80	80	80	80	79	79	78	76	74	73	80	78.3	24			
25	74	75	75	76	77	77	78	78	78	75	73	71	68	68	69	75	77	78	79	78	78	79	80	81	81	81	75.7	24		
26	81	82	82	81	80	80	79	79	78	78	77	78	78	79	79	80	80	80	80	80	80	80	80	80	80	80	79	82	79.5	24
27	79	80	80	80	80	79	79	78	78	77	76	74	68	62	64	66	69	69	68	67	68	68	69	73	80	73.0	24			
28	75	79	79	77	78	78	76	78	78	75	75	73	76	77	77	77	77	77	77	77	76	75	74	74	79	76.5	24			
29	73	72	72	72	72	72	72	72	72	71	69	66	64	61	63	65	67	68	69	70	70	70	70	70	70	71	69.2	24		
30	69	69	69	68	68	69	69	69	68	67	66	66	66	65	63	65	67	68	70	71	70	70	70	70	70	71	68.0	24		
31	69	70	70	70	70	70	70	70	69	67	64	61	61	58	58	60	64	65	67	68	70	70	71	70	71	71	66.8	24		
HOURLY MAX		84	83	83	83	83	84	84	83	84	84	84	84	83	83	83	83	83	83	83	83	84	84	84	84	84				
HOURLY AVG		75.3	75.4	75.2	75.1	74.9	74.8	74.5	74.7	75.0	73.9	73.0	71.9	71.3	70.5	70.9	72.2	73.8	74.2	74.5	74.7	74.7	74.8	74.8	74.9					

STATUS FLAG CODES

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

24 HOUR AVERAGES FOR DECEMBER 2010



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	84	%	@ HOUR(S)	VAR	ON DAY(S)	2
MAXIMUM 24-HR AVERAGE:	82.3	%			ON DAY(S)	2
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	5.52		MONTHLY AVERAGE:	73.96	%	

01 Hour Averages



— LICA31 RH %FS

Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA
DECEMBER 2010
PRECIPITATION hourly averages (mm)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY		
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	TOTAL	RDGS.	
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24	
2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
3		0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24	
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
7		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
8		0	0	0	0	0	0	0	0	0	0.1	0.7	0.1	0	0	0	0	0	0.1	0	0	0	0.1	0	0	0	0.7	1.1	24
9		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
10		0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24
11		0	0	0.1	0.1	0	0.1	0.1	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.1	0.5	24
12		0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0	0.1	0.1	0	0	0	0	0	0.1	0.5	24
13		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
14		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.7	0.9	0.9	1.8	24
15		1.1	0.5	0.6	0.4	0.4	0.2	0	0.1	0.1	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	1.1	3.5	24
16		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0.1	24
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0.1	24
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
27		0	0	0	0	0.1	0.1	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4	24
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
31		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
HOURLY MAX		1.1	0.5	0.6	0.4	0.4	0.2	0.1	0.2	0.1	0.1	0.7	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.7	0.9			

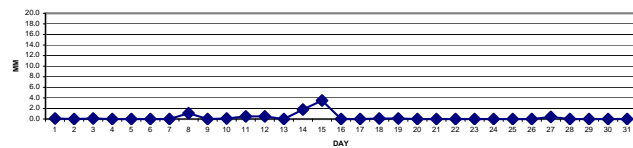
STATUS FLAG CODES

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

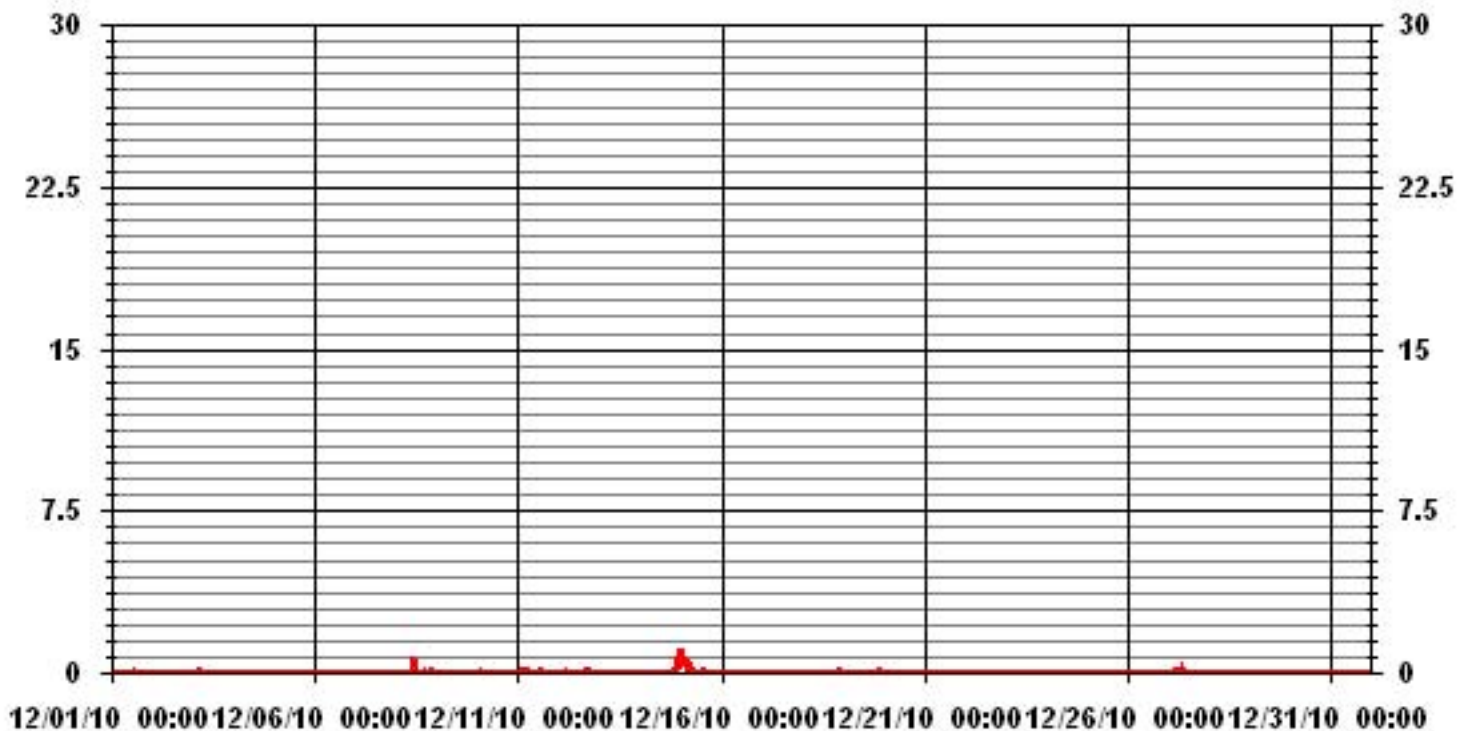
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	1.1	MM	HOUR(S)	0	ON DAY(S)	15
MAXIMUM DAILY TOTAL	3.5	MM			ON DAY(S)	15
MONTHLY TOTAL	8.3	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	0.08		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.01	MM	

DAILY TOTALS FOR DECEMBER 2010



01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

DECEMBER 2010

WIND SPEED hourly averages (km/hr)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	1	10.4	10.1	8.6	7.2	7.6	8.4	9.7	14.1	12.1	13.8	14	12.7	13.5	13.6	8.7	11.4	15.1	12.3	12.2	13.1	9.6	7.1	8.6	5.8	15.1	5.6	24
2	2	6.5	14	14.5	12.1	11.3	0.5	13.1	14.7	13.9	3.8	5.8	7.6	5.9	8.3	5.8	10	13.9	6.6	6.2	6.1	6.7	5.4	5.3	4.9	14.7	2.6	24
3	3	3.6	2.4	6.1	0.9	2.3	4.3	4.7	5.3	5.9	6.7	9.5	12.7	11.4	12.5	12.6	11.9	11.6	5	11.9	11.1	3.6	4.4	8	7.1	12.7	4.9	24
4	4	13.6	11.5	10.8	9.5	10	13.7	15.2	14.1	11	12.5	11.3	12	11.4	12.5	15.1	15.3	17.2	14.1	12.4	10.7	12.2	10.7	11.2	9.9	17.2	11.8	24
5	5	9.3	10.1	9.9	9.3	9.5	10.5	10.3	9.7	8.2	8.6	9	9.9	9.5	9.6	9.3	9.5	8.1	9.1	10	10.3	8.8	8.9	9.3	8.1	10.5	9	24
6	6	11	11.1	12.4	2.1	14.7	9.3	8.7	7.1	11.4	7.8	8.6	6.3	9.2	9.5	6.3	9.6	6.9	13.5	14.4	12.9	11.5	11.1	9.2	10.8	14.7	5.6	24
7	7	5.4	9.3	9	5.3	7.9	7.2	8.6	8.8	8.4	7.8	9	8.9	8.1	9.7	9	8.2	9.3	9.9	9	8.5	9.7	7	8.5	9	9.9	7.5	24
8	8	10.9	13.3	16.7	13.8	14.5	17.1	15	14.2	12.7	15.1	11.5	10.6	9.2	3.2	7.4	13.2	6.2	6.7	8.2	10.8	11.6	12.1	12.3	12.3	17.1	5.6	24
9	9	13.2	11.9	10.6	11	12.2	12.4	10	9.9	13	10.2	10.1	6.1	9.2	9.3	10.2	11.6	10.4	11	10.9	9.9	8.7	11.9	10.3	9.9	13.2	8.8	24
10	10	11.2	10.2	7	10.5	10.7	11.6	10.9	10.3	11.8	9.1	11.6	9.9	6.9	6.8	4.5	5.3	6.3	6.3	6.7	5.9	7.5	11.4	10.3	10.4	11.8	7.1	24
11	11	10.8	10.7	10.8	10.5	11.6	12.5	15	14.2	14.7	14.6	11.3	13.2	14.5	15.6	13.8	10.8	14.1	13.8	13.9	14.6	11.6	12.8	12.6	15.6	15.6	12.5	24
12	12	12.1	10.2	13.8	15.7	15.6	15.5	16.7	16.7	18.5	19.3	18.7	20.8	10.8	8.3	8.3	9.1	9.7	9.6	10.5	11.7	10.6	12.5	14.5	16	20.8	6.6	24
13	13	15.1	10.2	13.4	14.9	16.1	15.9	15.5	16.4	16	12.5	15.2	15.1	14.6	11.9	15.3	16.2	9.5	7.6	4.7	3.2	2.4	2.8	2.7	3.2	16.4	8.2	24
14	14	2.3	2.5	3.6	4.7	5.6	7.2	10.8	7.8	8.5	9.1	11.5	15.5	6.4	4.8	4.8	4.7	4.3	6.9	7.6	5.3	5.9	4.3	4.2	10.2	15.5	3.1	24
15	15	3.7	11.1	5.9	5	7.3	9.6	14.2	14	17.4	6.8	6.8	7.8	6.6	7.2	6.6	6.8	6.7	3.7	7.6	17.8	15.3	14.3	12.1	11.1	17.8	7.2	24
16	16	9.4	7.9	9.5	12	10.9	8.5	7.5	4.3	14	3.3	11.5	10.9	4.7	1.8	4.3	4.7	4.9	3.8	5.4	4.8	13	13	12.6	11.1	14	3.8	24
17	17	12.6	12.8	12.4	12.1	12.5	11.9	12.9	12.7	13.7	13.4	13.2	13.6	13.9	13.6	13.7	13.6	14.5	13.7	13.5	13.7	14.3	13	13.1	14.2	14.5	13.1	24
18	18	14.9	14.9	10.8	8.6	8.9	10.8	12	11.7	12.3	12.2	11.6	11.7	9.8	12.7	12.2	11.3	8.1	10.8	11	8.9	7.9	12	12.5	11.8	14.9	10.5	24
19	19	9.6	10.7	11	11.8	12.4	12.5	13.6	14.6	11.1	13.7	14	12.6	12.6	11.2	10.3	9.6	5.3	7	7.1	8.7	9.1	9.1	7	3.4	14.6	9.3	24
20	20	8.2	4.8	12.5	14.2	15.6	15.6	15.5	12.2	10.8	10.2	10.4	9.8	12.9	6.3	8	8.9	10.2	11.6	10.9	10.3	8.7	9.8	9.6	10.5	15.6	6	24
21	21	11.9	10.6	9.8	10.8	12.6	11.7	17.3	12	13.8	13.8	15.5	13.8	15	15.2	15	15.5	12	15.1	14.9	13.6	10	11.2	11.8	12	17.3	12.7	24
22	22	13.9	13.4	12.6	12.5	13.3	13.3	11.6	10.8	12.2	13.8	12.5	12.5	11.9	14.2	14.8	14.1	17.3	7.4	16	14	12.3	12.6	13.2	12.4	17.3	12.9	24
23	23	13.6	15.6	13.2	3.6	2.8	4.4	6	4.7	5.5	5	4.2	6.7	6.3	5.4	8.1	8.1	6.9	6.7	9	11.2	8.5	10.4	9.7	5.4	15.6	3.2	24
24	24	13	9.7	9.1	11.6	7.4	12.4	14.2	11.7	10.5	11.5	12.1	13.2	14.8	15.3	14.7	16.2	19.1	16.6	15.7	14.3	14.7	14.7	13.1	18.1	19.1	12.2	24
25	25	19.9	16.1	14.2	12.5	14.4	13.3	13.2	14.9	11.4	8	9.7	11.8	12.2	13.1	9.6	7.8	9.8	10	6.3	9	9.9	7.6	12.2	9.9	19.9	8.2	24
26	26	11.3	12	13.5	12.6	12.7	13.1	13.4	12	10.1	10	12.2	13	13.6	3.8	14.2	12.6	7	6.9	6.6	14.3	14.2	12.5	14.1	14.1	14.3	3.9	24
27	27	14.3	13.3	12.6	9.9	13.7	14.2	10	13.6	14.3	15.9	17	18.1	18.8	15.4	14.7	14.4	13.7	16.8	16.1	15.3	11.8	12.5	11.7	12.3	18.8	13.5	24
28	28	14.1	13.4	13.4	9.2	14.7	14.3	12.1	11.8	6.1	9.4	12.1	10.7	8.4	9.4	11.1	11.3	11.3	11.4	12.4	11	10.2	9.7	11.1	9.5	14.7	8.7	24
29	29	11.2	12	10.6	9.5	10.1	9.3	10.6	12.2	10.7	10.2	11.1	11.9	12.2	11.2	10.4	12.5	9.3	13.4	13.1	12.7	9.1	12.4	12.4	10.7	13.4	10.1	24
30	30	12.4	8.2	12.1	9.4	9.4	10.5	12.5	10.9	7.7	7.9	8.7	12.2	12.1	11.7	11.6	11.8	12.4	10.1	8.4	8.6	7.5	7.1	7.1	11.1	12.5	7.9	24
31	31	8.2	8.4	8.4	7.5	6.9	6.7	6	4.7	5	5.2	5.1	5.4	3.4	3.8	1.6	3.4	7.3	6.2	6.2	6.3	8.8	8.6	9.1	9.2	9.2	6	24
HOURLY MAX		19.9	16.1	16.7	15.7	16.1	17.1	17.3	16.7	18.5	19.3	18.7	20.8	18.8	15.4	15.6	16.2	19.1	16.8	16.1	17.8	15.3	14.7	14.5	18.1			
HOURLY AVG		10.9	10.7	10.9	9.7	10.8	10.9	11.8	11.4	11.4	10.4	11.2	11.5	10.6	9.9	10.1	10.7	10.2	9.8	10.3	10.6	10.0	10.1	10.3	10.2			

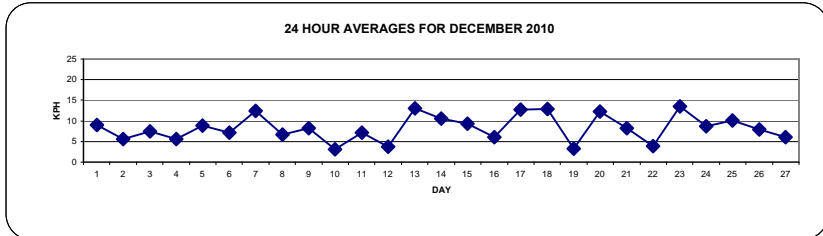
STATUS FLAG CODES

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

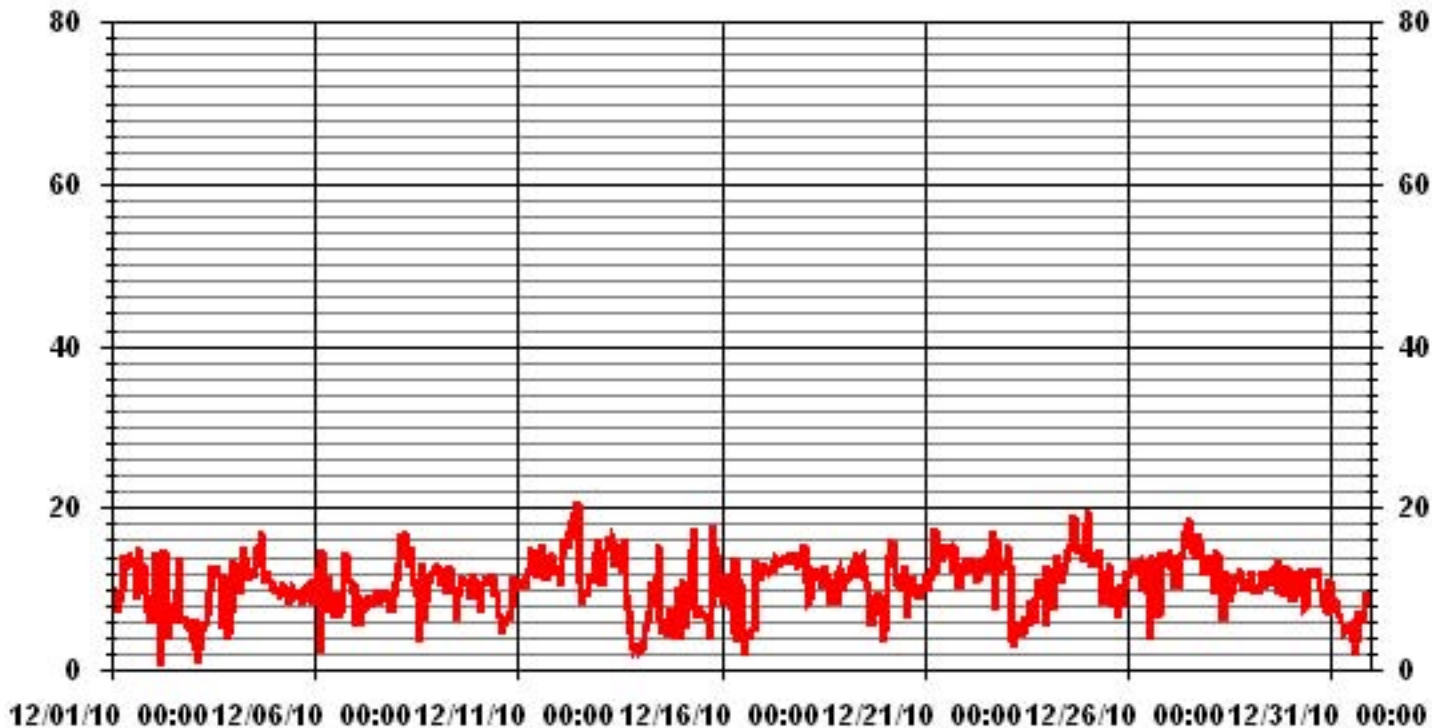
LAST CALIBRATION: June 17, 2010

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	20.8 KPH	@ HOUR(S)	11	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	13.5 KPH			ON DAY(S)	27
CALMS (≤ 0 KPH)	0.13 %	OPERATIONAL TIME:	744 HRS		
MONTHLY CALIBRATION TIME:	0 HRS	AMD OPERATION UPTIME	100.0 %		
STANDARD DEVIATION	3.45	MONTHLY AVERAGE	10.59 KPH		



01 Hour Averages



— LICA31 WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	
DAY																											
1		21.2	21.4	16	14	16.9	18.1	21.6	30.9	24.3	25.2	23.2	26	24.3	23.8	23.6	24.3	24.5	22.5	22.3	20.8	16.9	11.1	16.6	15.3	30.9	
2		24.5	17.9	22.3	17.3	29.1	29.1	28	29.6	26	18.6	15.5	14.9	19.7	20.8	19.2	20.8	23	20.6	14.4	15.1	16.6	11.2	11.1	9.6	29.6	
3		9.4	6.1	24.7	3.5	3.5	7.7	9	11.1	13.1	13.2	26	28.2	24.7	29.1	27.6	26.9	26.9	21.4	21.9	23.8	16.8	18.8	15.7	21	29.1	
4		21.2	20.4	20.3	20.6	23.4	25.4	25.4	29.8	23.4	21.4	20.6	21.2	18.2	20.1	20.3	19.5	21.2	19.9	15.1	14	14.9	17.3	19.5	19.5	29.8	
5		18.6	19.7	19.3	18.2	17.3	19.5	17.1	17.7	20.4	22.3	18.4	19.9	15.1	14.4	17.1	14	12.2	13.1	13.8	14	11.6	14.7	25.8	23.2	25.8	
6		20.3	15.1	17.3	26.2	16.8	19.3	16.4	21.9	27.3	14.7	21.5	21.7	18.8	21.2	17.9	19.3	14.9	18.2	18.2	19.3	17.3	17.1	13.6	17.3	27.3	
7		26.5	14.9	15.5	11.4	13.1	12.3	14.2	15.3	14.7	15.5	21.9	17.7	17.9	20.1	20.6	18.6	20.8	16.4	15.1	18.8	19.9	20.4	16.4	17.5	26.5	
8		19.5	25.4	30.6	33.3	27.3	33.7	29.6	29.2	24.1	30.7	27.6	25.8	22.7	29.8	50.3	27.1	33.9	16.9	22.3	33.1	21.2	28.2	25.6	27.1	50.3	
9		28.9	33.1	29.1	26	24.5	27.8	26	29.6	25.4	24.3	24.5	21	23	23.2	21.9	22.3	21.9	24.5	23.9	22.3	22.7	25.6	22.8	22.7	33.1	
10		21.7	19.5	20.1	22.8	17.3	16.6	20.6	17.7	24.3	25.9	21	20.8	19.9	22.1	20.1	23.5	19.9	15.3	16.6	14.7	23	22.8	22.1	21	25.9	
11		21.7	20.8	21.7	23.4	24.1	23.2	24.3	28.5	26.7	26.7	29.6	29.3	26.5	28.9	32	28.9	25.8	27.4	26.7	26.9	33.9	24.9	26.1	24.7	33.9	
12		22.3	24.7	23.6	31.3	32.8	34.6	33.9	33.5	37.7	35.9	37.2	41.6	36.8	29.2	26.9	28.5	29.3	33.5	27.8	24.7	22.7	23.6	27.3	26.3	41.6	
13		28.5	27.3	29.6	30.4	28.9	29.8	26	31.5	29.3	20.6	24	24.3	23.4	19	23.9	21.9	26	16.4	14	16.6	14.9	21.2	14.2	13.6	31.5	
14		15.1	16.4	15.3	16.2	18.2	19.5	20.8	24.5	22.7	27.3	29.3	33.7	28	21.6	16.2	31.6	17.9	26.9	18.6	13.5	14.6	15.5	21.6	25.1	33.7	
15		21.9	25.8	20.8	15.1	15.3	22.1	30.8	33.5	36.1	35.7	26.2	26.2	27.8	27.3	30	31.7	25.4	24.7	34.8	34	30.6	25.6	26.7	18.2	36.1	
16		18.4	14	14.7	19.7	19.5	17.9	17.7	27.6	29.8	110.5	26.5	26.5	50.1	31.5	38.3	24.1	28	28	11.8	28.2	27.2	23.2	30	25.8	110.5	
17		26.9	29.1	24	23.2	25.6	22.3	25.8	25.4	P	26.9	26.2	25.8	31.5	30.6	24.7	26.5	30.4	25.8	24.1	26.5	27.3	27.6	31.3	28.9	31.5	
18		29.6	28	21.4	21.2	24.9	21.4	22.3	22.1	22.5	21.9	21.2	21.2	20.6	25.2	23	18.8	21.6	21	19.2	21.6	19.9	21.6	25.8	23.6	29.6	
19		21.9	23.4	21.9	24.3	24.9	28.9	29.6	32.4	28	28.7	30.6	26.2	26.9	28.4	22.1	23	39.2	14.9	15.5	17.3	23	19.7	33.9	41.9	41.9	
20		21.4	25.6	26	26.5	24.9	29.1	23.9	16.2	20.6	20.1	20.6	21.6	22.8	20.3	16.2	17.5	19.5	20.8	23.4	20.2	18.4	16.4	17.5	20.1	29.1	
21		21.4	20.6	23.2	19.9	21	21.2	33.7	26.9	26.2	25.8	28.7	25.8	32.2	32.8	30.4	33.5	23.6	30.4	30.4	25.6	19.3	21	24.3	26.5	33.7	
22		27.8	25.8	25.6	28.5	24.1	25.2	18.4	17.7	19.5	22.7	25.6	26.9	24.3	28.7	29.8	27.3	34.8	31.3	29.8	25.8	24.5	19.7	20.6	19.7	34.8	
23		24.9	29.3	35.2	16.4	12.3	12.5	15.7	14.7	15.3	18.4	15.7	17.1	15.5	14.2	28.7	20.3	18	17.3	23.4	23.2	19	20.6	22.5	22.5	35.2	
24		26	21.9	21	28.9	26.5	27.6	29.1	28.7	25.6	26.7	22.3	28.2	30.2	32.4	28.7	33	40.9	37	32	29.8	31.1	35.2	26.7	34.8	40.9	
25		37.8	29.8	26.9	21.6	26	20.8	24.3	26.9	22.5	23.8	18.6	19.7	23.2	20.1	23.9	16.2	19	21	17.1	14.2	17.5	23.2	17.7	19.9	37.8	
26		21.4	22.3	26	19.5	20.1	22.5	21.7	19	17.7	23.2	16.4	19.2	17.3	24.3	25.1	22.5	26	13.6	19.7	24.7	31.3	30.5	31.7	37.4	37.4	
27		32.4	26.9	22.7	26.9	34.8	34	27.1	34.1	34.4	39.4	39.8	43.1	42.9	34.1	33	31.7	33.9	36.5	35.7	35.4	26.3	25.4	26.2	23.2	43.1	
28		22.3	17.5	19	19.9	19.7	18.4	15.7	20.8	27.8	30.4	26.9	25.2	24.5	23.8	19.7	19.7	22.3	26.1	29.3	28.9	27.4	28.7	28	30	30.4	
29		28.7	32.8	30.9	29.1	27.8	30.7	28.9	25.4	22.7	24.5	21.9	26.2	25.1	26.9	23.8	28.5	24.9	30	24.7	24.7	23.4	19	20.1	23.8	32.8	
30		22.3	18.2	23.4	20.1	20.6	22.3	22.8	21	16.4	15.1	19.9	14.7	14.7	14	16.2	23.4	21.4	21.2	18.2	17.7	17.9	18.6	19.5	24	24	
31		15.1	16.2	17.1	14.2	17.1	18.4	19	17.1	17.1	16.9	23	19	16.4	34.6	36.3	38.1	20.4	17.9	19.1	16.8	14.4	16.9	15.1	18.4	38.1	
PEAK		37.8	33.1	35.2	33.3	34.8	34.6	33.9	34.1	37.7	110.5	39.8	43.1	50.1	34.6	50.3	38.1	40.9	37.0	35.7	35.4	33.9	35.2	33.9	41.9		

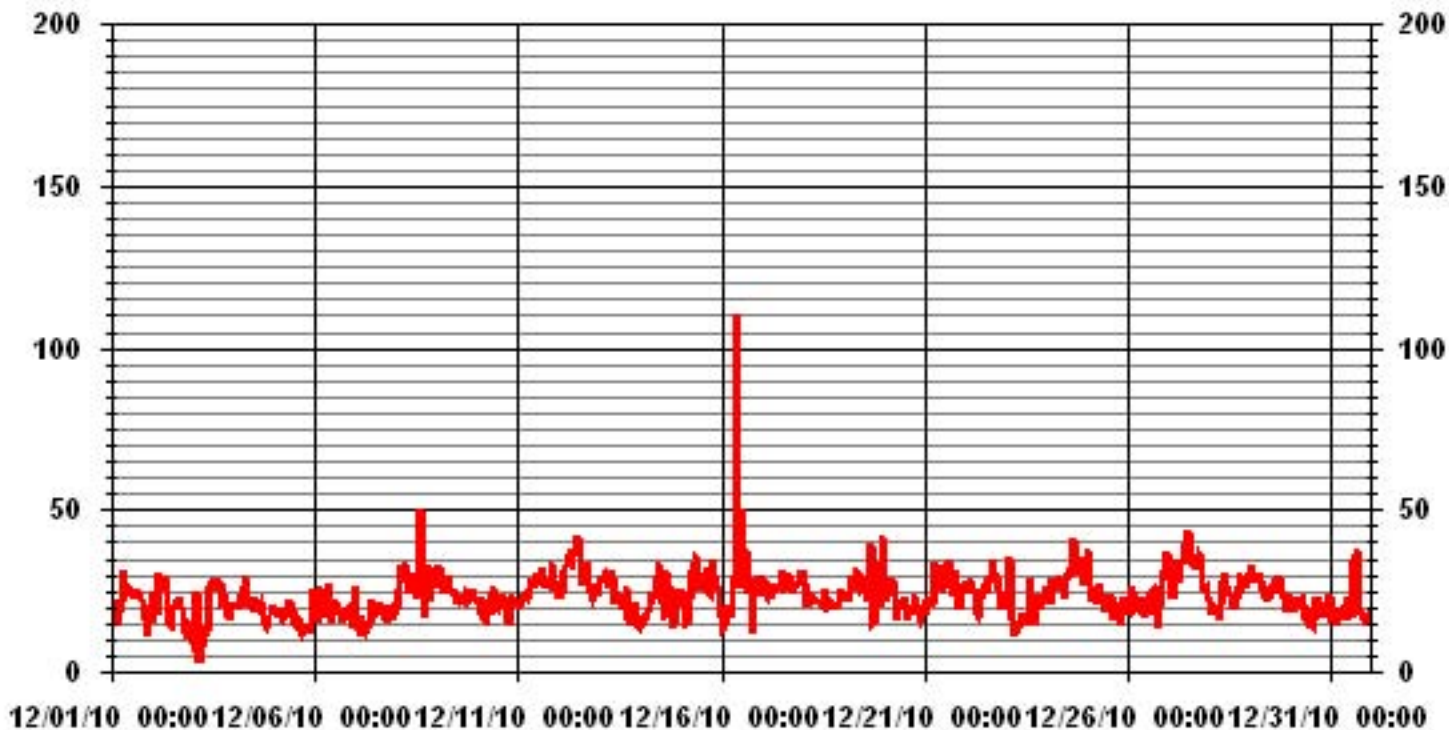
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	110.5	KPH	@ HOUR(S)	9
			ON DAY(S)	16

01 Hour Averages



— LICA31 WSMAX KPH

LICA31
WSP / WDR Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : WSP
Units : KPH

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	.26	.00	.67	.94	.67	.53	1.07	.26	.26	.13	.53	.13	1.74	1.88	1.20	.53	10.88
< 12.0	1.07	1.47	1.74	4.30	4.97	4.97	2.01	2.28	1.74	2.68	5.10	3.49	2.95	1.74	4.43	5.51	50.53
< 20.0	2.01	.80	.40	4.30	5.37	3.22	2.95	1.88	3.36	.67	2.55	2.82	.53	3.22	2.82	1.34	38.30
< 29.0	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	3.36	2.28	2.82	9.54	11.02	8.87	6.04	4.43	5.37	3.49	8.19	6.45	5.24	6.85	8.46	7.39	

Calm : .13 %

Total # Operational Hours : 744

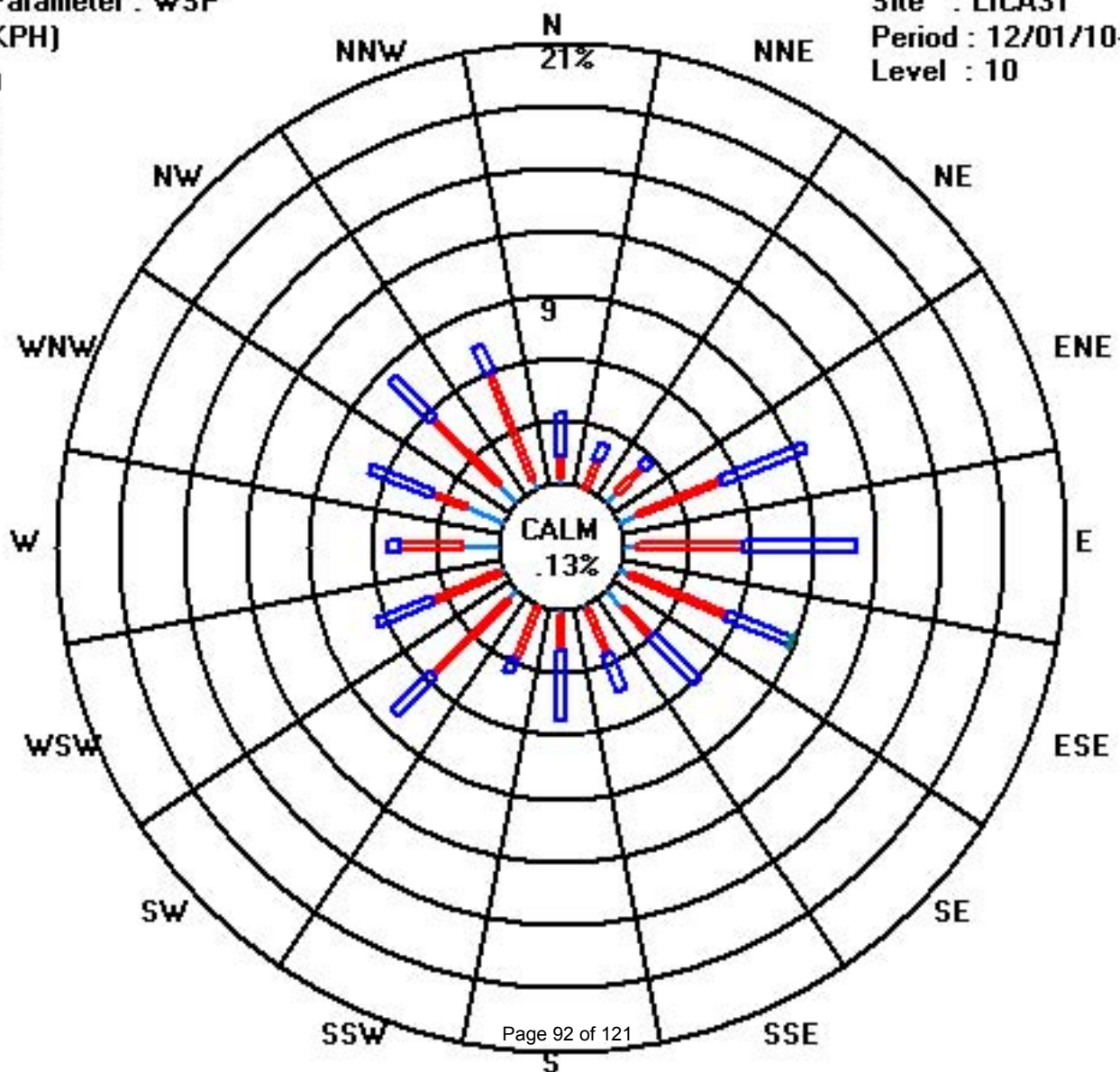
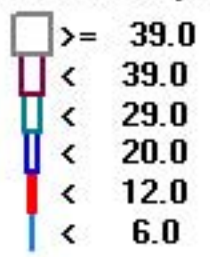
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	2		5	7	5	4	8	2	2	1	4	1	13	14	9	4	81
< 12.0	8	11	13	32	37	37	15	17	13	20	38	26	22	13	33	41	376
< 20.0	15	6	3	32	40	24	22	14	25	5	19	21	4	24	21	10	285
< 29.0						1											1
< 39.0																	
>= 39.0																	
Totals	25	17	21	71	82	66	45	33	40	26	61	48	39	51	63	55	

Calm : .13 %

Total # Operational Hours : 744

Class Limits (KPH)



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

DECEMBER 2010

WIND DIRECTION hourly averages in degrees

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG						
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.					
DAY																																	
1		107	109	111	113	114	110	21	13	17	351	346	346	351	349	333	352	353	347	347	327	241	236	239	234	359	N	24					
2		326	346	349	341	185	9	359	359	171	83	117	133	150	33	38	24	7	51	120	156	159	142	144	135	41	NE	24					
3		146	128	8	234	297	297	266	282	281	266	295	317	322	322	327	325	317	302	195	207	277	281	236	247	290	WNW	24					
4		317	330	336	339	320	290	288	283	298	289	294	296	317	312	308	308	309	309	313	320	320	332	348	350	311	NW	24					
5		342	341	339	331	333	337	327	334	340	338	330	305	309	314	322	323	323	319	305	305	313	330	348	15	327	NW	24					
6		354	321	318	268	141	92	84	64	2	80	94	74	96	23	77	67	62	148	134	135	139	64	63	67	79	ENE	24					
7		52	71	69	67	54	50	51	52	64	55	69	65	61	70	63	83	91	111	127	123	119	58	119	118	78	ENE	24					
8		108	108	106	114	116	102	112	101	104	104	111	103	32	133	195	188	220	277	240	308	226	234	235	235	133	SE	24					
9		248	255	260	243	236	236	266	288	225	226	230	216	207	210	198	206	207	200	193	186	164	171	154	154	217	SW	24					
10		139	53	61	155	142	148	153	153	161	160	158	147	121	139	98	106	98	64	80	76	82	90	81	79	120	ESE	24					
11		87	85	84	93	83	85	85	82	82	86	78	78	87	80	81	84	87	85	88	92	103	119	121	122	89	E	24					
12		125	77	50	61	69	65	65	63	67	67	78	116	131	142	154	185	192	188	193	202	215	216	215	227	113	ESE	24					
13		225	185	147	141	134	134	134	156	157	134	135	142	144	137	127	120	119	341	324	309	318	306	321	327	143	SE	24					
14		340	1	49	73	75	64	65	76	77	89	72	81	140	145	178	80	213	207	233	261	250	121	40	8	83	E	24					
15		341	187	214	283	280	287	297	299	288	322	335	337	334	337	343	341	346	337	269	261	258	254	251	242	286	WNW	24					
16		244	237	226	244	251	247	270	298	357	221	195	189	183	66	76	82	115	79	50	145	166	165	164	154	198	SSW	24					
17		164	167	166	166	165	161	173	172	179	172	171	173	177	174	170	177	183	187	192	191	184	180	180	184	175	S	24					
18		181	175	165	169	187	195	185	188	187	208	208	215	211	202	211	217	216	217	222	220	229	228	235	238	204	SSW	24					
19		240	235	231	234	238	241	241	240	274	304	306	248	245	236	224	214	278	272	258	264	264	287	281	260	253	WSW	24					
20		340	278	351	351	353	355	6	17	19	18	9	12	15	68	115	103	119	122	112	115	115	130	111	104	42	NE	24					
21		98	82	98	86	87	90	103	100	101	91	93	98	120	127	118	115	114	123	129	129	114	119	115	107	107	ESE	24					
22		102	101	99	95	90	92	88	83	89	93	82	84	85	88	85	78	75	78	80	84	85	84	75	83	86	E	24					
23		83	79	80	11	277	315	285	290	277	296	294	275	273	273	85	100	95	102	103	103	105	99	100	64	80	E	24					
24		8	39	91	133	56	53	60	53	49	61	57	60	65	68	57	66	70	69	76	72	74	74	77	138	68	ENE	24					
25		140	133	132	119	106	109	99	103	102	121	35	20	16	16	23	92	130	10	67	140	135	63	34	75	90	E	24					
26		80	68	79	65	68	71	68	71	54	121	135	135	148	162	178	167	208	294	231	229	243	246	240	247	135	SE	24					
27		251	238	222	261	286	299	285	287	286	284	292	293	292	292	283	283	280	282	290	293	290	285	279	260	280	W	24					
28		255	234	238	254	313	322	316	305	279	184	189	188	195	216	222	216	219	237	248	238	237	239	234	244	243	WSW	24					
29		252	270	258	245	258	256	236	235	235	232	225	238	239	228	234	234	270	300	305	307	268	220	231	225	249	WSW	24					
30		202	296	307	296	274	281	311	223	270	234	330	323	332	328	329	343	348	344	334	341	338	323	305	292	308	NW	24					
31		315	321	329	310	307	321	314	312	296	291	290	283	287	310	267	318	347	330	343	307	310	320	323	341	315	NW	24					
HOURLY AVG		354	346	351	351	353	355	359	359	357	351	346	346	351	349	343	352	353	347	347	341	338	332	348	350								

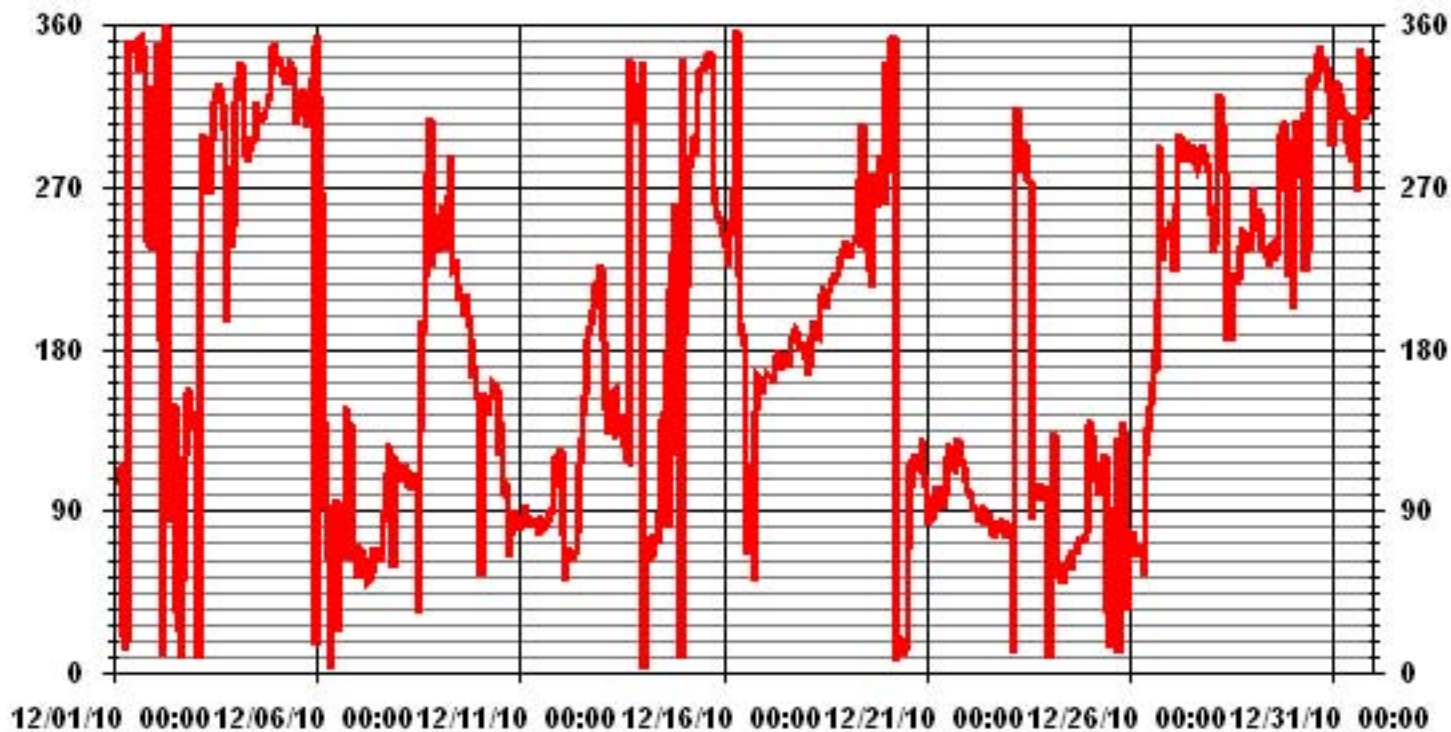
STATUS FLAG CODES

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

LAST CALIBRATION:	June 17, 2010
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744 HRS
STANDARD DEVIATION	99.46	AMD OPERATION UPTIME	100.0 %
		MONTHLY AVERAGE	124 DEG

01 Hour Averages



— LICA31 WDR DEG

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

DECEMBER 2010

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	11	12	12	12	11	11	23	12	14	17	11	34	11	9	29	37	10	10	8	14	7	7	11	9
2	22	3	4	24	43	50	43	34	33	28	15	17	30	28	36	29	12	24	15	17	14	14	16	16
3	20	21	49	41	9	6	11	14	15	12	16	13	15	14	16	13	14	17	32	32	27	54	13	29
4	11	14	17	19	21	15	12	17	20	13	16	15	14	9	6	5	4	3	4	5	4	6	6	17
5	13	11	12	14	13	9	9	9	23	18	15	13	14	12	13	8	10	7	6	6	7	6	24	42
6	14	6	3	28	3	15	7	28	15	9	10	27	23	33	18	9	14	6	4	6	21	5	6	7
7	64	7	9	9	8	8	9	9	10	11	13	12	13	12	12	9	7	7	9	10	10	38	9	9
8	9	10	10	13	12	12	13	11	11	11	13	14	26	58	49	23	34	29	24	29	17	18	18	19
9	20	24	28	23	19	19	22	28	17	21	22	51	28	25	24	11	15	14	19	25	26	17	16	14
10	25	11	29	13	14	10	12	10	40	11	24	20	54	45	40	22	12	18	16	18	9	10	10	10
11	11	9	10	11	12	10	9	8	9	9	10	40	11	11	12	26	31	10	10	10	11	13	12	13
12	12	23	14	16	16	15	15	15	15	15	17	12	31	36	34	29	26	27	23	19	19	16	15	14
13	35	53	47	39	14	14	17	17	13	10	11	11	10	10	16	7	45	28	36	54	63	56	61	52
14	65	64	48	39	35	27	19	31	27	32	22	19	43	53	47	60	60	34	21	26	48	28	27	27
15	26	21	25	13	13	15	13	14	14	50	50	46	50	48	51	50	49	65	64	9	8	7	7	6
16	7	8	6	6	6	7	14	23	29	38	29	38	60	49	30	23	38	29	10	35	8	10	14	25
17	15	15	9	11	11	8	16	15	21	20	24	24	26	16	14	22	25	14	8	9	18	24	34	21
18	14	9	15	36	35	17	11	14	12	11	12	22	25	11	11	13	34	18	15	25	33	15	16	18
19	24	20	19	17	19	19	19	17	22	13	14	25	19	21	20	13	21	13	9	9	9	13	16	27
20	38	36	41	7	3	21	8	3	7	10	17	19	6	19	11	8	8	9	9	10	8	9	9	9
21	7	22	12	7	9	10	10	14	11	8	10	10	11	14	12	11	10	12	12	11	11	11	11	11
22	10	9	9	10	8	8	8	9	9	8	10	11	12	13	10	10	9	55	9	8	8	8	8	9
23	9	9	32	52	51	32	22	33	29	35	43	25	23	27	28	13	14	12	12	11	11	10	11	27
24	9	31	11	14	42	20	18	18	20	21	18	17	17	16	15	14	14	15	17	15	14	16	17	10
25	10	10	12	10	8	8	8	7	10	21	19	12	12	10	26	9	22	20	14	10	11	17	17	10
26	9	8	9	7	8	9	8	9	30	21	8	9	8	54	8	7	17	17	44	23	18	22	22	22
27	20	19	20	24	15	15	16	15	15	16	15	15	15	17	16	14	13	14	14	14	14	14	12	8
28	5	4	4	10	4	3	3	17	26	34	33	28	40	27	19	20	19	22	22	22	24	29	24	31
29	27	28	28	29	28	30	22	20	21	21	17	20	18	19	21	17	26	13	12	11	13	12	14	15
30	11	15	10	12	12	12	18	25	23	11	11	4	4	4	6	8	6	13	16	22	26	23	24	14
31	16	15	14	19	23	27	32	45	40	39	45	42	58	59	82	58	39	38	47	32	12	14	10	16

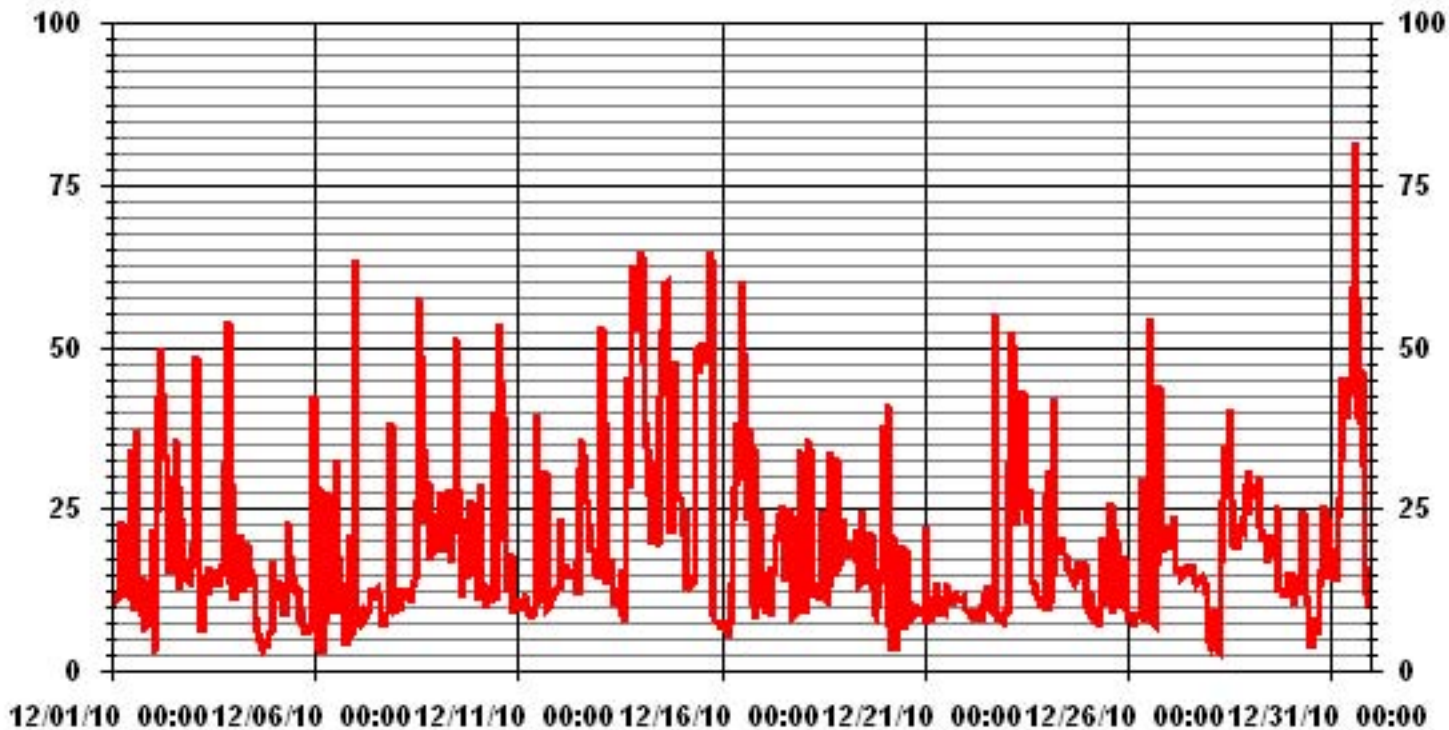
STATUS FLAG CODES

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

LAST CALIBRATION: June 17, 2010

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO₂ Calibration Report

Station Information

Calibration Date	December 15, 2010	Previous Calibration	November 24, 2010
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	11:30	End Time (MST)	18:03
Reason:	Monthly Calibration		
Barometric Pressure	907.8 mmHg	Station Temperature	25 Deg C
Cal Gas	50.8 ppm	Cal Gas Expiry date	August 13, 2011
DAS Output Voltage	0 - 1 Volts		

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	468	Method:	Fluorescent
Converter Make / Model:	-	S/N :	-		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 1000	ppb	
Sample Flow / Box Temp	527 ccm 32.3 Deg C	526 ccm 34.1 Deg C	
HVPS / Lamp Setting	529 2478	529 2479	
PMT / RxCell Temp	7.8 Deg C 50 Deg C	7.9 Deg C 50 Deg C	
Converter / IZS Temp	NA Deg C 40 Deg C	NA Deg C 40 Deg C	
Offset / Slope	62.7 1.127	67.4 1.139	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4998	0	0	1	N/A
4998	0	0	0	N/A
4925	73.8	750	743	1.0094
4925	73.8	750	751	0.9987
4965	34.4	350	352	0.9930
4981	16.8	171	173	0.9871
4998	0	0	0	N/A
Sum of Least Squares				0.9972
New Correction Factor				0.9987

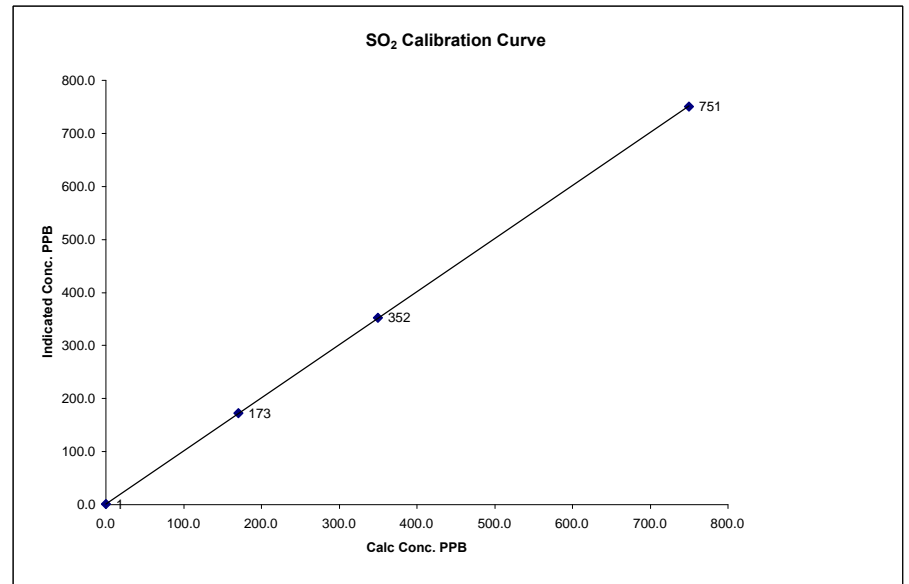
	Before Calibration	After Calibration
Auto Zero	2.0	0.2
Auto Span	375	369
Sample Lines Connected		YES
Percent Change from Previous Calibration		-1.1%

Calibration Performed by: Shea Beaton

SO₂ Calibration Curve

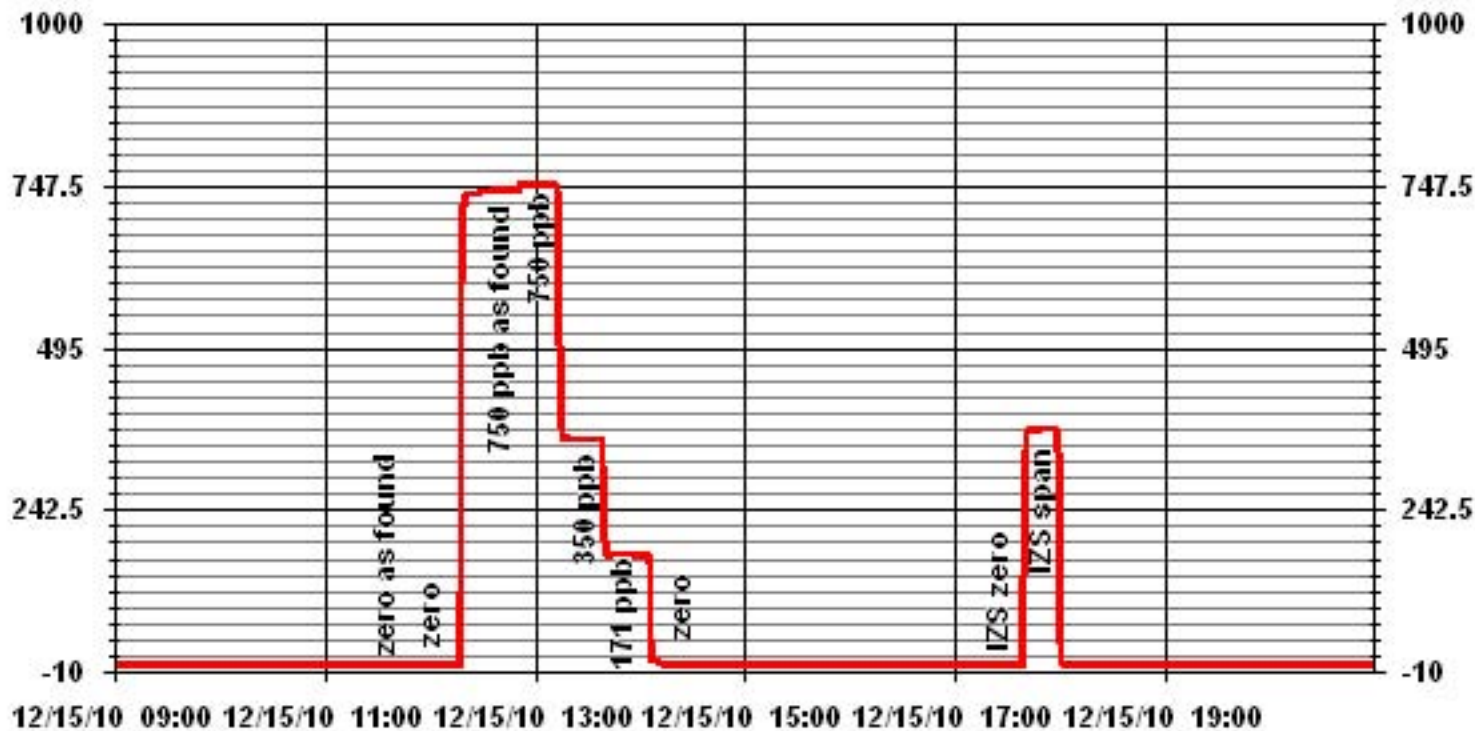
Calibration Date	December 15, 2010
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST. LINA
Start Time (MST)	11:30
End Time (MST)	18:03

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope (≥ 0.995) (0.85 to 1.15)	
0	1	n/a	Intercept (± 3% F.S.)	0.999994
171	173	0.9871		0.999582
350	352	0.9930		1.808635
750	751	0.9987		



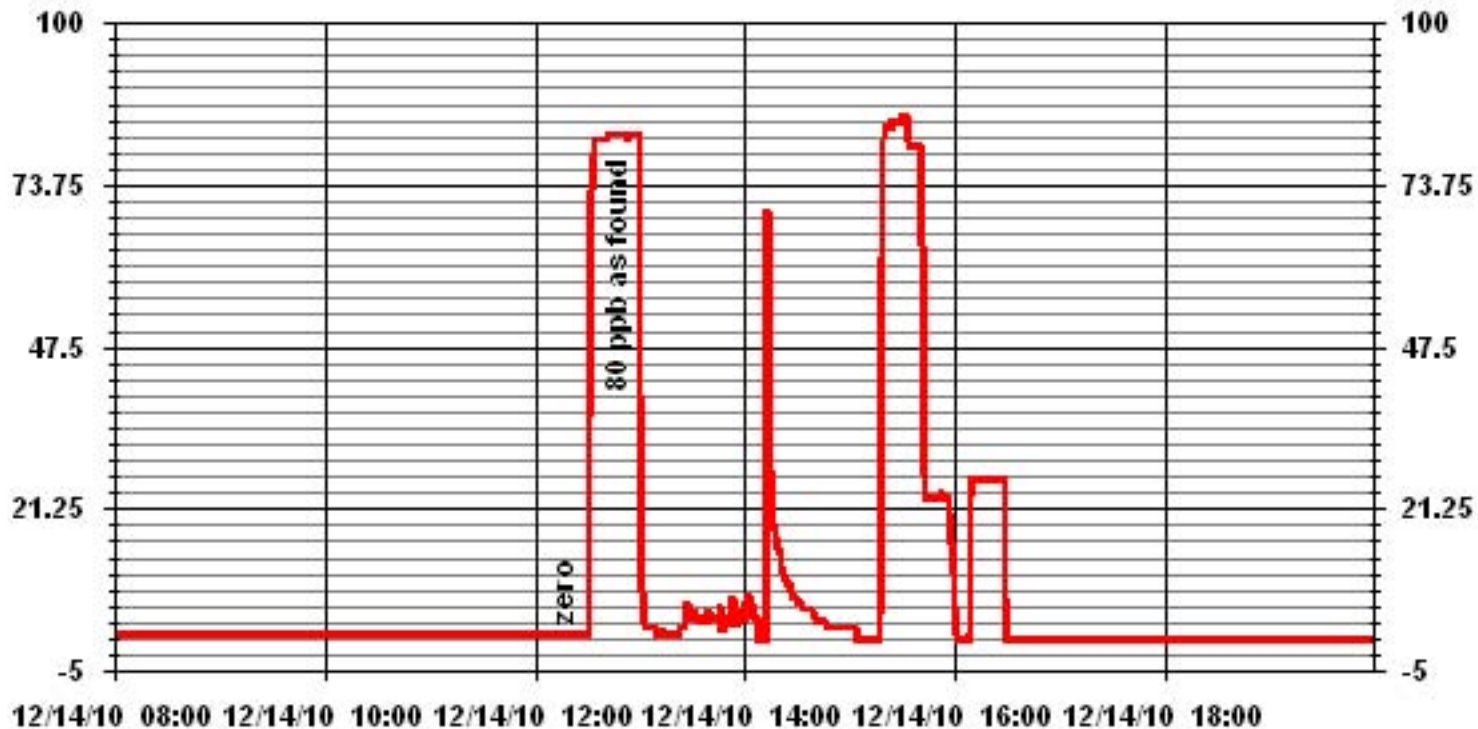
Notes:

01 Minute Averages



Hydrogen Sulphide

01 Minute Averages



H₂S Calibration Report

Station Information

Calibration Date	December 15, 2010	Previous Calibration	November 19, 2010
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST.LINA		
Start Time (MST)	8:20	End Time (MST)	11:18
Reason:	Post repair Calibration		
Barometric Pressure	907.8 mmHg	Station Temperature	25 Deg C
Cal Gas	10.6 ppm	Cal Gas Expiry date	05/12/2011
DAS Output Voltage	0 - 1 Volts		

Equipment Information

Analyzer Make / Model:	API 101E	S/N :	510	Method:	Fluorescent
Converter Make / Model:	Internal	S/N :	N/A		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 100 ppb	0 - 100 ppb	
Sample Flow / Box Temp	542 ccm 32.8 Deg C	540 ccm 35.4 Deg C	
HVPS / Lamp Setting	518 2619	518 2620	
PMT / RxCell Temp	8.4 Deg C 50 Deg C	8.4 Deg C 50 Deg C	
Converter / IZS Temp	314.9 Deg C 45 Deg C	315 Deg C 45 Deg C	
Offset / Slope	58.1 0.981	58.1 0.981	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4997	0	0	0	NA
4960	37.7	80	80	0.9995
4981	18.9	40	40	1.0017
4986	10.8	23	24	0.9546
4997	0	0	0	N/A
Sum of Least Squares				0.9970
New Correction Factor				0.9995

Before Calibration

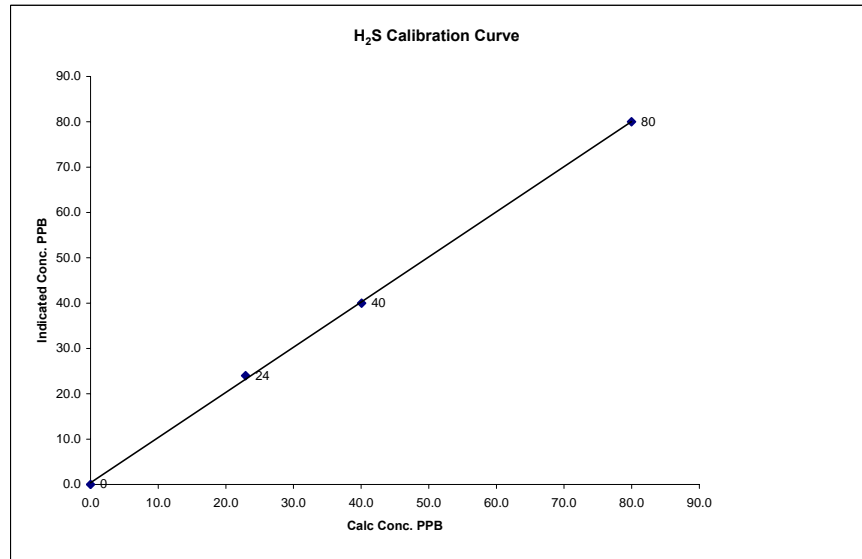
Before Calibration		After Calibration	
Auto Zero	0.4	Auto Zero	0.4
Auto Span	28	Auto Span	29
Sample Lines Connected		Sample Lines Connected	YES
Percent Change from Previous Calibration		Percent Change from Previous Calibration	-

Calibration Performed by: Shea Beaton

H₂S Calibration Curve

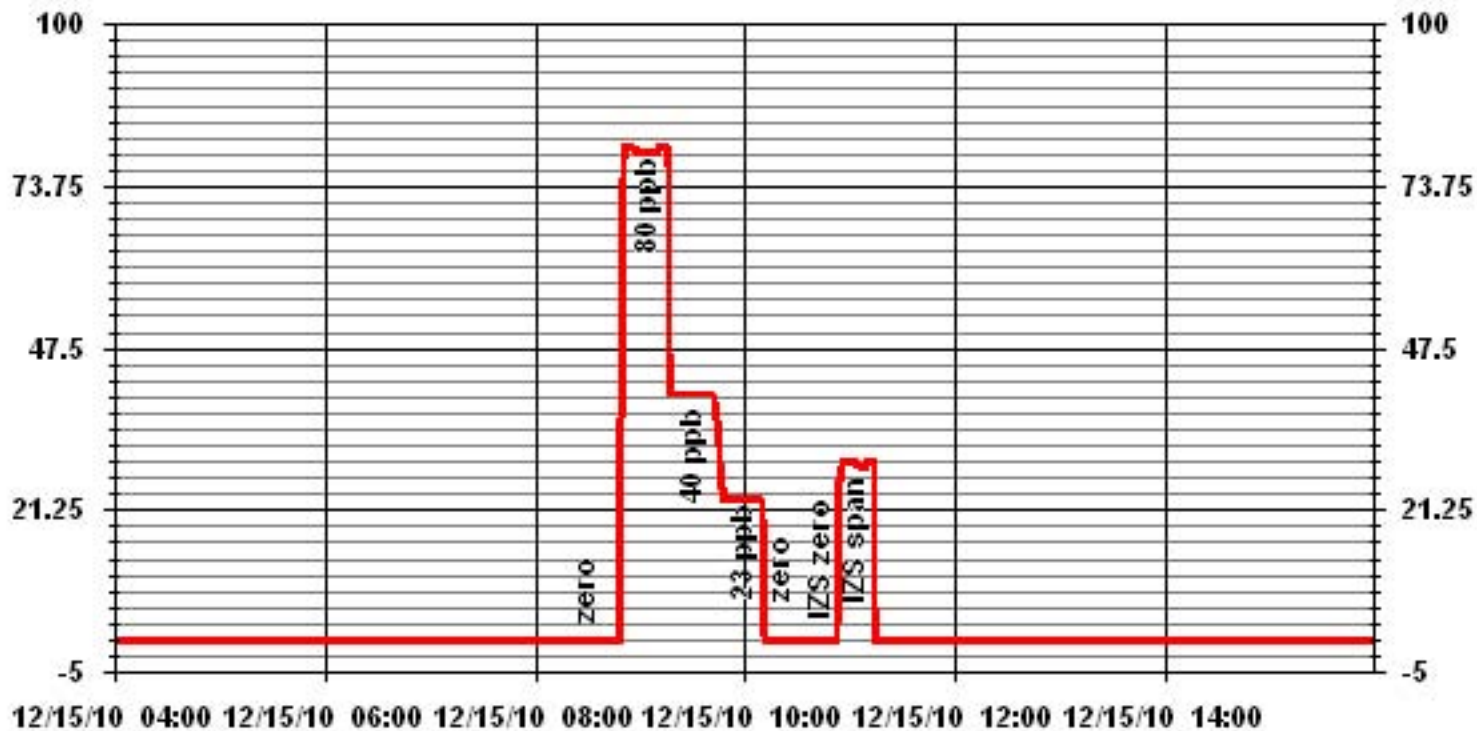
Calibration Date	December 15, 2010
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST.LINA
Start Time (MST)	8:20
End Time (MST)	11:18

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	
0	0	n/a	Intercept		0.999745
23	24	0.9546			0.996331
40	40	1.0017			0.396050
80	80	0.9995			



Notes: Yesterday the IZS and flow orifices, perm tube and SO₂ scrubber material were replaced.

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	December 15, 2010	Previous Calibration	November 23, 2010
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	ST. LINA		
:	(MST) 10:37	End Time	(MST) 17:42
Reason:	Monthly Calibration		
Barometric Pressure:	907.8 mmHg	Station Temperature:	25 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	207 Prop/ 602 Meth/1171.25 THC	ppm	Cal Gas Expiry Date: August 21, 2011
DAS make & Model:	ESC 8832	S/N :	AO717
Output Voltage Range:	0 - 10 VDC		

Analyzer Information

Make / Model	TECO 51C	S/N :	77021-384	Method	Flame Ionization
--------------	----------	-------	-----------	--------	------------------

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 -50	ppm	0 - 50	ppm
Sample Pressure	6.9	psi	6.9	psi
Hydrogen Pressure	8	psi	8	psi
Air Pressure	21	psi	21	psi

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0	0.0	-0.1	NA
1999	70.0	39.6	39.3	1.0083
1999	0.0	0.0	0.0	N
1999	70.0	39.6	40.0	0.9907
1999	35.0	20.2	20.1	1.0027
1999	20.0	11.6	11.3	1.0268
1999	0	0.0	0.0	N/A
Correction Factor:				0.9907

Previous Calibration Correction Factor:	0.9907
Current Correction Factor Before Span Adjust:	1.0083
Percent Change:	-1.75%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-0.1	0.0
Auto Span	34.0	35.5
Sample Lines Connected		YES

Cylinder Pressures

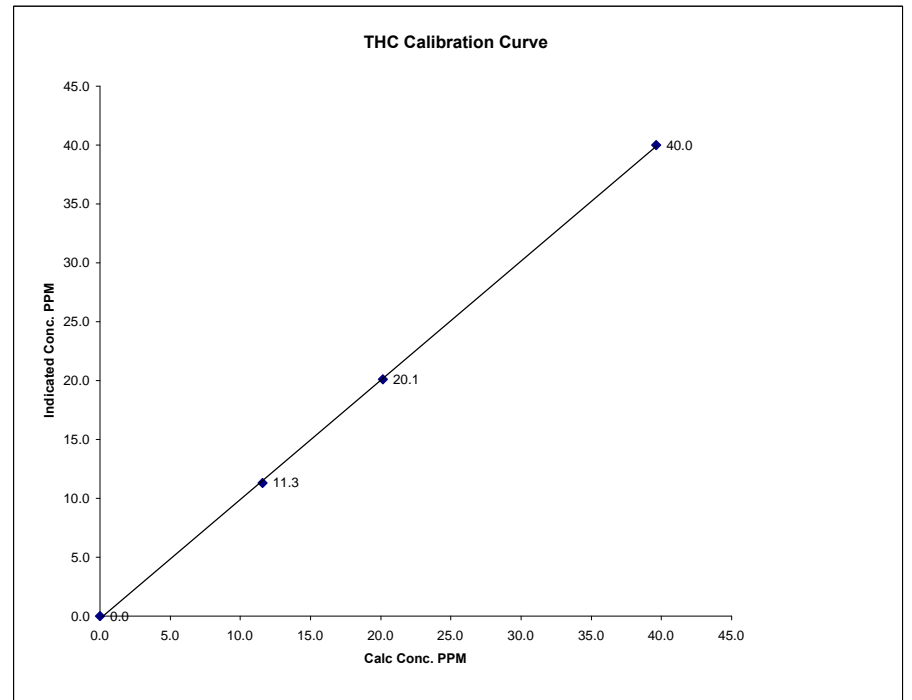
Span	2000	psi	
Hydrogen	1500	psi	
Zero Air	34	psi	Unlimited API 701

Calibration Performed by: Shea Beaton

THC Calibration Curve

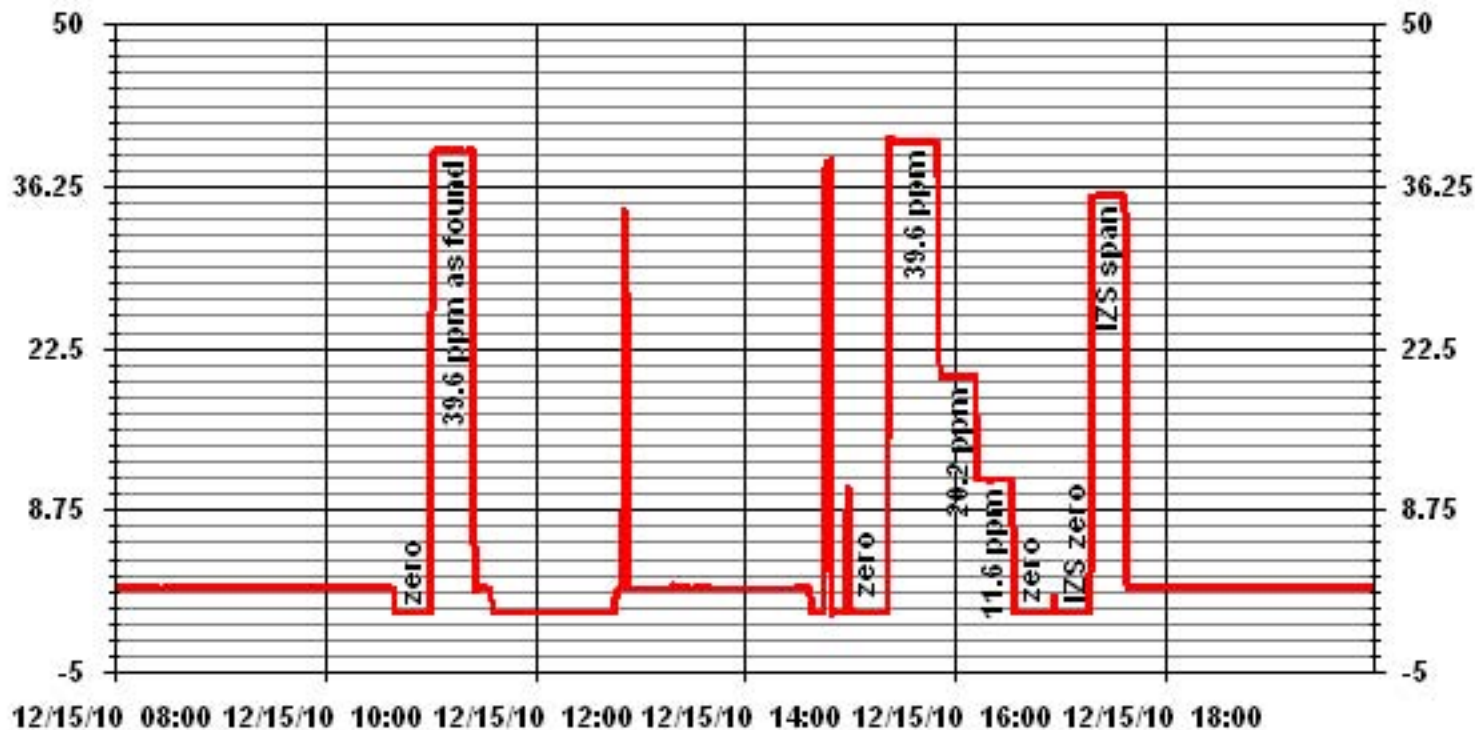
Calibration Date	December 15, 2010		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	10:37	End Time (MST)	17:42

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient (≥ 0.995)	Slope (0.85 to 1.15)	Intercept (± 3% F.S.)
0.0	0.0		0.999864	1.011819	-0.206701
11.6	11.3	1.0268			
20.2	20.1	1.0027			
39.6	40.0	0.9907			



Notes: Flame temp 178.
Following the A/F points, the pump diaphragm and capillary tube were replaced.

01 Minute Averages



— LICA31 THC PPM

Nitrogen Dioxide

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	December 14, 2010	Previous Calibration	November 23, 2010
Company	LICA	Plant/Location	St. Lina
Start Time (MST)	11:45	End Time (MST)	15:56
Reason:	As Found Point		Other
Barometric Pressure	927 mmHg	Station Temperature	21 Deg C
Cal Gas Concentration	NOx 50.8 ppm	NO 50.4 ppm	Cal Gas Expiry date 05-Aug-12
DAS Output Voltage	0 - 1	Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	593	Method:	Chemiluminescent
Calibrator Make / Model:	EnviroNics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO 717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	EnviroNics 6100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0-1000			ppb			
Sample Flow/Conv. Temp	466 ccm	314 Deg C		450 ccm	315.4 Deg C		
Ozone Flow / Vacuum	72 ccm	3.7 "Hg-A		71 ccm	4.1 "Hg-A		
HVPS / A ZERO	646 Volts	17.5 MV		662 Volts	20.4 MV		
Rx/ Temp / PMT Temp	50.0 Deg C	6.8 Deg C		50.0 Deg C	6.9 Deg C		
Box Temp / IZS Temp	29.9 Deg C	45.1 Deg C		30.2 Deg C	45.3 Deg C		
Offset	1.1 NOx	0.6 NO		2.3 NOx	0.0 NO		
Slope	1.275 NOx	1.255 NO		1.017 NOx	1.006 NO		
NO2 COEF / Conv Efficiency	NA NO2	0.993		NA NO2	0.993		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	----	0	0	0	1	0	1	----	----
4919	74.2	----	755	749	----	750	739	11	1.0079	1.0135

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		

Linearity OK?	Yes	No	Sum of Least Squares	NOx=	NO=	NO2=
			Correction Factors:	NOx= 0.0000	NO= 0.0000	NO2= 0.0000
				Average Converter Efficiency=		

	Before Calibration				After Calibration			
Auto Zero	0.5	NOx	0.6	NO2	-	NOx	-	NO2
Auto Span	591	NOx	577	NO2	-	NOx	-	NO2
	Sample Lines Connected				YES			

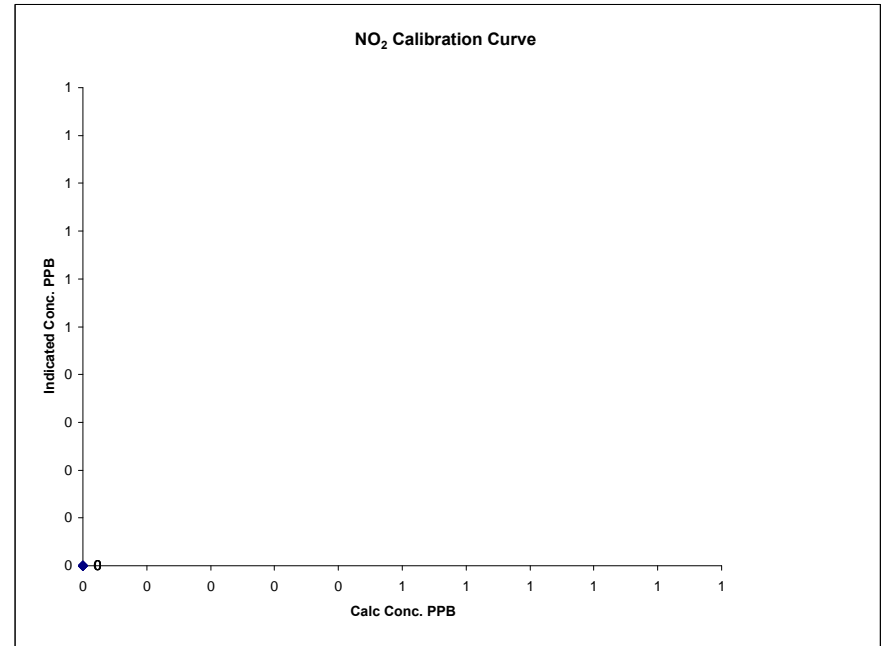
Notes

Calibration Performed by: Ting Xu

NO2 Calibration Curve

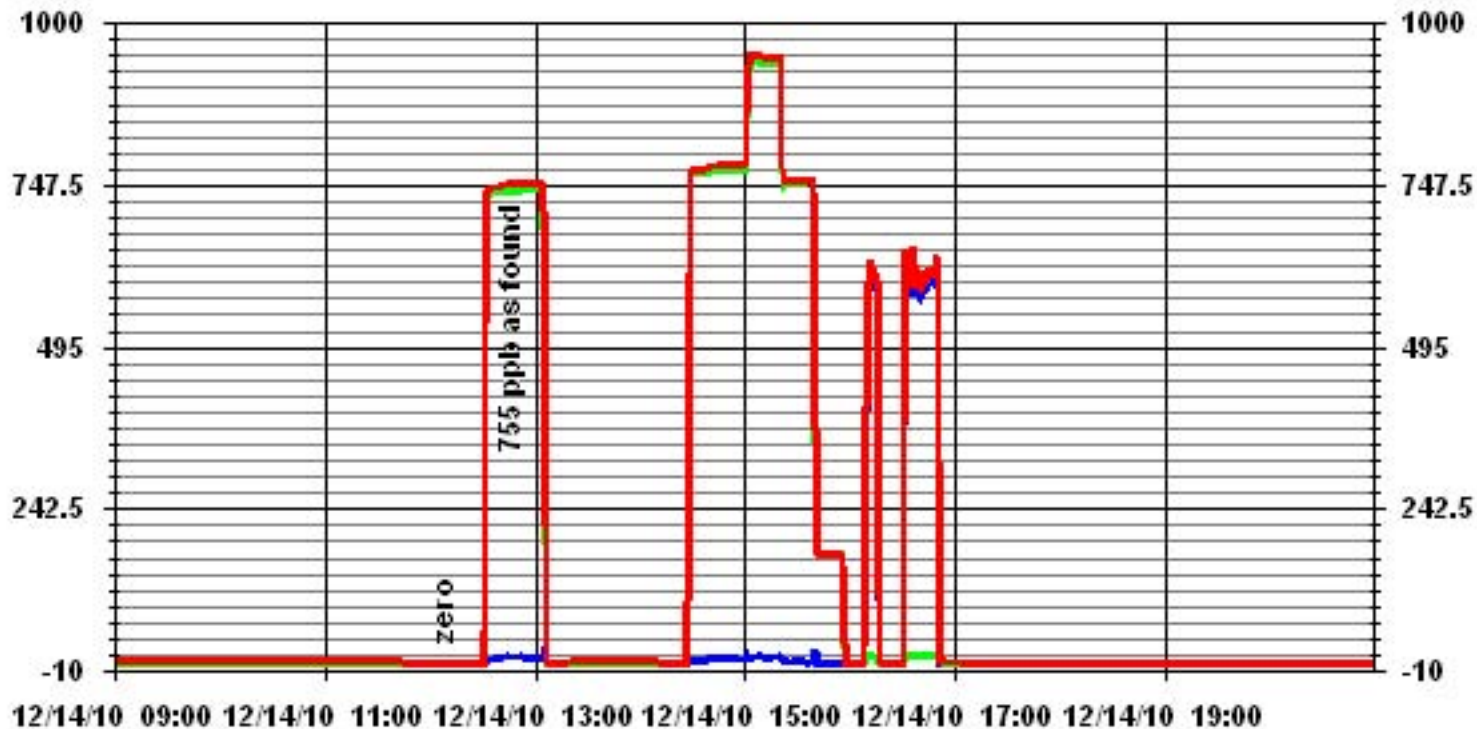
Calibration Date	December 14, 2010		
Company	LICA		
Plant / Location	St. Lina		
Start Time (MST)	11:45	End Time (MST)	15:56

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



Notes:

01 Minute Averages



NOx - NO- NO₂ Calibration Report

Station Information

Calibration Date	December 15, 2010		Previous Calibration	November 23, 2010	
Company	LICA		Plant/Location	St. Lina	
Start Time (MST)	8:20		End Time (MST)	15:10	
Reason:	Post Repair Calibration		Other		
Barometric Pressure	908 mmHg	Station Temperature	25 Deg C	MFCF	1
Cal Gas Concentration	NOx 50.8 ppm	NO	50.4 ppm	Cal Gas Expiry date	05-Aug-12
DAS Output Voltage	0 - 1 Volts		Chart Rec. Output	NA Volts	

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	593	Method:	Chemiluminescent
Calibrator Make / Model:	EnviroNics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO 717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	EnviroNics 6100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0-1000			ppb			
Sample Flow/Conv. Temp	468 ccm	314.8 Deg C		470 ccm	313.7 Deg C		
Ozone Flow / Vacuum	72 ccm	4.1 "Hg-A		72 ccm	4.1 "Hg-A		
HVPS / A ZERO	662 Volts	19.3 MV		662 Volts	20 MV		
Rx/ Temp / PMT Temp	50.0 Deg C	6.8 Deg C		50.0 Deg C	6.9 Deg C		
Box Temp / IZS Temp	29.5 Deg C	45.2 Deg C		33.1 Deg C	45.3 Deg C		
Offset	2.3 NOx	0.0 NO		2.5 NOx	0.5 NO		
Slope	1.017 NOx	1.006 NO		1.018 NOx	1.007 NO		
NO ₂ COEF / Conv Efficiency	NA NO ₂	0.993		NA NO ₂	0.993		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO ₂	NOx	NO	NO ₂	NOx	NO
4994	0.0	----	0	0	0	1	1	0	----	----
4994	0.0	----	0	0	0	0	0	0	----	----
4919	74.2	----	755	749	----	754	747	6	1.0012	1.0026
4919	74.2	----	755	749	----	756	751	5	0.9985	0.9973
4962	34.6	----	352	349	----	352	351	1	0.9994	0.9943
4978	16.8	----	171	170	----	172	171	1	0.9934	0.9913
4995	0.0	----	0	0	0	-1	0	-1	----	----

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO ₂ Correction Factor	NO ₂ Conv Efficiency
			NOx	NO	NO ₂	NOx	NO	NO ₂		
4919	74.2	----	755	749	----	755	750	6	----	----
4919	74.2	550	755	----	531	755	225	530	1.0019	99.81%
4919	74.2	300	755	----	293	756	463	293	1.0000	100.00%
4919	74.2	100	755	----	121	756	635	121	1.0000	100.00%

Linearity OK?	Yes	No	Sum of Least Squares	NOx= 0.998	NO= 0.997	NO ₂ = 1.001
			Correction Factors:	NOx= 0.9985	NO= 0.9973	NO ₂ = 1.0019
				Average Converter Efficiency= 99.94%		

Before Calibration				After Calibration			
Auto Zero	-0.4 NOx	-0.6 NO ₂		-0.1 NOx	-0.7 NO ₂		
Auto Span	659 NOx	641 NO ₂		684 NOx	669 NO ₂		
	Sample Lines Connected				YES		

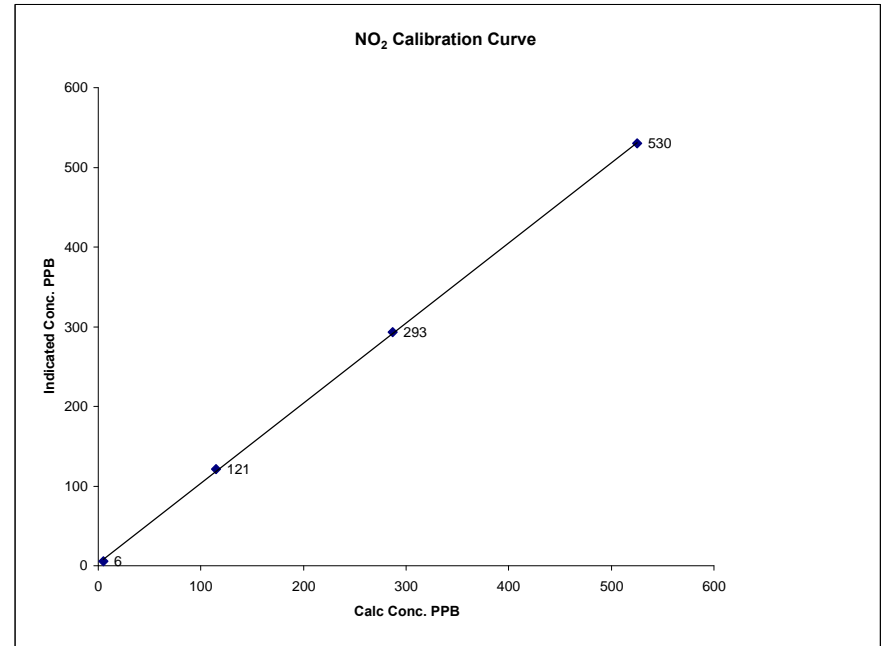
Notes Additional GPT point done for ozone calibration. O3 set point 450, NO=320, NO₂=437

Calibration Performed by: Shea Beaton

NO₂ Calibration Curve

Calibration Date	December 15, 2010		LICA	
Company	St. Lina			
Plant / Location	St. Lina			
Start Time (MST)	8:20	End Time (MST)	15:10	

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	(0.85 to 1.15)	(± 3% F.S.)
5	6	N/A	Slope	0.999921	1.005503
115	121	0.9504	Intercept		3.21772
287	293	0.9795			
525	530	0.9906			

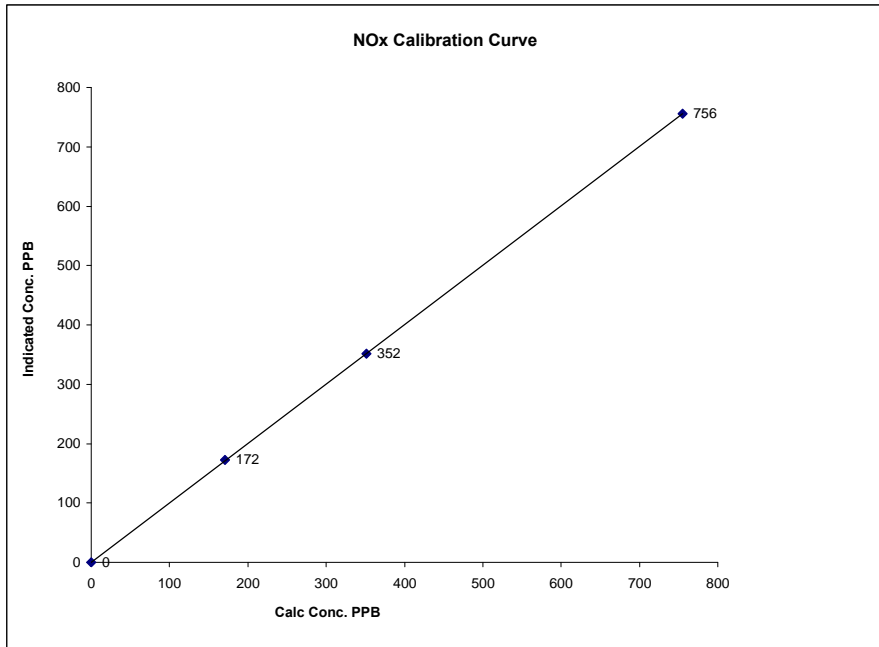


Notes:

NOx Calibration Curve

Calibration Date December 15, 2010
 Company LICA
 Plant / Location St. Lina
 Start Time (MST) 8:20 End Time (MST) 15:10

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999998
0	0	N/A	Slope (0.85 to 1.15)	1.001012
171	172	0.9934	Intercept (± 3% F.S.)	0.29199
352	352	0.9994		
755	756	0.9985		

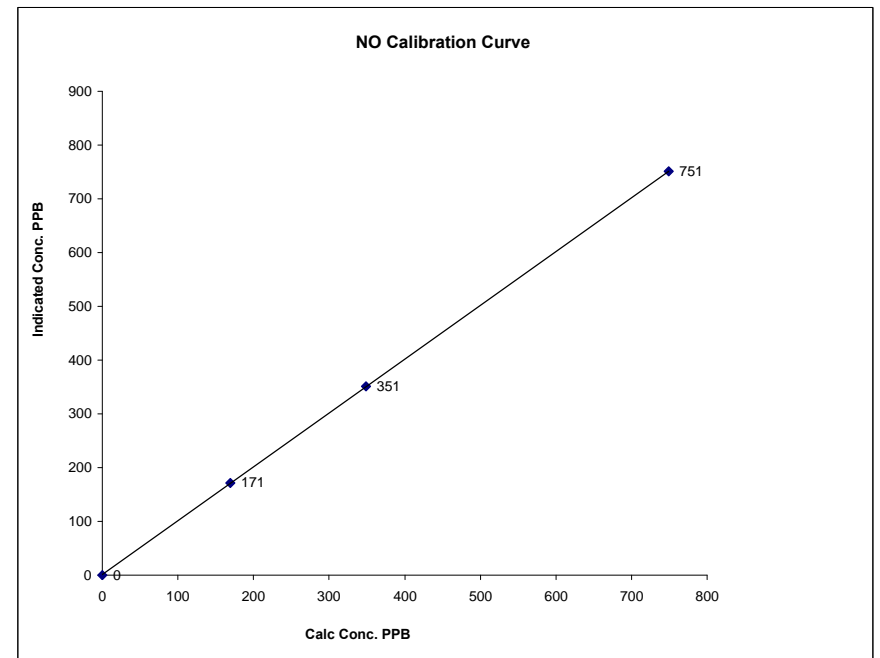


Notes:

NO Calibration Curve

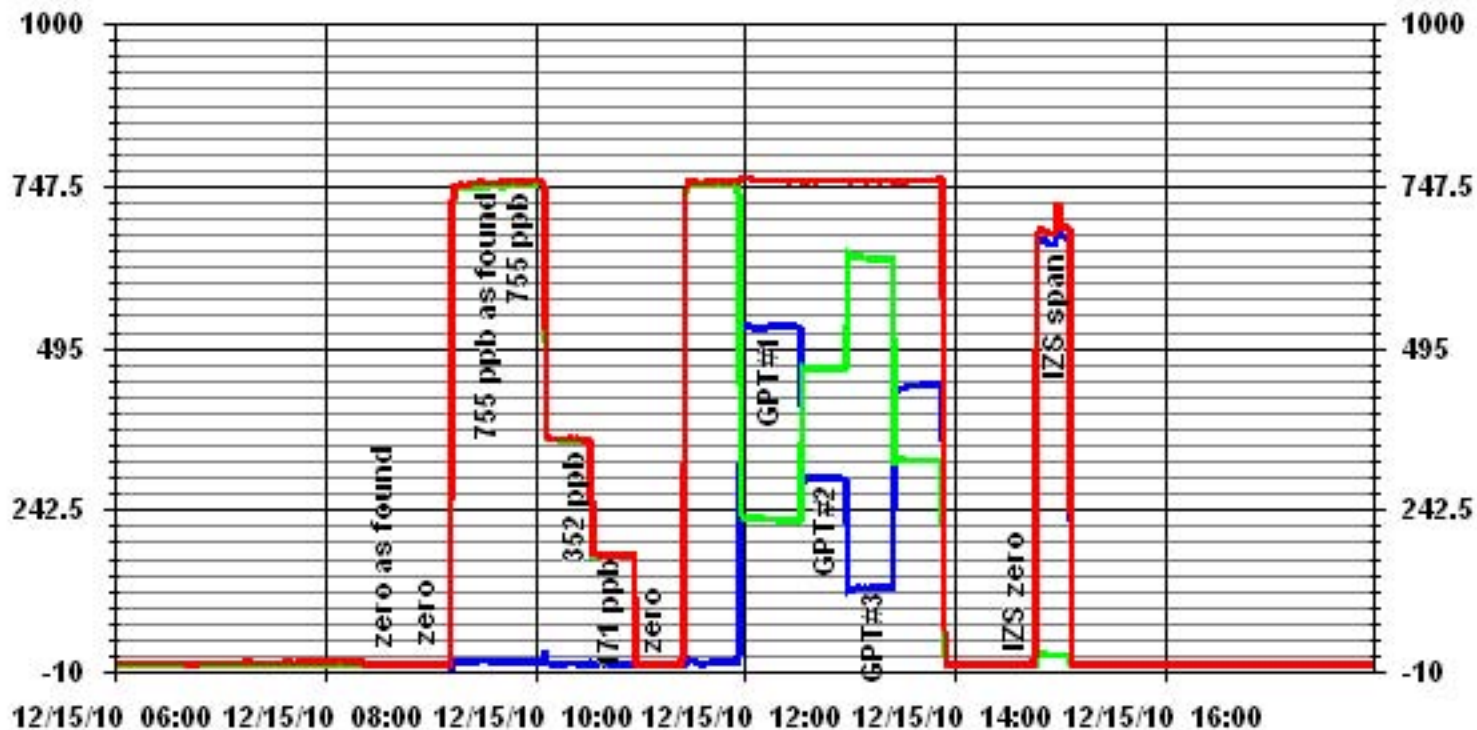
Calibration Date December 15, 2010
 Company LICA
 Plant / Location St. Lina
 Start Time (MST) 8:20 End Time (MST) 15:10

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999997
0	0	N/A	Slope (0.85 to 1.15)	1.000834
170	171	0.9913	Intercept (± 3% F.S.)	1.9504
349	351	0.9943		
749	751	0.9973		



Notes:

01 Minute Averages



— LICA31 IIOX_ PPB
 — LICA31 IIO_ PPB
 — LICA31 IIO2_ PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	December 15, 2010	Previous Calibration	November 24, 2010
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	14:39	End Time (MST)	18:03
Reason:	Monthly Calibration		
Barometric Pressure	907.8 mm Hg	Station Temperature	25 Deg C
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	1002240371	Method:	Fluorescent
Calibrator Make / Model:	Enviroincs 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO 717		

Analyzer Settings

	Before Calibration		After Calibration	
	0 - 500 ccm		ppb	
Concentration Range	718 ccm	736 ccm	719 ccm	736 ccm
Cell A Flow / Cell B Flow	691.9 mmHg		693.1 mmHg	
Pressure	55.7 Deg C		55.5 Deg C	
Bench Temp	80 Deg C	31.8 Deg C	80 Deg C	30.8 Deg C
O3 Lamp / Box Temp	-0.2	1.014	0.2	0.996
Offset / Slope				

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	-1	N/A
4994	450	430	437	0.9840
4994	450	430	430	1.0000
4994	300	287	288	0.9965
4994	120	115	116	0.9914
4994	0	0	0	N/A
Sum of Least Squares				N/A
New Correction Factor				1.0000

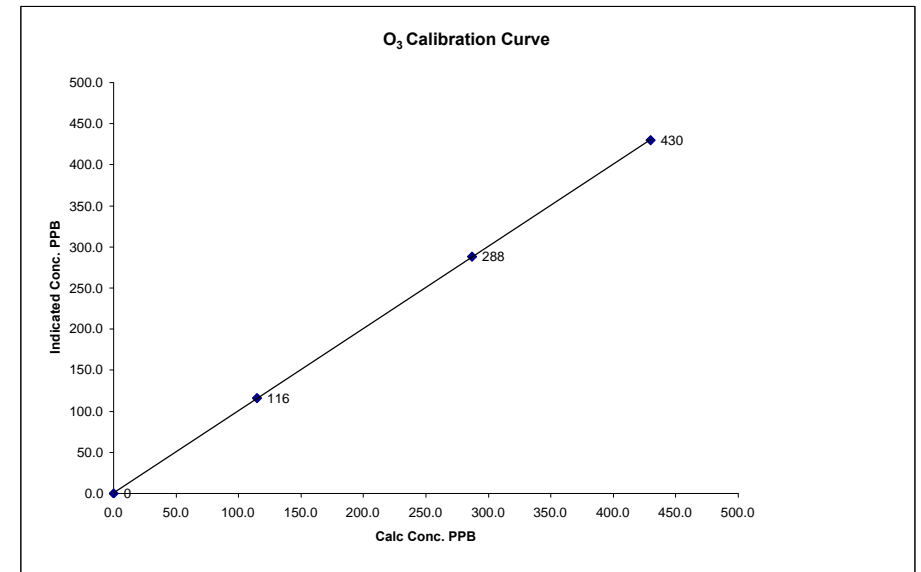
	Before Calibration	After Calibration
Auto Zero	0.0	0.6
Auto Span	357	358
Sample Lines Connected		YES
Percent Change from Previous Calibration		1.9%

Calibration Performed by: Shea Beaton

O₃ Calibration Curve

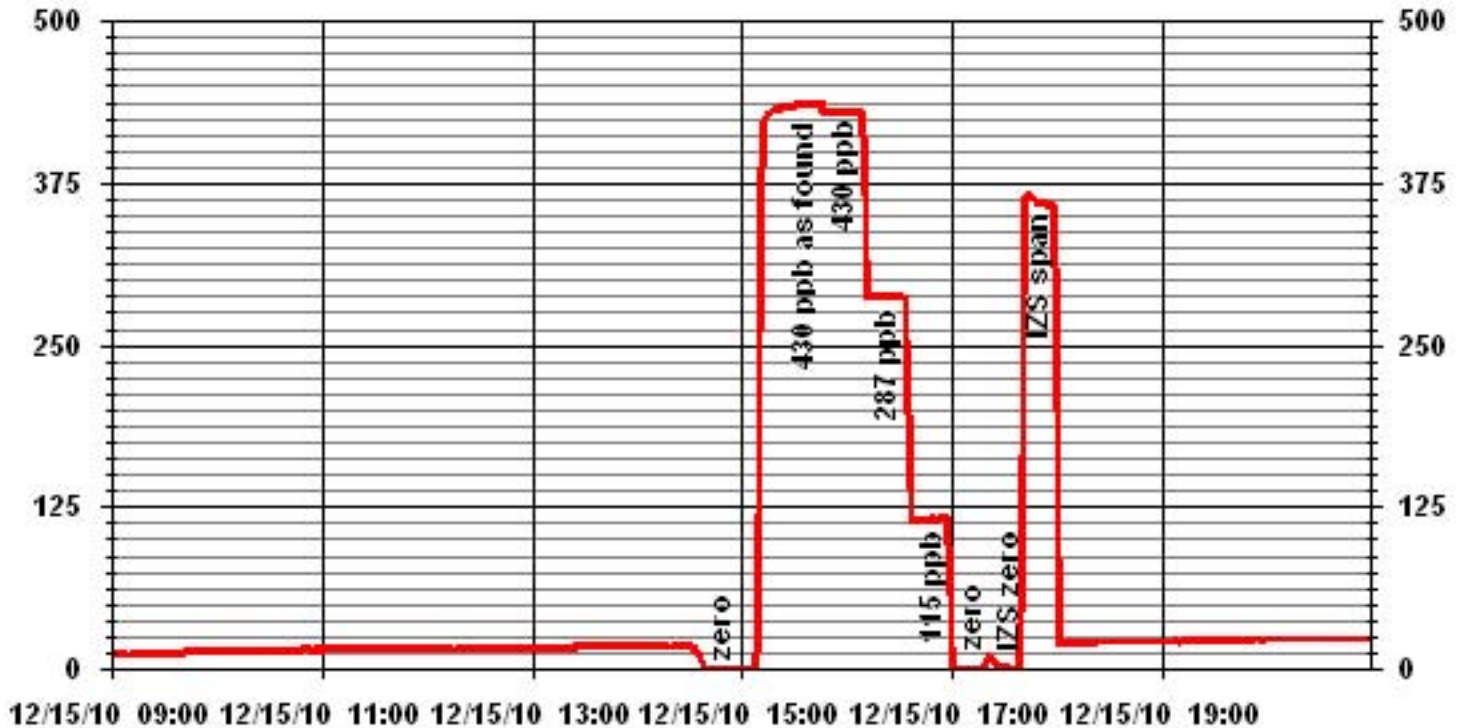
Calibration Date	December 15, 2010		
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	14:39	End Time (MST)	18:03

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope (≥ 0.995)	Intercept (± 3% F.S.)	
0	0	n/a	0.999991	0.999870	0.999991
115	116	0.9914			0.999870
287	288	0.9965			
430	430	1.0000			0.527104



Notes:

01 Minute Averages



— LICA31_03_ PPB

Particulate Matter 2.5

TEOM® 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	December 14, 2010	Make/Model:	Streamline FTS
Station Name:	Lica St. Lina (CASA # 31)	Serial Number:	LO 091099, Hi 091001
Location:	St. Lina Station	Cell s/n:	NA
Operator:	LICA	Thermometer s/n:	VWR 90758398

	<u>Sampler</u>		<u>Set-up and current Sampler readings</u>
Make/Model	Thermo Scientific Series 1405F	F-Main Set Pt (l/min)	3.00
Unit #	NA	F-Aux Set Pt (l/min)	13.67
Unit s/n	1405A208301003	Filter Load (%)	30.4%
Firmware Ver.	1.52	K _o Factor	13125.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	-8.4
		Press (ATM)	0.896

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Audit

Status			
Noise <0.10ug	0.004	Warnings	None
0.29	0.29	Pump Gauge (inHg)	-20
Temperature/Pressure			
Measured Temp (± 2 °C)	-8.3	Δ °C	-0.1
Measured Press (± 0.01atm)	0.898	ΔATM	-0.002
Flow Audit			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	1.12%
Measured Main Flow (l/min)	3.00	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.66	Bypass Flow Drift (±10.0%)	1.86%
Measured Bypass Flow (l/min)	13.45	Flow Adjusted to Measured?	Yes
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	Base=0.0 Ref=0.0	Flow Control = Active	
Aux (< 0.6 l/min)	Base=0.0 Ref=0.0	Report Conditions = Standard (25.0 C and 1atm)	
K_o Factor			
Measured	NA		
K _o Difference (± 2.5%)	NA		

Start Time: 12:05 **Finish Time:** 15:53

Sample Inlet Cleaned: Yes **New Filters Installed:** Yes
New Filter Loading %: 18.6%

Comments: _____

Auditor/s: Shea Beaton / Ting Xu

Lakeland Industry & Community Association

Cold Lake Monitoring Site

Ambient Air Monitoring

Data Report

For

December 2010

Prepared By:



January 14, 2011

Lakeland Industry & Community Association

Cold Lake Monitoring Site

Ambient Air Monitoring

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Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Cold Lake
Data Period: December 2010

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

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

The 6-day analytical report for VOCs and PAHs:
Authorized by Petro Oh

Calibration Procedure

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

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

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

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

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

MONTHLY CONTINUOUS DATA SUMMARY

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

Continuous Ambient Monitoring – December 2010

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	0.28	7	19	4	10.4	313(NW)	1.5	9	100.0
TRS (PPB)	-	-	-	-	0.00	0	ALL	ALL	VAR	VAR	0.0	ALL	100.0
NO ₂ (PPB)	212	106	0	0	6.90	29	6	17	0.8	96(E)	19.6	6	100.0
NO (PPB)	-	-	-	-	2.41	73	6	19	0.3	86(E)	25.3	6	100.0
NO _x (PPB)	-	-	-	-	9.66	100	6	19	0.3	86(E)	45.2	6	100.0
O ₃ (PPB)	82	-	0	-	19.52	36	28	18, 20	10.9, 9.9	307(NW), 300(WNW)	31.2	29	100.0
THC (PPM)	-	-	-	-	2.16	4.9	6	10	1.8	263(W)	3.5	6	100.0
PM 2.5 (UG/M ³)	-	30	-	0	7.41	32.9	6	11	2.8	254(WSW)	18.7	6	99.5
TEMPERATURE (DEG C)	-	-	-	-	-14.68	-4.3	25	13	4.6	125(SE)	-7.1	2	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	78.53	92	2, 3	VAR	VAR	VAR	87.6	2	100.0
VECTOR WS (KPH)	-	-	-	-	4.99	14.1	27	11	-	289(WNW)	10.4	27	99.7
VECTOR WD (DEGREES)	-	-	-	-	145(SE)	-	-	-	-	-	-	-	99.7

VAR-VARIOUS

Monthly Non-Continuous Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

Passive Ambient Monitoring Network – December 2010

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO ₂	#14	2.3	1.0
H ₂ S	VARIOUS	0.24	0.20
NO ₂	#28	8.1	3.1
O ₃	#15	23.5	20.8

Volatile Organics Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

Xontech Model 910A – December 4, 2010

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

Xontech Model 910A – December 10, 2010

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

Xontech Model 910A – December 16, 2010

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

Xontech Model 910A – December 22, 2010

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

Xontech Model 910A – December 28, 2010

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

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

PUF cartridge – December 4, 2010

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

PUF cartridge – December 10, 2010

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

PUF cartridge – December 16, 2010

Maximum reading (ng/m3)	Semi-Volatile Organic
8.900	2-Methylnaphthalene

PUF cartridge – December 22, 2010

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

PUF cartridge – December 28, 2010

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

General Monthly Summary - Cold Lake

Equipment Operation

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

AQM STATION – LICA – COLD LAKE

Sulphur Dioxide (PPB)

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

No operational issues observed during the month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration data was invalidated on December 17th as less than 100% of valid data was recorded in the hour. Data was corrected using daily zero information.

Total Reduced Sulphur (PPB)

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

No operational issues observed during the month. The charcoal was replaced prior to the monthly calibration on December 2nd. The inlet filter was changed before the monthly calibration was started One hour of the maximum concentration data was invalidated on December 17th as less than 100% of valid data was recorded in the hour. Data was corrected using daily zero information.

Ozone (PPB)

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

No operational issues observed during the month. The inlet filter was changed before the monthly calibration was started. One hour of the maximum concentration data was invalidated on December 17th as less than 100% of valid data was recorded in the hour. Data was corrected using daily zero information.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

Total Hydrocarbon (PPM)

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

No operational issues observed during the month. The inlet filter was changed before the monthly calibration was started. While doing the as found zero point on December 2nd, the filed tech has troubles to adjust the zero. Aborted the calibration, replaced the desiccant on the zero air supply, and the re-started the calibration. One hour of the maximum concentration data was invalidated on December 17th as less than 100% of valid data was recorded in the hour. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

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

No operational issues observed during the month. The inlet filter was changed before the calibration was started. One hour of the maximum concentration data was invalidated on December 17th as less than 100% of valid data was recorded in the hour. Data was corrected using daily zero information.

Particulate Matter 2.5 (ug/m³)

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

No operational issues observed during the month. A routine Teom audit was performed on December 16th. After the audit, the by-pass flow water-knock-off filter was replaced, A leak check and flow check was performed following the filter change. After that, the Teom filter and the FDMS filter were replaced and the inlet was cleaned. The Teom was allowed time to stabilize. Data was corrected using Alberta air quality guideline for PM2.5 analyzer. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. 4 hours of data were invalidated as the data were below –3.0 ug/m³.

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, S/N: F1644

No operational issues observed during the month. The wind system is reported as vector wind speed and vector wind direction.

The recently calibrated AENV Met One 50.5 wind system was installed on December 16th. After the installation, a zero check was performed. One hour of the maximum concentration data was invalidated on December 17th as less than 100% of valid data was recorded in the hour.

Relative Humidity (PERCENT)

- System make / model - Rotronic Hygroclip-S3

No operational issues observed during the month.

Ambient Temperature (DEGC)

- System make / model - Rotronic Hygroclip-S3

No operational issues observed during the month.

Trailer Temperature (DEGC)

- System make / model - R&R 61

No operational issues observed during the month.

Datalogger

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

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

Trailer

No issue was observed during this month. The manifold and inlet were cleaned on December 3rd.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. One AQI value recorded in December 2010 was in the Fair range, and it was due to PM2.5. Others were within the Good range. The highest hourly concentration of PM2.5 was 32.9ug/m3 and an AQI value of 27, hour 11 on December 6th. The highest hourly concentration of Ozone was 36 ppb and an AQI value of 18 on December 28th, hour of 18 and 20.

Passive Network

No issue was recorded this month.

Volatile Organics (VOCs)

The volatile organics were sampled from December 4th to December 28th. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the VOCs in this report were reported as ug/m3 in 3 significant figures.

Polycyclic Aromatic Hydrocarbons (PAHs)

The PAHs were sampled from December 4th to December 28th. The sampler was programmed to run for 24 hours, and, every 6 days per sample cycle. The values for the PAHs in this report were reported as ng/m3.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

AIR QUALITY INDEX (AQI)

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

STATUS FLAG CODES		NA - NOT APPLICABLE		V - VARIOUS																		
AQI CLASS	OZONE (O ₃)					PARTICULATE MATTER 2.5 (PM _{2.5})					NITROGEN DIOXIDE (NO ₂)					SULPHUR DIOXIDE (SO ₂)					FREQUENCY	
	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	0	0.0%	-	-	-	1	0.1%	27	11	6	0	0.0%	-	-	-	0	0.0%	-	-	-	1	0.1%
GOOD (1-25)	525	70.6%	18	18,20	28	170	22.8%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	695	93.4%
OVERALL	525	70.6%	-	-	-	167	23.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	744	100.0%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	6.5%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00			
DAY 1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0.0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	1	1	2	2	2	IZS	1	0	2	0.5	24
4	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	IZS	0	0	0	1	0.3	24
5	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	IZS	0	0	0	0	0	1	0.3	24
6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	IZS	0	0	0	0	0	1	0.0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0.0	24
8	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	0.0	24
9	0	0	1	3	2	2	1	1	0	0	1	1	1	1	2	IZS	1	0	1	3	4	4	4	1	4	1.5	24
10	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
11	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
12	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	1	1	0.0	24
13	1	2	2	2	2	1	1	1	1	1	1	1	IZS	1	1	1	1	0	0	0	0	0	0	0	2	0.8	24
14	0	0	0	0	0	1	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	1	1	0.1	24
15	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0.1	24
16	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
17	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
18	0	0	0	0	0	0	IZS	0	0	0	0	1	1	2	2	2	2	3	4	3	2	2	3	3	4	1.3	24
19	2	2	2	3	7	IZS	3	1	1	1	1	1	1	1	2	2	1	0	0	0	0	0	0	0	7	1.3	24
20	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
21	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
22	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
23	0	IZS	0	0	1	1	0	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	2	1.0	24
24	IZS	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	IZS	1	0.5	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0.0	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0.0	24
27	0	0	0	0	0	1	3	2	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	3	0.3	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0.0	24
29	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
30	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
31	0	0	0	0	0	0	0	0	0	0	1	2	2	3	2	2	IZS	1	0	0	0	0	0	0	3	0.6	24
HOURLY MAX	2	2	2	3	7	2	NA	2	1	1	1	2	2	3	2	2	2	3	4	3	4	4	4	3			
HOURLY AVG	0.1	0.2	0.2	0.3	0.5	0.2	NA	0.2	0.1	0.1	0.2	0.3	0.4	0.4	0.4	0.4	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.2			

STATUS FLAG CODES

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

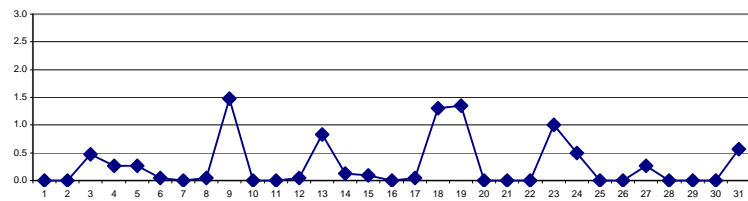
OBJECTIVE LIMIT:

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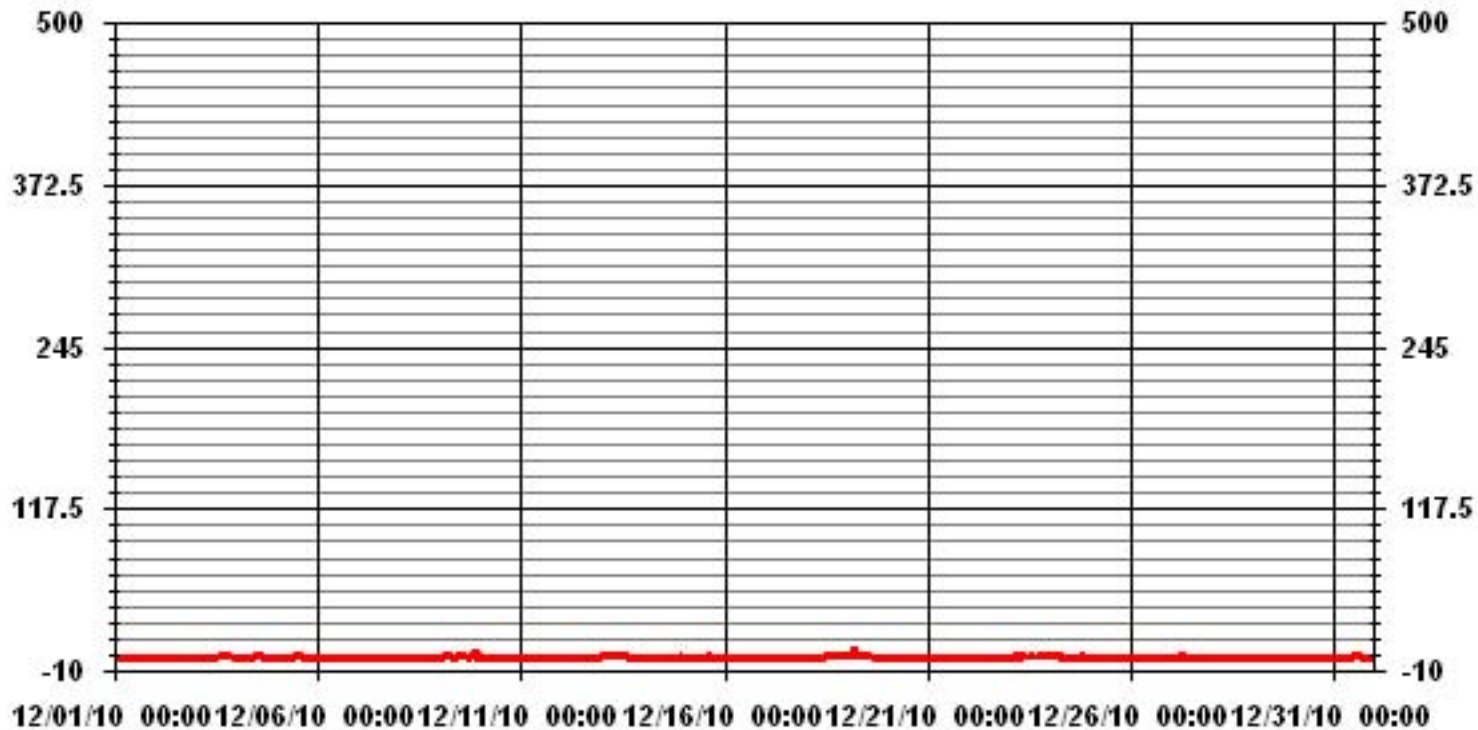
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	129		
MAXIMUM 1-HR AVERAGE:	7 PPB @ HOUR(S) 4 ON DAY(S) 19		
MAXIMUM 24-HR AVERAGE:	1.5 PPB ON DAY(S) 9		
IZS CALIBRATION TIME:	33 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	4 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.71	MONTHLY AVERAGE:	0.28 PPB

24 HOUR AVERAGES FOR DECEMBER 2010



01 Hour Averages



— LICA SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

SULPHUR DIOXIDE MAX instantaneous maximum in ppt

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
DAY	HR	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	AVG.	RDGS.			
1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	24	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	24	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	1	1	3	2	2	IZS	1	0	3	0.5	24		
4	1	1	0	0	0	0	0	0	0	0	0	1	1	2	1	1	1	1	1	1	1	1	IZS	1	0	0	2	0.6	24	
5	0	0	0	0	1	1	0	0	0	0	0	1	1	2	1	1	1	0	0	0	0	IZS	0	0	0	2	0.4	24		
6	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	IZS	1	1	0	0	1	1	0.4	24		
7	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	IZS	0	0	0	0	0	0	1	0.2	24		
8	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	1	0.1	24		
9	0	0	2	3	3	3	2	1	1	1	2	2	2	2	3	IZS	1	1	1	5	4	4	5	3	5	2.2	24			
10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	0.0	24		
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0.0	24		
12	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	1	1	1	1	1	1	0.3	24		
13	2	2	2	2	2	2	2	2	2	1	1	IZS	1	1	1	1	1	1	1	1	1	0	1	0	0	2	1.3	24		
14	0	1	1	1	1	1	1	0	0	1	IZS	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0.6	24		
15	1	1	1	1	0	0	0	0	0	0	IZS	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0.3	24		
16	0	0	0	0	0	0	0	0	0	IZS	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24		
17	0	0	0	0	0	0	1	IZS	N	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	1	1	0.3	23		
18	0	1	0	0	0	0	IZS	0	1	1	1	2	2	2	3	3	3	4	4	4	4	3	3	3	3	4	1.9	24		
19	3	2	3	4	8	IZS	4	2	1	1	1	1	1	2	2	2	2	2	1	0	0	0	0	0	0	8	1.7	24		
20	0	0	0	0	IZS	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24		
21	0	0	0	IZS	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24		
22	0	0	IZS	0	0	0	1	0	0	1	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	0.5	24		
23	1	IZS	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	1.3	24		
24	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1.0	24	
25	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	IZS	0	1	0.3	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0.0	24	
27	0	0	0	0	0	2	3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	3	0.4	24
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	IZS	0	1	0	0	1	0.1	24		
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0.0	24		
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	1	0	1	0.1	24	
31	0	0	1	0	0	1	1	0	0	1	2	3	3	4	4	2	IZS	1	0	0	0	1	1	1	1	4	1.1	24		
HOURLY MAX		3	2	3	4	8	3	4	3	2	1	2	3	3	4	4	3	3	4	4	4	5	4	4	5	3				
HOURLY AVG		0.3	0.3	0.4	0.5	0.6	0.4	0.6	0.4	0.3	0.4	0.5	0.6	0.7	0.8	0.8	0.6	0.4	0.4	0.5	0.7	0.5	0.6	0.6	0.5					

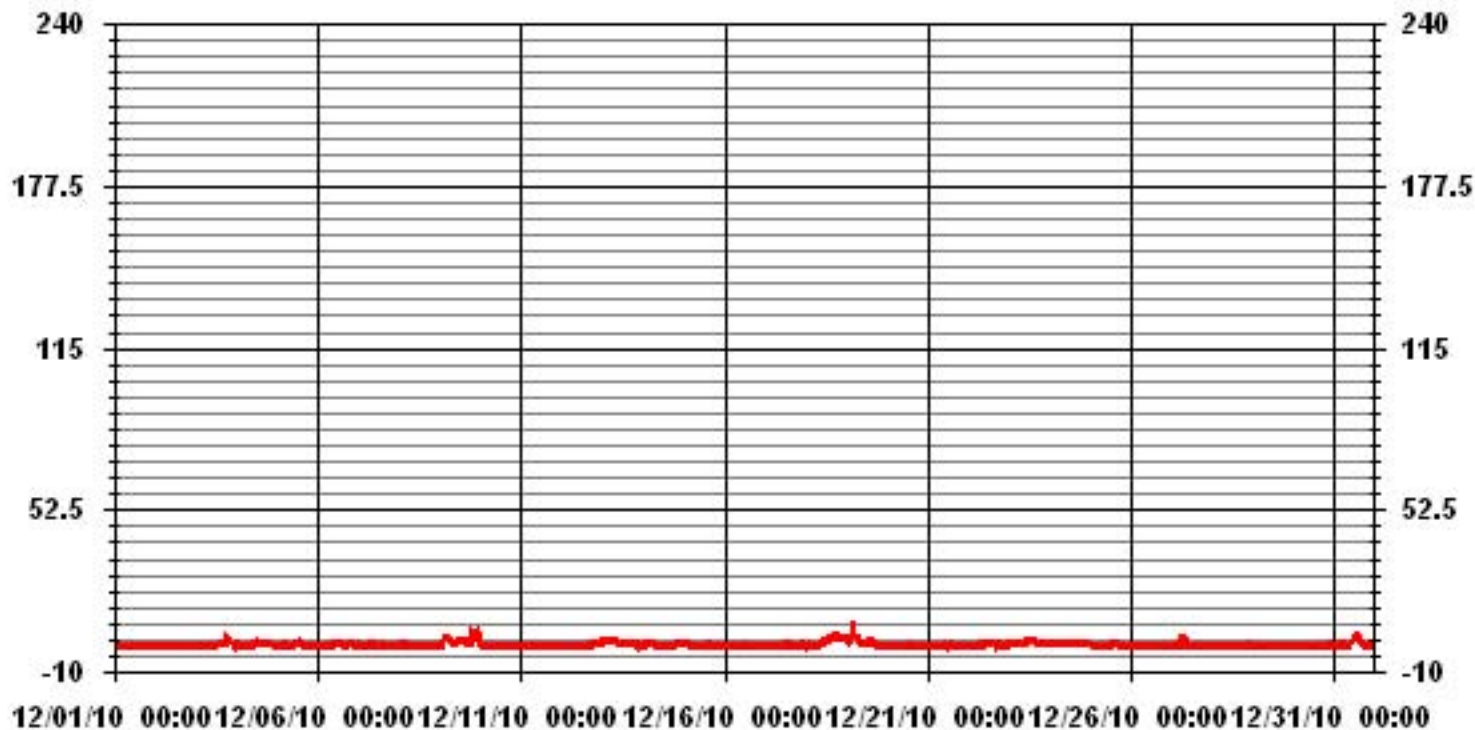
STATUS FLAG CODES

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:	241					
MAXIMUM INSTANTANEOUS VALUE:	8	PPB	@ HOUR(S)	4	ON DAY(S)	19
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.90					

01 Hour Averages



— LICA SO2MAX PPB

LICA
 SO2_ / WDR Joint Frequency Distribution (Percent)

December 2010

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	1.13	1.70	1.41	4.68	19.00	12.34	10.78	3.12	2.83	2.26	6.95	9.36	10.07	5.39	3.97	4.96	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.13	1.70	1.41	4.68	19.00	12.34	10.78	3.12	2.83	2.26	6.95	9.36	10.07	5.39	3.97	4.96	

Calm : .00 %

Total # Operational Hours : 705

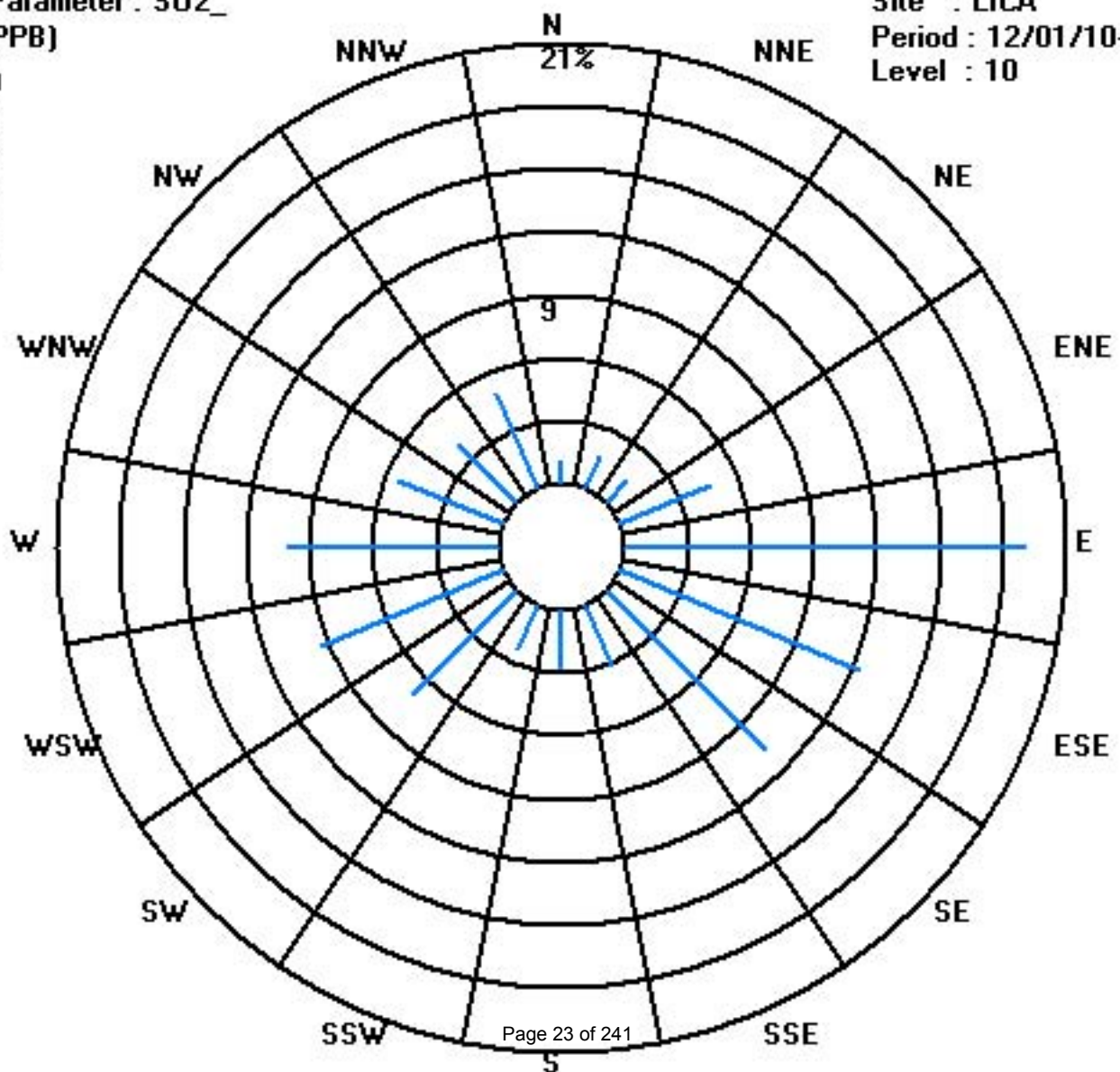
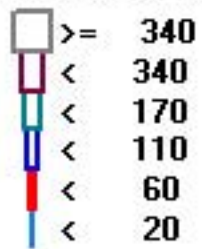
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	8	12	10	33	134	87	76	22	20	16	49	66	71	38	28	35	705
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	8	12	10	33	134	87	76	22	20	16	49	66	71	38	28	35	

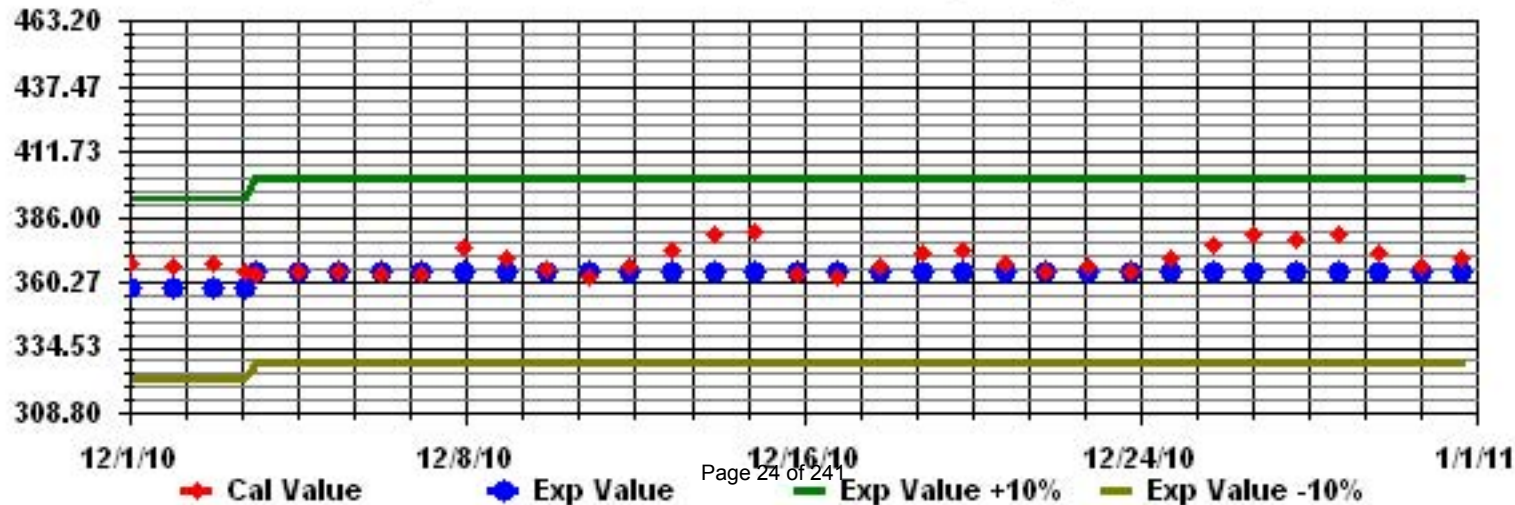
Calm : .00 %

Total # Operational Hours : 705

Class Limits (PPB)



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



Total Reduced Sulphur

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

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

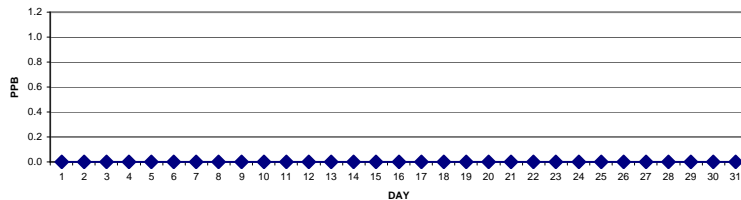
OBJECTIVE LIMIT:

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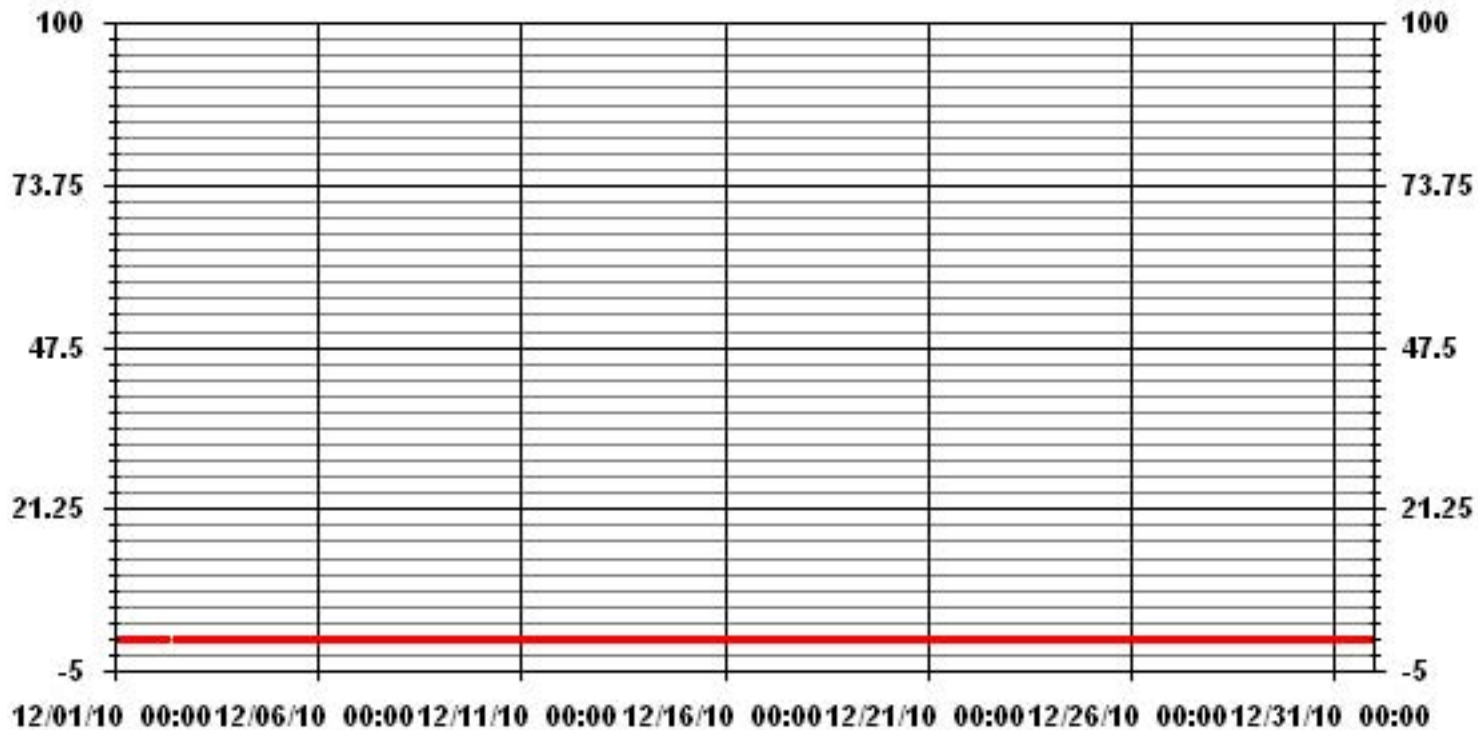
MONTHLY SUMMARY

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			ON DAY(S)	ALL	
VAR-VARIOUS								
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744				HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	100.0				%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00				PPB

24 HOUR AVERAGES FOR DECEMBER 2010



01 Hour Averages



— LICA TRS_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

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

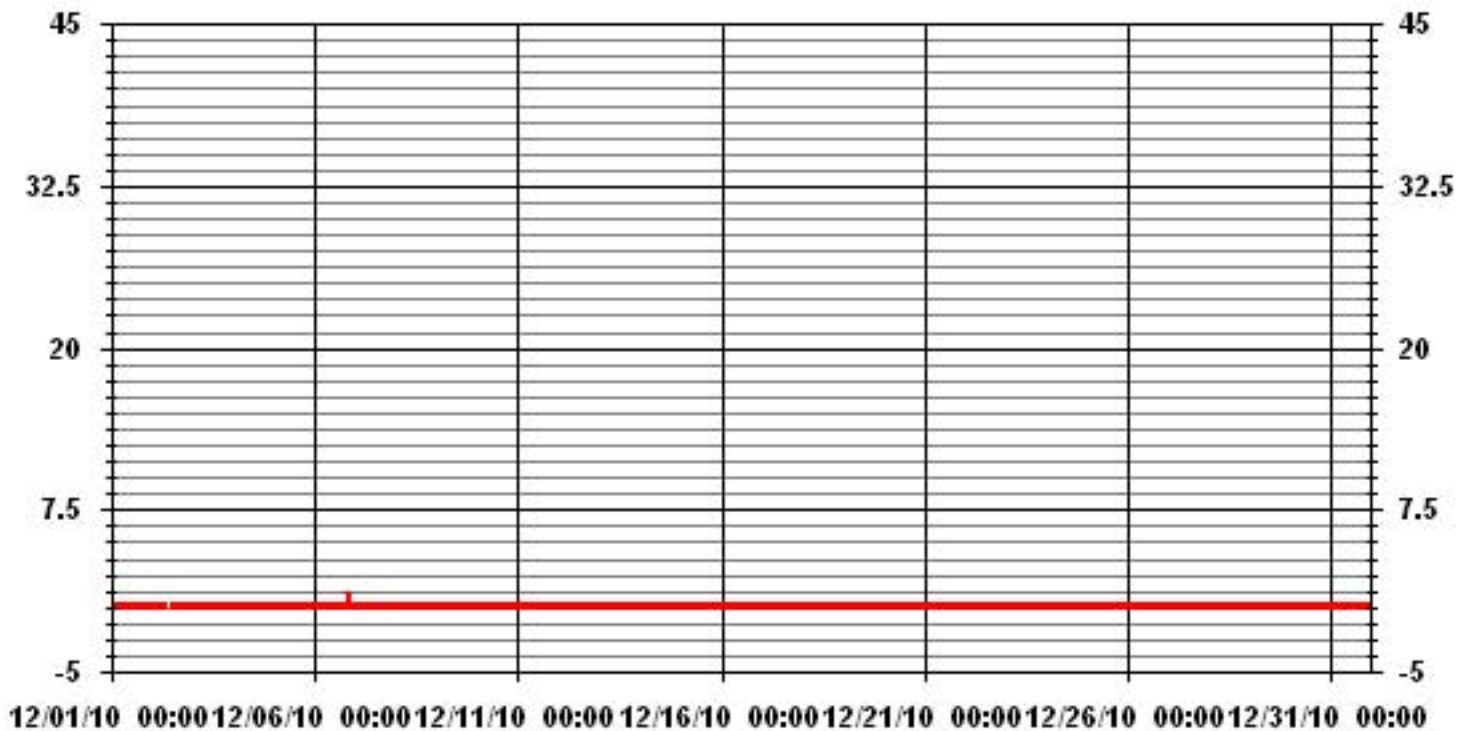
STATUS FLAG CODES

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:	1					
MAXIMUM INSTANTANEOUS VALUE:	1	PPB	@ HOUR(S)	19	ON DAY(S)	6
VAR - VARIOUS						
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	0.04					

01 Hour Averages



LICA
 TRS_ / WD Joint Frequency Distribution (Percent)

December 2010

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	1.13	1.70	1.42	4.69	19.06	12.37	10.66	2.84	2.84	2.27	6.82	9.24	10.24	5.54	4.12	4.97	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	1.13	1.70	1.42	4.69	19.06	12.37	10.66	2.84	2.84	2.27	6.82	9.24	10.24	5.54	4.12	4.97	

Calm : .00 %

Total # Operational Hours : 703

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	8	12	10	33	134	87	75	20	20	16	48	65	72	39	29	35	703
< 10																	
< 50																	
>= 50																	
Totals	8	12	10	33	134	87	75	20	20	16	48	65	72	39	29	35	

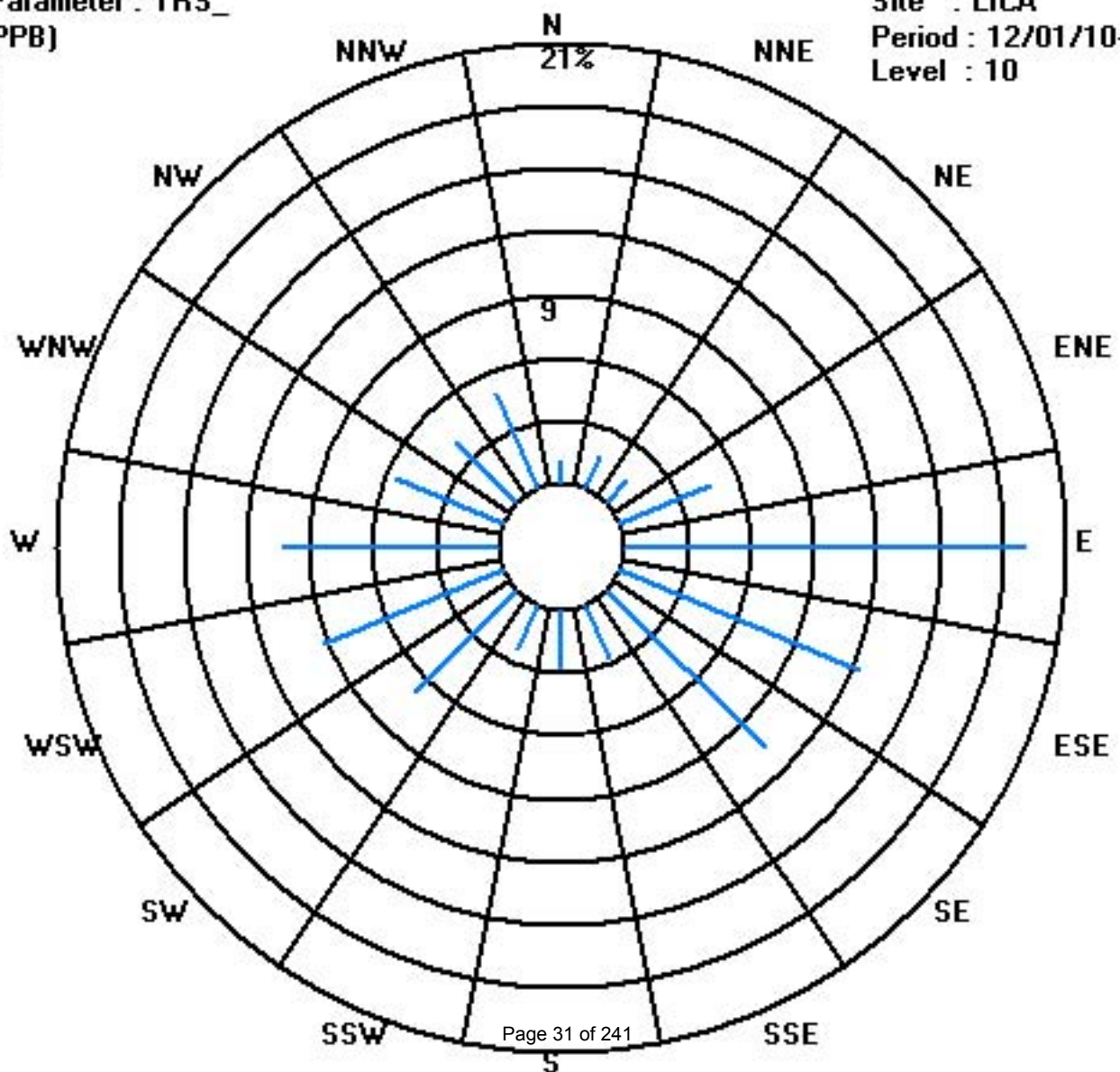
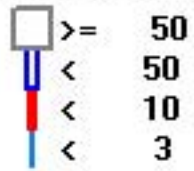
Calm : .00 %

Total # Operational Hours : 703

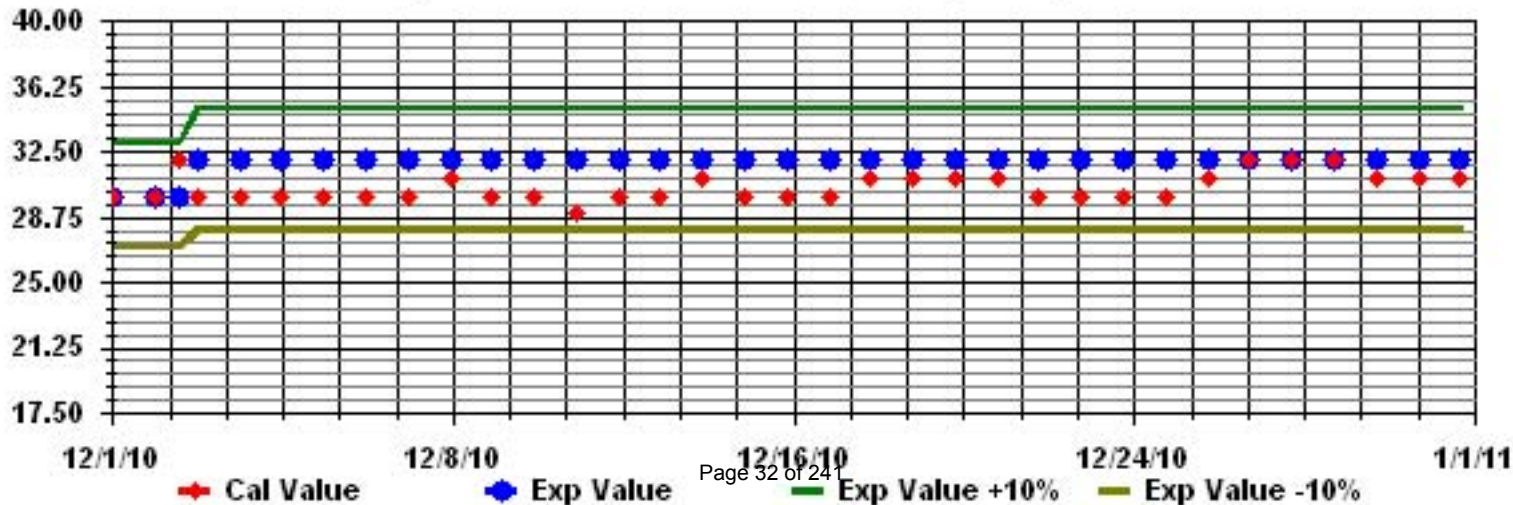
Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

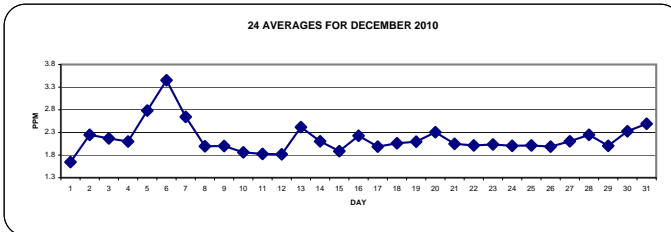
DECEMBER 2010

TOTAL HYDROCARBONS (THC) hourly averages in ppm

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1		IZS	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.8	IZS	1.8	1.6	24	
2		2.3	2.4	2.4	2.4	2.3	2.1	2.1	2.3	2.4	2.3	2.3	2.1	C	C	C	C	2.2	2.2	2.2	2.2	2.1	IZS	2.1	2.4	2.2	24		
3		2.1	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.5	2.4	2	C	1.9	2	1.9	1.9	1.9	IZS	1.9	1.9	2.5	2.2	24			
4		1.9	1.9	1.9	1.9	1.9	1.9	2	2	2.1	2.1	2	2.1	2.1	2.1	2.3	2.2	2.3	2.3	2.3	IZS	2.4	2.4	2.3	2.4	2.1	24		
5		2.4	2.4	2.5	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.9	3	3	3	IZS	3.1	3.1	3	3	3.1	2.8	24		
6		3.1	3.1	3.1	3.1	3.2	3.3	3.3	3.5	3.6	4.1	4.9	4.7	3.8	3.3	3.3	3.2	3.3	3.3	IZS	3.3	3.2	3.2	3.2	4.9	3.5	24		
7		3.2	3.1	3.1	3.2	3.2	3.2	3.4	3.5	3.4	3	2.2	2.2	2.1	2.1	2.2	2.2	2.2	IZS	2.2	2.2	2.2	2.2	2.2	2.3	3.5	2.6	24	
8		2.4	2.3	2.2	2	2	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	IZS	1.9	1.9	2.1	2.3	2.1	2.2	2.4	2.0	24	
9		2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2	2	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	2.3	2.0	24	
10		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	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	24	
11		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	IZS	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	24
12		1.8	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	IZS	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	24
13		1.9	1.9	2	2	2	2.1	2.1	2.1	2.2	2.2	2.2	IZS	2.5	2.5	2.4	2.6	2.8	2.8	2.7	2.9	2.9	3	2.9	3.0	2.4	24		
14		3	3	2.9	2.8	2.6	2.2	2.1	2.1	2	2	IZS	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	3.0	2.1	24
15		1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	IZS	1.8	1.8	1.9	1.8	1.9	2.1	2	2	2	2	2	1.9	2	2	2.1	1.9	24	
16		2	2	2	2.2	2.2	2.2	2.2	2.4	IZS	2.6	2.5	2.4	2.5	2.4	2.3	2.2	2.2	2.3	2.3	2.4	2.1	2	1.9	1.9	2.6	2.2	24	
17		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	2	2.1	2.1	2.2	2.2	2.1	2.2	2	2	2	2.2	2.0	24	
18		2	2	2	2.1	2.1	2.1	IZS	2.2	2.3	2.2	2.3	2.4	2.4	2.1	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4	2.1	24	
19		1.9	1.9	1.9	2	1.9	IZS	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.3	2.4	2.3	2.4	2.5	2.5	2.5	2.1	24	
20		2.5	2.4	2.4	2.5	IZS	2.5	2.6	2.4	2.3	2.2	2.3	2.5	2.5	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.6	2.3	24	
21		2.2	2.2	2.2	IZS	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.2	2.0	24
22		2	2	IZS	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	2.1	2.0	24
23		2	IZS	2	2	2	2	2	2	2.1	2	2	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2.1	2.0	24	
24		IZS	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2	2	2	2	2	2	2	2	2	1.9	IZS	2.1	2.0	24	
25		1.9	1.9	1.9	1.9	2	2	2	2	2	1.9	1.9	1.9	1.9	2	2	2	2.1	2.1	2.2	2.2	2.4	IZS	2.2	2.4	2.0	24		
26		2.1	2.1	2.1	2	2	2	2	1.9	2	2	1.9	1.9	1.9	1.9	1.9	1.9	2.1	1.9	2	2	2	IZS	2	2.1	2.1	2.0	24	
27		2	2	2	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2	2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	IZS	2.1	2.1	2.1	2.2	2.1	24	
28		2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.5	2.5	2.6	2.7	2.5	2.4	2.5	2.5	2.2	1.9	1.9	IZS	1.9	1.9	1.9	1.9	2.7	2.2	24	
29		1.9	1.9	2	2	1.9	1.9	1.9	1.9	2	2	2	1.9	1.9	2	2	2	2.1	2.1	IZS	2.1	2.1	2.1	2.3	2.1	2.3	2.0	24	
30		2.1	2.2	2.3	2.3	2.4	2.3	2.4	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	IZS	2.3	2.3	2.5	2.6	2.7	2.7	2.7	2.3	24	
31		2.7	2.8	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.3	2.3	2.3	2.2	2.3	2.2	IZS	2.2	2.2	2.3	2.3	2.5	2.9	3	3.0	2.5	24	
HOURLY MAX		3.2	3.1	3.1	3.2	3.2	3.3	3.4	3.5	3.6	4.1	4.9	4.7	3.8	3.3	3.3	3.2	3.3	3.3	3.0	3.3	3.3	3.2	3.2	3.2				
HOURLY AVG		2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2				

STATUS FLAG IZSODES

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



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706
MAXIMUM 1-HR AVERAGE:	4.9 PPM @ HOUR(S) 10 ON DAY(S) 6
MAXIMUM 24-HR AVERAGE:	3.5 PPM ON DAY(S) 6
IZS CALIBRATION TIME:	33 HRS
MONTHLY CALIBRATION TIME:	33 HRS
STANDARD DEVIATION:	0.39
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	2.16 PPM

01 Hour Averages



— LICA THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR			
HOURLY MAX	HOURLY AVG.	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
DAY																														
1		IZS	1.7	1.7	1.7	1.7	1.7	1.8	1.7	3.2	1.7	1.7	1.7	1.7	1.7	1.9	1.8	1.7	1.7	1.8	1.9	1.8	2.1	IZS	3.2	1.8	24			
2		2.4	2.4	2.5	2.5	2.4	2.2	2.2	2.5	2.6	2.4	3.6	2.6	C	C	C	C	C	2.2	2.2	2.3	2.2	2.2	IZS	2.1	3.6	2.4	24		
3		2.2	2.3	2.3	2.3	2.3	2.2	2.4	2.5	2.6	2.5	2.6	2.7	2.6	2.5	C	C	2	2.1	2	2	1.9	IZS	1.9	2	2.7	2.3	24		
4		2	2	2	2	2	2	2	2	2.1	2.2	2.2	2.2	2.5	2.2	2.2	2.5	2.5	2.6	2.5	2.4	IZS	2.5	2.5	2.5	2.5	2.6	2.2	24	
5		2.5	2.6	2.8	2.9	2.8	2.7	2.8	2.9	3.2	2.9	3	2.9	3.1	2.9	3.1	3.1	3.3	3.2	3.2	IZS	3.3	3.2	3.2	3.1	3.3	3.0	24		
6		3.2	3.1	3.1	3.2	3.4	3.4	3.5	3.9	3.9	5.3	5.6	5.8	4.6	3.4	3.4	3.3	3.4	3.8	IZS	3.4	3.4	3.3	3.4	3.4	5.8	3.7	24		
7		3.3	3.2	3.2	3.3	3.3	3.3	3.7	3.6	3.3	2.6	2.7	2.2	2.2	2.3	2.4	IZS	2.2	2.2	2.3	2.3	2.3	2.3	2.4	3.7	2.8	24			
8		2.4	2.4	2.3	2.1	2.1	2	2	2.1	2	1.9	1.9	1.9	1.9	1.8	2.3	2.1	IZS	2.1	2.1	2.2	2.4	2.4	2.2	2.2	2.4	2.1	24		
9		2.3	2.4	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2	2	2	2	IZS	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	2.4	2.0	24	
10		1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	1.9	2	2.2	1.9	1.9	2.1	IZS	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	1.9	24	
11		1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	1.9	IZS	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	1.9	24	
12		1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	1.9	1.9	5.8	IZS	5.4	1.9	3	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	5.8	2.3	24	
13		2	2	2	2	2.1	2.1	2.1	2.2	2.3	2.4	2.5	IZS	2.6	2.6	2.6	2.9	3	3.1	2.8	3.1	3.1	3.8	3.4	3.1	3.8	3.8	2.6	24	
14		3.2	3.2	3.1	2.9	2.9	2.3	2.3	2.1	2.3	2	IZS	2	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	3.2	2.2	24
15		1.8	1.8	1.8	1.8	2	1.8	1.8	1.9	1.9	IZS	1.8	1.9	2.2	1.9	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2.2	1.9	24	
16		2	2.1	2.4	2.3	2.3	2.2	2.4	2.6	IZS	2.9	2.6	2.6	2.6	2.6	2.7	2.2	2.3	2.5	2.4	2.6	2.3	2.1	2	2	2.9	2.4	24		
17		2	2	2	2	2	2	2	IZS	N	1.9	1.9	2	2.1	2.1	2.2	2.3	2.1	2.3	2.2	2.3	2.3	2.3	2.1	2	2.3	2.1	2.3	24	
18		2.1	2.1	2.1	2.1	2.1	2.2	IZS	2.3	2.3	2.3	2.4	2.5	2.5	2.3	2	2.1	2	2	2	2	2	2	1.9	2	2	2.5	2.1	24	
19		1.9	2	2	2	2	IZS	2	2.1	2.1	2.1	2	2	2	2	2	2	2.2	2.2	2.5	2.4	2.4	2.5	2.6	2.6	2.6	2.2	24		
20		2.6	2.5	2.5	2.5	IZS	2.8	2.8	2.5	2.6	2.3	2.4	2.5	2.8	2.8	2.7	3.6	2.2	3	2.3	2.2	2.2	4.3	3.1	2.3	4.3	2.7	24		
21		2.3	2.3	2.2	IZS	2.2	2.3	2.2	2.2	2.4	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.3	2.2	2	2.1	2	2	2	2.1	2.4	2.2	24		
22		2.1	2.1	IZS	2.1	2.1	2.2	2.1	2.4	2.1	2.4	2.8	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2	2.8	2.2	24		
23		2	IZS	2.1	2.1	2.1	2.1	2.2	2.4	2.4	2.2	3.3	2.1	2.1	2.3	2.1	2.1	2.1	2.1	2.4	2.1	2.1	2.1	2.1	2.1	2.1	3.3	2.2	24	
24		IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.8	3.3	2.6	2.7	4.1	2.1	2.3	2	2	2.1	2	2	IZS	4.1	2.3	24		
25		2	2	2	2	2.3	2	2.1	2	2.1	2	2	3.1	2.2	2	2.1	2.1	2.6	2.5	2.3	2.5	2.9	3.1	IZS	2.3	3.1	2.3	24		
26		2.2	2.2	2.2	2.2	2.1	2	2.1	2.1	2.1	3.1	2.3	2	2	2	2	2	2.1	3.2	2	2.3	2.1	2.1	IZS	2.1	2.2	3.2	2.2	24	
27		2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	IZS	2.2	2.2	2.2	2.3	2.2	24	
28		2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.5	2.7	2.7	2.8	3	2.7	2.6	2.6	2.8	2.4	2	1.9	IZS	1.9	2	2	2	3	2.4	24		
29		2	2	2.1	2	2	2	2	2.2	2	2.1	2.1	2.2	2	2.1	2.4	2.1	2.2	2.2	IZS	2.2	2.2	2.2	2.5	2.3	2.5	2.1	24		
30		2.2	2.3	2.3	2.3	2.5	2.5	2.5	2.5	2.6	2.3	2.4	2.6	2.4	2.2	2.3	2.3	2.3	IZS	2.5	2.4	2.8	2.7	2.8	2.8	2.8	2.5	24		
31		2.7	2.8	2.9	2.7	2.7	2.7	2.7	2.7	2.6	2.6	2.5	2.3	26.4	2.3	2.4	2.3	IZS	2.4	2.5	2.3	2.4	3	3.3	3.4	26.4	3.7	24		
HOURLY MAX		3	3	3	3	3	3	4	4	4	5	6	6	26	5	3	4	3	4	3	3	3	4	3	3					
HOURLY AVG		2.3	2.3	2.3	2.2	2.3	2.2	2.3	2.3	2.4	2.4	2.5	2.5	3.2	2.4	2.3	2.4	2.3	2.3	2.2	2.2	2.3	2.4	2.3	2.3					

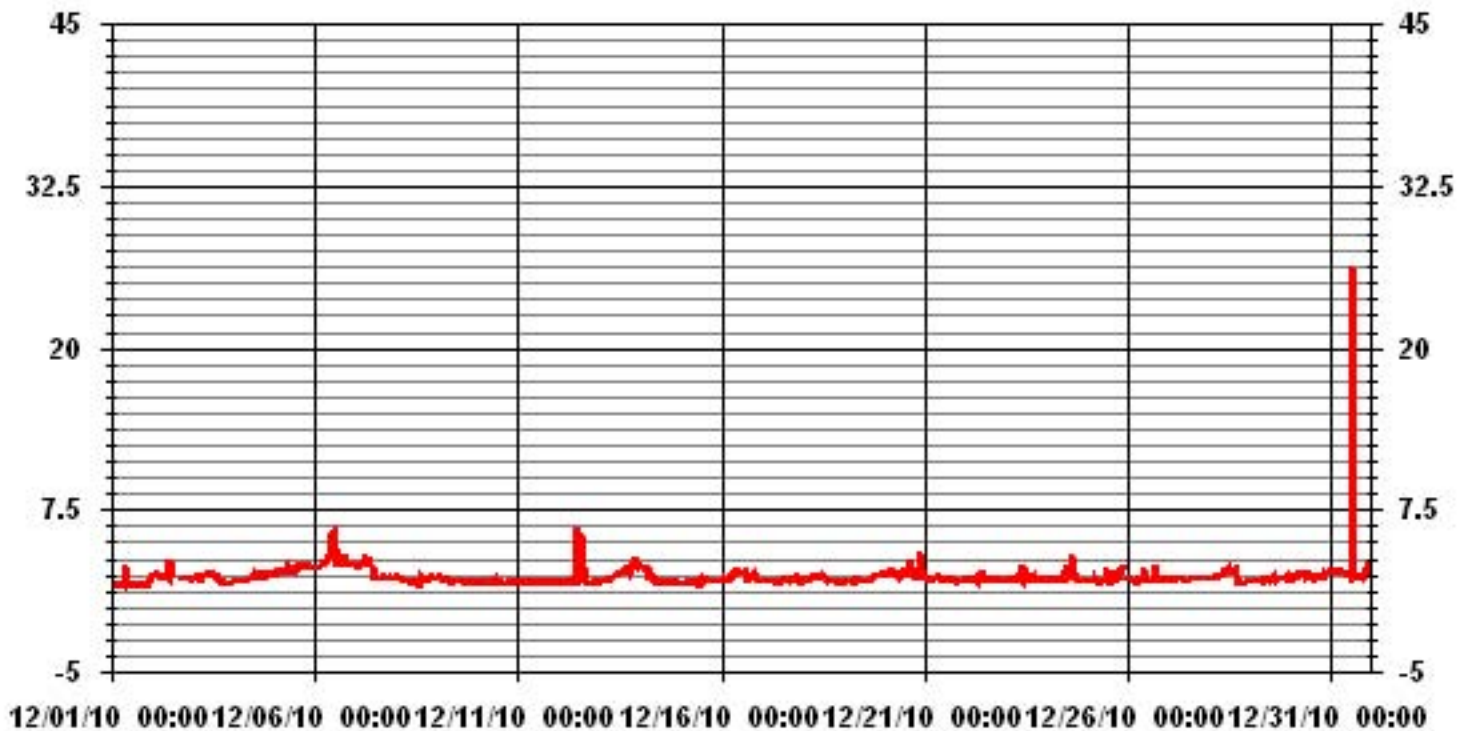
STATUS FLAG CODES

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:	703					
MAXIMUM INSTANTANEOUS VALUE:	26.4	PPM	@ HOUR(S)	12	ON DAY(S)	31
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	1.05					

01 Hour Averages



— LICA THCMAX PPM

LICA
THC / WD Joint Frequency Distribution (Percent)

December 2010

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	1.13	1.56	1.42	3.83	18.18	11.50	10.08	2.98	2.41	2.27	6.81	7.81	9.51	5.53	4.11	4.54	93.75
< 10.0	.00	.14	.00	.85	.71	.85	.28	.14	.42	.00	.14	1.56	.71	.00	.00	.42	6.25
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.13	1.70	1.42	4.68	18.89	12.35	10.36	3.12	2.84	2.27	6.96	9.37	10.22	5.53	4.11	4.97	

Calm : .00 %

Total # Operational Hours : 704

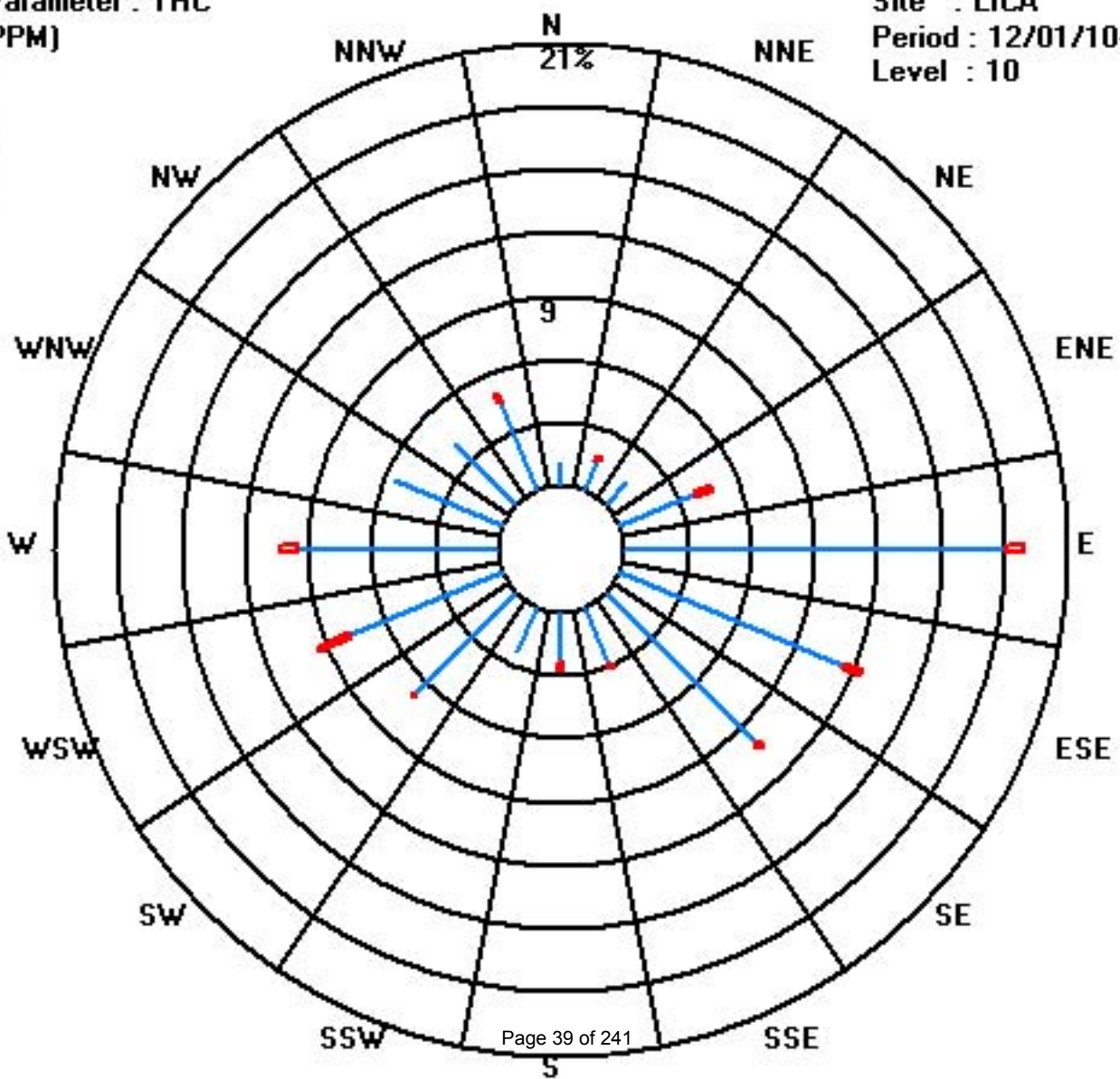
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	8	11	10	27	128	81	71	21	17	16	48	55	67	39	29	32	660
< 10.0		1		6	5	6	2	1	3		1	11	5			3	44
< 50.0																	
>= 50.0																	
Totals	8	12	10	33	133	87	73	22	20	16	49	66	72	39	29	35	

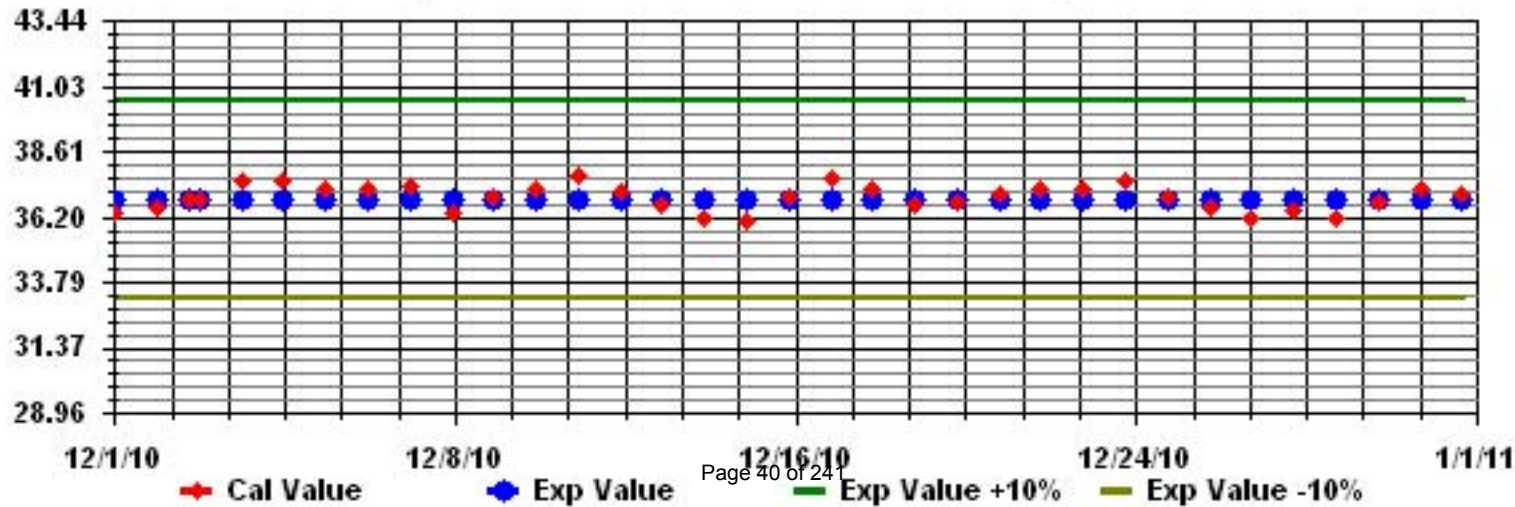
Calm : .00 %

Total # Operational Hours : 704

Class Limits (PPM)



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



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY	24-HOUR	
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1		6.4	N	9.4	8.4	11.4	11.4	4.4	N	13.4	8.9	5.4	0	12.4	2.4	5.4	5.4	0	10.4	2.4	5.9	4.9	6.9	0.9	26.9	26.9	7.4	22	
2		21.9	23.4	23.4	13.9	13.9	10.4	8.4	7.7	17	19.8	25	19.9	20.9	13.9	13.4	12.9	9.8	15.9	12.5	14.3	0	15.3	9.3	6.8	25.0	14.6	24	
3		17.5	13.9	12.9	4.4	9.2	11	13.9	19.4	1.4	10.8	9.1	6.2	7.4	9.5	6	16.9	0	4.7	3	7	5	4.9	7.2	12.9	19.4	8.9	24	
4		8.8	6.9	1.9	0	6.4	7.2	9.4	13.9	14.4	18.1	13.3	3.3	6.9	13.7	17	11.4	11.8	22.1	17.6	20	22.1	18.6	14.4	14.1	22.1	12.2	24	
5		14.9	17.7	15.1	15.4	12.6	12.9	14.7	14.6	12.4	9.6	16.7	10.2	12.6	15.9	13.7	18.2	21.1	11.6	13.2	13.1	15.9	12.9	13.7	14	21.1	14.3	24	
6		13.1	11.5	12.3	7.6	11.4	15.9	12.2	8.4	10.2	14.2	19.9	32.9	22	24.5	22.9	22.7	24.4	28	25.1	23.8	28.2	20.3	18.6	19.4	32.9	18.7	24	
7		16.2	14	14.1	14.5	16.3	15.1	17.2	13.1	14	16	10.3	8.4	8.4	15.7	14.4	9.2	10.9	14.4	12.6	15.4	14.5	15.6	21.8	11.9	21.8	13.9	24	
8		12.4	17.3	8.4	9.1	13.5	12.2	13.5	7.4	10.3	5	8.9	5	6.5	2.7	7.2	5.5	10.8	9.4	4.5	13.4	10.4	9.8	7.9	10.5	17.3	9.2	24	
9		13.4	5	10.9	6.4	8.9	8.3	6.4	4.9	5.9	5.9	7.4	0	2.9	5.4	4.4	1.9	8.9	2.4	5.4	7.4	0	0	1.9	0.4	13.4	5.2	24	
10		0	3.9	0.4	0.4	0	1.4	0	1.9	5.4	0	0	0.9	0	0.9	0.9	1.4	0	0	0	1.9	3.9	2.4	2.4	0	5.4	1.2	24	
11		0	0.4	0	0	0.4	2.4	1.9	0.9	1.9	3.9	0	1.9	0	6.4	0	3.4	0	4.4	2.4	N	1.9	0	1.4	0	6.4	1.5	23	
12		0	3.4	1.9	1.9	4.9	0	5.4	0.9	1.4	1.4	1.9	3.9	4.4	0	0	5.4	2.4	6.4	5.4	2.4	6.4	11.4	4.4	7.4	11.4	3.5	24	
13		2.9	8.4	4.4	6.4	9.9	8.9	10.9	2.9	11.4	2.9	5.4	12.4	15.4	11.9	17.4	15.9	16.9	13.4	8.9	15.9	14.4	19.4	13.9	14.9	19.4	11.0	24	
14		10.4	12.4	13.9	13.4	6.4	9.9	5.4	8.9	5.9	2.4	4.4	3.4	3.4	1.9	1.9	8.4	10.9	6.4	13.4	13.4	10.4	9.4	12.4	4.9	13.9	8.1	24	
15		6.4	5.4	6.9	8.4	8.4	1.9	0.4	0	2.9	6.9	3.4	4.4	2.9	7.4	2.9	4.9	11.4	3.9	1.9	2.9	4.4	1.4	3.4	1.9	11.4	4.4	24	
16		1.9	5.4	2.4	2.9	4.4	3.9	3.4	4.9	C	C	6.9	9.9	8.9	6.4	4.4	6.4	8.9	7.9	6.4	6.9	6.9	2.9	6.4	2.4	9.9	5.5	24	
17		5.4	2.9	2.9	3.9	0.9	3.9	3.4	5.4	2.9	6.4	5.9	2.4	5.4	8.9	2.9	4.9	3.9	1.4	2.4	4.9	3.4	4.9	4.9	4.9	4.9	8.9	4.1	24
18		2.9	3.9	2.9	2.9	3.4	1.4	2.9	2.4	4.9	4.4	4.9	6.4	3.4	3.9	4.4	2.4	0.4	8.4	6.4	4.4	2.9	1.9	3.4	4.4	8.4	3.7	24	
19		3.4	5.9	2.9	2.9	5.4	7.4	5.4	4.9	4.4	4.9	3.4	2.9	2.4	2.9	2.4	4.4	4.4	3.9	5.4	4.9	4.9	5.4	5.9	6.9	7.4	4.5	24	
20		8.9	3.9	4.9	2.4	4.4	5.4	6.4	7.9	11.4	6.4	5.4	3.4	4.4	7.4	6.9	9.4	9.4	10.4	6.4	4.4	6.4	8.9	7.4	5.4	11.4	6.6	24	
21		3.9	7.4	8.9	9.9	6.9	7.4	4.4	1.4	7.9	7.4	8.9	3.9	5.9	4.9	8.9	10.4	4.9	5.9	5.4	0.4	3.9	3.9	6.9	6.9	10.4	6.1	24	
22		4.9	4.4	9.9	5.9	7.9	3.9	6.4	7.9	8.4	7.9	9.4	4.4	3.4	6.4	4.9	8.9	9.4	6.9	6.9	6.9	3.9	7.4	3.4	3.9	9.9	6.4	24	
23		4.9	7.9	5.4	4.4	1.9	4.9	5.4	4.9	6.4	6.4	10.4	8.9	6.4	4.4	12.4	4.9	10.9	14.4	11.9	11.9	8.9	5.4	10.4	6.9	14.4	7.5	24	
24		11.4	6.4	12.4	6.9	11.4	15.9	14.4	12.4	13.4	16.9	8.4	2.9	3.9	3.9	4.4	6.4	14.4	14.4	8.4	4.9	13.4	7.9	17.9	10.9	17.9	10.2	24	
25		17.4	3.4	5.9	13.9	7.4	4.9	12.9	0	3.4	3.9	1.4	1.4	2.4	8.9	4.9	10.9	11.4	20.9	13.4	8.4	8.4	8.9	15.4	9.9	20.9	8.3	24	
26		4.9	7.9	2.9	3.9	10.9	1.4	3.4	7.9	4.4	2.9	4.4	7.9	2.4	4.4	1.9	1.4	10.4	0	9.4	18.4	4.9	8.4	8.4	3.9	18.4	5.7	24	
27		12.4	9.4	15.9	10.9	4.4	8.4	8.4	17.4	1.4	4.4	7.4	3.4	3.4	8.4	5.4	1.9	3.9	5.4	7.9	7.4	8.9	4.4	4.9	0.4	17.4	6.9	24	
28		4.9	1.9	0.9	4.9	1.9	6.4	6.4	7.9	11.9	8.4	9.4	11.9	10.9	4.9	4.4	6.4	7.4	2.4	1.4	0	3.4	0.9	6.4	0.4	11.9	5.2	24	
29		1.9	0.9	0.9	0.4	0	1.4	2.4	3.3	0	3.9	0	0.9	3.9	5.4	0	4.4	5.4	0	8.9	0	2.4	7.4	1.4	N	8.9	2.4	23	
30		6.4	4.9	5.4	7.4	5.9	3.4	0	5.9	0	0	6.9	5.9	4.4	3.4	3.9	7.9	2.9	7.4	3.4	6.4	3.9	4.9	3.9	4.9	7.9	4.6	24	
31		7.4	5.9	7.9	5.9	6.4	6.4	6.4	5.4	7.9	7.9	5.4	9.9	7.9	7.9	6.9	7.4	7.9	0.9	5.9	9.9	10.4	11.4	9.9	6.9	11.4	7.3	24	
HOURLY MAX		22	23	23	15	16	16	17	19	17	20	25	33	22	25	23	23	24	28	25	24	28	20	22	27				
HOURLY AVG		8.0	7.5	7.4	6.4	7.0	6.9	7.0	6.8	7.2	7.3	7.4	6.4	6.6	7.2	6.7	7.8	8.2	8.5	7.7	8.6	7.7	7.8	8.1	7.5				

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

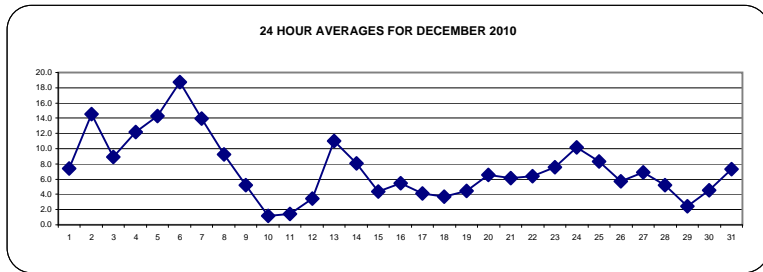
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:

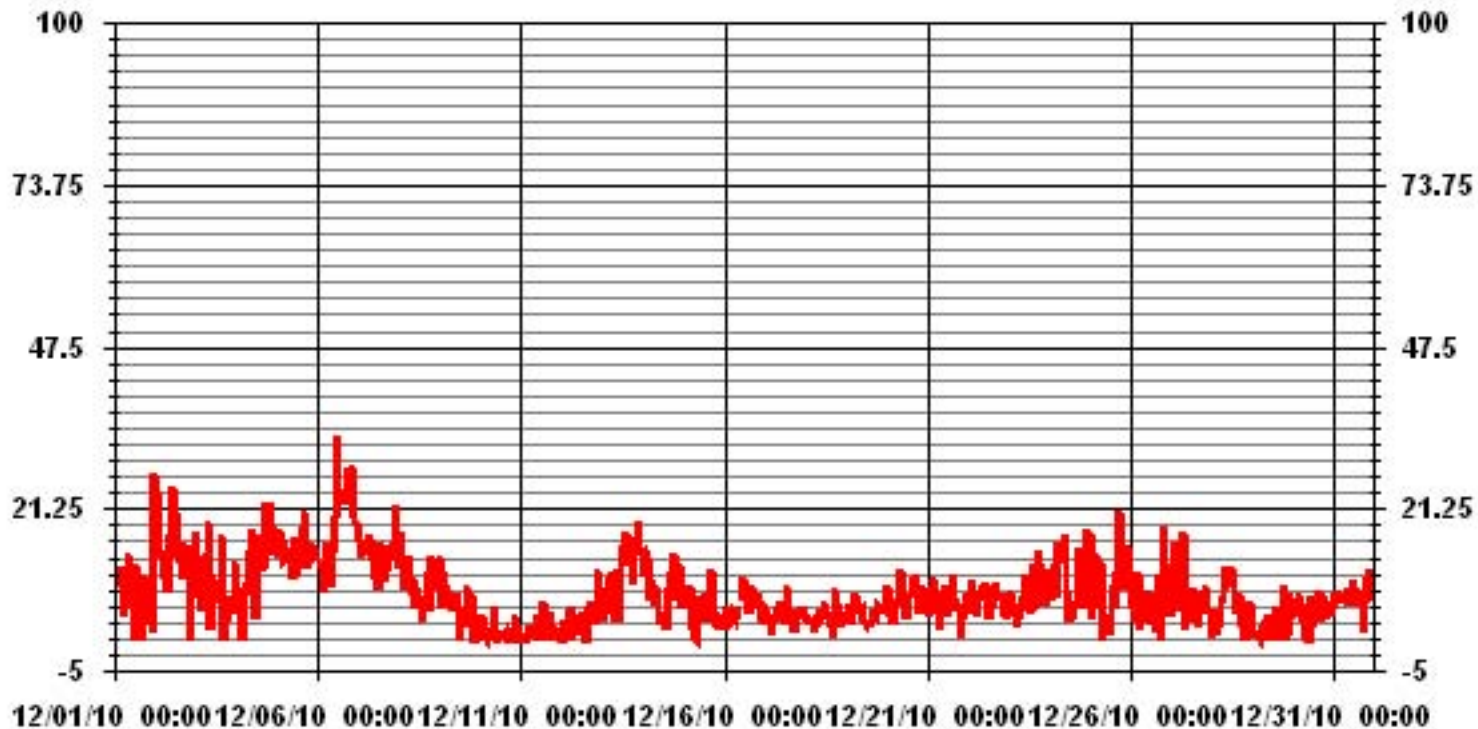
1-HR	-	ug/m ³	24-HR	30	ug/m ³
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-
NUMBER OF 24-HR EXCEEDENCES:	0 PROPOSED CANADA WIDE GUIDELINE
NUMBER OF NON-ZERO READINGS:	694
MAXIMUM 1-HR AVERAGE:	32.9 UG/M ³ @ HOUR(S) 11 ON DAY(S) 6
MAXIMUM 24-HR AVERAGE:	18.7 UG/M ³ ON DAY(S) 6
IZS CALIBRATION TIME:	0 HRS
MONTHLY CALIBRATION TIME:	2 HRS
STANDARD DEVIATION:	5.47
OPERATIONAL TIME:	740 HRS
AMD OPERATION UPTIME:	99.5 %
MONTHLY AVERAGE:	7.41 UG/M ³



01 Hour Averages



— LICA PM2 UG/M3

LICA
PM2 / WD Joint Frequency Distribution (Percent)

December 2010

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	1.22	1.76	1.35	4.75	18.75	11.95	10.86	2.98	3.12	2.30	6.79	8.83	10.32	5.43	4.34	5.02	99.86
< 60.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00	.13
< 80.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.22	1.76	1.35	4.75	18.75	11.95	10.86	2.98	3.12	2.30	6.79	8.96	10.32	5.43	4.34	5.02	

Calm : .00 %

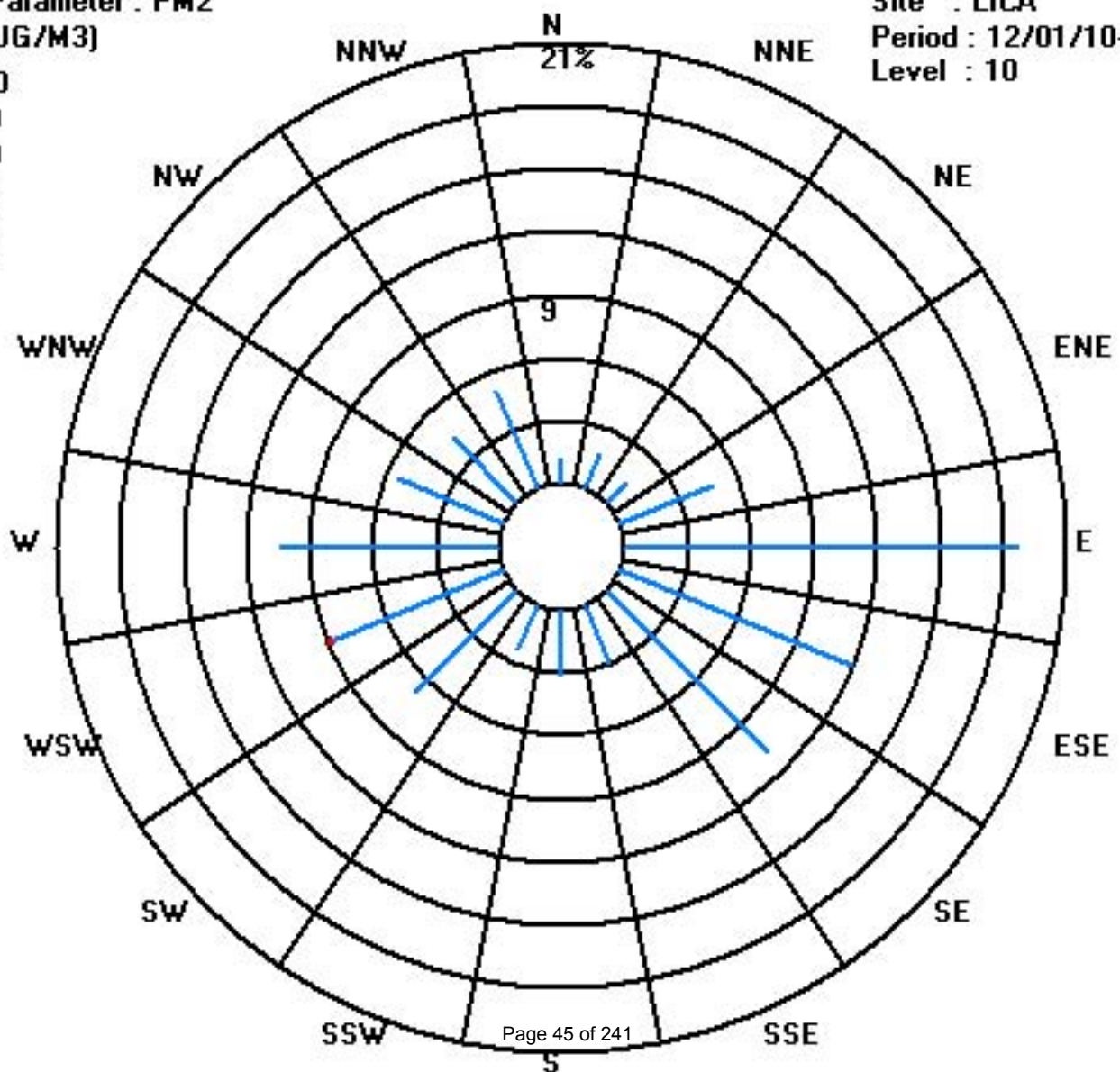
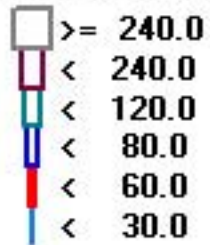
Total # Operational Hours : 736

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	9	13	10	35	138	88	80	22	23	17	50	65	76	40	32	37	735
< 60.0												1					1
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	9	13	10	35	138	88	80	22	23	17	50	66	76	40	32	37	

Calm : .00 %

Total # Operational Hours : 736



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

NITROGEN DIOXIDE hourly averages in ppb

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
DAY																												
1	IZS	4	3	3	5	5	5	4	3	2	2	2	2	1	2	3	5	7	5	3	2	2	3	IZS	7	3.3	24	
2	5	4	5	5	5	6	5	7	C	C	C	C	C	C	C	3	3	3	3	2	2	2	IZS	2	7	3.9	24	
3	2	2	3	3	2	2	3	4	5	5	6	5	4	6	11	C	4	6	7	4	4	4	IZS	2	2	11	4.2	24
4	2	2	1	1	1	2	2	3	3	4	4	4	5	6	8	11	11	13	13	13	IZS	15	15	12	15	6.6	24	
5	12	12	11	11	10	12	13	12	9	9	9	9	10	10	12	16	20	22	19	IZS	17	17	16	16	22	13.2	24	
6	17	16	14	14	15	15	14	16	16	20	22	19	17	20	20	25	28	29	IZS	27	24	21	20	21	29	19.6	24	
7	19	19	17	17	17	16	16	17	18	15	7	4	3	4	5	9	19	IZS	11	13	13	11	12	9	19	12.7	24	
8	6	5	4	4	4	4	5	4	5	6	6	8	5	3	4	5	IZS	4	4	5	8	6	4	5	8	5.0	24	
9	5	5	5	8	6	5	5	5	5	6	4	2	4	6	9	IZS	3	3	4	3	3	3	3	3	9	4.6	24	
10	1	1	1	1	1	0	1	1	1	2	2	2	2	3	IZS	1	1	2	4	5	4	3	2	2	5	1.9	24	
11	2	2	1	1	1	2	3	1	2	4	3	4	3	IZS	4	4	4	7	8	5	2	2	1	2	8	3.0	24	
12	2	3	2	1	2	2	1	2	3	3	2	2	IZS	3	3	4	3	3	3	3	3	2	2	2	4	2.4	24	
13	2	3	3	3	3	4	4	4	5	4	4	IZS	5	5	7	11	23	23	16	23	21	20	19	19	23	10.0	24	
14	19	20	20	21	18	5	5	4	5	3	IZS	3	4	6	5	6	6	5	6	6	6	5	4	3	21	8.0	24	
15	3	3	4	4	4	7	7	7	9	IZS	2	1	1	2	7	7	4	3	3	2	2	1	1	2	9	3.7	24	
16	2	2	2	3	4	5	10	17	IZS	21	18	20	14	9	4	6	7	11	16	12	5	2	2	2	21	8.4	24	
17	3	3	4	3	1	1	3	IZS	4	4	2	1	2	4	7	9	11	12	16	22	17	8	10	12	22	6.9	24	
18	14	15	14	14	14	15	IZS	16	17	13	12	7	6	7	7	6	4	3	4	3	2	2	4	5	17	8.9	24	
19	5	4	5	6	6	IZS	5	5	4	4	3	1	1	2	2	3	4	5	8	8	7	7	9	8	9	4.9	24	
20	6	5	6	8	IZS	9	14	15	20	10	4	5	8	11	8	9	15	11	11	14	19	21	21	16	21	11.6	24	
21	16	16	12	IZS	13	12	6	8	6	3	5	4	2	2	7	10	10	7	4	3	4	3	7	7	16	7.3	24	
22	9	9	IZS	7	9	8	9	12	16	13	9	9	5	9	6	9	9	8	10	9	10	9	5	4	16	8.8	24	
23	5	IZS	4	4	5	10	12	7	10	10	8	7	5	6	5	9	12	10	10	8	9	6	6	4	12	7.5	24	
24	IZS	3	4	4	4	3	4	4	4	3	2	2	3	2	3	3	2	3	3	3	3	2	2	IZS	4	3.0	24	
25	2	2	4	5	8	8	9	8	7	2	2	2	2	3	7	9	13	22	8	18	14	21	IZS	16	22	8.3	24	
26	15	16	15	13	12	11	13	8	11	9	6	5	5	4	7	8	12	10	10	7	7	IZS	1	3	16	9.0	24	
27	2	2	2	2	3	4	4	4	2	1	1	1	1	1	2	1	3	3	2	2	IZS	2	2	1	4	2.1	24	
28	2	3	3	4	4	5	7	9	12	11	7	6	5	4	6	6	5	2	2	IZS	1	2	1	1	12	4.7	24	
29	1	1	2	2	2	1	1	1	3	2	1	1	1	1	1	2	4	3	IZS	4	5	5	6	5	6	2.4	24	
30	4	6	6	6	5	6	7	8	9	6	7	8	5	5	5	7	11	IZS	11	11	11	8	8	9	11	7.3	24	
31	8	9	7	7	8	8	9	12	16	12	7	5	5	5	5	5	IZS	9	16	14	10	13	13	17	17	9.6	24	
HOURLY MAX	19	20	20	21	18	16	16	17	20	21	22	20	17	20	20	25	28	29	19	27	24	21	21	21				
HOURLY AVG	6.6	6.6	6.1	6.2	6.4	6.4	6.7	7.5	7.9	7.1	5.8	5.1	4.7	5.2	6.2	7.1	8.9	8.6	8.2	8.7	8.1	7.6	6.9	7.2				

STATUS FLAG CODES

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

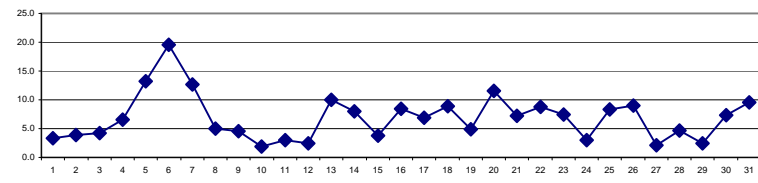
OBJECTIVE LIMIT:

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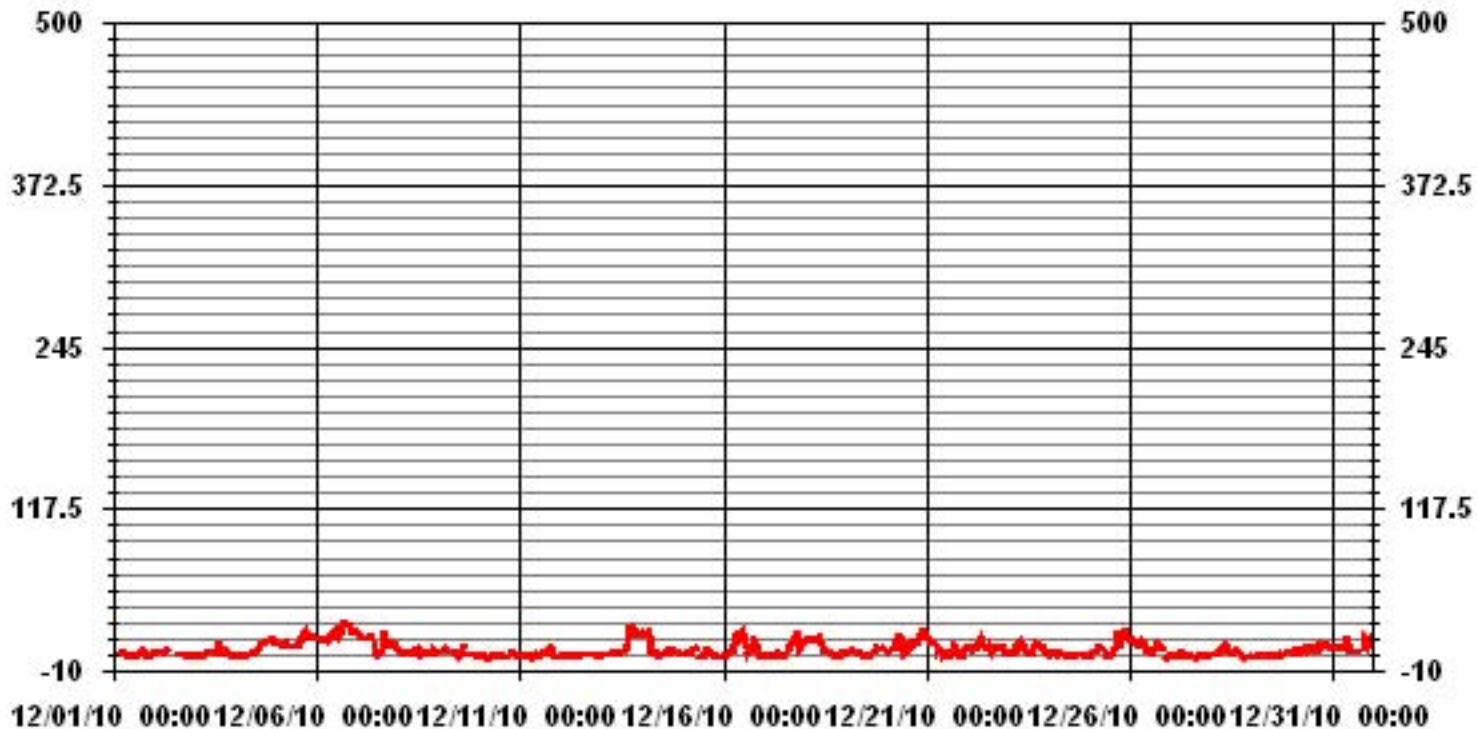
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	702		
MAXIMUM 1-HR AVERAGE:	29 PPB @ HOUR(S) 17 ON DAY(S) 6		
MAXIMUM 24-HR AVERAGE:	19.6 PPB ON DAY(S) 6		
IZS CALIBRATION TIME:	33 HRS	OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	8 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	5.48	MONTHLY AVERAGE:	6.90 PPB

24 HOUR AVERAGES FOR DECEMBER 2010



01 Hour Averages



— LICA H02_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

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	IZS	5	4	5	7	7	8	6	9	3	4	16	11	2	3	5	11	10	8	4	3	4	5	IZS	16	6.4	24	
2	7	5	6	6	8	8	7	9	C	C	C	C	C	C	5	5	7	9	5	5	3	IZS	3	9	6.1	24		
3	5	3	6	7	3	3	5	6	8	6	7	7	5	12	C	C	5	8	7	6	7	IZS	3	4	12	5.9	24	
4	2	3	3	2	2	2	3	4	4	5	4	5	8	7	11	15	15	16	15	15	IZS	19	19	17	19	8.5	24	
5	15	16	14	15	11	15	15	17	12	16	10	10	14	11	15	22	23	27	23	IZS	20	22	18	19	27	16.5	24	
6	21	19	17	16	17	18	17	20	21	32	31	34	30	26	23	28	36	35	IZS	36	32	25	23	31	36	25.6	24	
7	28	22	20	18	18	19	18	32	32	18	11	6	6	6	10	16	23	IZS	16	22	18	17	17	11	32	17.6	24	
8	10	6	5	6	6	6	7	7	8	33	33	32	11	5	6	10	IZS	8	6	7	9	8	8	5	33	10.5	24	
9	5	6	7	10	8	6	6	6	17	13	11	7	21	22	33	IZS	4	4	5	4	4	4	4	5	33	9.2	24	
10	2	1	2	2	2	1	2	3	4	5	4	3	6	9	IZS	2	2	5	11	9	7	5	4	3	11	4.1	24	
11	4	3	3	2	4	5	7	5	21	22	6	7	9	IZS	6	8	7	12	11	8	4	4	3	4	22	7.2	24	
12	4	5	3	3	3	4	3	4	5	5	5	3	IZS	4	5	5	5	5	4	4	8	4	4	3	8	4.3	24	
13	3	4	4	3	4	4	5	21	21	7	6	IZS	7	10	10	23	30	44	25	28	25	29	29	28	44	16.1	24	
14	22	25	23	25	24	6	6	6	7	4	IZS	6	8	8	14	12	19	8	8	8	8	7	5	4	25	11.4	24	
15	4	5	6	5	7	15	13	16	12	IZS	3	2	3	4	8	8	7	4	4	3	2	2	2	2	16	6.0	24	
16	2	5	7	7	5	13	15	21	IZS	35	23	25	26	20	7	9	8	18	19	17	9	3	3	4	35	13.1	24	
17	5	4	5	5	2	3	4	IZS	N	5	4	2	3	5	15	12	14	18	21	29	25	10	13	16	29	10.0	23	
18	16	20	15	15	16	17	IZS	18	23	21	30	9	9	9	10	7	6	4	5	6	3	4	7	13	30	12.3	24	
19	13	4	6	7	7	IZS	10	19	12	11	10	3	2	2	3	4	7	9	10	9	9	11	10	10	19	8.2	24	
20	9	9	10	15	IZS	18	21	24	26	24	5	6	15	28	18	15	20	17	15	18	25	32	32	19	32	18.3	24	
21	21	21	14	IZS	20	26	9	12	9	4	8	5	3	5	10	16	21	16	6	5	10	4	11	10	26	11.6	24	
22	11	12	IZS	10	12	20	17	23	29	18	13	15	10	16	12	22	30	11	14	12	18	14	7	5	30	15.3	24	
23	6	IZS	5	9	8	21	20	11	13	21	28	12	8	13	8	18	15	16	15	10	12	8	8	6	28	12.7	24	
24	IZS	5	5	5	6	5	5	5	9	6	5	7	5	4	12	15	4	5	4	6	4	3	4	4	IZS	15	5.9	24
25	2	3	8	8	13	11	14	13	15	4	3	3	4	7	15	20	22	29	18	29	23	26	IZS	21	29	13.5	24	
26	22	24	21	18	17	18	17	14	20	11	12	12	8	6	11	14	20	13	16	10	11	IZS	2	5	24	14.0	24	
27	4	3	3	3	4	5	6	5	4	2	2	1	2	2	3	3	4	5	4	3	3	IZS	3	3	2	6	3.3	24
28	3	4	5	6	6	7	10	11	19	18	8	8	8	7	7	6	3	3	IZS	3	2	2	1	19	6.7	24		
29	2	2	5	4	3	1	3	4	5	4	2	3	7	3	3	4	5	5	IZS	7	8	8	9	10	10	4.7	24	
30	6	10	8	8	6	8	8	10	14	8	9	10	7	9	8	8	14	IZS	13	13	13	10	9	10	14	9.5	24	
31	14	14	11	9	9	10	15	16	29	15	10	6	6	8	6	7	IZS	17	25	22	15	26	19	27	29	14.6	24	
HOURLY MAX	28	25	23	25	24	26	21	32	32	35	33	34	30	28	33	28	36	44	25	36	32	32	31					
HOURLY AVG	9.2	8.9	8.4	8.5	8.6	10.1	9.9	12.3	14.6	13.0	10.6	9.1	9.0	9.3	10.4	11.7	13.4	13.1	11.7	12.2	11.7	10.9	9.8	10.3				

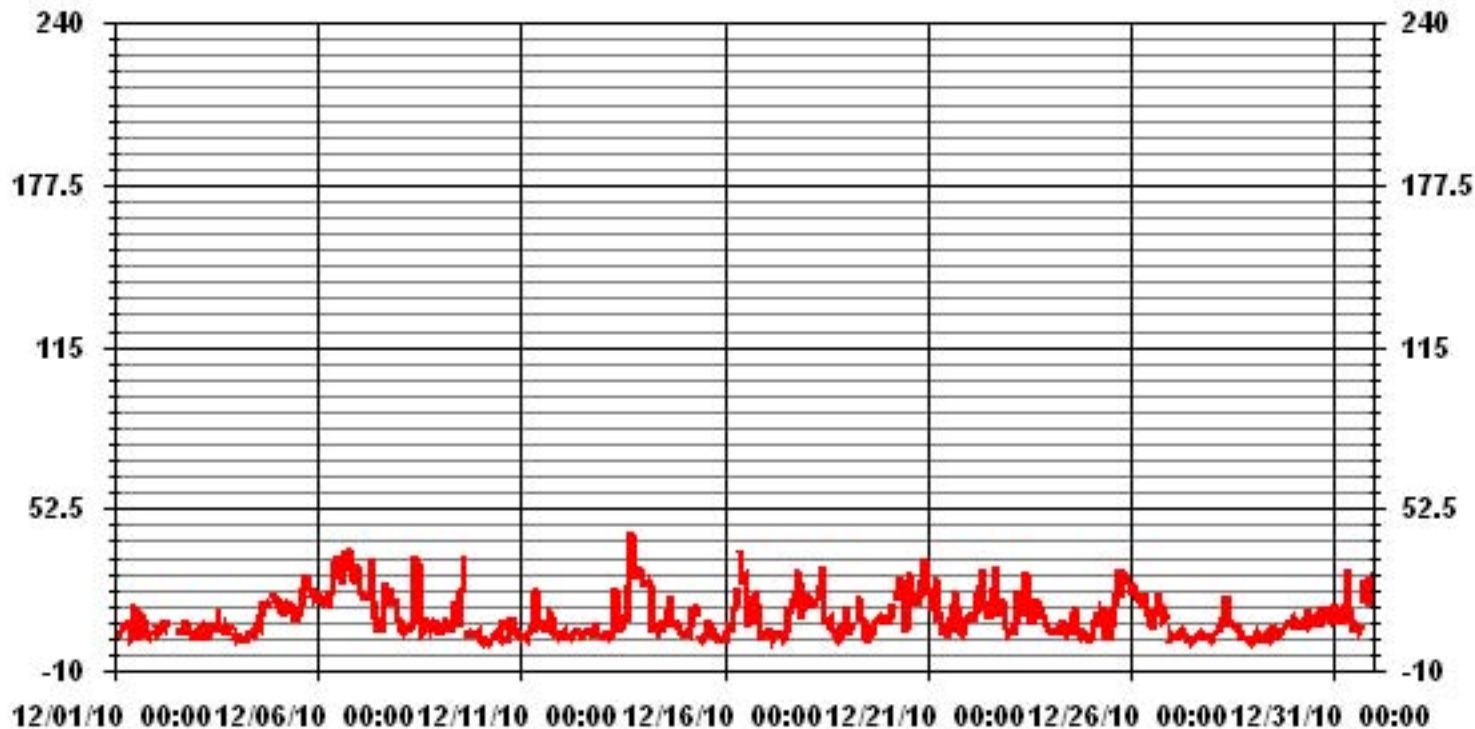
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	701					
MAXIMUM INSTANTANEOUS VALUE:	44	PPB	@ HOUR(S)	17	ON DAY(S)	13
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION	7.86					

01 Hour Averages



— LICA NO2MAX PPB

LICA
NO2_ / WD Joint Frequency Distribution (Percent)

December 2010

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	1.14	1.71	1.42	4.70	18.97	12.41	10.55	2.85	2.85	2.28	6.84	9.27	10.27	5.56	4.13	4.99	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.14	1.71	1.42	4.70	18.97	12.41	10.55	2.85	2.85	2.28	6.84	9.27	10.27	5.56	4.13	4.99	

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	8	12	10	33	133	87	74	20	20	16	48	65	72	39	29	35	701
< 110																	
< 210																	
>= 210																	
Totals	8	12	10	33	133	87	74	20	20	16	48	65	72	39	29	35	

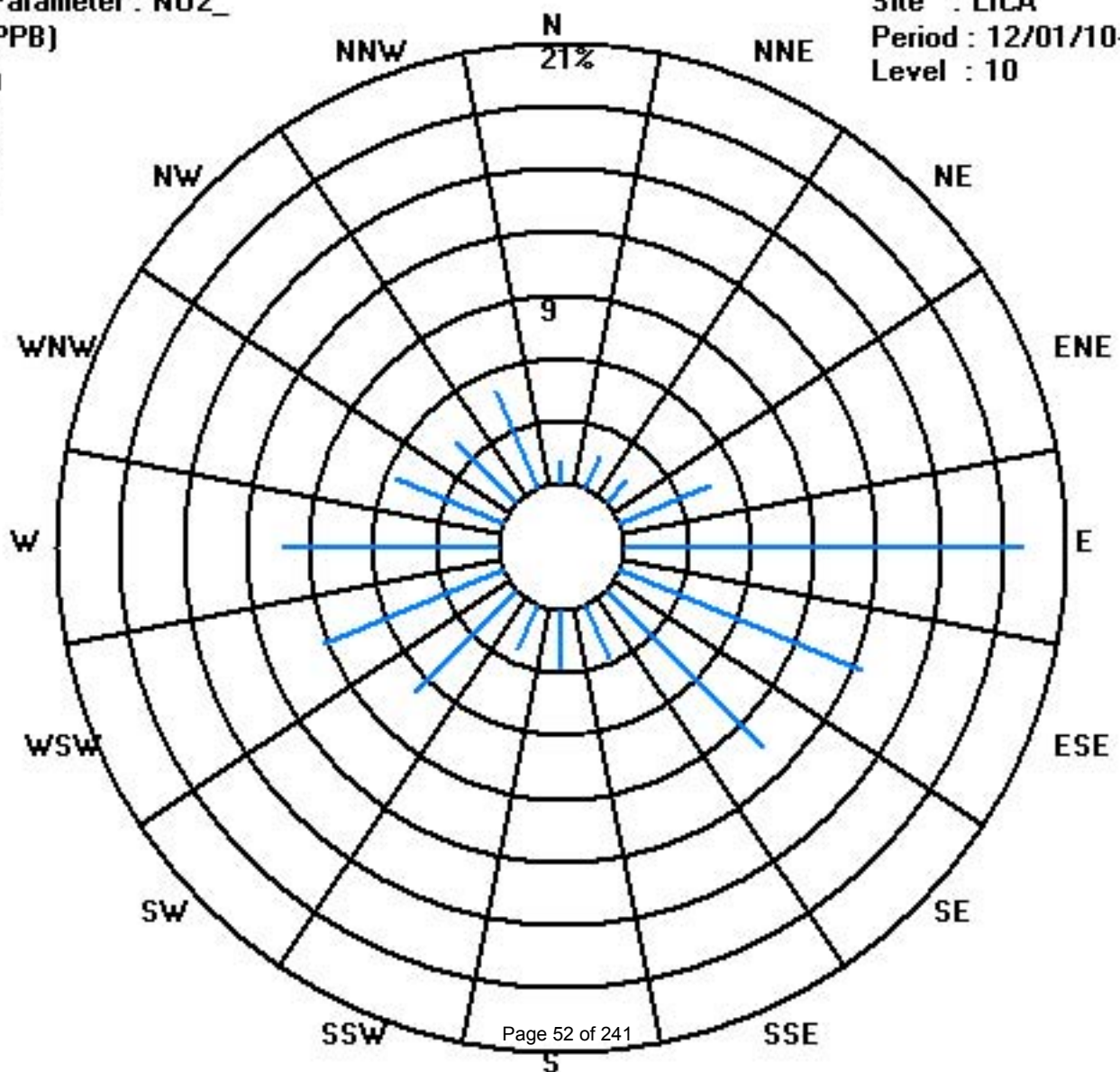
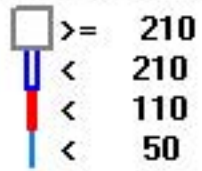
Calm : .00 %

Total # Operational Hours : 701

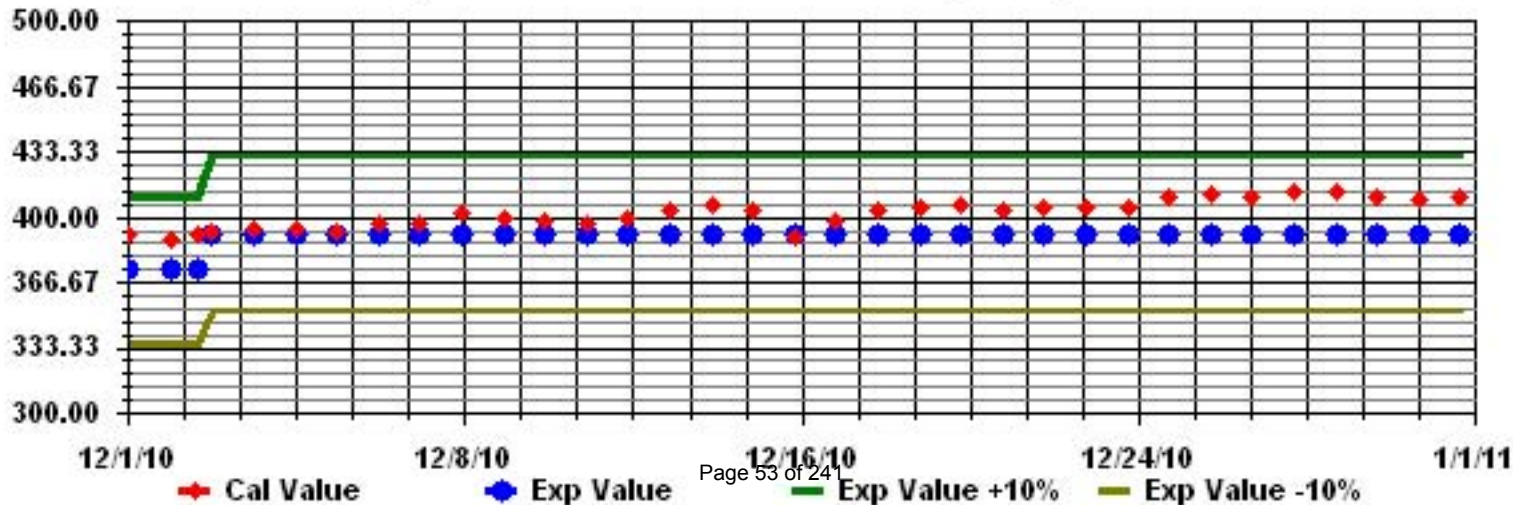
Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

NITRIC OXIDE hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	24
2	0	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	IZS	0	0	0.0	24
3	0	0	0	0	0	0	0	0	0	0	1	1	1	2	5	C	0	0	0	0	0	0	IZS	0	0	5	0.5	24
4	0	0	0	0	0	0	0	0	0	0	0	1	2	3	2	1	0	0	0	0	0	IZS	0	1	2	3	0.5	24
5	0	0	0	0	0	0	0	1	1	5	4	5	6	4	3	2	6	3	IZS	3	3	1	2	6	2.3	24	24	
6	5	5	1	2	4	3	6	17	26	53	54	31	18	19	14	14	23	37	IZS	73	58	44	36	39	73	25.3	24	
7	36	31	28	24	27	25	23	42	48	32	4	2	1	2	2	3	12	IZS	2	4	3	2	3	1	48	15.5	24	
8	0	0	0	0	0	0	0	0	0	1	2	6	2	1	1	0	IZS	0	0	0	0	0	0	0	0	6	0.6	24
9	0	0	0	0	0	0	0	0	1	3	2	2	4	8	13	IZS	0	0	0	0	0	0	0	0	13	1.4	24	
10	0	0	0	0	0	0	0	0	0	0	1	0	0	1	IZS	0	0	0	0	0	0	0	0	0	1	0.1	24	
11	0	0	0	0	0	0	0	0	0	1	1	2	1	IZS	1	1	1	1	1	0	0	0	0	0	2	0.4	24	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	0	0	0	0	0	0	0	0	1	0.1	24	
13	0	0	0	0	0	0	0	0	0	0	1	IZS	2	2	2	2	19	26	5	13	16	13	12	11	26	5.4	24	
14	16	21	15	11	7	0	0	0	0	0	IZS	1	1	1	0	1	1	0	0	0	0	0	0	0	21	3.3	24	
15	0	0	0	0	0	1	0	0	0	IZS	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0.1	24	
16	0	0	0	0	0	0	1	6	IZS	33	30	26	11	6	1	0	0	0	0	0	0	0	0	0	33	5.0	24	
17	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	3	1	0	0	0	3	2	0	0	0	3	0.4	24	
18	0	1	0	0	0	1	IZS	5	8	11	16	2	2	2	1	0	0	0	0	0	0	0	0	0	16	2.1	24	
19	0	0	0	0	0	IZS	0	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
20	0	0	0	0	IZS	0	0	1	6	3	1	2	5	9	4	2	2	2	1	1	3	6	9	1	9	2.5	24	
21	2	3	1	IZS	2	2	1	0	0	0	2	1	1	1	2	1	1	1	0	0	0	0	0	0	3	0.9	24	
22	1	1	IZS	0	0	1	1	2	5	4	5	6	3	6	2	4	1	1	1	1	1	1	0	0	6	2.0	24	
23	0	IZS	0	0	0	2	1	0	0	3	3	4	2	2	1	2	1	1	2	0	1	0	0	0	4	1.1	24	
24	IZS	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	IZS	1	0.1	24
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	3	0	2	IZS	0	3	0.3	24	
26	0	1	0	0	1	1	1	0	1	1	2	2	1	1	1	0	1	0	0	0	0	0	IZS	0	2	0.6	24	
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0.0	24
28	0	0	0	0	0	0	0	0	5	10	4	4	3	2	2	0	0	0	0	0	IZS	0	0	0	0	10	1.3	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0.0	24
30	0	0	0	0	0	0	0	0	0	1	2	4	3	2	1	1	0	0	IZS	0	0	0	0	0	0	4	0.6	24
31	0	0	0	0	0	0	0	0	4	3	2	2	2	2	1	0	IZS	0	0	1	0	1	0	2	4	0.9	24	
HOURLY MAX	36	31	28	24	27	25	23	42	48	53	54	31	18	19	14	14	23	37	5	73	58	44	36	39				
HOURLY AVG	2.1	2.1	1.5	1.2	1.4	1.2	1.1	2.5	3.7	5.7	4.8	3.6	2.4	2.7	2.2	1.3	2.2	2.6	0.5	3.4	3.0	2.5	2.1	2.0				

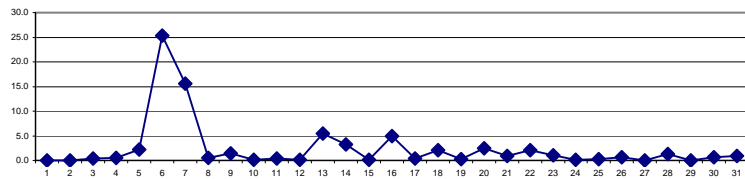
STATUS FLAG CODES

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

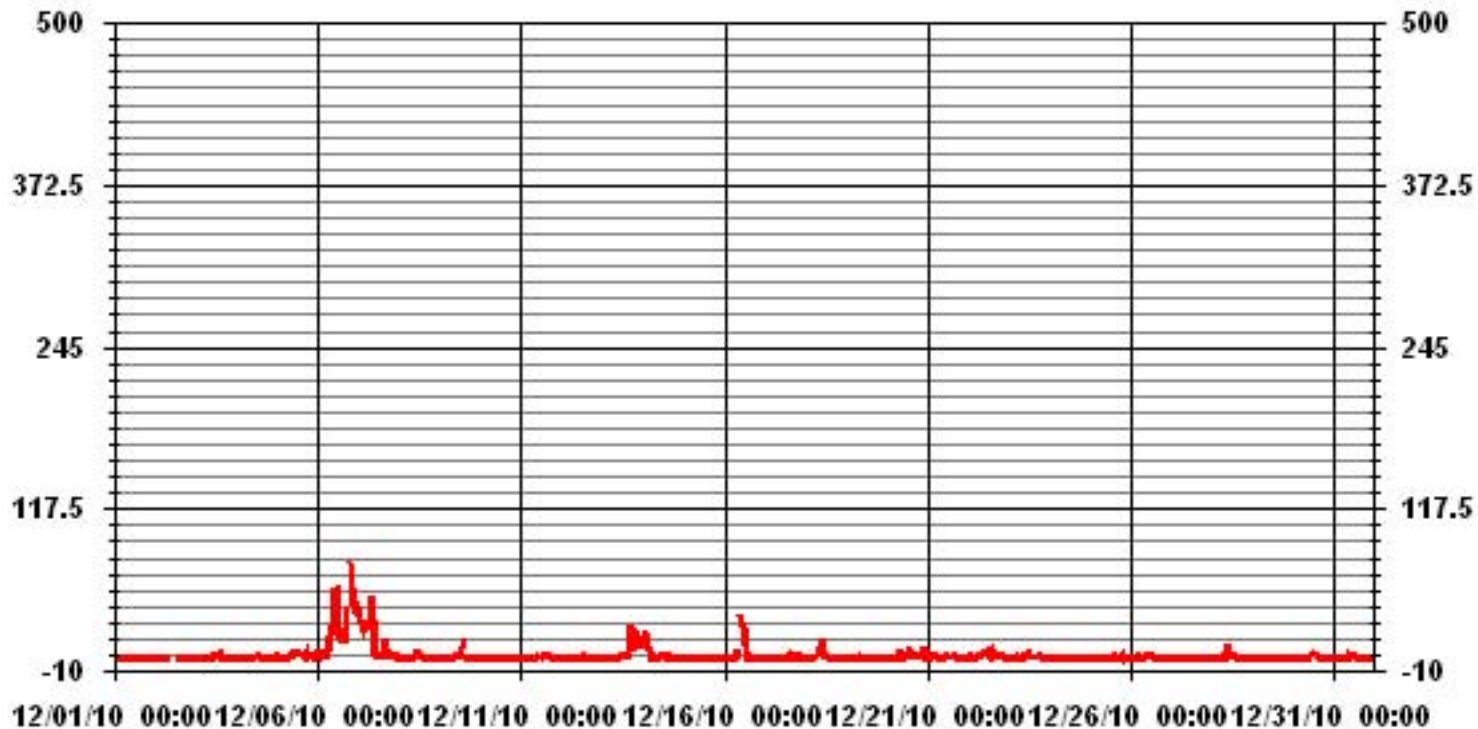
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	257					
MAXIMUM 1-HR AVERAGE:	73	PPB	@ HOUR(S)	19	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	25.3	PPB			ON DAY(S)	6
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	7.43		MONTHLY AVERAGE:	2.41	PPB	

24 HOUR AVERAGES FOR DECEMBER 2010



01 Hour Averages



— LICA NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

NITRIC OXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	IZS	2	1	1	1	1	1	1	6	0	0	0	7	2	4	5	2	3	5	5	0	0	0	IZS	7	2.1	24	
2	1	0	0	0	0	1	0	0	C	C	C	C	C	C	C	3	2	8	8	9	0	0	IZS	0	9	2.0	24	
3	1	0	0	0	0	0	1	2	2	1	2	2	2	6	C	C	5	0	0	0	3	IZS	1	2	6	1.4	24	
4	0	0	0	0	1	0	0	0	0	1	1	2	5	4	3	8	6	1	1	3	IZS	5	9	15	15	2.8	24	
5	4	1	3	3	0	2	2	7	8	20	4	6	12	6	4	4	9	14	11	IZS	8	11	4	6	20	6.5	24	
6	14	8	4	5	8	5	19	37	48	100	83	86	24	33	24	23	61	53	IZS	132	82	53	63	63	132	44.7	24	
7	56	37	38	28	31	34	28	91	63	48	8	4	4	3	10	29	IZS	4	10	6	6	11	2	91	24.4	24		
8	1	1	1	1	1	1	1	7	2	23	21	48	7	7	9	7	IZS	3	1	0	0	0	1	0	48	6.2	24	
9	2	0	0	0	0	0	0	0	16	10	9	14	26	28	44	IZS	0	0	0	0	0	0	0	1	44	6.5	24	
10	0	0	0	0	0	0	0	1	3	1	2	2	1	14	IZS	0	0	1	5	3	1	0	0	0	14	1.5	24	
11	0	1	1	0	1	0	0	6	5	3	4	7	IZS	7	5	9	12	3	4	4	1	3	0	12	3.3	24		
12	0	1	1	0	0	1	1	1	1	1	1	1	IZS	6	7	2	1	1	1	3	4	0	0	0	7	1.5	24	
13	0	0	0	0	0	0	0	23	24	2	3	IZS	4	4	3	13	45	54	21	24	57	37	30	18	57	15.7	24	
14	23	36	20	20	16	0	2	2	1	0	IZS	19	2	3	3	4	11	2	1	1	1	1	1	0	36	7.3	24	
15	1	0	1	1	3	6	4	2	2	IZS	0	0	0	0	1	1	5	0	0	0	0	0	0	0	6	1.2	24	
16	0	2	4	1	1	2	3	19	IZS	78	47	45	18	15	2	1	0	2	3	2	0	0	0	0	78	10.7	24	
17	0	0	0	0	0	0	1	IZS	N	1	1	0	0	7	11	4	2	3	3	15	7	2	3	4	15	2.9	23	
18	3	9	0	0	1	3	IZS	11	21	17	51	4	4	3	4	0	0	0	0	0	0	0	0	3	51	5.8	24	
19	4	0	0	0	0	IZS	4	7	5	6	4	8	0	0	0	0	1	1	1	0	0	3	1	0	8	2.0	24	
20	0	0	1	0	IZS	4	3	20	35	18	5	8	11	23	9	5	5	14	2	4	9	27	27	6	35	10.3	24	
21	7	9	3	IZS	6	10	3	1	4	0	4	2	3	3	3	3	20	5	4	1	3	1	3	1	20	4.3	24	
22	4	4	IZS	1	2	12	5	9	19	7	8	13	17	18	9	28	5	2	3	3	12	4	0	1	28	8.1	24	
23	1	IZS	1	2	1	6	5	3	4	24	8	26	4	7	6	12	1	15	4	3	5	1	1	1	26	6.1	24	
24	IZS	1	3	1	1	1	1	0	3	1	5	18	3	11	2	32	11	3	14	1	1	0	1	IZS	32	5.2	24	
25	0	0	1	1	3	2	3	0	4	0	0	0	1	2	4	8	3	6	4	15	4	7	IZS	4	15	3.1	24	
26	5	3	3	3	4	5	4	7	5	3	5	6	3	4	4	2	9	2	2	1	1	IZS	0	2	9	3.6	24	
27	0	0	0	0	1	1	0	1	0	0	0	0	1	1	1	1	1	1	0	0	IZS	0	1	0	1	0.4	24	
28	1	2	1	1	0	1	5	3	12	43	7	6	5	3	4	1	1	0	0	IZS	0	0	0	0	43	4.2	24	
29	0	0	0	0	0	1	2	0	1	0	1	1	2	0	2	1	2	3	IZS	3	2	4	3	3	4	1.3	24	
30	0	2	4	1	0	2	1	3	1	1	4	7	5	4	3	4	1	IZS	0	0	1	0	1	0	7	2.0	24	
31	2	4	1	1	0	0	1	2	38	7	4	3	3	3	3	5	IZS	7	5	9	19	9	4	16	38	6.3	24	
HOURLY MAX	56	37	38	28	31	34	28	91	63	100	83	86	26	33	44	32	61	54	21	132	82	53	63	63				
HOURLY AVG	4.5	4.1	3.1	2.4	2.7	3.4	3.3	8.7	11.9	14.4	10.0	11.6	6.2	7.6	6.6	6.6	8.5	7.4	3.7	8.7	7.9	5.9	5.8	5.1				

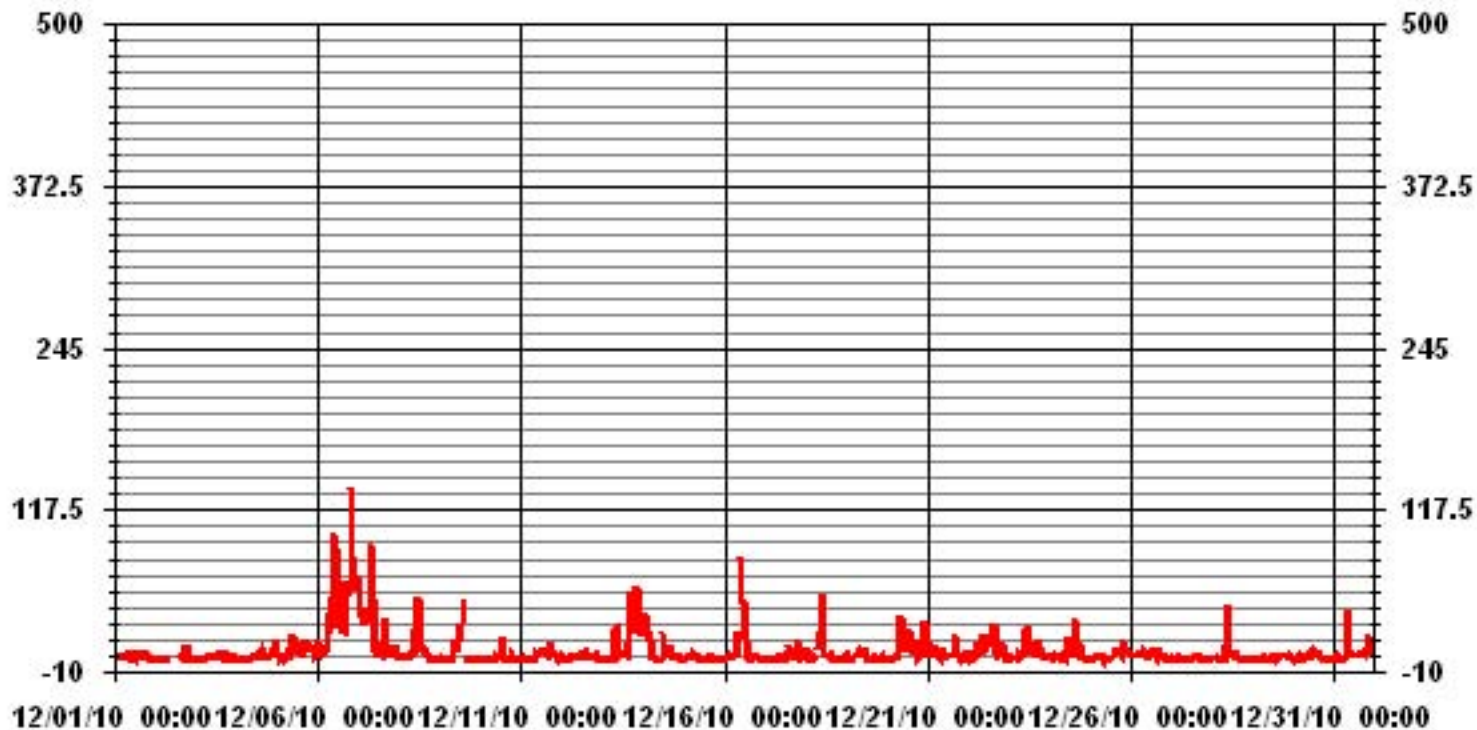
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	520					
MAXIMUM INSTANTANEOUS VALUE:	132	PPB	@ HOUR(S)	19	ON DAY(S)	6
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION	13.54					

01 Hour Averages



LICA
 NO_ / WD Joint Frequency Distribution (Percent)

December 2010

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	1.14	1.71	1.42	4.70	18.83	12.26	10.55	2.85	2.85	2.28	6.84	9.27	9.98	5.56	4.13	4.99	99.42	
< 110	.00	.00	.00	.00	.14	.14	.00	.00	.00	.00	.00	.00	.28	.00	.00	.00	.57	
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	1.14	1.71	1.42	4.70	18.97	12.41	10.55	2.85	2.85	2.28	6.84	9.27	10.27	5.56	4.13	4.99		

Calm : .00 %

Total # Operational Hours : 701

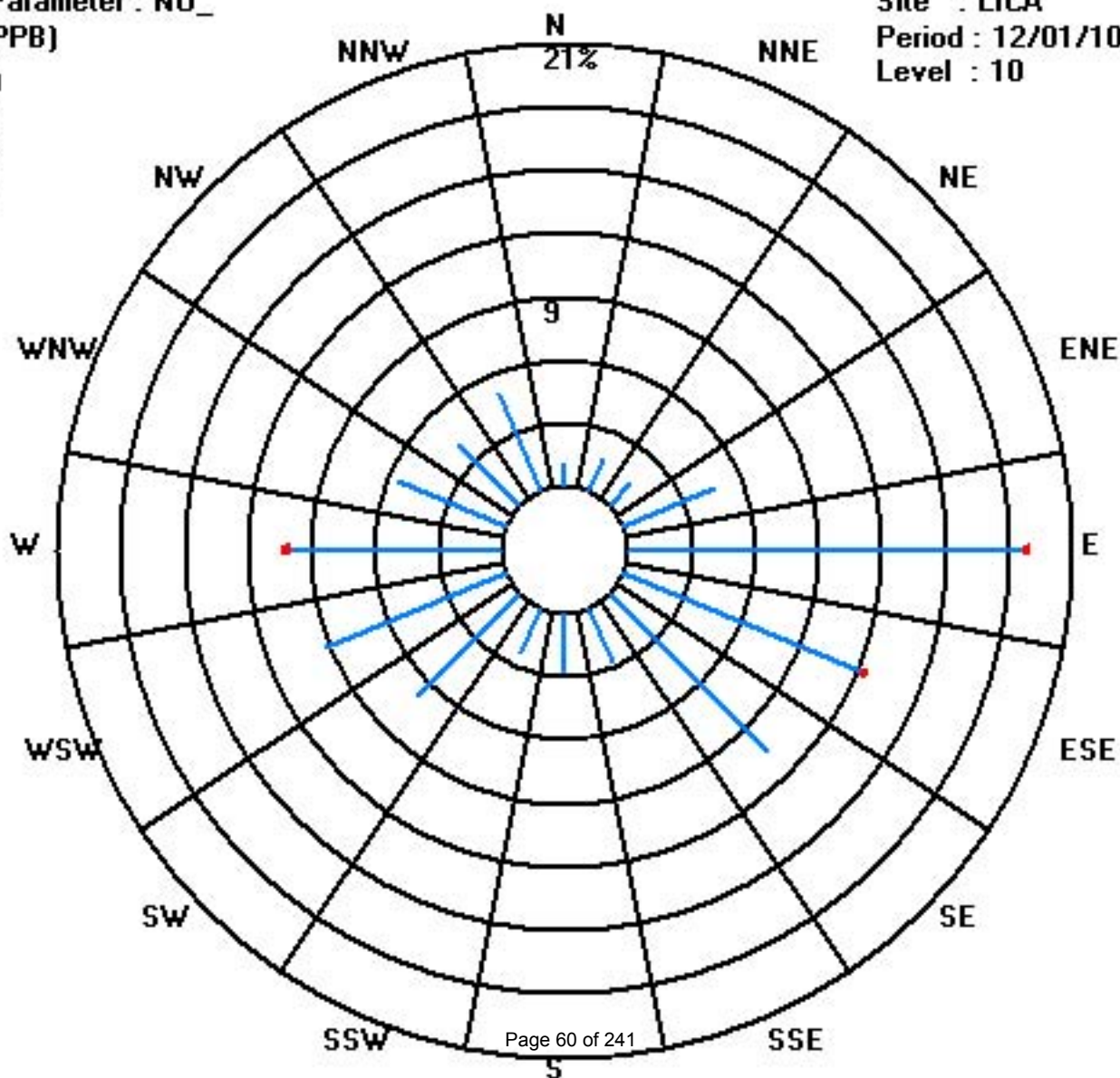
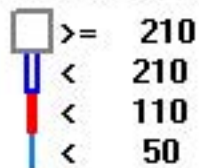
Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50	8	12	10	33	132	86	74	20	20	16	48	65	70	39	29	35	697	
< 110					1	1							2				4	
< 210																		
>= 210																		
Totals	8	12	10	33	133	87	74	20	20	16	48	65	72	39	29	35		

Calm : .00 %

Total # Operational Hours : 701

Class Limits (PPB)



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

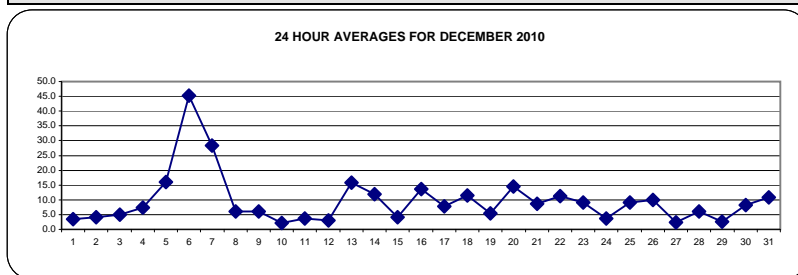
OXIDES OF NITROGEN hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	IZS	4	3	3	5	5	6	4	4	2	2	2	2	2	3	6	7	5	3	2	2	3	IZS	7	3.5	24		
2	5	4	5	5	5	6	6	7	C	C	C	C	C	C	3	3	4	3	3	2	2	IZS	2	7	4.1	24		
3	2	2	3	3	2	2	4	4	6	5	8	7	6	9	16	C	4	5	7	4	5	IZS	2	2	16	4.9	24	
4	2	2	1	1	1	2	2	3	3	5	5	5	7	9	10	12	12	14	14	14	IZS	16	16	14	16	7.4	24	
5	13	13	12	12	10	13	13	13	11	15	13	14	16	15	16	19	23	28	23	IZS	21	20	18	18	28	16.0	24	
6	22	21	16	17	19	18	21	33	42	73	76	51	36	39	34	39	52	66	IZS	100	83	66	56	60	100	45.2	24	
7	55	50	45	42	44	42	39	59	66	47	11	6	5	6	7	13	31	IZS	13	17	16	13	16	11	66	28.4	24	
8	6	5	5	5	5	5	6	5	6	8	8	14	7	4	6	6	IZS	4	5	5	8	6	5	5	14	6.0	24	
9	5	5	5	8	6	5	5	5	6	10	6	4	8	14	23	IZS	3	3	4	3	3	3	3	3	23	6.1	24	
10	1	1	1	1	1	0	1	2	2	3	3	3	2	4	IZS	1	1	2	4	5	5	3	3	2	5	2.2	24	
11	2	2	1	1	2	2	4	2	2	6	4	6	4	IZS	5	5	5	9	9	5	2	2	2	2	9	3.7	24	
12	2	4	2	2	2	2	1	3	4	4	2	3	IZS	4	4	4	4	4	3	3	4	3	3	2	4	3.0	24	
13	2	3	3	3	3	3	4	5	6	5	6	IZS	7	7	9	13	43	50	22	36	38	34	31	30	50	15.8	24	
14	35	42	36	33	25	5	5	4	5	4	IZS	4	6	8	6	8	7	6	7	6	7	6	4	4	42	11.9	24	
15	3	3	4	4	5	8	7	8	10	IZS	2	1	2	3	8	8	5	3	3	2	2	1	1	2	10	4.1	24	
16	1	2	3	4	4	5	11	23	IZS	54	48	46	25	16	5	7	12	16	13	5	2	2	2	2	54	13.6	24	
17	3	3	4	3	1	1	3	IZS	5	5	3	2	2	6	11	11	11	13	17	26	19	9	10	12	26	7.8	24	
18	15	16	14	14	15	17	IZS	22	26	24	28	10	9	9	9	7	4	3	4	3	2	2	4	5	28	11.4	24	
19	5	4	5	6	6	IZS	6	7	6	6	4	2	2	2	2	4	4	6	8	8	7	7	9	8	9	5.4	24	
20	6	5	6	8	IZS	9	15	17	27	14	5	8	14	20	12	12	17	14	12	16	23	27	30	18	30	14.6	24	
21	18	19	13	IZS	15	15	8	9	7	3	7	5	3	3	8	12	12	8	5	3	5	4	8	8	19	8.6	24	
22	10	10	IZS	7	10	9	11	14	21	17	14	16	9	15	9	13	11	9	11	10	12	11	5	5	21	11.3	24	
23	5	IZS	4	5	6	12	13	8	11	14	11	12	8	8	7	11	13	12	13	8	11	6	6	4	14	9.0	24	
24	IZS	4	4	4	5	3	4	4	5	4	3	4	3	3	4	4	3	4	3	3	3	3	3	3	IZS	5	3.6	24
25	2	2	5	6	8	9	10	8	8	2	2	2	3	4	9	10	13	23	8	21	15	23	IZS	17	23	9.1	24	
26	16	17	16	14	13	12	14	8	12	10	8	8	7	6	8	9	13	10	10	7	7	IZS	1	3	17	10.0	24	
27	2	2	2	2	3	4	5	4	2	1	1	1	1	2	2	2	3	3	3	3	IZS	2	2	2	5	2.3	24	
28	2	3	3	4	4	6	8	9	17	22	11	10	8	6	7	7	5	2	2	IZS	1	2	1	1	22	6.1	24	
29	1	1	2	2	1	0	1	2	3	2	2	2	2	1	2	3	4	4	IZS	5	5	6	6	5	6	2.7	24	
30	4	7	7	6	5	6	7	9	9	7	9	13	8	8	7	8	11	IZS	11	11	11	8	8	8	13	8.2	24	
31	8	10	8	8	8	8	9	13	20	15	9	7	7	7	7	6	IZS	9	17	15	11	15	14	19	20	10.9	24	
HOURLY MAX	55	50	45	42	44	42	39	59	66	73	76	51	36	39	34	39	52	66	23	100	83	66	56	60				
HOURLY AVG	8.7	8.9	7.9	7.8	8.0	7.8	8.3	10.5	12.1	13.3	10.7	9.2	7.6	8.3	8.8	9.0	11.4	11.6	9.0	12.3	11.6	10.5	9.4	9.4				

STATUS FLAG CODES

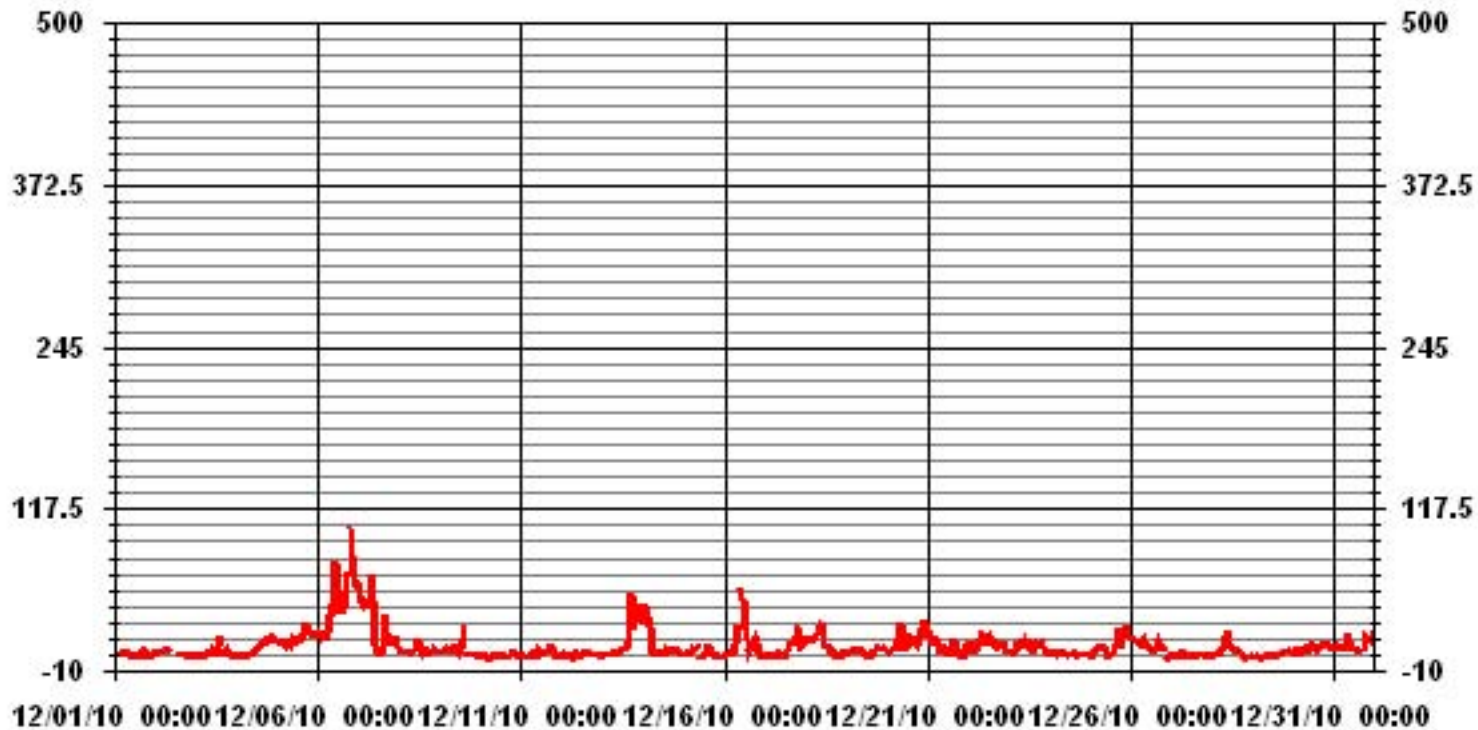
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	701					
MAXIMUM 1-HR AVERAGE:	100	PPB	@ HOUR(S)	19	ON DAY(S)	6
MAXIMUM 24-HR AVERAGE:	45.2	PPB			ON DAY(S)	6
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	11.66		MONTHLY AVERAGE:	9.66	PPB	

01 Hour Averages



— LICA NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

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	IZS	7	6	6	8	9	9	7	13	4	5	16	17	3	6	8	12	11	11	7	4	4	5	IZS	17	8.1	24
2	8	5	6	6	9	9	7	11	C	C	C	C	C	C	8	8	9	13	11	6	3	IZS	3	13	7.6	24	
3	6	4	6	8	3	3	6	7	9	7	10	9	8	18	C	C	7	8	7	7	8	IZS	4	4	18	7.1	24
4	3	3	3	2	3	2	3	4	4	6	6	8	11	11	14	23	21	17	17	17	IZS	24	25	28	28	11.1	24
5	18	17	17	19	12	17	17	24	19	34	14	17	26	17	18	27	30	38	35	IZS	28	30	21	24	38	22.6	24
6	35	27	20	21	24	23	35	58	68	128	114	118	50	58	47	51	86	89	IZS	158	112	78	77	92	158	68.2	24
7	80	59	58	46	49	52	45	118	85	65	20	10	11	9	20	24	51	IZS	21	33	24	24	27	13	118	41.0	24
8	10	8	6	7	7	7	8	10	10	54	49	46	20	12	11	17	IZS	12	7	8	10	9	9	6	54	14.9	24
9	6	6	7	11	8	6	6	6	29	23	21	21	45	45	68	IZS	4	4	6	4	4	5	4	6	68	15.0	24
10	3	2	2	2	2	2	2	4	8	6	6	6	8	23	IZS	3	3	6	17	12	8	6	4	4	23	6.0	24
11	5	4	4	2	5	6	8	6	28	26	8	11	13	IZS	9	10	14	17	14	11	7	5	6	5	28	9.7	24
12	5	5	5	3	4	5	4	5	7	6	6	5	IZS	9	10	7	6	6	5	6	13	5	4	3	13	5.8	24
13	3	5	4	4	4	4	5	43	43	10	9	IZS	11	14	13	31	75	97	45	49	75	66	56	44	97	30.9	24
14	44	58	43	45	39	7	8	8	7	5	IZS	19	11	10	16	17	28	10	8	9	9	8	6	5	58	18.3	24
15	5	5	7	6	9	20	17	19	14	IZS	3	2	4	4	10	9	11	4	4	3	3	2	2	2	20	7.2	24
16	2	6	10	9	6	16	19	40	IZS	111	68	70	44	34	9	11	9	21	22	18	9	3	3	4	111	23.7	24
17	5	5	5	6	2	3	5	IZS	N	7	5	3	5	13	25	14	15	19	23	44	31	11	14	18	44	12.6	23
18	18	27	16	17	17	20	IZS	27	41	35	81	14	14	11	12	8	7	4	5	7	3	4	8	17	81	18.0	24
19	17	5	6	7	7	IZS	13	24	17	16	13	11	3	3	5	7	10	10	9	9	13	11	10	24	10.0	24	
20	9	9	11	16	IZS	23	25	39	60	43	9	11	27	45	24	18	23	31	17	22	34	55	55	25	60	27.4	24
21	27	27	18	IZS	27	36	12	14	11	5	13	7	6	7	13	19	25	21	11	6	13	5	14	11	36	15.1	24
22	16	15	IZS	12	14	32	22	32	48	25	21	29	23	30	19	50	35	13	16	13	29	16	8	6	50	22.8	24
23	7	IZS	7	10	9	28	25	13	14	45	35	18	12	17	13	24	16	31	19	13	17	8	9	6	45	17.2	24
24	IZS	6	6	6	8	6	6	6	11	7	10	19	8	6	14	33	7	6	7	8	5	5	6	IZS	33	8.9	24
25	3	4	9	9	17	13	15	14	18	4	3	4	6	9	19	29	23	34	22	39	27	33	IZS	26	39	16.5	24
26	25	27	23	20	20	23	21	22	25	13	17	18	11	9	14	16	23	13	18	10	11	IZS	1	6	27	16.8	24
27	4	3	3	3	4	5	7	7	5	2	2	1	3	3	4	3	4	5	4	3	IZS	4	3	3	7	3.7	24
28	3	7	6	6	6	8	14	14	31	49	14	14	14	9	9	8	3	3	IZS	3	2	2	2	1	49	10.2	24
29	2	2	5	5	4	2	4	5	5	5	3	4	9	4	4	5	6	8	IZS	9	11	12	10	12	12	5.9	24
30	7	12	10	9	6	9	9	12	16	10	13	16	12	13	11	10	15	IZS	14	13	14	10	9	11	16	11.3	24
31	16	17	12	10	10	10	17	18	66	22	15	9	9	12	8	11	IZS	21	28	31	20	35	22	41	66	20.0	24
HOURLY MAX	80	59	58	46	49	52	45	118	85	128	114	118	50	58	68	51	86	97	45	158	112	78	77	92			
HOURLY AVG	13.5	12.9	11.4	11.1	11.4	13.5	13.1	20.6	25.4	26.7	20.4	18.5	15.2	15.8	15.8	17.2	20.0	19.6	14.8	20.0	18.9	16.7	14.7	15.0			

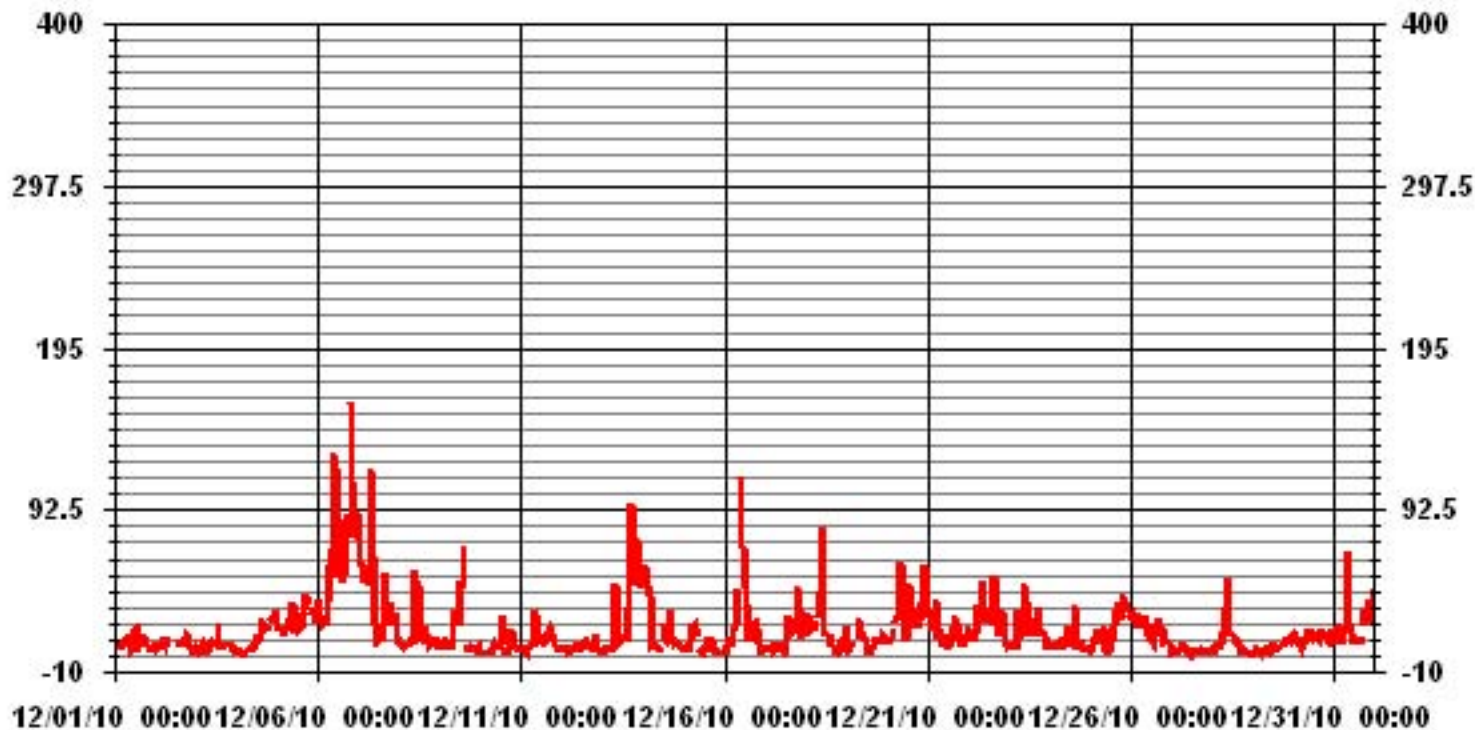
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	701					
MAXIMUM INSTANTANEOUS VALUE:	158	PPB	@ HOUR(S)	19	ON DAY(S)	6
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION	18.88					

01 Hour Averages



— LICA NOXMAX PPB

LICA
 NOX_ / WD Joint Frequency Distribution (Percent)

December 2010

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	1.14	1.71	1.42	4.56	18.54	11.98	10.27	2.85	2.71	2.28	6.70	8.98	9.84	5.56	4.13	4.99	97.71
< 110	.00	.00	.00	.14	.42	.42	.28	.00	.14	.00	.14	.28	.42	.00	.00	.00	2.28
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.14	1.71	1.42	4.70	18.97	12.41	10.55	2.85	2.85	2.28	6.84	9.27	10.27	5.56	4.13	4.99	

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	8	12	10	32	130	84	72	20	19	16	47	63	69	39	29	35	685
< 110				1	3	3	2		1		1	2	3				16
< 210																	
>= 210																	
Totals	8	12	10	33	133	87	74	20	20	16	48	65	72	39	29	35	

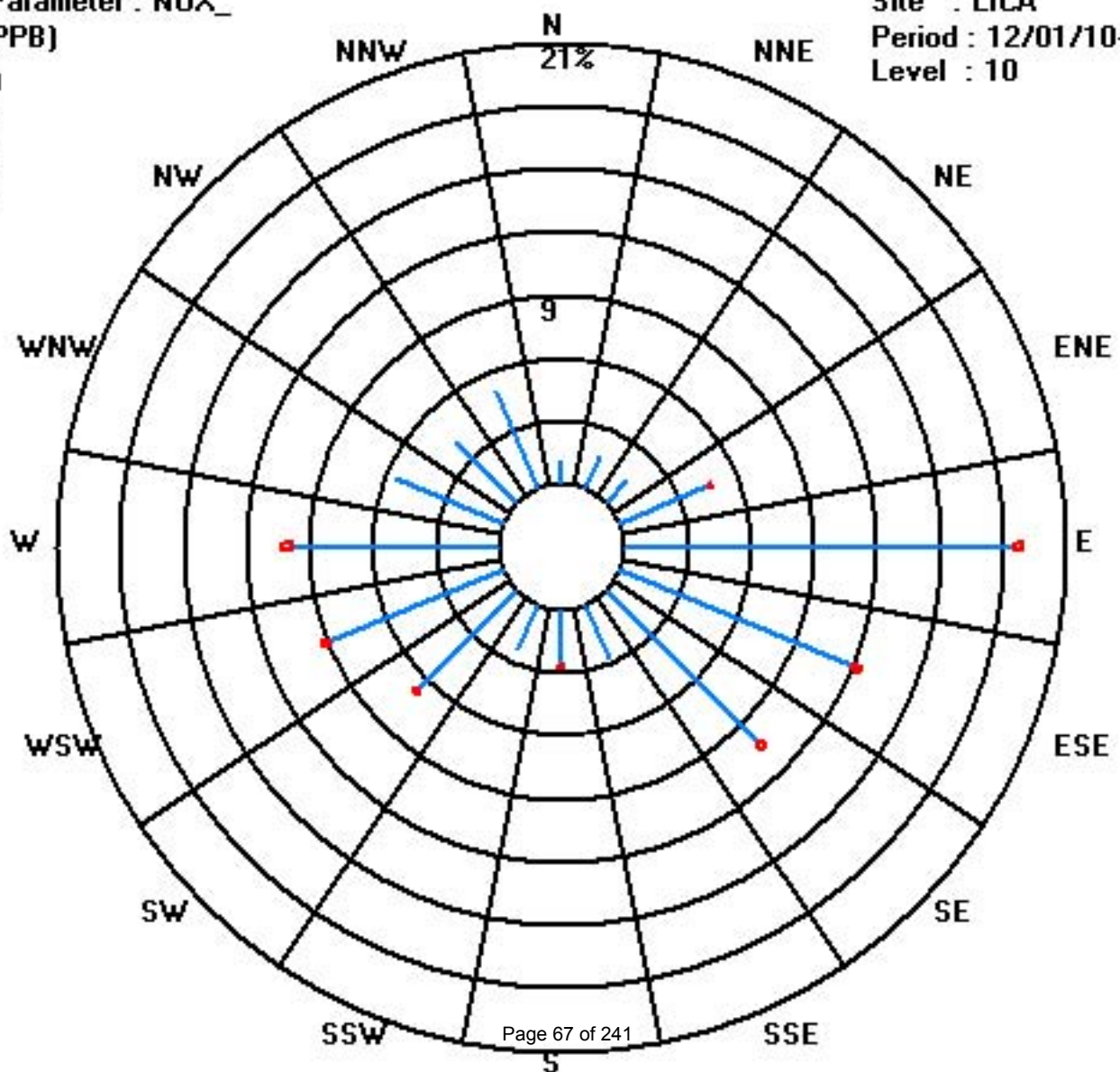
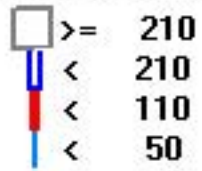
Calm : .00 %

Total # Operational Hours : 701

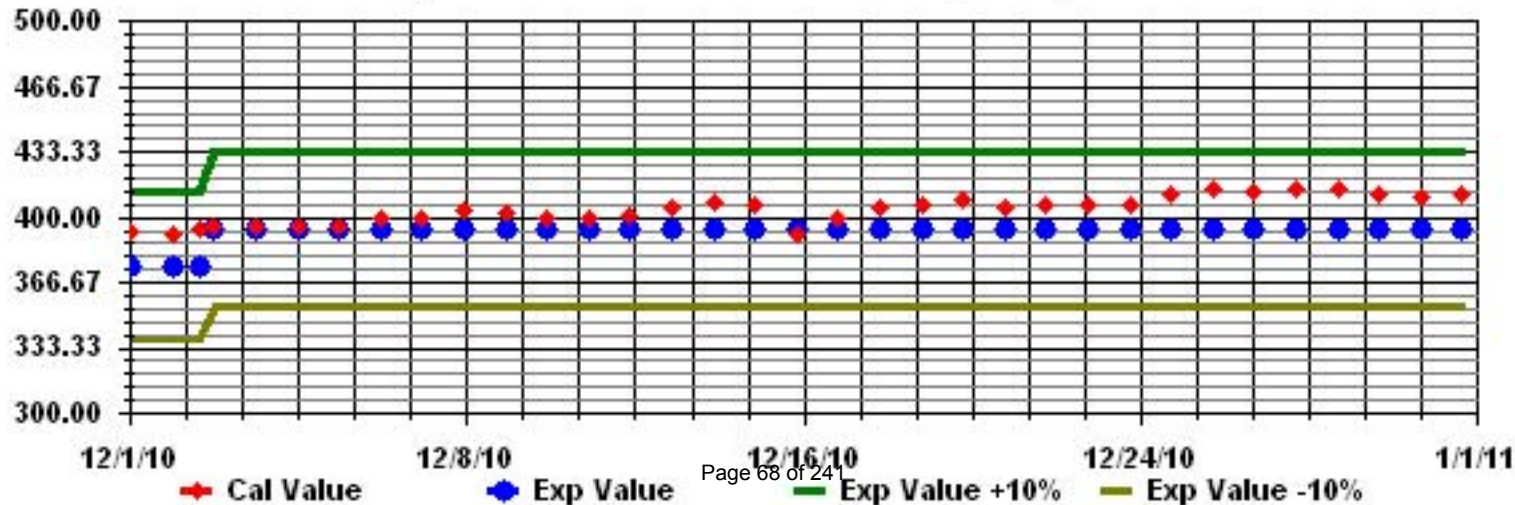
Class Limits (PPB)

Period : 12/01/10-12/31/10

Level : 10



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

OZONE (O₃) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.			
DAY																													
1	IZS	28	27	25	24	24	24	25	26	27	27	27	27	27	27	26	22	19	22	24	24	24	22	IZS	28	24.9	24		
2		22	22	21	20	20	19	19	17	14	14	16	16	20	23	23	23	23	22	24	24	24	25	IZS	25	25	20.7	24	
3		24	24	23	23	24	26	24	22	20	20	19	21	C	C	C	C	16	15	15	17	18	IZS	22	22	26	20.8	24	
4		22	21	22	20	20	19	19	19	19	20	22	23	22	20	18	16	15	13	12	13	IZS	7	4	4	23	17.0	24	
5		3	4	5	8	11	12	10	7	6	8	16	18	18	19	17	11	4	2	2	IZS	1	1	2	1	19	8.1	24	
6		0	0	1	1	0	0	0	0	1	2	4	10	11	11	8	4	1	1	IZS	1	1	0	0	0	11	2.5	24	
7		0	0	0	0	0	0	0	0	0	2	12	14	15	15	14	10	2	IZS	8	6	6	6	6	9	15	5.4	24	
8		13	15	17	19	20	20	19	20	20	19	21	20	22	23	23	22	IZS	22	21	20	17	17	19	18	23	19.4	24	
9		17	16	15	11	11	12	12	12	12	14	20	21	20	20	19	IZS	21	20	19	21	23	24	24	26	26	17.8	24	
10		28	29	30	31	31	31	30	30	32	31	31	32	31	31	IZS	32	32	31	30	29	29	29	30	30	32	30.4	24	
11		30	30	30	30	30	29	27	29	30	29	28	28	IZS	27	27	26	23	23	25	27	26	26	26	30	27.6	24		
12		26	25	27	28	27	27	28	27	27	28	30	30	IZS	28	28	28	27	27	26	26	26	26	26	30	27.2	24		
13		26	24	24	24	23	23	22	21	20	20	20	IZS	21	20	18	15	2	3	6	2	1	1	1	1	26	14.7	24	
14		0	0	0	1	4	21	22	23	23	24	IZS	25	24	21	22	20	21	22	21	21	21	22	23	25	25	17.7	24	
15		26	26	25	26	24	22	22	21	19	IZS	25	25	26	25	17	11	14	15	17	19	20	20	21	21	26	21.2	24	
16		22	20	18	17	17	16	10	4	IZS	3	4	8	12	14	19	18	16	11	6	10	18	20	21	21	22	14.1	24	
17		20	20	19	19	21	21	20	IZS	19	19	21	24	24	20	16	14	13	12	9	3	8	17	16	13	24	16.9	24	
18		9	7	5	5	3	1	IZS	0	1	5	7	18	19	20	21	23	25	26	26	27	29	31	29	27	31	15.8	24	
19		27	27	26	25	24	IZS	25	26	27	28	29	29	29	29	28	27	26	23	18	19	20	21	18	19	29	24.8	24	
20		16	15	14	12	IZS	12	9	10	4	14	20	20	18	19	20	19	13	15	15	11	6	4	0	3	20	12.6	24	
21		3	5	10	IZS	12	14	19	18	21	27	25	27	29	29	26	23	22	26	28	29	28	29	25	24	29	21.7	24	
22		22	22	IZS	22	20	21	19	17	15	17	20	22	25	23	25	23	23	24	23	24	23	24	29	29	29	22.3	24	
23		29	IZS	29	29	27	25	20	24	22	21	24	23	26	26	26	22	20	21	21	22	21	24	24	26	29	24.0	24	
24		IZS	26	25	26	26	27	26	26	26	26	27	28	28	29	28	28	29	29	28	28	28	28	28	29	IZS	29	27.3	24
25		30	30	30	29	27	25	25	28	28	34	34	34	34	33	30	26	22	13	24	8	13	5	IZS	10	34	24.9	24	
26		12	12	13	14	13	18	16	20	15	18	22	26	27	27	24	23	19	20	16	18	16	IZS	22	20	27	18.7	24	
27		22	23	23	21	19	16	16	16	18	18	19	20	20	18	18	19	17	15	15	16	IZS	19	19	20	23	18.6	24	
28		19	18	17	15	14	12	9	6	3	4	10	11	15	18	17	17	21	34	36	IZS	36	34	34	34	34	36	18.9	24
29		33	33	30	31	32	34	35	35	34	34	34	34	33	33	32	30	29	30	IZS	28	27	26	25	25	35	31.2	24	
30		24	23	22	21	19	21	20	19	18	20	19	19	22	23	22	21	16	IZS	14	12	14	19	20	18	24	19.4	24	
31		15	17	21	20	21	20	18	13	10	16	25	28	30	30	30	31	IZS	25	15	14	15	14	13	11	31	19.7	24	
HOURLY MAX	33	33	30	31	32	34	35	35	34	34	34	34	34	34	33	32	32	34	36	29	36	34	34	34					
HOURLY AVG	18.6	18.7	19.0	19.1	18.8	18.9	18.8	17.8	17.7	18.7	21.1	22.7	23.3	23.2	22.2	21.0	18.5	19.3	18.7	17.8	18.6	18.7	19.0	18.4					

STATUS FLAG CODES

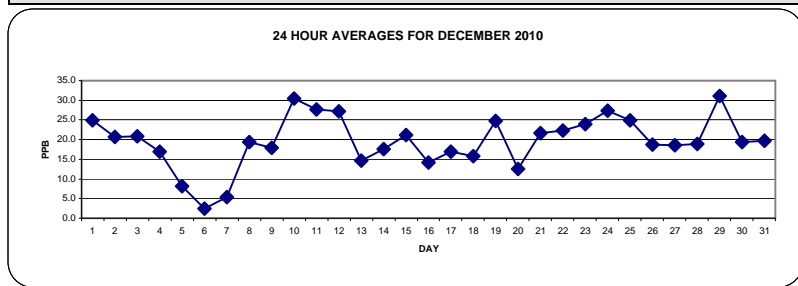
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

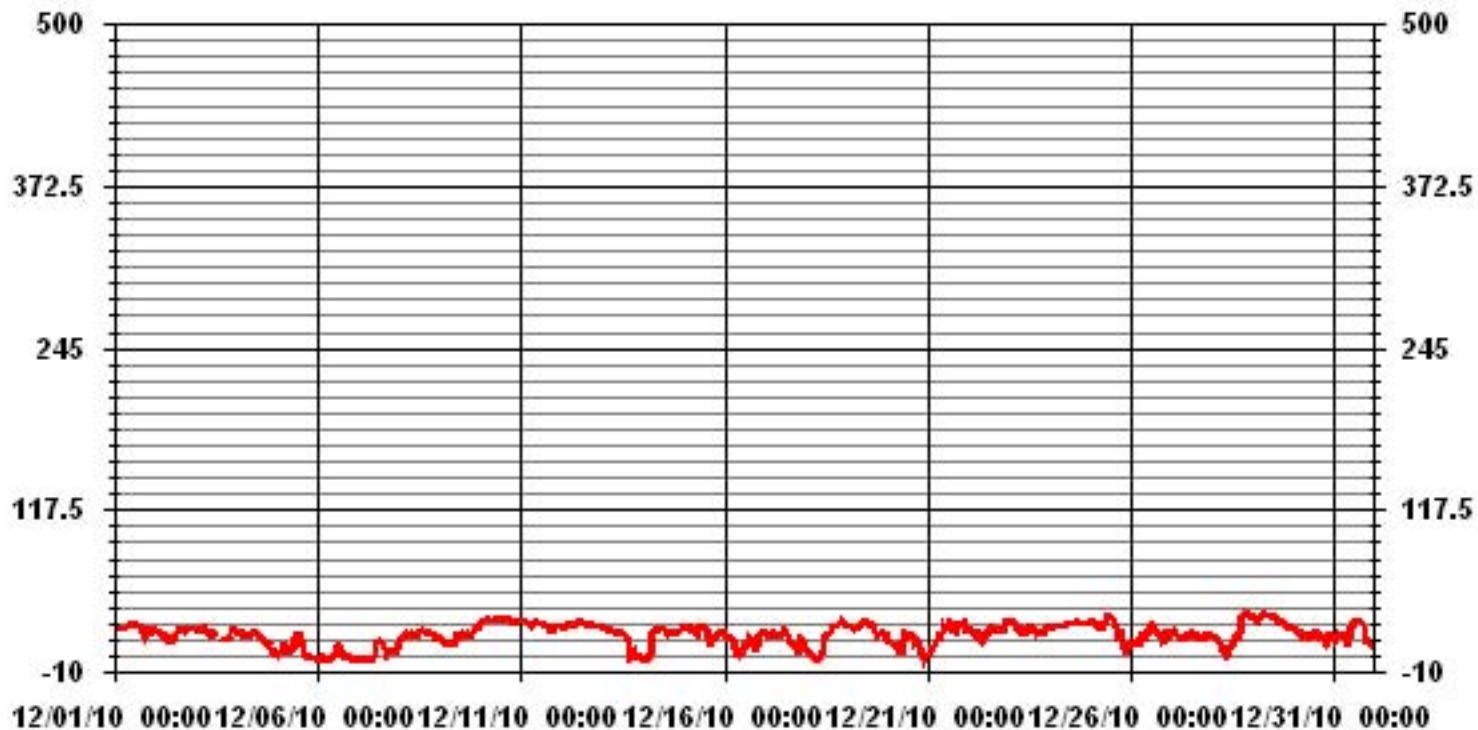
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	684				
MAXIMUM 1-HR AVERAGE:	36	PPB	@ HOUR(S)	18, 20	ON DAY(S) 28
MAXIMUM 24-HR AVERAGE:	31.2	PPB			ON DAY(S) 29
					VAR-VARIOUS
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME	100.0	%
STANDARD DEVIATION	8.54		MONTHLY AVERAGE	19.52	PPB



01 Hour Averages



— LICA 03_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

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 MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	IZS	29	28	26	25	26	25	27	27	28	28	28	28	28	27	25	22	24	25	25	24	23	IZS	29	26.2	24		
2	23	23	22	20	20	20	19	19	17	16	17	17	23	24	24	25	25	24	25	25	26	IZS	26	26	22.0	24		
3	25	25	26	25	26	27	26	24	22	21	21	23	C	C	C	17	17	16	18	20	IZS	23	23	27	22.4	24		
4	23	22	24	22	21	20	20	19	19	22	23	23	23	21	19	18	16	14	13	13	IZS	11	7	5	24	18.2	24	
5	5	7	11	11	14	14	12	11	8	14	17	19	20	20	18	16	9	5	4	IZS	2	4	6	3	20	10.9	24	
6	1	1	3	2	1	0	0	1	2	4	5	18	13	12	11	5	2	2	IZS	1	1	1	1	1	18	3.8	24	
7	1	0	0	0	0	0	0	1	1	10	14	15	16	15	14	5	IZS	11	7	8	9	9	11	16	7.1	24		
8	14	16	18	21	21	21	21	21	22	21	23	22	23	24	24	24	IZS	23	22	21	18	18	20	19	24	20.7	24	
9	18	16	16	12	11	12	12	12	13	17	22	22	21	23	22	IZS	22	21	20	23	24	25	25	28	28	19.0	24	
10	29	29	30	32	32	31	31	31	32	33	32	32	32	IZS	32	33	32	31	31	30	31	31	31	31	33	31.3	24	
11	31	31	31	31	30	31	29	30	30	30	29	29	IZS	27	28	27	26	26	27	28	27	27	27	27	31	28.8	24	
12	27	26	28	28	28	28	28	28	28	29	30	32	IZS	30	29	29	28	28	28	27	27	27	27	26	32	28.1	24	
13	26	25	25	24	24	23	23	22	21	21	21	IZS	21	21	20	18	7	11	14	8	2	3	4	3	26	16.8	24	
14	1	0	1	2	20	22	24	24	24	25	IZS	26	25	22	23	22	23	23	22	23	22	23	24	25	26	19.4	24	
15	26	27	26	26	26	24	24	23	22	IZS	25	26	26	26	24	13	15	16	18	21	20	21	21	22	27	22.5	24	
16	22	21	20	19	19	19	16	10	IZS	4	6	12	15	17	21	20	17	14	10	14	20	21	22	21	22	16.5	24	
17	20	20	20	21	21	21	21	IZS	N	21	23	25	25	22	18	16	16	15	16	8	19	18	18	15	25	19.0	23	
18	11	10	7	6	4	2	IZS	1	2	7	14	19	21	21	23	23	27	27	26	29	31	32	32	28	32	17.5	24	
19	28	27	26	26	26	IZS	26	27	29	29	30	29	29	29	28	27	26	20	20	21	22	19	20	30	30	25.8	24	
20	19	16	17	14	IZS	17	15	16	8	21	21	20	22	22	21	18	19	19	15	10	7	2	6	22	15.9	24		
21	6	12	13	IZS	15	18	21	20	26	28	27	28	30	30	28	24	27	29	29	30	30	29	28	26	30	24.1	24	
22	24	23	IZS	25	23	24	23	22	21	20	24	26	27	25	26	26	24	26	25	26	25	28	29	30	30	24.9	24	
23	30	IZS	30	30	29	27	25	27	24	24	25	25	27	27	27	26	22	23	23	23	25	25	27	30	30	25.8	24	
24	IZS	28	26	26	27	28	27	27	27	27	28	28	29	29	29	29	30	30	29	28	29	29	29	IZS	30	28.1	24	
25	31	31	31	31	31	27	28	31	33	34	35	36	36	35	33	30	30	26	30	14	22	11	IZS	16	36	28.8	24	
26	17	16	19	17	17	21	23	23	20	22	25	28	29	28	27	25	23	23	20	21	21	IZS	22	22	29	22.1	24	
27	24	24	24	23	19	18	17	17	19	19	20	21	22	19	20	20	19	16	16	16	IZS	21	21	21	24	19.8	24	
28	19	18	18	17	15	14	11	7	8	8	11	12	17	19	19	18	28	37	37	IZS	37	36	35	35	37	20.7	24	
29	34	34	32	33	34	35	36	35	35	35	35	34	34	34	33	31	30	30	IZS	29	28	27	26	26	36	32.2	24	
30	26	24	23	23	22	22	21	20	20	21	21	21	24	24	23	21	20	IZS	16	15	17	21	21	19	26	21.1	24	
31	17	21	22	22	22	22	16	17	23	27	29	36	30	31	32	IZS	29	21	22	19	20	19	18	36	23.3	24		
HOURLY MAX	34	34	32	33	34	35	36	35	35	35	35	36	36	35	33	32	33	37	37	31	37	36	35	35				
HOURLY AVG	19.9	20.1	20.6	20.5	20.8	20.5	20.9	19.7	19.9	21.1	22.6	24.2	24.9	24.5	23.9	22.8	21.1	21.9	21.1	20.0	20.8	20.6	20.6	20.0				

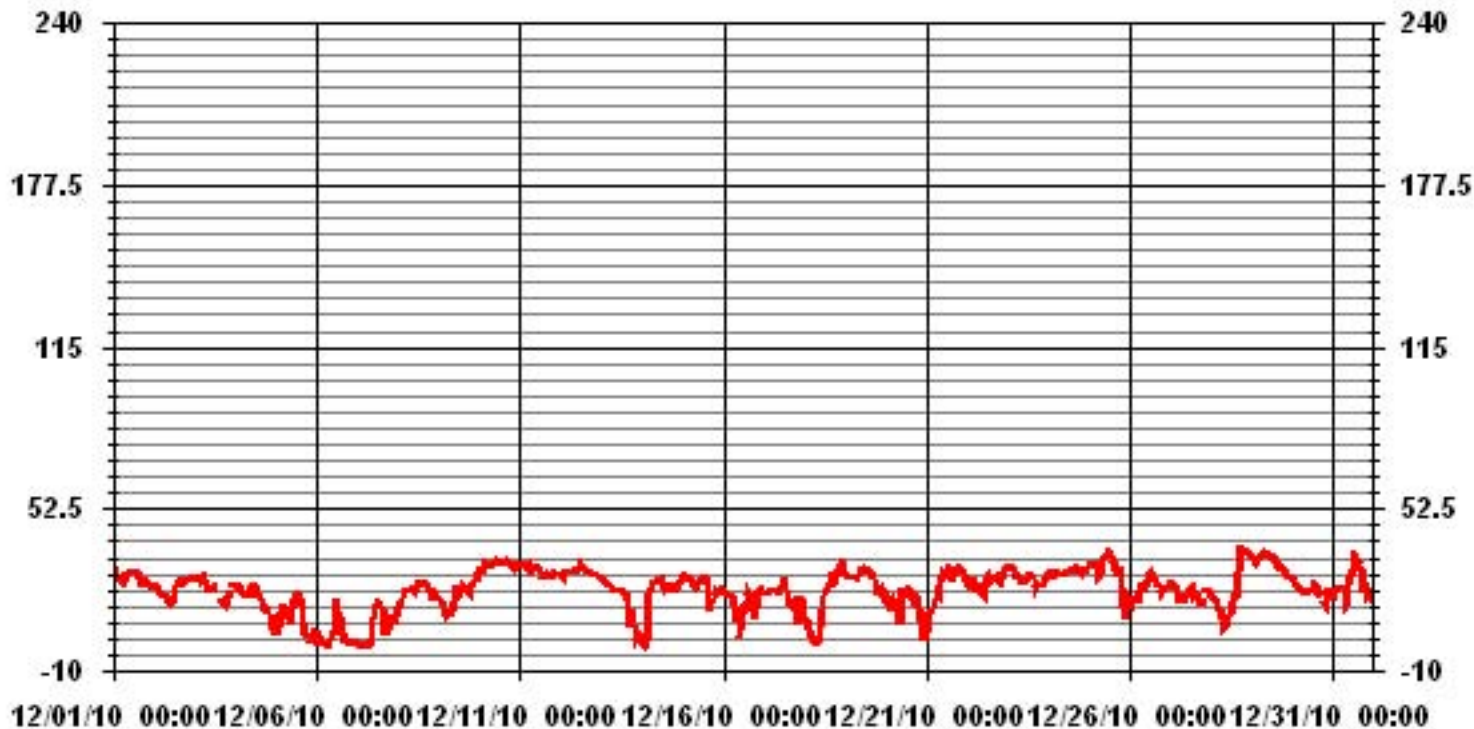
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	697				
MAXIMUM INSTANTANEOUS VALUE:	37	PPB	@ HOUR(S)	VAR	ON DAY(S) 28
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS
MONTHLY CALIBRATION TIME:	4	HRS			
STANDARD DEVIATION	8.14				

01 Hour Averages



— LICA O3MAX PPB

LICA
O3_ / WD Joint Frequency Distribution (Percent)

December 2010

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	1.13	1.70	1.41	4.68	19.00	12.34	10.78	3.12	2.83	2.26	6.95	9.36	10.07	5.39	3.97	4.96	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	1.13	1.70	1.41	4.68	19.00	12.34	10.78	3.12	2.83	2.26	6.95	9.36	10.07	5.39	3.97	4.96	

Calm : .00 %

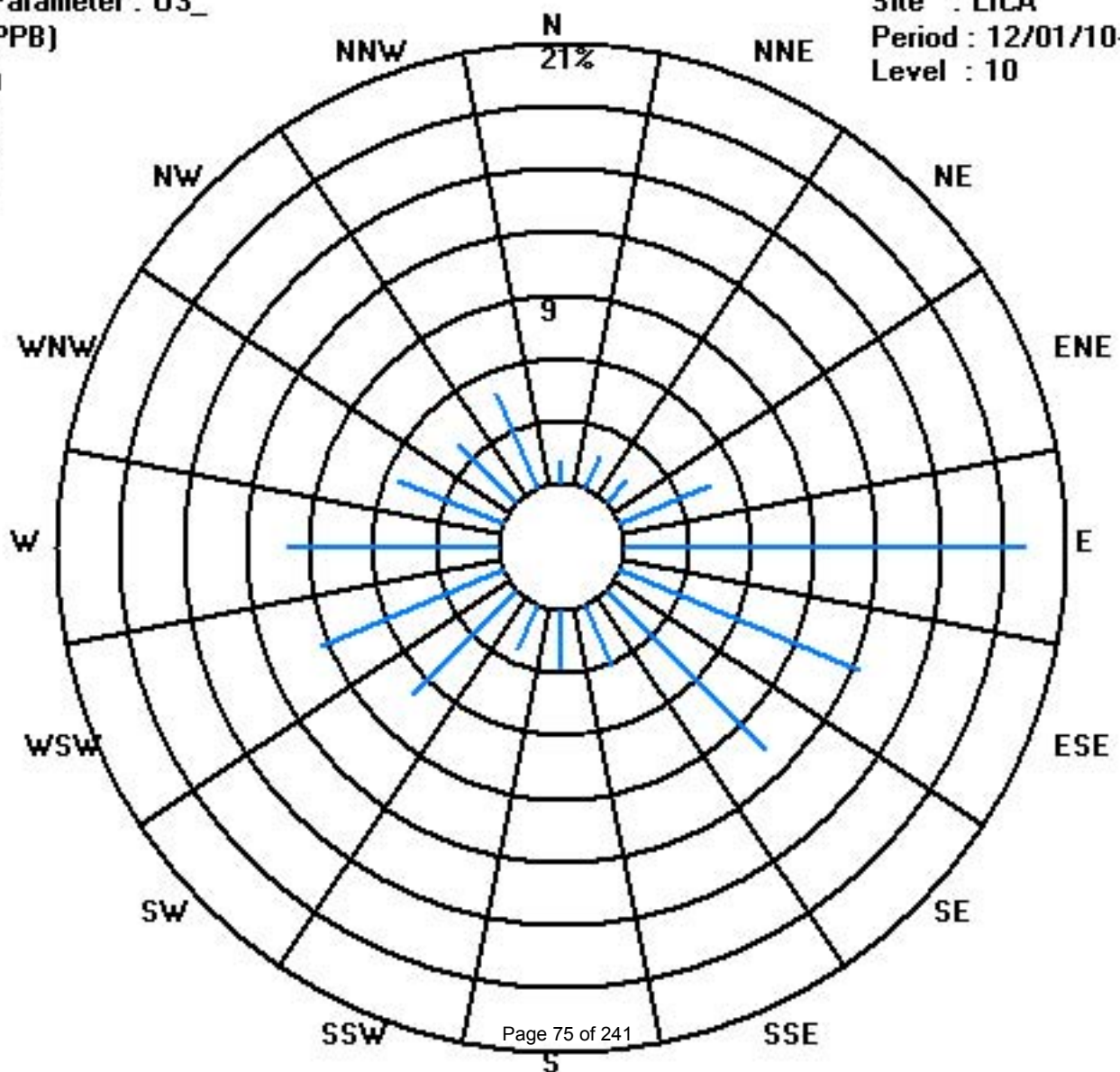
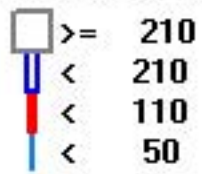
Total # Operational Hours : 705

Distribution By Samples

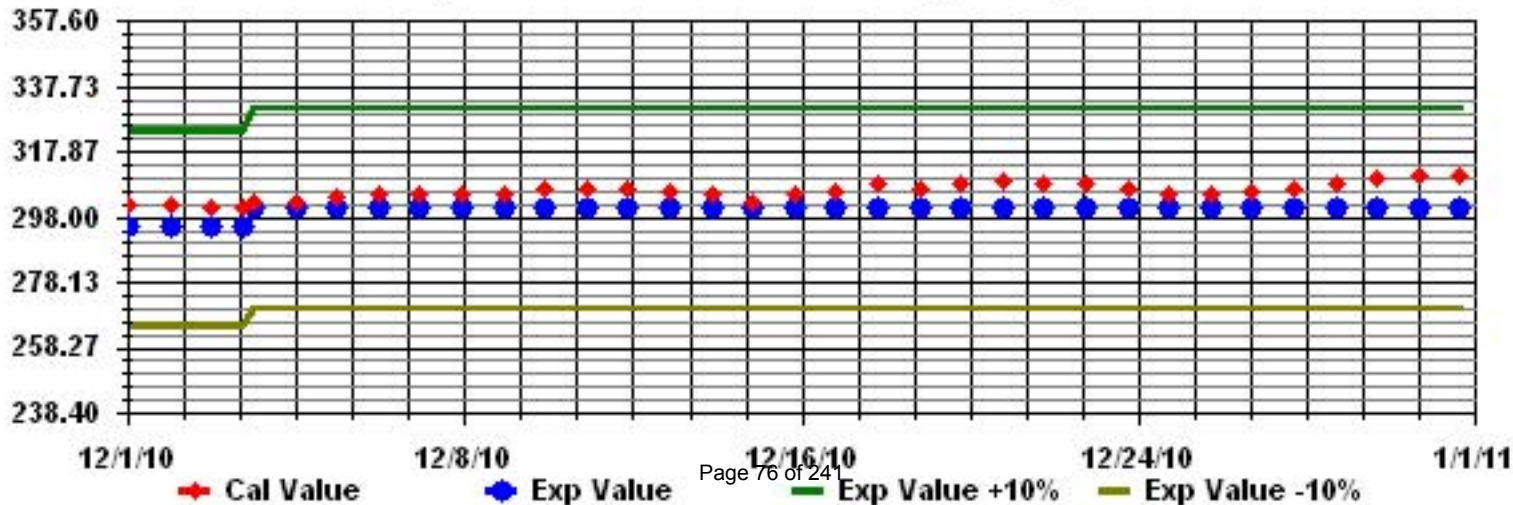
	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	8	12	10	33	134	87	76	22	20	16	49	66	71	38	28	35	705
< 110																	
< 210																	
>= 210																	
Totals	8	12	10	33	134	87	76	22	20	16	49	66	71	38	28	35	

Calm : .00 %

Total # Operational Hours : 705



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



Ambient Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

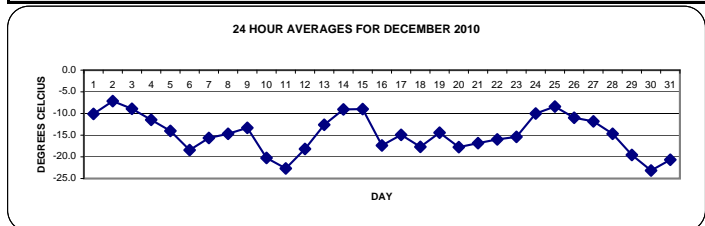
DECEMBER 2010

AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY																													
1		-9.9	-10.2	-10.7	-11	-11	-11.2	-11.4	-11.5	-11.4	-11.4	-11.2	-10.9	-10.5	-9.9	-9.5	-9.3	-9.6	-9.9	-9.5	-9.1	-8.8	-8.4	-8.1	-7.9	-7.9	-7.9	-10.1	24
2		-8	-8	-7.9	-7.8	-7.7	-7.6	-7.5	-7.6	-7.4	-7.1	-6.9	-6.6	-6.1	-6.1	-6.1	-6.3	-6.5	-6.6	-6.9	-7.1	-7.2	-7.4	-7.5	-7.6	-7.6	-6.1	-7.1	24
3		-7.3	-7.2	-7.1	-7.1	-7.1	-7.1	-7.1	-7.1	-7.1	-7.1	-6.5	-6.1	-5.6	-5.5	-7.4	-9	-10.9	-12.8	-13	-13	-13.1	-13.2	-13.2	-13.3	-13.3	-5.5	-8.9	24
4		-13.5	-13.4	-13.2	-13.2	-13.8	-13.5	-13.1	-12.6	-11.6	-10.5	-9.3	-8.1	-7.2	-6.9	-7.2	-8.6	-10	-11	-11.5	-11.4	-11.8	-13	-14.6	-16	-6.9	-11.5	24	
5		-15.9	-15.6	-15.4	-14.2	-13.9	-13.7	-14.7	-15.9	-17.7	-15.7	-11.5	-9.8	-8.4	-7.5	-6.9	-8.2	-11.4	-13.5	-15.4	-16.4	-17.1	-18.2	-19.3	-20	-6.9	-14.0	24	
6		-21	-21.5	-22.4	-22.8	-22.8	-23.4	-23.8	-23.6	-24.1	-21.3	-17.4	-15.7	-12.7	-11.3	-10.1	-12.1	-13.2	-14.2	-16.1	-16.9	-17.8	-19	-19.6	-19.6	-10.1	-18.4	24	
7		-20.2	-20.3	-20.4	-19.7	-18.6	-18.6	-18.9	-19	-18.4	-15.3	-12.4	-11.9	-11	-10.7	-10.6	-11.1	-12.9	-13.8	-14	-14.6	-15.2	-15.7	-16	-16.1	-10.6	-15.6	24	
8		-16.4	-16.6	-16.9	-16.6	-16.4	-16.3	-16.5	-16.5	-16	-15.7	-15.2	-14.8	-14.5	-14.2	-13.9	-13.8	-13.4	-13.3	-13.3	-13.1	-12.7	-12.3	-12	-12	-12.0	-14.7	24	
9		-11.9	-11.6	-11.5	-12	-12	-11.7	-11.6	-11.6	-11.6	-11.8	-12.5	-12.8	-12.9	-13.2	-13.6	-13.7	-14.2	-14.4	-14.8	-15.4	-15.8	-16	-16.4	-16.4	-11.5	-13.3	24	
10		-16.7	-17.2	-17.5	-17.8	-18.2	-19.1	-19.3	-19.5	-19.4	-19.9	-20.4	-20.3	-19.9	-20	-20.4	-21	-21.6	-21.5	-21.5	-22.2	-22.7	-23.3	-23.3	-23.4	-16.7	-20.3	24	
11		-23.4	-23.5	-23.6	-23.7	-23.3	-23.4	-23.5	-23.5	-23.3	-22.8	-22.5	-22.2	-22	-21.9	-21.7	-21.6	-21.6	-22.1	-22.9	-23.3	-22.4	-22.3	-22.4	-21.4	-21.4	-22.7	24	
12		-21.1	-20.5	-20.1	-19.7	-19.8	-20	-20.1	-19.9	-19.9	-19.7	-19.1	-18.6	-18.1	-17.4	-17.3	-17.3	-16.7	-16.2	-16	-16	-16	-15.9	-15.6	-15.3	-15.3	-18.2	24	
13		-14.7	-14.1	-13.7	-13.6	-13.6	-13.5	-13.4	-13.3	-13.1	-12.4	-11.6	-10.5	-8.8	-7.5	-7.8	-9.4	-11.8	-12.2	-11.8	-13.1	-14.7	-15.6	-16	-16.1	-7.5	-12.6	24	
14		-16.7	-16.5	-16	-15.1	-14.3	-10	-9.7	-9.2	-9.2	-8.8	-8.3	-7.6	-6.9	-7.5	-7.3	-6.9	-6.2	-5.6	-5.6	-5.4	-5.7	-5.9	-6.4	-6.5	-5.4	-9.1	24	
15		-6.6	-6.6	-6.8	-6.8	-7.1	-7.4	-7.4	-7.3	-7.2	-6.8	-6.6	-6.5	-6.8	-7.2	-7.6	-8.7	-10	-11.1	-11.8	-12.4	-13.1	-14.1	-14.7	-14.9	-6.5	-9.0	24	
16		-15.1	-15.9	-18.1	-18.5	-18.6	-18	-18.8	-20.1	-21.6	-20.2	-18.7	-17.5	-17.1	-16.9	-15.9	-15.9	-16.1	-16.7	-17.7	-16.7	-16	-15.8	-15.7	-15.4	-15.1	-17.4	24	
17		-15.4	-15.3	-15.2	-15.1	-15	-14.8	-14.8	-15	-15	-14.8	-14.3	-13.7	-13	-12.8	-12.6	-12.9	-13.5	-14.2	-15.9	-17.5	-17.8	-16.1	-15.8	-17.6	-12.6	-14.9	24	
18		-19.3	-20.6	-22.4	-23.3	-24.1	-24.9	-25.2	-24.8	-25.5	-24.4	-20.9	-16.4	-15.1	-13.2	-12	-11.7	-11.8	-12.1	-12.5	-12.5	-12.5	-12.9	-13.2	-13.3	-11.7	-17.7	24	
19		-13.4	-13.4	-13.6	-13.6	-13.9	-14.1	-14.1	-14	-14.1	-14.1	-13.7	-13.3	-13.2	-13	-12.9	-12.9	-13.4	-14.9	-16.7	-17	-16.9	-16.7	-16.6	-16.7	-12.9	-14.4	24	
20		-18.4	-20.6	-21	-19.5	-18.4	-17.7	-17.2	-17.7	-18	-17.2	-16.2	-15.8	-14.9	-13.4	-13.7	-14.7	-16.2	-16.8	-17.2	-17.9	-18.6	-20.1	-21.9	-23.1	-13.4	-17.8	24	
21		-23.4	-22.7	-21	-20.2	-20.4	-20.7	-20.3	-19.2	-16.9	-15.9	-14.9	-13.7	-12.8	-12.8	-13	-13.5	-13.9	-13.9	-13.8	-14.3	-14.8	-15.5	-16.1	-12.8	-16.8	24		
22		-16.8	-17.1	-17.3	-17.1	-17.5	-18	-18.1	-18.3	-18.3	-17.6	-16.4	-15.1	-14	-13.4	-13.7	-14.2	-14.9	-14.6	-14.5	-14.6	-14.9	-15.6	-15.5	-15.9	-13.4	-16.0	24	
23		-16.4	-16.3	-16.2	-16.5	-16.4	-16.5	-17	-16.8	-17.3	-17.1	-16.5	-15.7	-14.7	-14.6	-14.6	-14.5	-15	-15.2	-14.8	-14.2	-13.9	-13.6	-13.1	-12.5	-12.5	-15.4	24	
24		-12.3	-12.6	-12.6	-12.5	-12.2	-12.2	-12.2	-12	-11.6	-11.1	-10.6	-9.9	-9.1	-8.7	-8.5	-8.3	-8.1	-7.7	-7.6	-7.8	-7.9	-8.1	-8.2	-8.3	-7.6	-10.0	24	
25		-8.4	-8.5	-8.3	-8.4	-8.9	-9.6	-9.5	-9	-9	-7.4	-6.4	-6.1	-5	-4.3	-4.6	-5.7	-7.1	-8.3	-8.3	-10.6	-10.9	-12	-12.6	-12.8	-4.3	-8.4	24	
26		-12.6	-12.8	-12.5	-13	-14	-12.5	-12.9	-12	-14.2	-11.4	-10.6	-8.8	-8.2	-7.8	-8	-8.2	-8.5	-8.9	-10.7	-11	-11.9	-11.5	-11	-10.6	-7.8	-11.0	24	
27		-10	-10.2	-10.3	-10.3	-10.4	-10.6	-10.6	-10.6	-11.3	-12	-11.9	-12	-12.5	-12.4	-12.5	-12.8	-12.5	-12.4	-12.5	-12.8	-13	-13.2	-13.4	-13.4	-10.0	-11.8	24	
28		-13.2	-12.9	-13	-13.8	-14.9	-16.5	-17.9	-19.1	-19.7	-19.1	-16.1	-15.2	-13.7	-12.6	-12.5	-12.3	-12.3	-12.5	-13	-13.5	-13.9	-14.5	-15	-15.2	-12.3	-14.7	24	
29		-15.7	-17.1	-18.8	-19.9	-20	-19	-18.5	-18.6	-19.5	-19.4	-18.6	-17.7	-17.2	-17.4	-17.7	-18.9	-19.8	-20.5	-20.8	-21.5	-22.4	-23.2	-23.7	-23.7	-15.7	-19.6	24	
30		-24.3	-24.8	-24.7	-25.2	-26.3	-25.4	-25.4	-25.4	-25.1	-24.5	-24.1	-23.2	-22.1	-21.3	-20.8	-20.9	-21.9	-23.6	-22.6	-22.4	-21.9	-20.7	-19.5	-19.5	-19.5	-23.2	24	
31		-19.7	-19.6	-19.6	-20	-20.7	-21.1	-22.6	-24.2	-24.8	-22.6	-18.7	-17.3	-15.4	-15.3	-15.5	-16.1	-17.6	-19.1	-22	-23.6	-24.7	-25.4	-25.3	-25.3	-15.3	-20.7	24	
HOURLY MAX		-6.6	-6.6	-6.8	-6.8	-7.1	-7.1	-7.1	-7.1	-7.1	-7.1	-6.8	-6.4	-6.1	-5.0	-4.3	-4.6	-5.7	-6.2	-5.6	-5.6	-5.4	-5.7	-5.9	-6.4	-6.5			
HOURLY AVG		-15.4	-15.6	-15.7	-15.7	-15.8	-15.7	-15.9	-16.0	-16.2	-15.4	-14.2	-13.4	-12.6	-12.2	-12.1	-12.6	-13.3	-13.9	-14.3	-14.7	-15.0	-15.3	-15.5	-15.7				

STATUS FLAG CODES

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

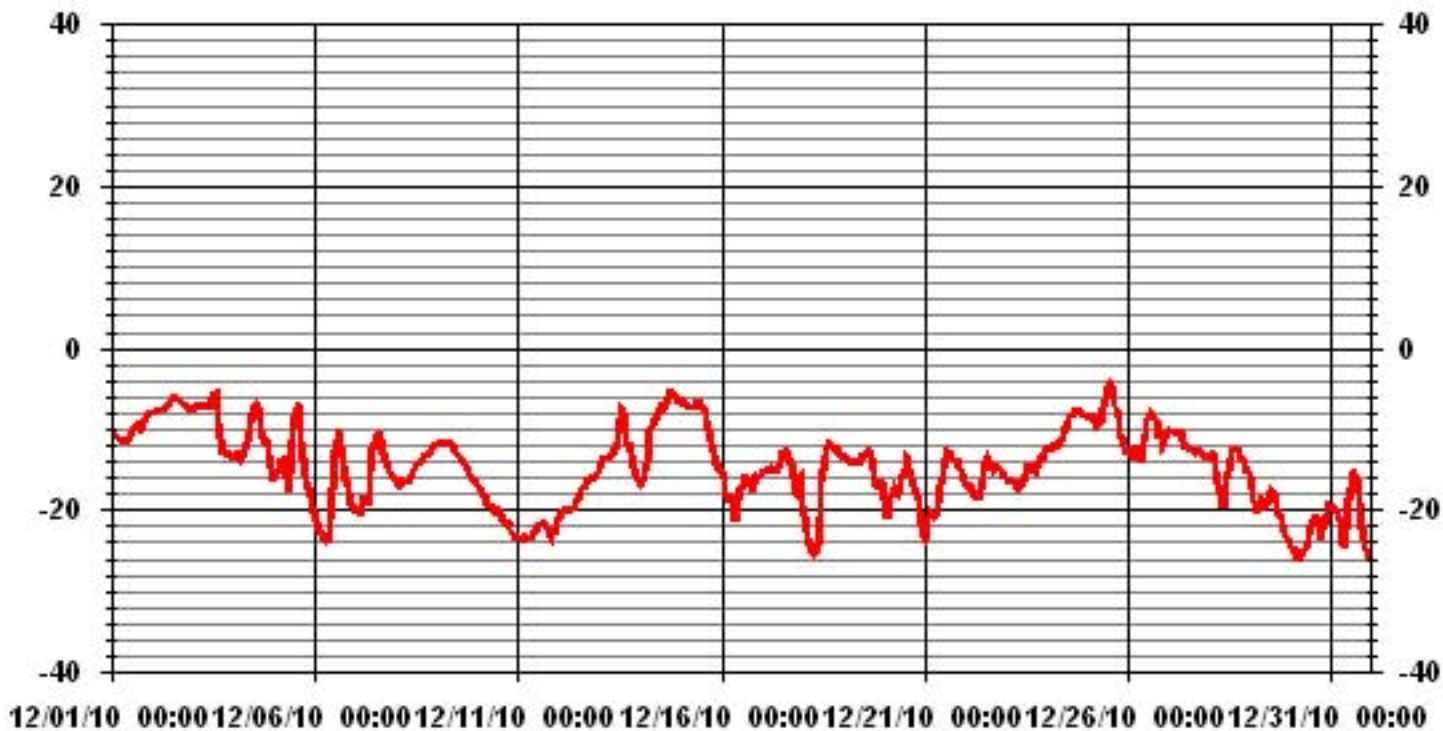


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-26.3 °C	@ HOUR(S)	4	ON DAY(S)	30
MAXIMUM 1-HR AVERAGE:	-4.3 °C	@ HOUR(S)	13	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	-7.1 °C			ON DAY(S)	2
VAR-VARIOUS					
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	744 HRS		
STANDARD DEVIATION:	4.94	AMD OPERATION UPTIME:	100.0 %		
		MONTHLY AVERAGE:	-14.68 °C		

* Outside detection limits of sensor.

01 Hour Averages



— LICA TPX DGC

Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

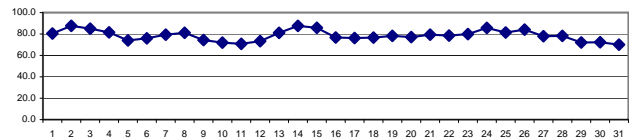
RELATIVE HUMIDITY hourly averages (%)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	80	81	82	81	81	81	80	80	80	80	80	80	77	77	77	79	83	84	83	82	81	81	81	81	80	84	80.5	24	
2	82	81	81	82	82	83	85	89	91	91	91	91	89	87	87	88	88	88	89	91	92	92	92	91	92	92	92	87.6	24
3	91	91	91	91	92	90	90	90	89	89	87	86	84	81	79	77	79	81	80	79	80	80	81	81	81	92	85.0	24	
4	83	83	83	83	83	86	87	87	87	87	87	80	74	70	69	74	79	82	82	82	82	83	83	81	81	87	81.5	24	
5	80	80	81	82	81	80	81	80	78	73	68	63	57	54	53	61	75	79	80	79	80	78	77	76	82	74.0	24		
6	77	74	74	76	74	73	73	75	72	68	67	69	69	80	74	87	87	83	81	80	79	77	77	77	77	87	76.0	24	
7	76	77	76	77	77	78	76	78	78	81	83	80	78	77	75	77	83	84	83	83	83	82	82	81	84	79.4	24		
8	80	80	82	83	82	82	81	81	81	81	81	79	80	79	79	80	80	81	82	81	82	83	84	83	84	83	84	81.1	24
9	83	84	81	78	78	78	78	79	78	77	72	71	69	67	69	70	71	72	73	70	71	71	72	72	72	84	74.3	24	
10	74	73	74	73	74	73	73	73	72	73	72	71	69	70	72	72	72	73	70	71	71	70	71	70	71	70	74	71.9	24
11	71	71	71	71	72	72	72	72	72	71	70	70	68	68	67	68	68	70	72	72	72	73	73	73	73	73	70.8	24	
12	73	73	73	73	73	73	72	72	72	72	71	71	70	69	70	71	72	74	77	77	77	77	77	78	80	80	73.3	24	
13	81	80	79	80	84	85	85	84	84	84	82	78	72	70	74	80	85	85	84	82	81	81	81	81	81	85	81.1	24	
14	80	80	81	83	84	88	90	91	89	89	89	90	90	89	89	90	90	90	89	88	89	89	88	87	91	87.6	24		
15	86	85	88	86	86	85	85	86	88	88	88	87	87	88	88	88	87	86	85	84	83	82	82	81	88	85.8	24		
16	81	81	79	79	78	79	78	77	76	76	76	77	77	77	74	74	75	76	78	77	75	75	73	73	81	76.7	24		
17	73	73	74	76	75	75	76	75	76	75	75	75	75	75	77	80	81	82	80	79	76	75	75	77	82	76.3	24		
18	76	76	74	74	73	72	73	73	73	73	75	76	79	80	81	81	79	78	78	78	78	78	80	81	81	82	76.6	24	
19	81	80	79	78	76	76	78	79	78	78	77	76	74	73	75	78	80	81	79	80	81	81	80	80	81	81	78.3	24	
20	78	75	76	76	78	78	79	79	78	77	77	77	76	73	73	76	79	80	80	80	80	77	74	75	80	77.1	24		
21	75	78	77	79	78	78	78	78	80	82	81	80	78	76	78	79	81	82	82	81	81	81	81	81	81	82	79.4	24	
22	81	81	81	80	80	79	79	79	78	76	75	73	72	72	74	77	79	79	81	82	82	82	81	81	82	82	78.5	24	
23	81	81	80	80	80	80	80	80	80	79	78	77	77	78	77	79	80	80	81	81	82	82	82	83	83	79.9	24		
24	84	83	84	85	86	89	88	87	87	87	87	87	86	84	84	85	85	86	86	87	86	86	85	83	89	85.7	24		
25	82	83	82	83	84	86	85	83	83	79	75	75	72	70	73	78	82	85	84	87	86	86	85	85	87	81.4	24		
26	86	86	86	85	84	86	86	85	84	85	84	82	80	79	79	81	83	84	87	86	85	85	85	85	85	87	84.1	24	
27	86	83	84	84	83	83	83	79	77	74	70	69	74	76	77	77	75	74	75	76	77	77	75	86	78.0	24			
28	74	75	76	77	80	82	81	78	78	78	81	81	82	81	81	81	81	80	79	76	75	75	74	72	82	78.3	24		
29	72	72	75	75	75	75	75	75	75	73	69	65	64	64	64	68	71	73	73	74	76	76	76	75	76	72.1	24		
30	73	74	73	72	73	74	73	73	72	71	71	71	71	69	69	69	72	74	74	74	74	73	72	74	74	72.3	24		
31	75	75	74	74	74	74	75	74	74	70	64	62	57	58	58	61	66	70	74	75	74	74	74	75	75	70.0	24		
HOURLY MAX	91	91	91	91	92	90	90	91	91	91	91	91	91	90	89	89	90	90	90	90	91	92	92	92	91				
HOURLY AVG	79.2	79.0	79.1	79.2	79.4	79.8	79.8	79.8	79.4	78.7	77.6	76.5	74.9	74.5	74.7	77.0	79.0	79.9	80.0	79.8	79.7	79.4	79.2	79.0					

STATUS FLAG CODES

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

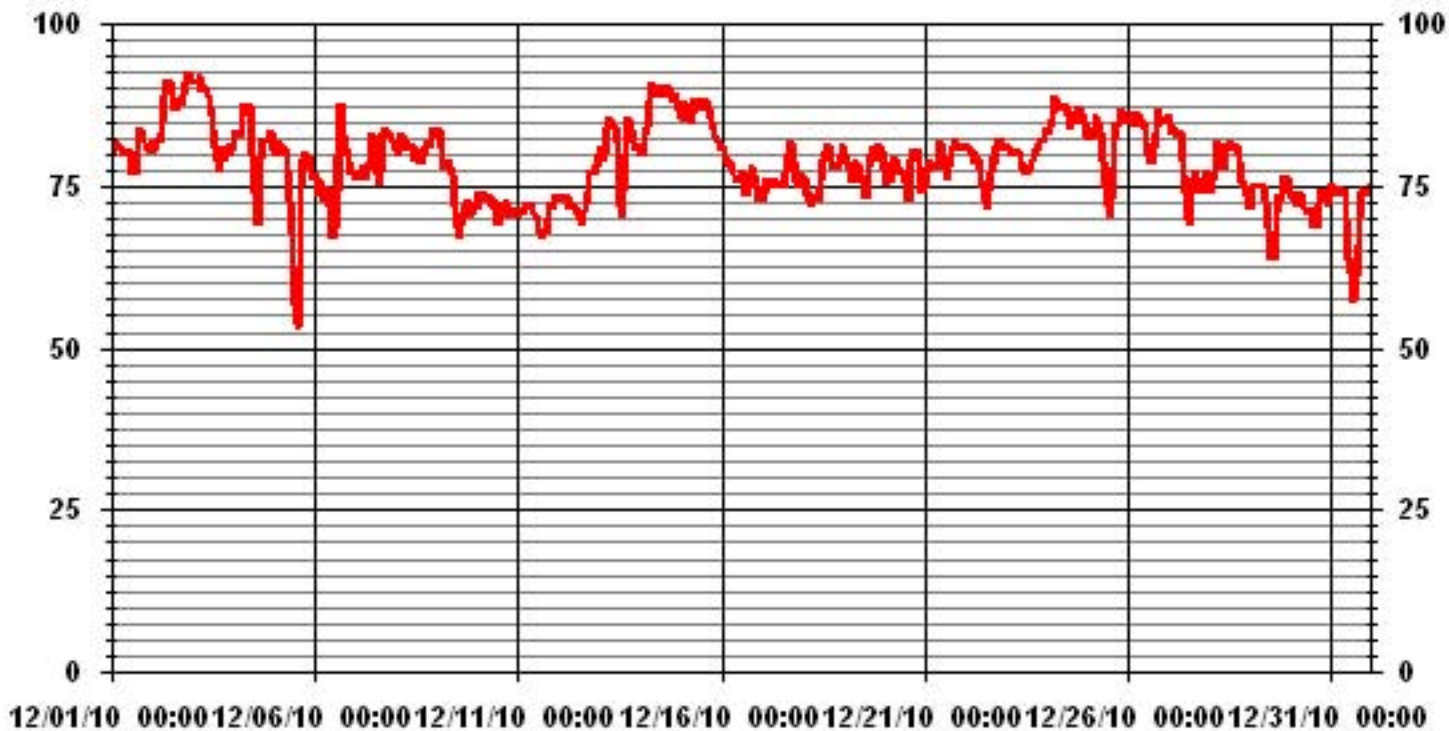
24 HOUR AVERAGES FOR DECEMBER 2010



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	92	%	@ HOUR(S)	VAR	ON DAY(S)	2, 3
MAXIMUM 24-HR AVERAGE:	87.6	%			ON DAY(S)	2
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	6.06		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	78.53	%	

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		7	6.5	7.7	6.6	6	4.9	5.5	4.7	5.7	7.7	7.1	6	5.5	5	3.8	2.4	2.4	1.9	3.4	3.4	2.1	1.4	1.7	3.9	7.7	4	24	
2		3.7	3.3	3.4	2.2	2.8	2.7	3.1	3.3	2.9	2.2	2.5	3.1	4	2.6	1.9	3.7	5.1	4.7	4.8	4.8	4.2	4.1	4	3.1	5.1	2.3	24	
3		1.3	1.3	1	1.2	3.2	2.3	2.6	2.7	3.4	4.7	5.3	6.2	6.3	8.1	12.1	10.9	8	5.7	5.3	5	3	3.4	2.9	3.9	12.1	3.9	24	
4		4.1	4.9	7.1	8.2	7.7	2.7	3.6	2.7	2.6	5.4	7.4	7.4	8.9	8.2	8.3	7	6.3	5.3	5	4.7	4.8	1.6	1.1	0.7	8.9	4.9	24	
5		0.3	0.6	1.6	1.8	1.6	1.1	0.7	0.8	0.3	1	2.7	1.9	4	2	2.4	0.9	0.8	1.1	0.4	0.1	0.5	0.8	0.6	0.7	4.0	1.2	24	
6		0.2	0.1	0.9	0	0.3	0.7	0.7	0.2	1.1	1.1	1.8	2.8	1.5	1.5	3	0.8	1.7	0.8	0.9	0.3	0.3	0.4	0.2	1	3.0	0.9	24	
7		0.3	1	0.6	0.3	0.1	0.3	1.6	0.5	0.6	1.9	5.6	5	5.5	5.5	5.4	3.1	1.9	3.3	3.4	2.8	4.7	2.2	2.8	2.4	5.6	2.5	24	
8		6	7.2	7.4	7	6.9	6.9	8.2	6.5	6.3	7	6.2	6.8	6.5	5.9	4.8	2.7	0.8	2.8	4.8	7.2	6	6.9	8.5	8.5	8.5	6.2	24	
9		8.7	7.9	9.5	7.6	8.2	9	8.6	8.1	8.3	9.7	11.5	7.7	8.7	9.1	7.7	7.5	8.4	7.4	8.6	8.5	7.8	6.6	7	3.5	11.5	8.2	24	
10		7.4	9	7.6	7.8	7.9	8.3	7.8	6.7	6.7	3.4	4.4	2.8	1.7	2.9	3.3	6.6	6.6	0.8	3.4	3.5	3.8	4.5	4.8	4.6	9.0	5.3	24	
11		4.8	5.4	6.1	7.8	5.1	5.9	5.6	6	7.5	5.5	5.8	5.7	5.7	5.3	5.1	6.6	5.8	4.1	5.2	5.7	8	8.8	8.4	5.6	8.8	6.1	24	
12		5.4	5.3	6.2	7.8	7.9	7.8	8.4	6.4	6.7	7.6	7.6	8	10.5	10.1	11.2	10	8.5	8.5	7.7	6.2	6.6	6.8	6.3	6.6	11.2	7.7	24	
13		6	5.2	2.6	3.5	3.1	3.2	3.3	3.2	2.7	1.9	2	1.9	3	2.8	1.9	1.7	0.6	1.9	0.9	1.5	0.9	1	1.3	1.4	6.0	2.4	24	
14		2	1.4	2.5	2.8	2.5	9.8	8.8	11	7.7	8.4	7.8	7.2	8	8	8.8	8.7	11.2	6.9	10.2	6.4	7	8	9.9	9.2	11.2	7.3	24	
15		8.6	8.7	6.2	5.8	5.3	5	5.1	3.5	3	4	5.5	6.4	5.4	5.3	6.6	10	10.3	10.8	11	11.5	10.8	9.5	6.2	6	11.5	7.1	24	
16		3.9	1.6	1.2	1.4	1.8	1.5	1.8	1.5	2.8	0.3	M	M	4.5	4.6	3	2.3	2.2	3	1.2	3.4	4.6	4.4	3.7	3	4.6	2.6	22	
17		3.2	3.8	3.2	2.8	4	3.4	3.6	2.9	3.2	3.3	3.7	4.9	5.5	5.4	5.1	5.7	4.5	3.9	2.2	1	3.1	3.9	4.3	3.7	5.7	3.8	24	
18		4	2.4	1.6	0.8	0.6	1.2	0.8	0.7	2.7	2.8	3.1	3.5	5.8	5.8	6.1	8	7	8.8	6.7	6.7	7.6	9	7.3	7	9.0	4.6	24	
19		7.9	8	7.6	6.6	10.4	8.6	7.1	7.6	8.8	8.5	7.6	9.8	9.4	8.7	7.5	5.6	3.9	3.9	4.2	4.5	5.2	5.2	4	2.1	10.4	6.8	24	
20		1.5	0.9	0.5	0.2	0.9	0.4	1	1.2	0.8	3.7	4.7	4.2	1.6	3.2	4.4	3.7	3.2	3.9	2.9	2.1	1.4	0.9	0.2	0.7	4.7	2.0	24	
21		1.2	3.1	4.1	3.3	5.6	4.2	5.2	3.6	5.7	9.3	6.7	7.6	7.5	6.7	6.1	5.3	6.3	6.5	6	8.4	6.7	4.5	4.6	4.2	9.3	5.5	24	
22		4.2	4.2	4.4	4.7	2.2	3.2	4.9	4.8	4.5	5.4	4.4	4.7	5.5	5.2	7.6	8.4	8.2	8	5.7	6.4	4.5	4.8	9.1	7.7	9.1	5.5	24	
23		6.7	7.5	7.5	5.8	6.7	4.9	2	5.3	3	4.7	6.4	5.3	7	6.6	6.5	5.9	6.3	5.4	4.6	2.2	5.3	5.6	3.9	4.5	7.5	5.4	24	
24		3.4	4.3	5	6.5	4.9	5.7	6.7	6.3	6.3	6.7	8.4	9.6	10.4	13	9.4	8.2	10.5	9.1	9.5	10	11.4	10.3	10.1	14.1	14.1	8.3	24	
25		12	6.8	5	4.4	3.6	3.2	3.1	3.8	3.1	7	8.7	8.8	4.6	4.6	2.1	3.2	2.3	1.8	2.4	1.6	0.6	0.5	1.6	1.5	12.0	4.0	24	
26		1.4	2.3	2.2	1.3	1.5	2.5	3.8	2.4	2.8	2.4	4.4	5.7	4.8	2.7	3	2	2.9	1.4	1.1	1.5	1.5	4.4	4.9	5	5.7	2.8	24	
27		8	9.1	6.7	9.4	8.7	8.2	8.2	7.8	12.4	10.5	12.4	14.1	11.1	10	11.6	11	10.4	13.5	12.4	11.4	11.6	10.8	10.1	10.2	14.1	10.4	24	
28		9	7.8	6.9	8.1	5.1	4.2	2.7	3.1	0.5	3	4.8	6.1	7.4	7.8	7.6	5.3	6.3	10.1	10.9	10.4	9.9	10.9	11.1	10.5	11.1	7.1	24	
29		9.5	10.5	7.2	6.2	6.5	6.3	7.1	7.9	9.5	7.2	7.8	7.4	10.2	10.4	9.1	8.1	7.6	7	6.2	6.1	6.9	7.5	7.3	5.7	10.5	7.7	24	
30		4.6	5.6	5.6	2.5	3	6.1	5.3	6.2	4.2	3.1	3.9	5.2	6	4.5	3.9	3.5	2.9	1.6	0.7	0.6	1.9	1.2	1.3	0.1	6.2	3.5	24	
31		0.1	1.6	2.1	1.5	1.4	0.8	0.6	0.7	0.7	0.9	2	3.4	3.2	5.5	4.7	3.3	2.1	1.7	1	0.6	0.8	1	0.4	1.1	5.5	1.7	24	
HOURLY MAX		12.0	10.5	9.5	9.4	10.4	9.8	8.8	11.0	12.4	10.5	12.4	14.1	11.1	13.0	12.1	11.0	11.2	13.5	12.4	11.5	11.6	10.9	11.1	14.1				
HOURLY AVG		4.7	4.8	4.6	4.4	4.4	4.4	4.4	4.3	4.4	4.8	5.7	6.0	6.1	6.0	5.9	5.6	5.3	5.0	4.9	4.8	5.0	4.9	4.8	4.6				

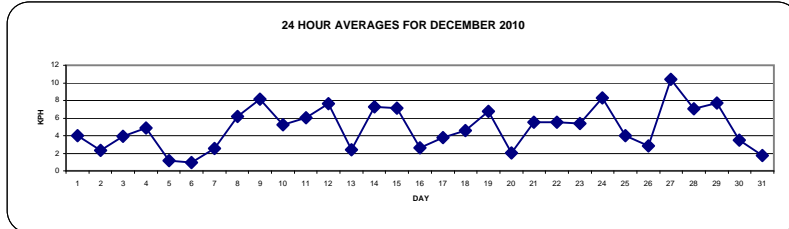
STATUS FLAG CODES

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

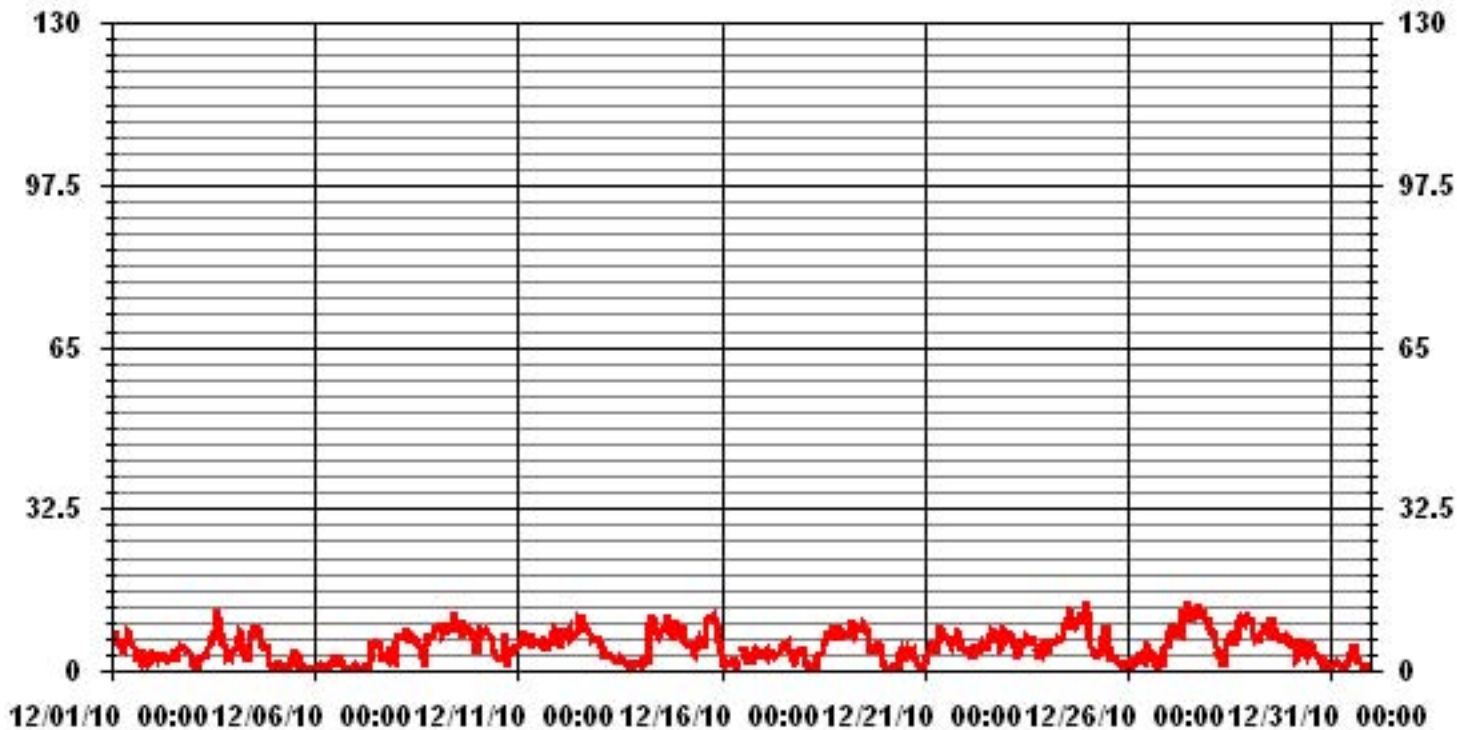
LAST CALIBRATION: November 23, 2010

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	14.1	KPH	@ HOUR(S)	11	ON DAY(S)	27
MAXIMUM 24-HR AVERAGE:	10.4	KPH			ON DAY(S)	27
CALMS (≤ 0 KPH)	2.69	%				
MONTHLY CALIBRATION TIME:	0	HRS				
STANDARD DEVIATION:	3.02					
OPERATIONAL TIME:	742	HRS				
AMD OPERATION UPTIME:	99.7	%				
MONTHLY AVERAGE:	4.99	KPH				



01 Hour Averages



— LICA WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	
HOUR START		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.
HOUR END		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	
DAY																											
1		10.8	10.9	11.8	10.8	11.2	9.1	9.1	8.3	10	12.6	13.3	9.3	9.6	9.2	7.1	5.8	3.2	3.7	5.2	5.8	5.8	3.3	5.6	6.5	13.3	
2		6.6	5.2	6.7	4.8	5	4.9	5.9	5.6	6	4.4	5.3	5.9	7.5	7	6.5	8.7	9.9	9.4	8.3	9.1	10.9	8.3	6.9	7.2	10.9	
3		4.3	4.6	3.4	2.8	5.8	5	6.3	5	5.9	7.9	9.4	11.1	11.4	20	17	16.5	13	10.2	11.1	10	5.3	7.5	6.2	8.2	20	
4		7.8	9.6	12.1	13.2	16.7	6	9	6.2	5.6	11.7	13.9	13.4	14.7	13.1	14	11.3	8.9	8.2	8	6.4	7.2	3.9	3.2	2.1	16.7	
5		1.4	2.8	4	3.5	3.3	4.8	2.4	2.2	1.9	3.8	5.3	7.7	8.8	7.5	5.2	3.4	3	3.9	2.8	1.9	2.2	3.1	2.5	3.8	8.8	
6		2.8	1.5	3.7	2.6	2.3	2.8	2.7	2.4	2.9	3.6	5.7	7	5.2	4	7.1	5.1	4.9	3.4	4.8	2.4	1.5	2.3	2.3	3	7.1	
7		3.7	4.3	3.5	2.2	2	2.4	4.1	3.5	2.8	4.4	10.7	7.6	9	9.2	10.1	8	4.1	5.1	5.7	5.1	9.8	4.6	4.9	5.7	10.7	
8		12.3	13.9	13.1	11.9	12.4	11.8	12.5	11.7	11.1	11.7	11.8	11.4	11.9	9.1	9.5	6.8	3.1	5.8	8.2	11.5	11.3	11	12.5	12.3	13.9	
9		12.8	12.7	14.2	12.9	11	14.4	14.5	12.5	12.7	14.6	20.1	10.5	13.9	12.7	12.8	10.9	11.2	10.9	13.4	13.7	11.7	11.1	14.6	11.7	20.1	
10		13.3	15	11.6	11.9	13.3	13.7	12.1	13.5	11.2	9.6	7.9	9.3	6.4	6.9	8	10.8	10.7	5	6.5	5.9	8.4	8.3	8	7.3	15	
11		7.8	10.3	10.3	10.9	8	8.6	9.1	8.3	10.9	9	9.4	9.2	10.8	9.6	8.7	12.3	11.3	7.6	9.2	10.6	15.4	14.6	18.2	11.7	18.2	
12		11.3	8.2	11.1	12	13.1	12.4	17.5	10.3	9.8	12.8	12.8	14	15.2	19.4	15.7	15.2	15.8	13.5	13.1	9.8	13.8	12.3	11.4	10.5	19.4	
13		10.7	10.2	6.1	6.9	7.5	6.7	8	8.1	7.3	5.1	9.3	5.5	6.2	7.8	5.1	5.8	3.5	6.7	6.9	6.3	3.3	3.1	3.3	3.2	10.7	
14		4.9	4	4.2	5.3	12	13.2	12.7	16.9	15.2	13.3	13.1	12.2	12.2	12	12.8	14	17.2	13.5	17	10.8	10.6	12.9	15.7	14.5	17.2	
15		13.8	15.2	13	9.7	12.5	7.8	9.1	6.3	5.4	7.3	10.1	9.5	8.9	9.5	13.8	14.3	17.7	14.7	16.5	17.6	17	16	11.4	11.7	17.7	
16		8.4	5	3	3.4	4.5	3.2	4.3	3.7	5.7	1.7	M	M	9	9.6	6.8	5.4	5.2	5.6	4.2	6.4	7.9	6.8	6.8	5.7	9.6	
17		5.4	6.3	7	5.8	6.2	6.1	6.3	6.2	N	6.4	7.5	7.9	9	8.4	7.7	8.5	7.3	6.8	4.5	3.3	6	5.8	7.2	6	9	
18		7.1	5.4	2.7	2.8	2.5	3.8	3.4	4	6.5	7.8	7.7	8.8	10.3	9.7	11.5	11.7	11.3	13.2	10.4	10.7	11.6	14.1	13.4	10.5	14.1	
19		11.5	12	10.9	10.3	15.7	12	10.7	13.3	13.7	13.2	13.9	16.3	13.5	15.3	12.6	9.3	6.9	6.3	5.7	5.7	6.8	7.9	6.4	4.5	16.3	
20		3.4	3.2	4.2	1.7	3	2.8	3.6	4.1	2.8	7.9	6.5	7	4.4	5.3	8.3	5.9	5.6	8.2	6.4	4.1	3.4	4.6	1.7	2.7	8.3	
21		2.1	6.3	7.3	6.2	50.8	7.5	8.7	7.1	11.2	14.1	11.5	11.4	13.8	10	10.1	7.5	10.2	8.9	8.2	12.1	12.9	7.6	8.8	7.5	50.8	
22		6.4	6.2	7	8.3	7.8	7.1	11	11.4	9.9	8.6	8.9	8.8	10.2	8.9	13.2	13.8	13.8	12.4	10.8	8.6	7.2	7.3	12.4	11.2	13.8	
23		10.6	11.5	12.6	9.6	9.7	8.6	5.6	9	5.5	11.3	11.6	9.2	11.2	11.3	12.1	9.5	9.4	9.2	6.9	6.2	8.3	8.4	7.4	8.1	12.6	
24		6.3	7.6	8.8	9.8	10.5	11.1	13.7	10.3	11.5	12.8	12.9	13.3	15.3	19.1	14.1	12.7	14.6	13.3	16.9	16	15.7	16	14.1	24.2	24.2	
25		22.3	11.2	8	7.3	5.5	5	5.3	8.3	6.2	11.8	13.3	13.6	10.5	10.8	5.4	5.9	5.3	5	6.7	5.4	4.1	4.2	5.4	4.7	22.3	
26		4.4	4.6	5.4	3.9	6	5.4	6.6	5.6	5.3	5.3	7.1	11.3	9.5	6.6	6	7.9	5.4	5.4	4.4	4.8	4.9	8.1	6.8	7.6	11.3	
27		12.7	14.2	11	14	13.2	11.4	12.2	11.9	16.8	17.5	18.4	21.6	17.2	15.4	17.3	17.1	17.6	20.8	17	16.1	17.3	15.9	16.6	14.8	21.6	
28		13.3	11.5	12	14.8	9	7.2	5.1	6	4.4	7.2	7.9	9.7	11.1	12.5	11.8	8.6	10	17.5	15.1	15.4	16.4	18.3	18	16.6	18.3	
29		15.8	15.1	12.2	8.7	8.7	10.6	12.1	11.3	13	10.4	13.3	13.1	16.8	15.1	15	10.9	10.1	10.7	10	8.1	8.7	10.6	10.4	8.5	16.8	
30		6.2	9.5	8.4	6.2	8.3	8.8	7.9	10	7.8	6	6.7	8.5	9.4	8.1	6.1	6.4	6.3	3.1	7.9	2.6	3.6	4.1	3.4	2.5	10	
31		2.5	3.9	4.6	3.8	3.3	3.3	2	2.4	2	3	4.9	6.1	7	10.2	8.2	6.7	6.6	4.7	3.4	3.2	5.8	3.1	3.4	2.7	10.2	
PEAK		22.3	15.2	14.2	14.8	50.8	14.4	17.5	16.9	16.8	17.5	20.1	21.6	17.2	20.0	17.3	17.1	17.7	20.8	17.0	17.6	17.3	18.3	18.2	24.2		

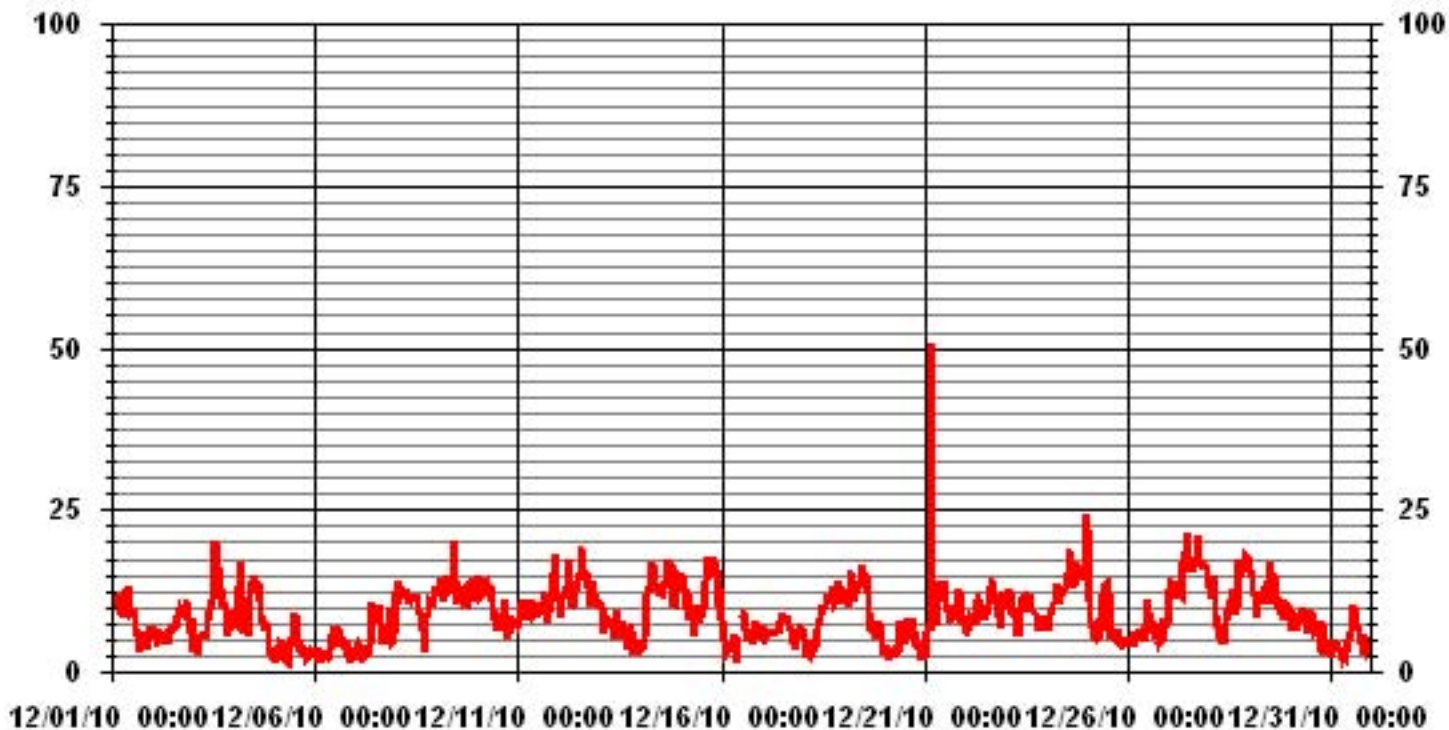
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	50.8	KPH	@ HOUR(S)	4
			ON DAY(S)	21

01 Hour Averages



— LICA WSMAX KPH

LICA
WSP / WD Joint Frequency Distribution (Percent)

December 2010

Distribution By % Of Samples

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

Wind Parameter : WD
Instrument Height : 10 Meters

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 6.0	.80	.94	1.34	4.58	10.24	6.73	6.60	2.96	2.96	2.15	4.31	5.92	4.58	1.88	1.21	2.02	59.29	
< 12.0	.40	.67	.00	.00	8.08	5.25	3.09	.00	.00	.00	2.42	2.69	5.12	3.36	2.96	2.69	36.79	
< 20.0	.00	.00	.00	.00	.00	.00	.40	.00	.00	.00	.00	.00	.53	.13	.13	.00	1.21	
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	1.21	1.61	1.34	4.58	18.32	11.99	10.10	2.96	2.96	2.15	6.73	8.62	10.24	5.39	4.31	4.71		

Calm : 2.69 %

Total # Operational Hours : 742

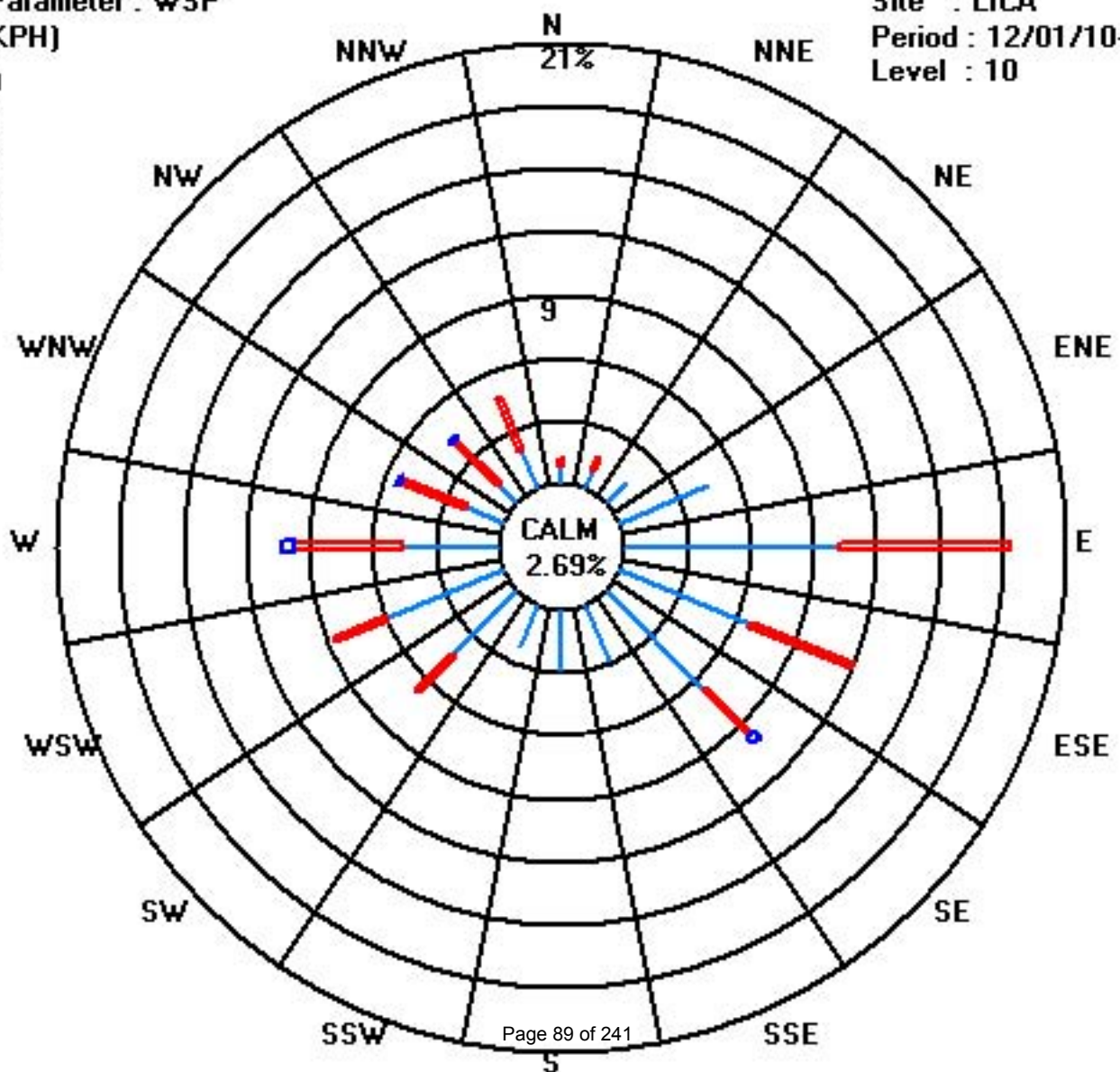
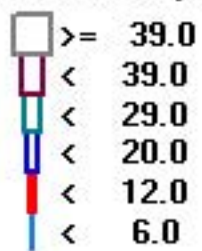
Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 6.0	6	7	10	34	76	50	49	22	22	16	32	44	34	14	9	15	440	
< 12.0	3	5			60	39	23				18	20	38	25	22	20	273	
< 20.0							3						4	1	1		9	
< 29.0																		
< 39.0																		
>= 39.0																		
Totals	9	12	10	34	136	89	75	22	22	16	50	64	76	40	32	35		

Calm : 2.69 %

Total # Operational Hours : 742

Class Limits (KPH)



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	QUADRANT	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.	
DAY																												
1	91	90	92	95	93	96	101	114	129	128	131	133	130	136	137	139	143	141	138	142	169	167	206	230	119	ESE	24	
2	230	227	231	225	241	248	229	235	252	231	154	147	140	138	94	145	142	135	134	131	137	149	137	152	168	SSE	24	
3	195	295	109	343	326	305	288	287	267	264	264	271	281	293	325	331	331	316	324	295	293	278	269	235	298	WNW	24	
4	217	222	233	227	237	181	171	183	177	215	223	227	232	245	234	245	248	242	236	245	250	237	165	144	228	SW	24	
5	144	191	145	139	183	152	130	143	241	197	213	204	248	226	232	215	148	181	128	128	108	252	239	237	198	SSW	24	
6	17	336	242	88	71	240	266	190	239	260	263	254	73	328	255	334	61	96	245	86	107	230	145	80	271	W	24	
7	263	102	256	251	253	97	261	118	182	109	91	112	107	109	103	96	108	122	120	108	90	100	85	87	105	ESE	24	
8	124	124	119	102	112	118	94	104	99	89	96	88	98	101	87	115	176	252	265	276	273	278	272	277	114	ESE	24	
9	274	289	314	309	302	314	302	299	306	307	334	354	342	337	323	324	333	332	348	345	336	344	345	29	323	NW	24	
10	31	20	31	22	5	345	344	350	25	73	80	51	13	75	328	332	335	33	114	114	109	120	116	114	28	NNE	24	
11	124	120	129	132	127	129	129	134	131	116	112	101	102	99	99	102	102	99	95	111	119	121	122	115	116	ESE	24	
12	116	102	118	115	108	112	124	94	92	94	102	95	94	90	93	92	94	97	99	112	112	119	122	128	103	ESE	24	
13	134	142	165	168	170	191	192	200	209	169	161	184	205	163	164	126	129	135	186	119	111	113	76	75	161	SSE	24	
14	76	72	59	65	110	131	126	129	122	125	122	121	95	86	92	93	93	111	86	99	84	81	85	87	101	E	24	
15	85	87	90	96	82	69	74	48	35	4	349	332	308	281	228	226	225	226	221	223	223	221	219	217	214	SSW	24	
16	207	162	144	167	241	151	160	188	262	252	0	0	259	257	292	283	287	271	280	299	332	323	344	331	272	W	22	
17	344	334	338	333	333	331	14	16	30	11	342	339	310	275	266	263	283	272	264	268	289	282	268	272	309	NW	24	
18	264	267	234	238	237	248	264	262	253	258	250	263	266	272	283	324	335	334	327	315	316	320	309	296	298	WNW	24	
19	292	296	304	305	313	299	284	276	276	275	286	296	298	300	308	301	256	238	222	229	225	231	234	211	283	W	24	
20	180	172	113	346	127	90	150	114	134	129	133	132	116	56	72	89	102	98	97	98	100	62	124	19	108	ESE	24	
21	54	89	94	97	212	75	86	98	102	105	89	94	108	105	85	87	89	99	108	119	114	112	91	85	100	E	24	
22	62	63	68	90	85	91	84	80	95	88	76	77	88	79	80	82	82	89	83	84	73	66	88	87	81	E	24	
23	82	82	89	84	86	86	84	88	97	97	85	77	86	93	93	89	88	93	97	102	83	91	92	110	89	E	24	
24	105	117	93	91	94	117	92	100	115	127	129	134	128	129	123	122	126	120	120	121	123	121	119	126	119	ESE	24	
25	125	112	88	87	71	49	69	80	91	123	128	128	129	125	63	99	92	97	116	85	83	125	57	9	105	ESE	24	
26	82	57	55	55	61	61	59	88	48	98	61	81	93	55	63	78	87	84	273	350	293	311	314	267	50	NE	24	
27	292	304	278	267	271	268	265	257	261	272	279	289	273	262	262	267	259	259	264	269	265	267	270	267	269	W	24	
28	267	256	233	236	247	222	240	247	8	239	251	244	254	252	253	272	284	301	307	313	300	309	308	308	276	W	24	
29	301	298	301	294	293	288	279	260	258	279	274	268	265	266	270	261	253	253	260	248	250	258	257	244	270	W	24	
30	237	254	248	236	221	239	238	257	251	239	240	233	240	237	229	224	238	204	281	156	142	207	230	202	237	SW	24	
31	133	132	136	136	144	197	121	145	121	129	156	162	193	141	152	169	178	177	221	123	171	97	217	122	153	SSE	24	
HOURLY AVG	344	336	338	346	333	345	344	350	306	307	349	354	342	337	328	334	335	334	348	350	336	344	345	331				

STATUS FLAG CODES

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

LAST CALIBRATION:

November 23, 2010

DECLINATION :

19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME: 0 HRS

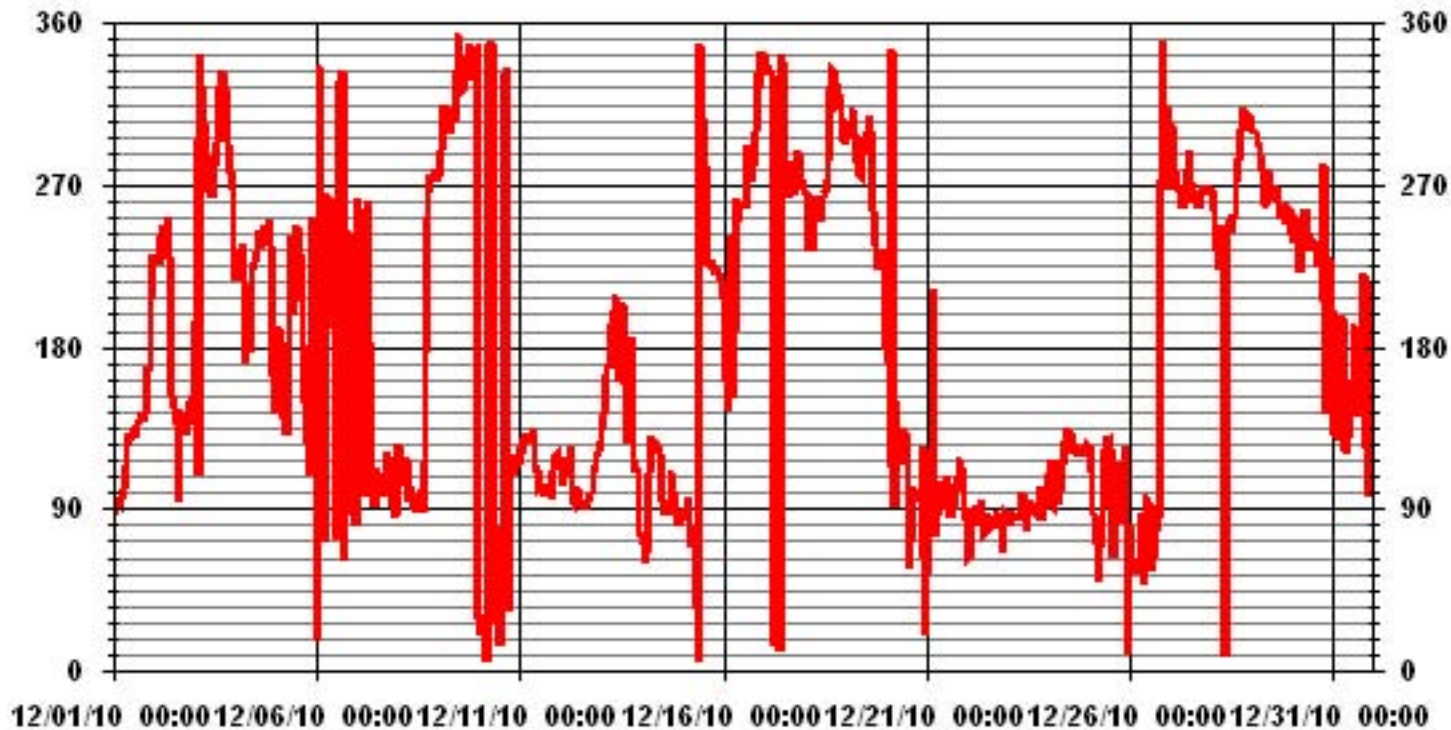
OPERATIONAL TIME: 742 HRS

STANDARD DEVIATION 89.78

AMD OPERATION UPTIME 99.7 %

MONTHLY AVERAGE 145 DEG

01 Hour Averages



— LICA WDR DEG

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

DECEMBER 2010

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	17	18	18	21	19	20	20	21	15	16	16	16	17	19	15	16	10	11	12	15	28	23	25	18
2	21	16	18	15	17	18	16	18	18	20	22	25	19	35	48	23	16	16	29	15	21	30	22	27
3	41	27	27	22	11	16	19	14	18	15	19	17	19	20	13	15	14	12	12	16	19	19	23	20
4	23	23	20	19	20	34	35	46	32	25	22	22	19	19	19	17	13	13	16	15	11	23	27	8
5	34	18	27	23	31	36	24	32	14	39	31	35	23	36	25	27	28	14	18	26	26	34	1	2
6	28	27	22	31	16	4	9	29	34	9	9	25	28	26	17	26	18	23	26	19	12	16	32	15
7	34	15	30	9	23	33	28	31	30	18	19	20	20	22	22	35	18	11	14	18	14	14	15	16
8	18	18	19	22	21	21	18	22	22	19	22	20	22	21	21	22	18	18	17	16	19	17	16	17
9	17	18	14	15	15	14	14	14	15	14	18	17	16	15	13	14	13	13	16	16	14	16	16	30
10	21	18	20	18	18	15	15	18	19	27	19	26	48	23	32	14	15	41	20	17	18	18	20	21
11	19	19	16	12	14	14	14	11	12	19	22	21	23	20	21	23	21	19	18	20	18	19	19	21
12	21	21	20	20	21	23	18	19	17	18	23	20	18	19	18	19	20	20	20	22	21	21	19	15
13	17	19	37	34	35	34	37	36	47	41	58	47	37	41	42	41	42	26	50	37	37	9	13	19
14	14	10	11	13	15	14	18	16	20	18	22	21	20	18	18	19	18	22	19	19	17	17	19	20
15	20	20	19	22	20	17	19	17	15	17	16	15	17	16	18	19	19	19	19	19	19	19	20	21
16	23	25	22	24	22	46	17	25	7	33	0	0	21	24	29	29	20	21	34	19	17	17	23	24
17	22	19	22	27	17	18	20	26	22	24	21	21	21	20	18	15	13	17	26	51	17	15	18	23
18	23	20	24	55	63	41	35	55	46	27	26	21	18	17	19	12	14	12	15	13	12	14	14	14
19	16	14	13	12	13	15	16	17	17	19	16	16	17	15	16	16	16	10	12	11	13	15	16	29
20	30	52	53	65	41	51	62	31	43	19	12	10	39	22	19	22	23	21	27	30	39	38	52	38
21	25	31	27	28	58	21	22	28	24	21	19	19	22	23	18	19	17	21	22	19	21	24	20	20
22	15	17	16	22	33	29	21	19	23	20	23	22	23	21	17	17	16	17	19	16	16	14	15	17
23	19	20	20	20	19	22	40	22	25	21	21	23	21	19	19	20	18	21	22	43	18	19	24	28
24	32	21	22	19	23	20	20	22	22	18	15	14	15	15	18	19	16	19	20	19	17	19	19	15
25	18	22	19	20	17	20	17	28	30	19	18	14	30	26	23	18	25	29	40	30	56	53	55	36
26	46	27	39	51	56	30	14	28	27	24	20	20	27	38	31	46	28	51	63	47	48	24	15	19
27	17	15	17	17	18	17	17	16	17	19	19	18	18	19	19	18	17	17	18	18	18	18	19	18
28	18	17	19	17	16	13	30	20	52	40	20	17	16	15	15	18	16	14	13	12	15	14	15	14
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30	11	16	15	25	40	17	15	18	21	22	22	20	20	21	21	20	23	37	55	61	25	49	34	56
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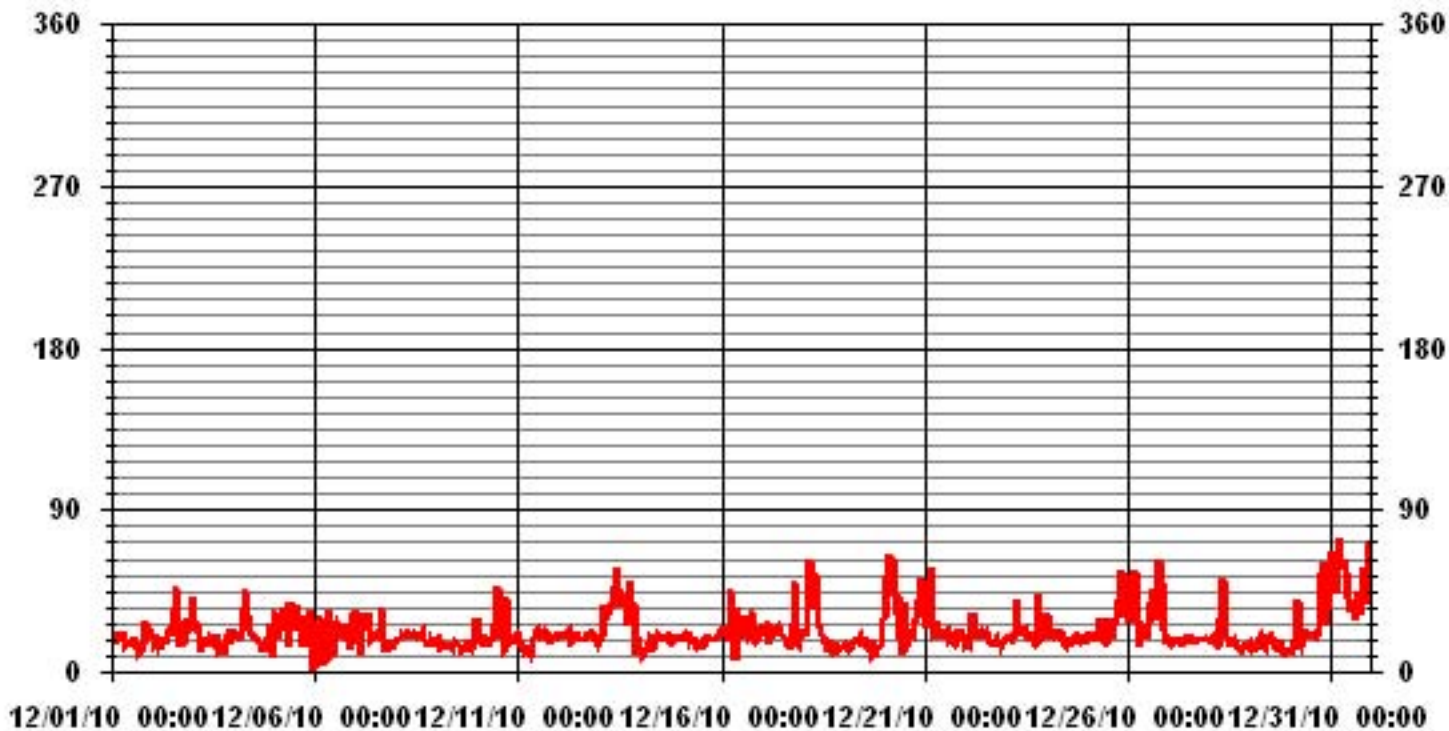
STATUS FLAG CODES

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

LAST CALIBRATION: November 23, 2010

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 742 HRS

01 Hour Averages



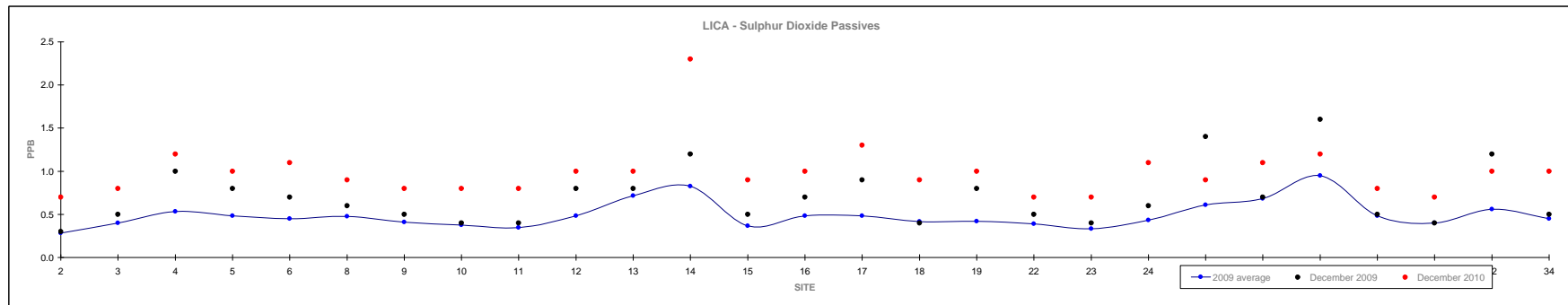
— LICA STDWDIR DEG

Non-Continuous Monitoring

Passive Summary Results for December 2010

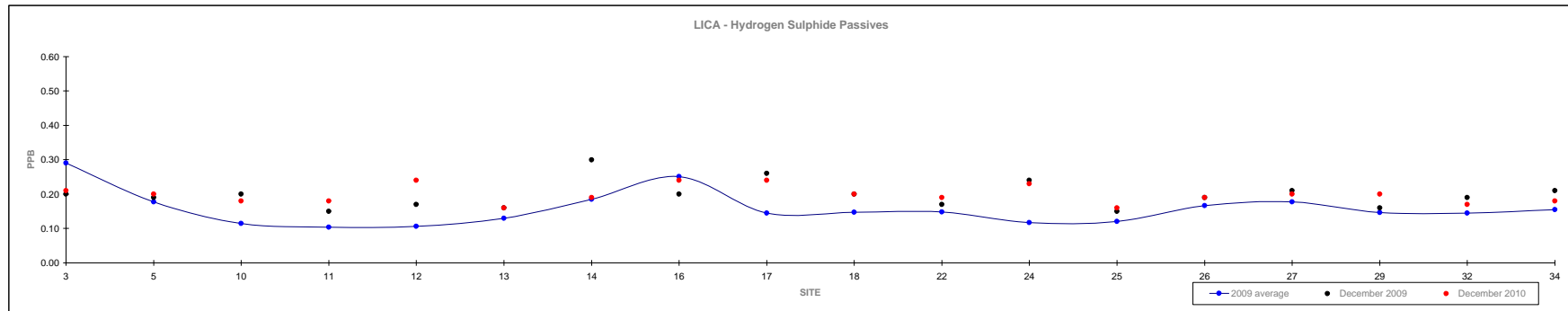
Lakeland Industry & Community Association

	Sulphur Dioxide ppb																												December 2010	
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	25	26	27	28	29	32	34	Reading	Site	
Mean	0.3	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.5	0.7	0.8	0.4	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.6	0.7	1.0	0.5	0.4	0.6	0.5	1.0	-	
Minimum	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.4	0.7	#2, #29	
Maximum	0.9	0.9	1.3	1.1	1.2	0.9	1.0	0.9	0.8	1.1	1.2	2.2	0.9	1.1	1.0	1.3	0.8	0.9	0.8	1.1	1.4	1.4	2.6	0.9	0.8	1.2	0.5	2.3	#14	



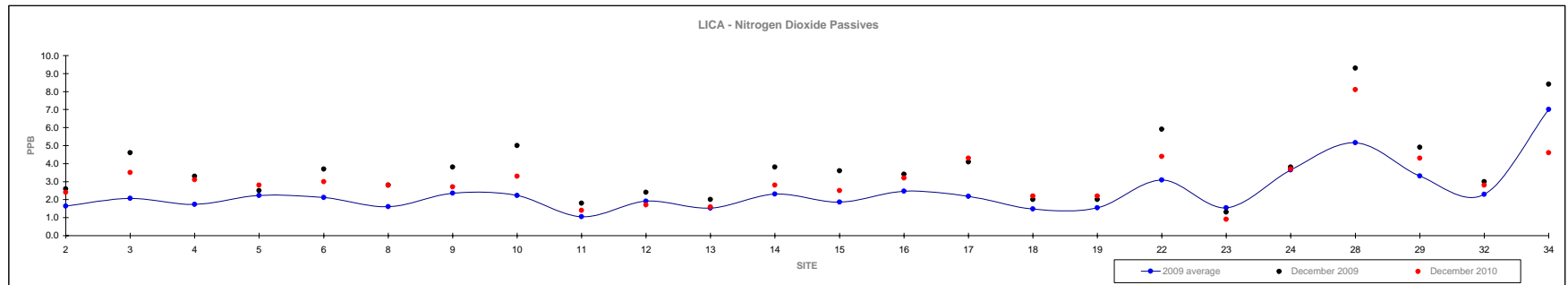
Passive Summary Results for December 2010 Lakeland Industry & Community Association

	Hydrogen Sulphide ppb																December 2010			
	3	5	10	11	12	13	14	16	17	18	22	24	25	26	27	29	32	34	Reading	Site
Mean	0.29	0.18	0.12	0.10	0.11	0.13	0.19	0.25	0.15	0.15	0.15	0.12	0.12	0.17	0.18	0.15	0.15	0.16	0.20	-
Minimum	0.05	0.09	0.03	0.03	0.05	0.03	0.11	0.07	0.08	0.05	0.04	0.06	0.03	0.06	0.07	0.04	0.10	0.10	0.16	#25
Maximum	0.80	0.29	0.20	0.16	0.21	0.20	0.30	0.54	0.26	0.29	0.24	0.24	0.18	0.28	0.35	0.28	0.19	0.21	0.24	VARIOUS



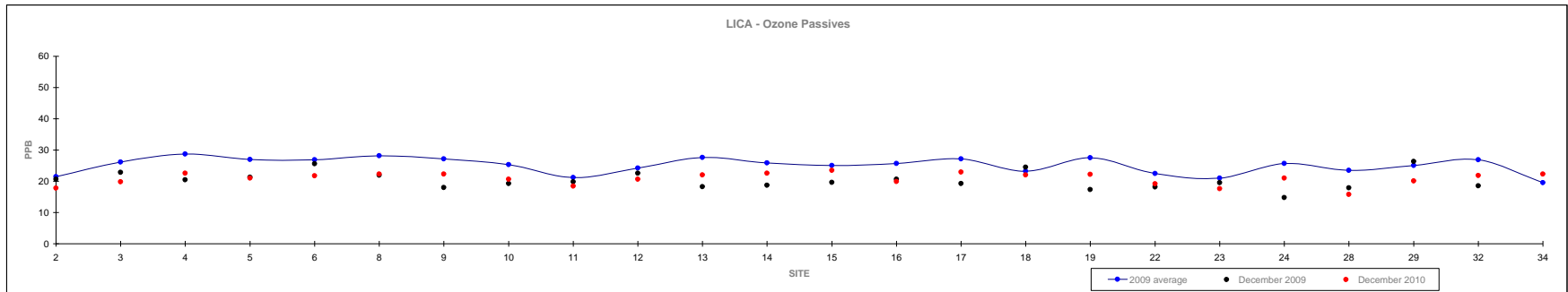
Passive Summary Results for December 2010 Lakeland Industry & Community Association

	Nitrogen Dioxide ppb																												December 2010	
	2009																												Reading	Site
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	28	29	32	34	3.1	-				
Mean	1.6	2.1	1.7	2.2	2.1	1.6	2.4	2.2	1.0	1.9	1.5	2.3	1.9	2.5	2.2	1.5	1.5	3.1	1.5	3.6	5.2	3.3	2.3	7.0						
Minimum	0.9	0.8	0.8	1.0	0.8	0.9	1.5	0.4	0.5	0.5	0.9	0.9	1.0	1.7	0.7	0.7	0.9	0.2	0.4	2.7	1.0	0.5	1.2	5.6	0.9	#23				
Maximum	2.9	4.6	3.7	5.0	4.4	3.0	4.0	5.0	2.0	6.4	2.9	6.1	3.6	3.9	4.1	3.5	2.4	7.2	2.6	5.6	10.6	7.0	3.0	8.4	8.1	#28				



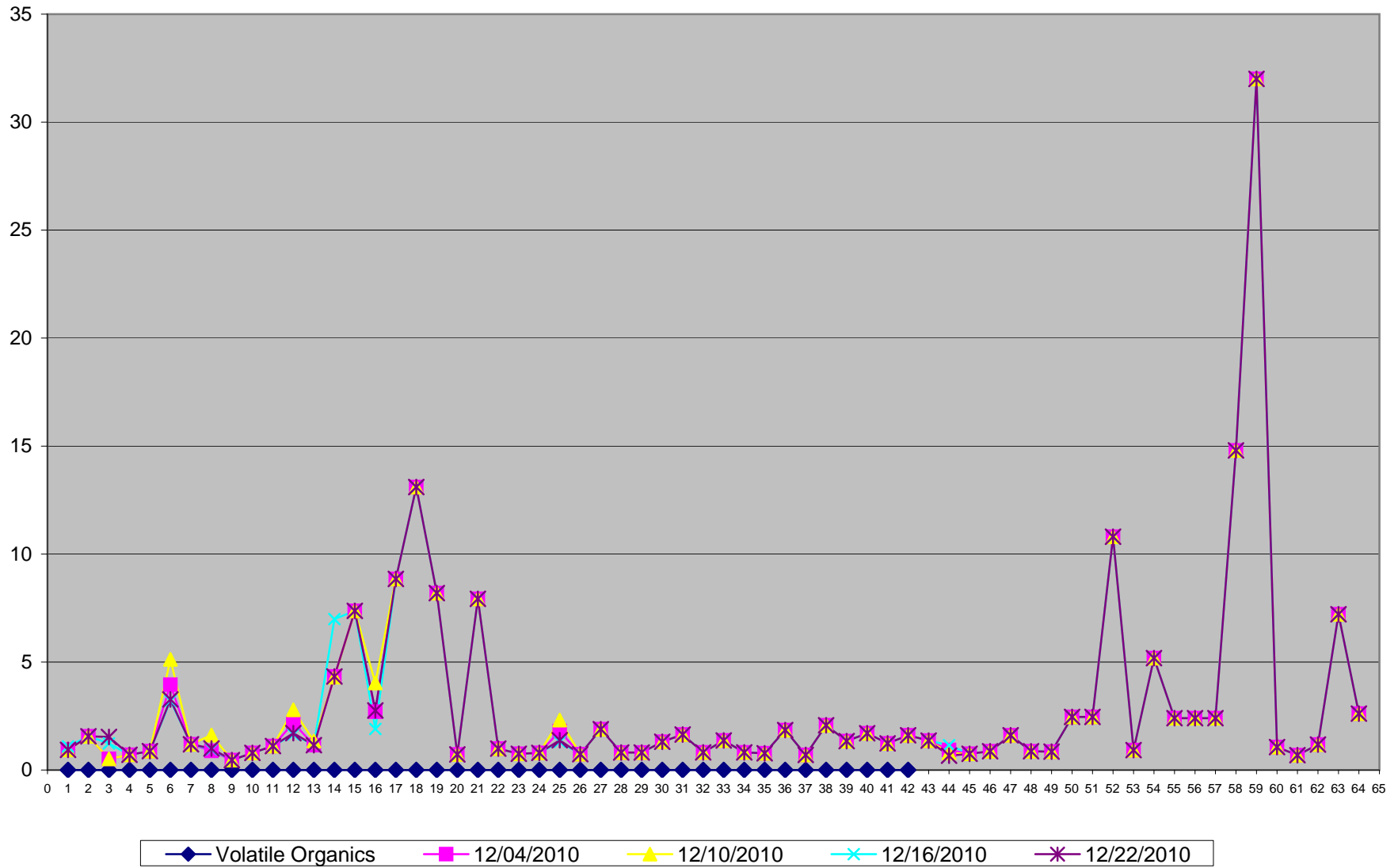
Passive Summary Results for December 2010 Lakeland Industry & Community Association

	Ozone ppb																												December 2010	
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	28	29	32	34	Reading	Site				
Mean	21.5	26.2	28.8	26.9	26.9	28.2	27.2	25.4	21.2	24.2	27.7	25.9	25.1	25.7	27.2	23.3	27.6	22.5	21.0	25.7	23.5	25.0	26.9	19.6	20.8	-				
Minimum	12.8	14.2	17.9	17.3	16.0	17.7	15.4	14.9	12.0	14.6	17.3	15.5	14.8	15.5	15.1	13.8	17.7	14.7	13.6	15.3	12.5	14.8	18.9	18.5	15.8	#28				
Maximum	32.3	38.6	47.5	37.9	43.6	38.6	42.6	38.2	30.2	46.0	36.5	35.4	42.3	36.7	46.5	36.2	41.7	32.6	32.6	40.5	37.7	40.0	32.0	20.6	23.5	#15				



Volatile Organics

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



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

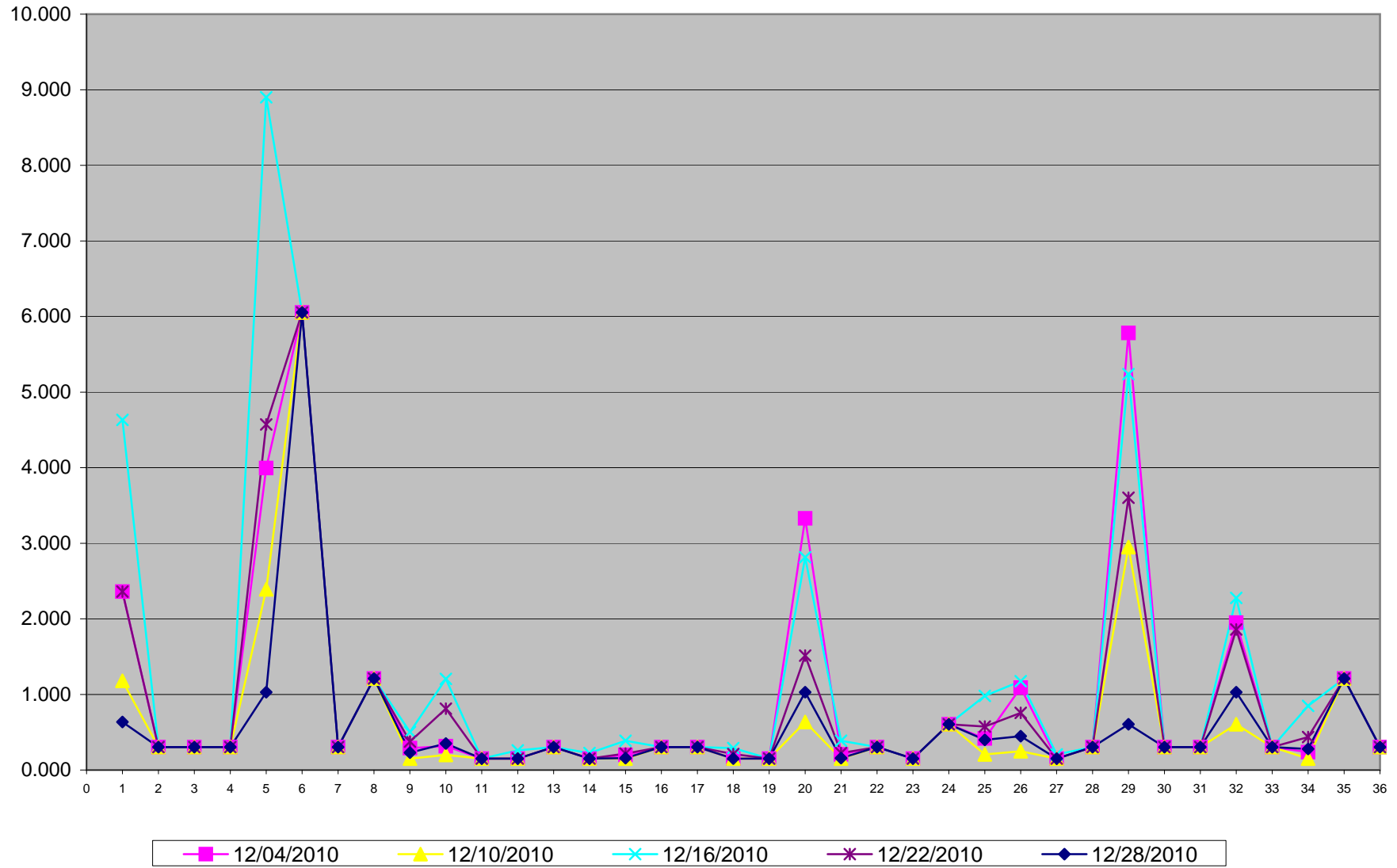
Polycyclic Aromatic Hydrocarbons

Polycyclic Aromatic Hydrocarbons (PAHs) Results for December 2010
LICA- Cold Lake South Site
Unit: ng/m3

PAHs	12/04/2010	12/10/2010	12/16/2010	12/22/2010	12/28/2010
Sample Volume (unit: m3)	330.35	330.35	330.35	330.35	330.36
1 1-Methylnaphthalene	2.361	1.181	4.631	2.361	0.636
2 1-Methylphenanthrene	0.303	0.303	0.303	0.303	0.303
3 2-Chloronaphthalene	0.303	0.303	0.303	0.303	0.303
4 2-Methylantracene	0.303	0.303	0.303	0.303	0.303
5 2-Methylnaphthalene	3.996	2.391	8.900	4.571	1.029
6 3-Methylcholanthrene	6.054	6.054	6.054	6.054	6.054
7 7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.303	0.303	0.303
8 9,10-Dimethylantracene	1.211	1.211	1.211	1.211	1.211
9 Acenaphthene	0.291	0.151	0.502	0.375	0.230
10 Acenaphthylene	0.315	0.200	1.205	0.811	0.351
11 Anthracene	0.151	0.151	0.151	0.151	0.151
12 Benzo(a)anthracene	0.151	0.151	0.260	0.151	0.151
13 Benzo(a)fluorene	0.303	0.303	0.303	0.303	0.303
14 Benzo(a)pyrene	0.151	0.151	0.224	0.151	0.151
15 Benzo(b)fluoranthene	0.200	0.151	0.387	0.218	0.157
16 Benzo(b)fluorene	0.303	0.303	0.303	0.303	0.303
17 Benzo(e)pyrene	0.303	0.303	0.303	0.303	0.303
18 Benzo(g,h,i)perylene	0.151	0.151	0.291	0.212	0.151
19 Benzo(k)fluoranthene	0.151	0.151	0.151	0.151	0.151
20 Biphenyl	3.330	0.636	2.815	1.514	1.029
21 Chrysene	0.206	0.151	0.387	0.224	0.157
22 Coronene	0.303	0.303	0.303	0.303	0.303
23 Dibenz(a,h)anthracene	0.151	0.151	0.151	0.151	0.151
24 Dibenzo(a,e)pyrene	0.605	0.605	0.605	0.605	0.605
25 Fluoranthene	0.418	0.206	0.981	0.575	0.400
26 Fluorene	1.090	0.248	1.175	0.757	0.448
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	0.206	0.151	0.151
28 m-Terphenyl	0.303	0.303	0.303	0.303	0.303
29 Naphthalene	5.782	2.948	5.237	3.602	0.605
30 o-Terphenyl	0.303	0.303	0.303	0.303	0.303
31 Perylene	0.303	0.303	0.303	0.303	0.303
32 Phenanthrene	1.949	0.605	2.276	1.859	1.029
33 p-Terphenyl	0.303	0.303	0.303	0.303	0.303
34 Pyrene	0.236	0.151	0.848	0.436	0.278
35 Quinoline	1.211	1.211	1.211	1.211	1.211
36 Tetralin	0.303	0.303	0.303	0.303	0.303

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

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



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

Calibration Reports

Sulphur Dioxide

SO₂ Calibration Report

Station Information

Calibration Date	December 3, 2010	Previous Calibration	November 3, 2010
Company	Lakeland Community and Industry Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	12:10	End Time (MST)	15:26
Reason:	Monthly Calibration		
Barometric Pressure	1 atm	Station Temperature	23 Deg C
Cal Gas	51.4 ppm	Cal Gas Expiry date	5/8/2012
DAS Output Voltage	0 - 1 Volts		

Equipment Information

Analyzer Make / Model:	Thermon 43i	S/N :	806528242	Method:	UV absorbtion
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	3485		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 500 ppb		
Sample Flow / Box Temp	452 ccm, 28.8 Deg C	453 ccm, 29.2 Deg C	
HVPS / Lamp Setting	-631, 751	-631, 749	
PMT / RxCell Temp	OK Deg C, 45.2 Deg C	OK Deg C, 45.1 Deg C	
Converter / IZS Temp	NA Deg C, 45.0 Deg C	NA Deg C, 45.0 Deg C	
Offset / Slope	5.4, 1.026	5.4, 1.026	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4998	0	0	0	N/A
4961	38.9	400	402	0.9948
4977	19.5	201	203	0.9882
4982	14.6	150	153	0.9816
4999	0	0	0	N/A
Sum of Least Squares				0.2798
New Correction Factor				0.9948

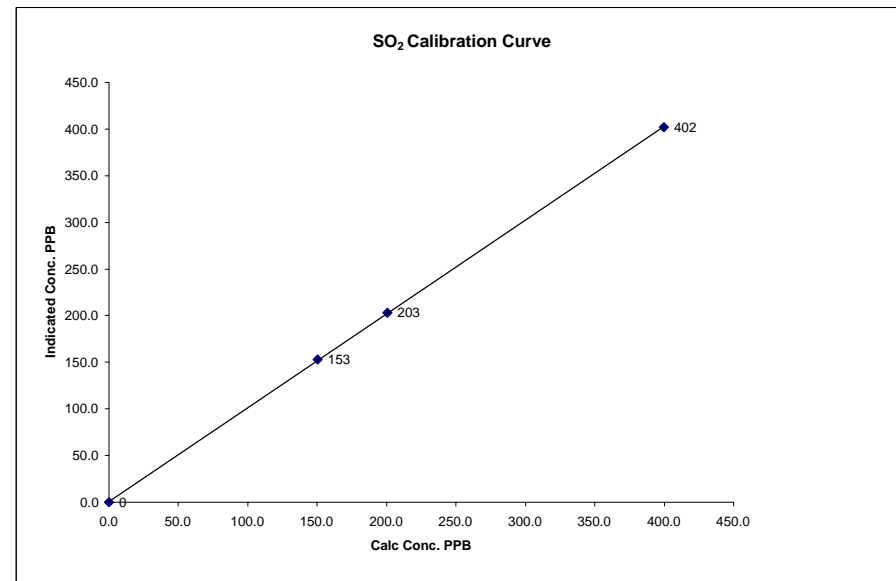
	Before Calibration	After Calibration
Auto Zero	0.2	0.2
Auto Span	368	365
Sample Lines Connected		YES
Percent Change from Previous Calibration		0.5%

Calibration Performed by: Ting Xyu

SO₂ Calibration Curve

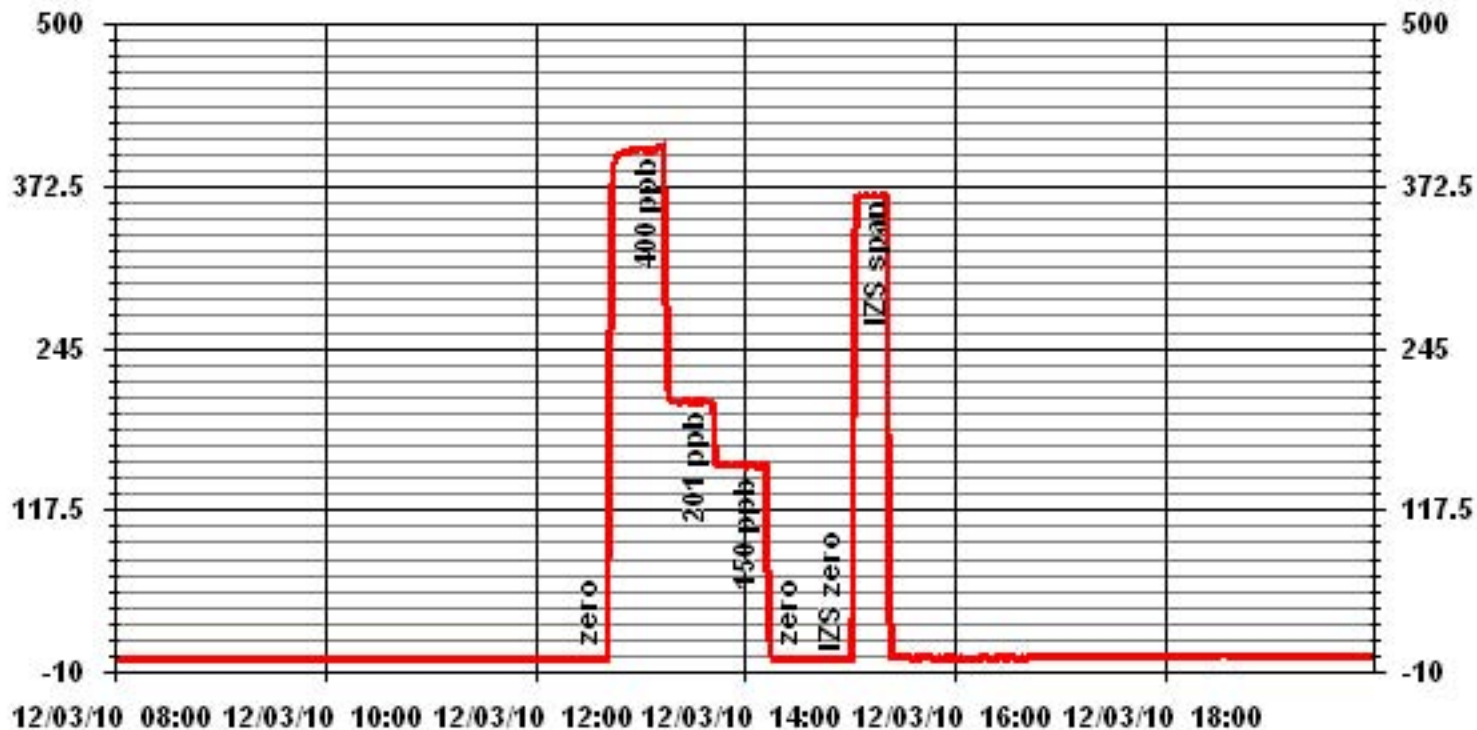
Calibration Date	December 3, 2010
Company	Lakeland Community and Industry Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	12:10
End Time (MST)	15:26

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope (≥ 0.995) (0.85 to 1.15)	Intercept (± 3% F.S.)
0	0	n/a	0.999963	1.004538
150	153	0.9816		
201	203	0.9882		
400	402	0.9948		0.975664



Notes:

01 Minute Averages



Total Reduced Sulphur

**TRS Calibration Report
Station Information**

Calibration Date	December 2, 2010	Previous Calibration	November 2, 2010
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	8:09	End Time (MST)	12:25
Reason:	Post Repair Calibration		
Barometric Pressure	0.936 atm	Station Temperature	23 Deg C
Cal Gas	10.6 ppm	Cal Gas Expiry date	May 12, 2011
DAS Output Voltage	0 - 10 Volts		

Equipment Information

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

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	358			0 - 100			ppb
Sample Flow / Box Temp	358	ccm	32.1	Deg C	358	ccm	32.3
HVPS / Lamp Setting	-622.7		758	Deg C	-622.7		758
PMT / RxCell Temp	OK	Deg C	45.0	Deg C	OK	Deg C	44.9
Converter / IZS Temp	852	Deg C	45.0	Deg C	850	Deg C	45.0
Offset / Slope	11.2		1.171		11.1		1.171

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4999	0	0	0	N/A
4962	37.7	80	80	0.9991
4983	18.8	40	40	0.9960
4988	10.9	23	23	1.0049
4999	0	0	0	N/A
Sum of Least Squares				0.9989
New Correction Factor				0.9991

Before Calibration

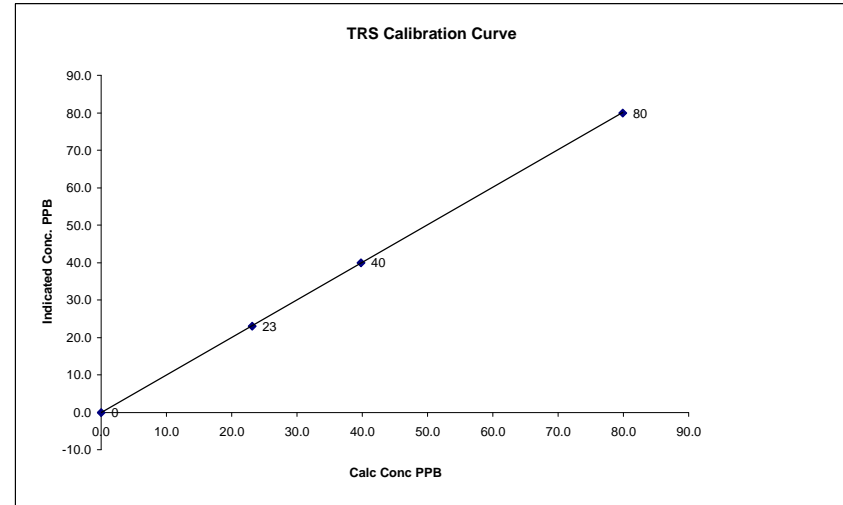
	Before Calibration	After Calibration
Auto Zero	0.2	0.1
Auto Span	31	32
Sample Lines Connected		YES
Percent Change from Previous Calibration		0.0%

Calibration Performed by: Ting Xu

TRS Calibration Curve

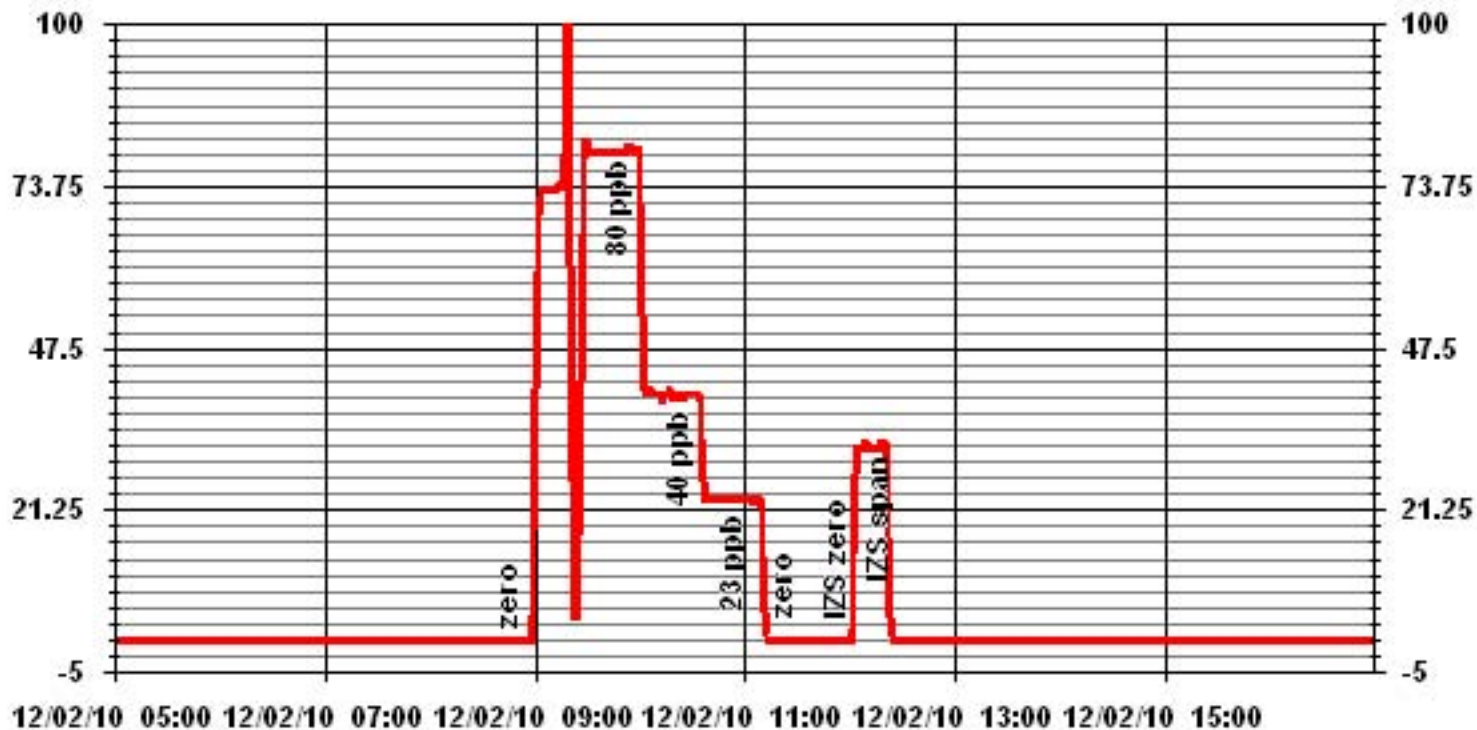
Calibration Date	December 2, 2010		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	8:09	End Time (MST)	12:25

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999991
0	0	n/a	Intercept	(0.85 to 1.15)	1.001534
23	23	1.0049		(± 3% F.S.)	-0.025689
40	40	0.9960			
80	80	0.9991			



Notes: When did the TRS as found point, the reading was 7.5% lower than exp value. Aborted the cal, changed charcoal and redid the point.

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information

Calibration Date:	December 2, 2010	Previous Calibration	November 2, 2010
Company:	Lakeland Industry and Community Association		
Plant / Location:	LICA1/Cold Lake		
Start Time (MST)	12:51	End Time (MST)	16:57
Reason:	Monthly Calibration		
Barometric Pressure:	0.935 atm	Station Temperature:	23 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	207Prop/602Meth	ppm	Cal Gas Expiry Date: 8/21/2011
DAS make & Model:	ESC 8832	S/N :	3485
Output Voltage Range:	0 - 10 VDC		

Analyzer Information

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

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

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0	0.0	0.0	N/A
2000	70	39.6	39.4	1.0053
2000	70	39.6	39.8	0.9952
2000	35	20.1	19.9	1.0123
2000	20	11.6	11.3	1.0262
2000	0	0.0	0.0	N/A
Correction Factor:				0.9952

Percent Change

Previous Calibration Correction Factor:	0.9931
Current Correction Factor Before Span Adjust:	1.0053
Percent Change:	-1.2%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	37.2	36.9
Sample Lines Connected		YES

Cylinder Pressures

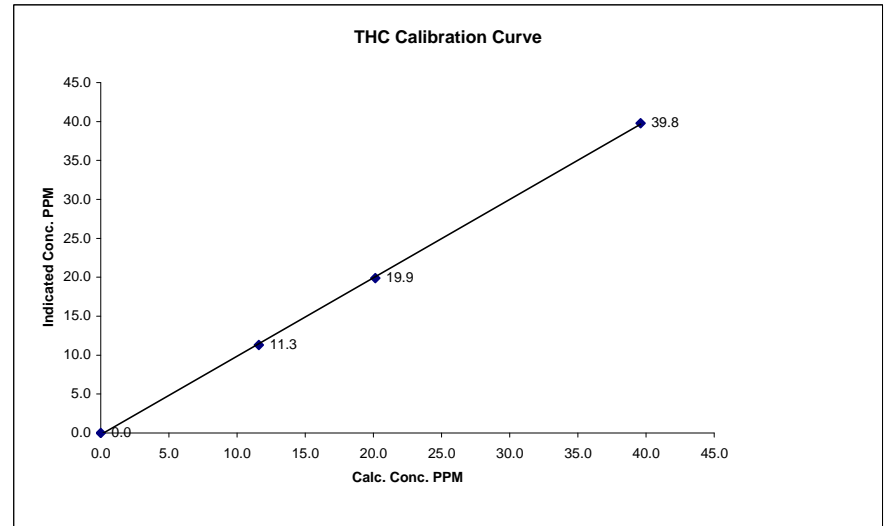
Span	1150 psi
Hydrogen	1600 psi
Zero Air	32 psi Maxxam-owned API 701 zero air supply with catalytic oxidizer

Calibration Performed by: Ting Xu

THC Calibration Curve

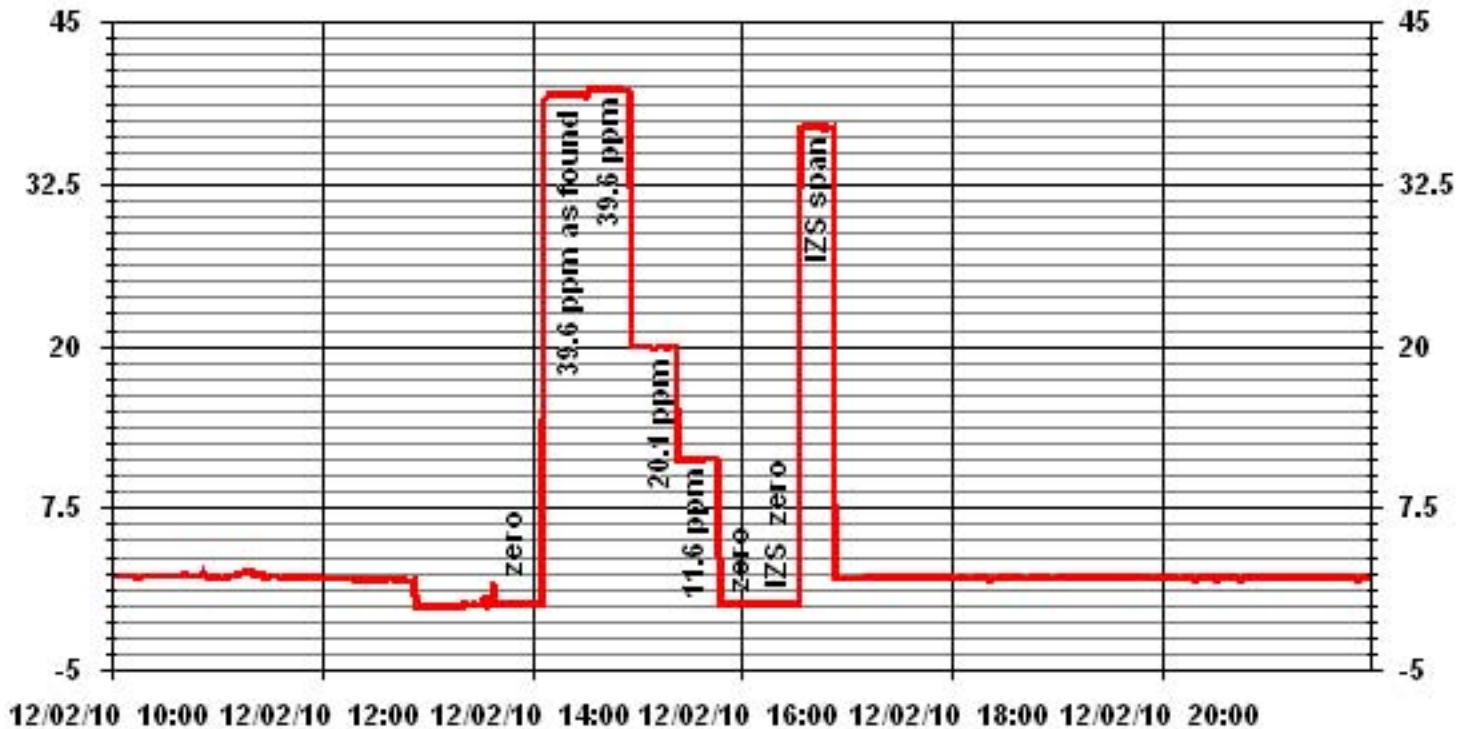
Calibration Date	December 2, 2010
Company	Lakeland Industry and Community Association
Plant / Location	LICA1/Cold Lake
Start Time (MST)	12:51
End Time (MST)	16:57

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999860
0.0	0.0		Intercept	(0.85 to 1.15)	1.006549
11.6	11.3	1.0262		(± 3% F.S.)	-0.203916
20.1	19.9	1.0123			
39.6	39.8	0.9952			



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOM 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	December 16, 2010	Make/Model:	Streamline FTS
Station Name:	LICA 1	Serial Number:	Hi 091001
Location:	Cold Lake South	Cell s/n:	Lo 091099
Operator:	LICA	Thermometer s/n:	VWR90758398

	<u>Sampler</u>		<u>Set-up and current Sampler readings</u>
Make/Model	Thermo Scientific Series 1405F	F-Main Set Pt (l/min)	3.00
Unit #	AMU 1775	F-Aux Set Pt (l/min)	13.67
Unit s/n	1405A201620804	Filter Load (%)	40.6%
Firmware Ver.	1.52	K _o Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	-21.7
		Press (ATM)	0.943

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

Note: Tolerances are noted as BOLD in Brackets

Audit

Status			
Noise <0.10ug	0.005	Warnings	None
Pump Vacuum <0.40atm	0.36		
Temperature/Pressure			
Measured Temp (± 2 °C)	-21.1	D °C	-0.6
Measured Press (± 0.01atm)	0.949	DATM	-0.006
Flow Audit			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	2.06%
Measured Main Flow (l/min)	3.02	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	2.84%
Measured Bypass Flow (l/min)	13.73	Flow Adjusted to Measured?	Yes
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	Base=0.06, Ref=0.05	Flow Control = Active	
Aux (< 0.6 l/min)	Base=0.23, Ref=0.17	Report Conditions = Standard (25.0 C and 1atm)	
K_o Factor			
Measured	NA		
K _o Difference (± 2.5%)	NA		

Start Time: 7:40 **Finish Time:** 13:24

Sample Inlet Cleaned: Yes **New Filters Installed:** NO
New Filter Loading %: 21.9%

Comments: Performed audit, replaced the filter in the bypass flow water knock-off, did a leak check, adjusted the BP value to match current measured BP, re-audited flows. Main flow was measured at 3.02lpm, Bypass flow rate was 13.74lpm. Flows were adjusted to measured.

Auditor/s: Shea Beaton / Ting Xu

Nitrogen Dioxide

NOx - NO- NO₂ Calibration Report

Station Information

Calibration Date	December 2, 2010	Previous Calibration	November 2, 2010
Company	LICA	Plant/Location	LICA 1 - Cold Lake South
Start Time (MST)	8:09	End Time (MST)	14:23
Reason:	Monthly Calibration	Other	
Barometric Pressure	0.936 atm	Station Temperature	23 Deg C
Cal Gas Concentration	NOx 50.8 ppm	NO 50.4 ppm	Cal Gas Expiry date 05-Aug-12
DAS Output Voltage	0 - 10	Chart Rec. Output	NA Volts

Equipment Information

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

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 500			ppb			
Sample Flow/Conv. Temp	718 ccm	317 Deg C		719 ccm	317.0 Deg C		
Ozone Flow / Vacuum	OK ccm	181.1 "Hg-A		OK ccm	181.2 "Hg-A		
HVPS / A ZERO	-821 Volts	NA MV		-821 Volts	NA MV		
Rx/ Temp / PMT Temp	49.8 Deg C	-2.5 Deg C		49.6 Deg C	-2.5 Deg C		
Box Temp / IZS Temp	27.6 Deg C	OK Deg C		27.7 Deg C	OK Deg C		
Offset	3.8 NOx	3.5 NO		3.9 NOx	3.6 NO		
Slope	1.009 NOx	0.908 NO		1.006 NOx	0.922 NO		
NO ₂ COEF / Conv Efficiency	0.998 NO ₂	NA		0.998 NO ₂	NA		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO ₂	NOx	NO	NO ₂	NOx	NO
4995	0.0	----	0	0	----	0	0	0	----	----
4956	39.6	----	403	400	----	398	395	3	1.0118	1.0114
4956	39.6	----	403	400	----	403	400	3	0.9992	0.9988
4975	19.8	----	201	200	----	202	201	1	0.9969	0.9940
4984	9.9	----	101	100	----	102	101	1	0.9873	0.9892
4995	0.0	----	0	0	0	1	0	0	----	----

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO ₂ Correction Factor	NO ₂ Conv Efficiency
			NOx	NO	NO ₂	NOx	NO	NO ₂		
4957	39.6	----	403	399	----	402	400	2	----	----
4956	39.6	350	403	----	324	402	78	324	1.0093	100.00%
4956	39.6	150	403	----	142	403	260	143	1.0143	100.71%
4956	39.6	75	403	----	72	402	330	72	1.0435	100.00%

Linearity	Sum of Least Squares	NOx= 0.998	NO= 0.997	NO ₂ = 0.999	
OK?	Yes No	Correction Factors:	NOx= 0.9992	NO= 0.9988	NO ₂ = 1.0093
Average Converter Efficiency= 100.24%					

Before Calibration				After Calibration			
Auto Zero	0.1 NOx	0.2 NO ₂		0.1 NOx	0.1 NO ₂		
Auto Span	392 NOx	390 NO ₂		394 NOx	392 NO ₂		
Sample Lines Connected				YES			

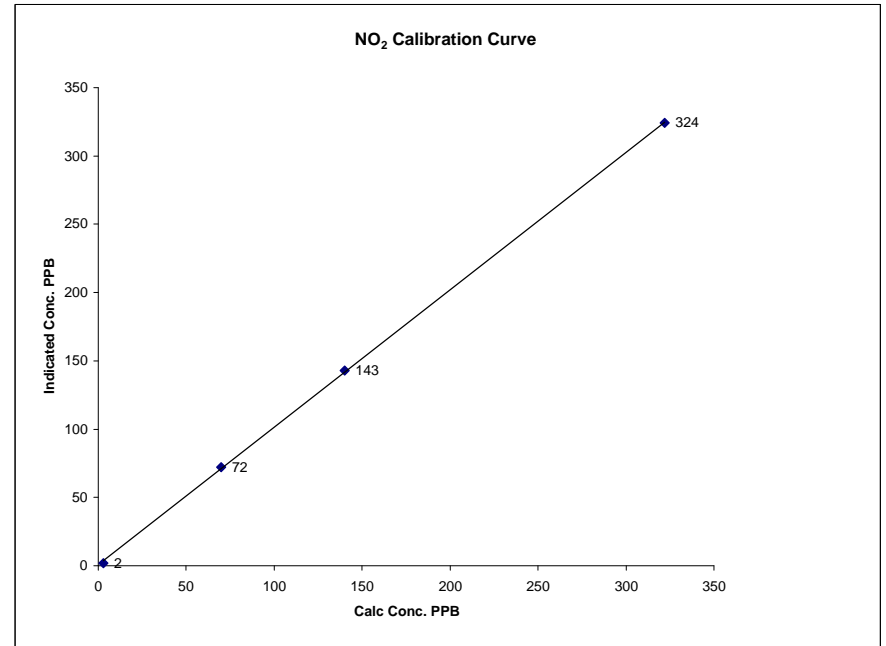
Notes After finished the NOx GOT calibration, put the NO concentration back zero later few minutes then O3, made NO reading high for few minutes.

Calibration Performed by: Ting Xu

NO₂ Calibration Curve

Calibration Date	December 2, 2010	LICA	
Company	LICA		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	8:09	End Time (MST)	14:23

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	
3	2	N/A	Slope	0.999892
70	72	0.9722	Intercept	1.007036
140	143	0.9790		0.55893
322	324	0.9938		

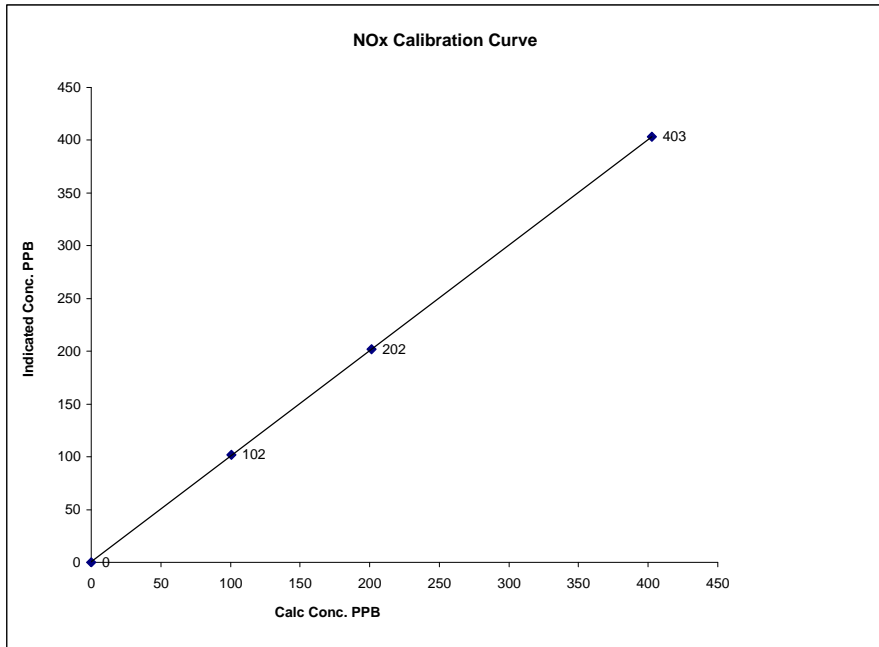


Notes:

NOx Calibration Curve

Calibration Date	December 2, 2010	
Company	LICA	
Plant / Location	LICA 1 - Cold Lake South	
Start Time (MST)	8:09	End Time (MST) 14:23

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999990
0	0	N/A	Slope (0.85 to 1.15)	0.999867
101	102	0.9873	Intercept (± 3% F.S.)	0.57979
201	202	0.9969		
403	403	0.9992		

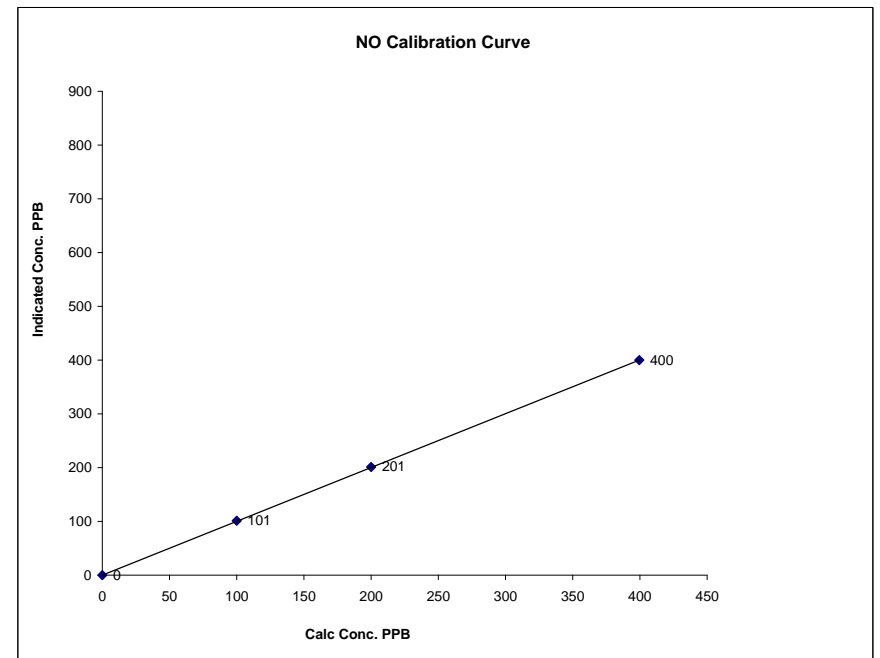


Notes:

NO Calibration Curve

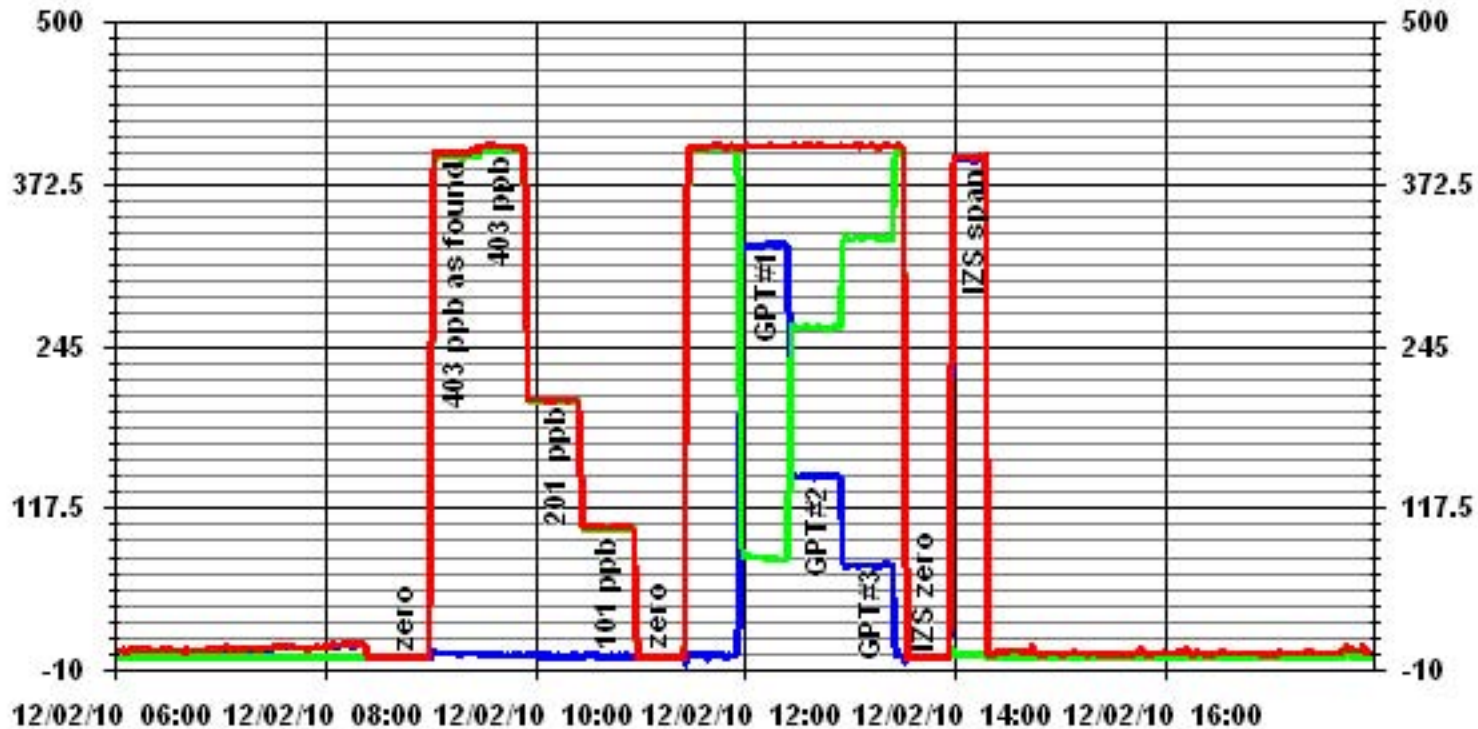
Calibration Date	December 2, 2010	
Company	LICA	
Plant / Location	LICA 1 - Cold Lake South	
Start Time (MST)	8:09	End Time (MST) 14:23

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999990
0	0	N/A	Slope (0.85 to 1.15)	0.997747
100	101	0.9892	Intercept (± 3% F.S.)	1.9362
200	201	0.9940		
400	400	0.9988		



Notes:

01 Minute Averages



Ozone

O₃ Calibration Report

Station Information

Calibration Date	December 3, 2010	Previous Calibration	November 2, 2010
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	12:10	End Time (MST)	15:17
Reason:	Monthly Calibration		
Barometric Pressure	0.941 atm	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 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	3485		

Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 500			
Cell A Flow/ Cell B Flow	743 ccm	757 ccm	742 ccm	757 ccm
Pressure	711 mmHg		711 mmHg	
Bench Lamp Temp	53.5 Deg C		53.5 Deg C	
O ₃ Lamp/Box Temp	67.7 Deg C	28.6 Deg C	67.7 Deg C	28.7 Deg C
Offset / Slope	0.7	0.996	0.7	0.996

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	N/A
4996	350	322	321	1.0031
4996	150	140	139	1.0072
4996	75	70	69	1.0145
4996	0	0	0	N/A
Sum of Least Squares				N/A
New Correction Factor				1.0031

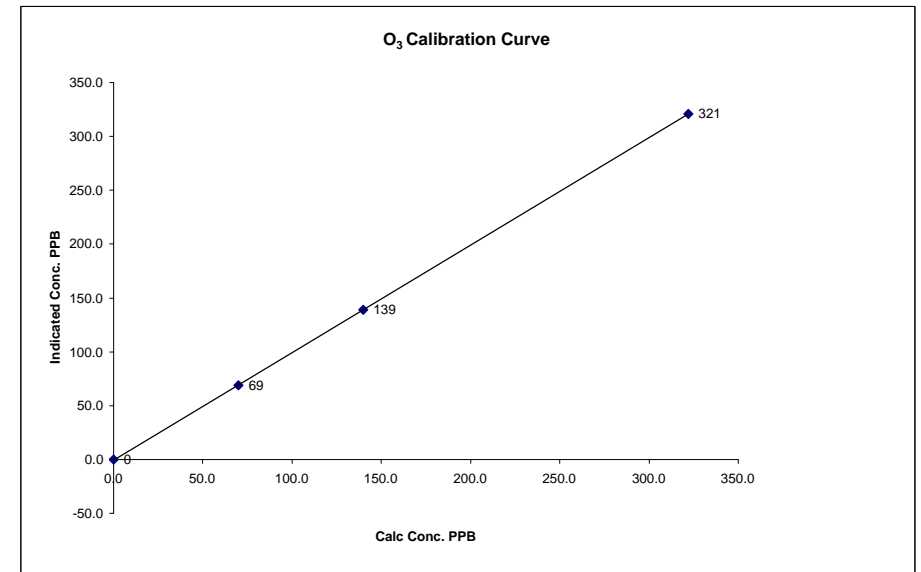
	Before Calibration	After Calibration
Auto Zero	0	-0.02
Auto Span	301	301
Sample Lines Connected		YES
Percent Change from Previous Calibration		-0.3%

Calibration Performed by: Ting Xu

O₃ Calibration Curve

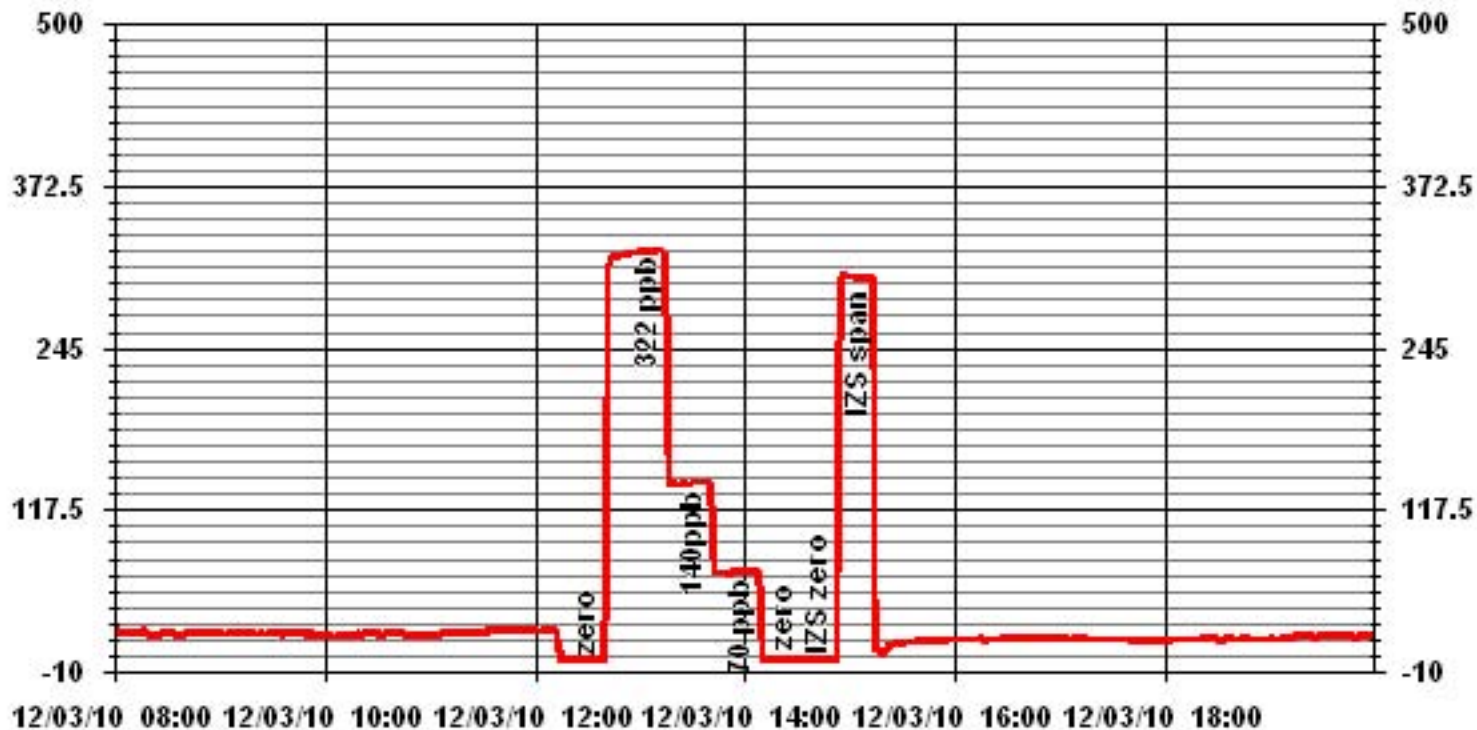
Calibration Date	December 3, 2010
Company	Lakeland Industry & Community Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	12:10
End Time (MST)	15:17

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999992
0	0	n/a	Intercept	(± 3% F.S.)	-0.441980
70	69	1.0145			
140	139	1.0072			
322	321	1.0031			



Notes:

01 Minute Averages



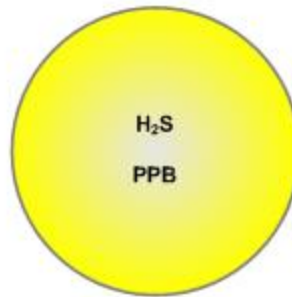
Passive Bubble Maps

Lakeland Industry & Community Association H₂S Passive Bubble Map

DECEMBER 2010

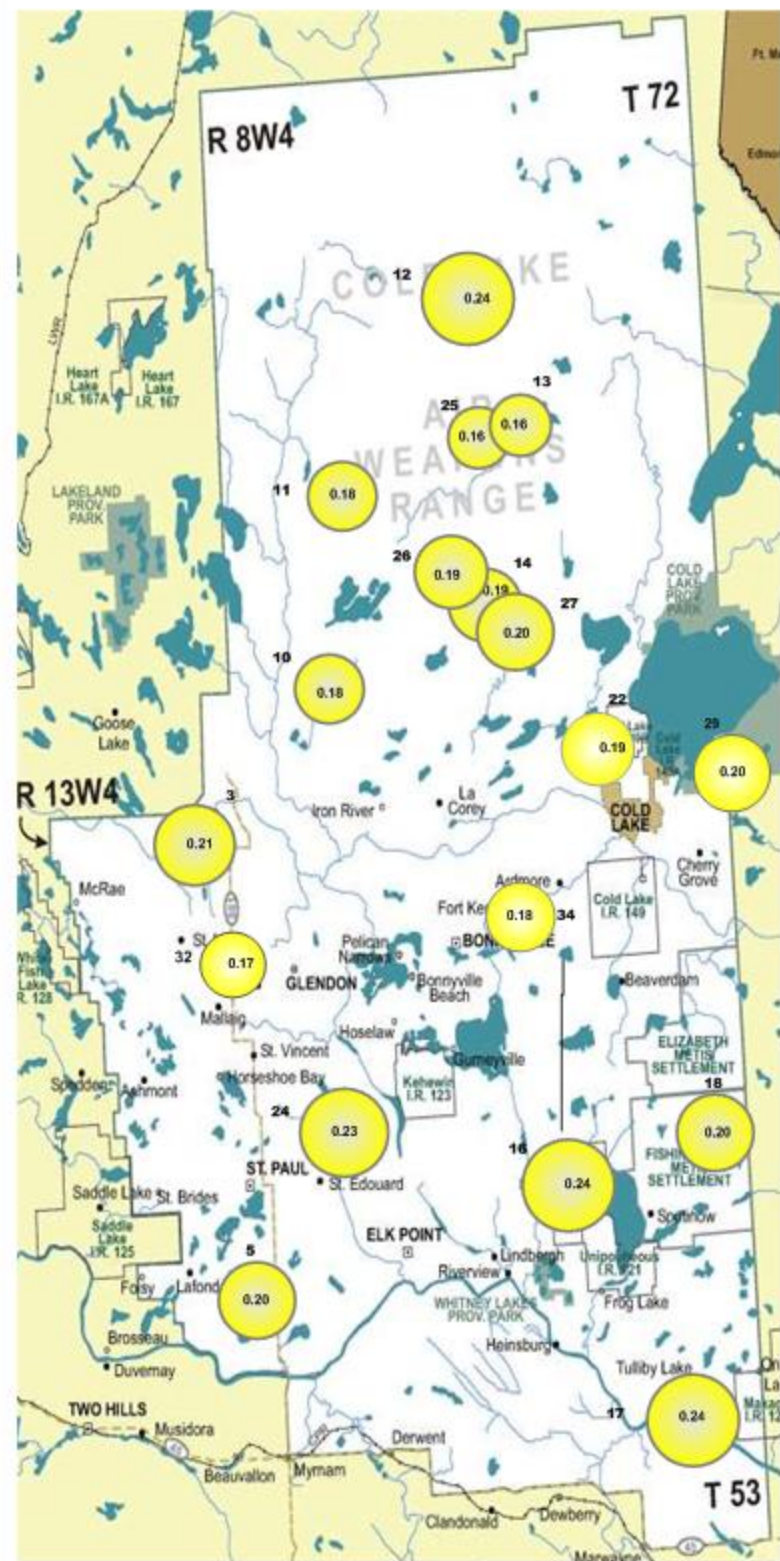
PASSIVE STATIONS

		DUPLICATE
3 – Therien	0.20 PPB	0.22 PPB
5 – Lake Eliza	0.20 PPB	NA
10 – La Corey	0.18 PPB	NA
11 – Wolf Lake	0.16 PPB	0.19 PPB
12 – Foster Creek	0.24 PPB	NA
13 – Primrose	0.16 PPB	0.16 PPB
14 – Maskwa	0.19 PPB	NA
16 – Frog Lake	0.24 PPB	0.23 PPB
17 – Clear Range	0.24 PPB	NA
18 – Fishing Lake	0.21 PPB	0.19 PPB
22 – Cold Lake South	0.19 PPB	NA
24 – Fort George	0.23 PPB	NA
25 – Burnt Lake	0.16 PPB	0.15 PPB
26 – Mahihkan	0.19 PPB	NA
27 – Mahkeses	0.20 PPB	0.20 PPB
29 – Cold Lake South 2	0.20 PPB	NA
32 – St. Lina	0.17 PPB	NA
34 – Portable	0.18 PPB	NA



Summary

Minimum : 0.16 PPB – Burnt Lake
Maximum: 0.24 PPB – VARIOUS STATIONS
Average: 0.20 PPB *Includes Duplicates



Lakeland Industry & Community Association NO₂ Passive Bubble Map

DECEMBER 2010

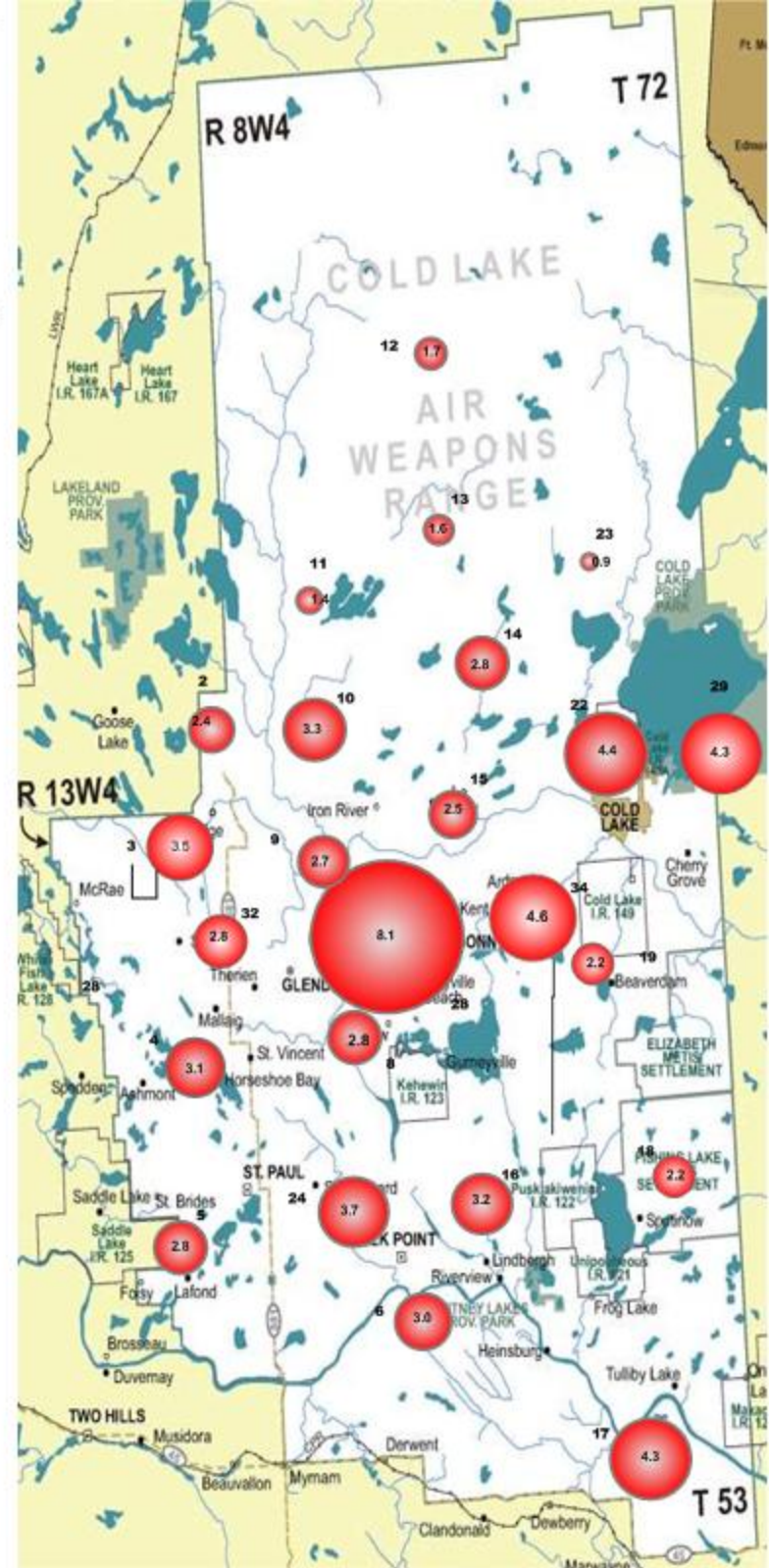
PASSIVE STATIONS

Station Number	Location	Reading 1 (PPB)	Reading 2 (PPB)	Duplicate
2	Sand River	2.6	2.6	2.2
3	Therien	3.5	3.5	NA
4	Flat Lake	2.9	2.9	3.3
5	Lake Eliza	2.8	2.8	NA
6	Telegraph Creek	3.1	3.1	2.9
8	Muriel-Kehewin	2.8	2.8	NA
9	Dupre	2.5	2.5	2.9
10	La Corey	3.3	3.3	NA
11	Wolf Lake	1.4	1.4	1.4
12	Foster Creek	1.7	1.7	NA
13	Primrose	1.5	1.5	1.7
14	Maskwa	2.8	2.8	NA
15	Ardmore	2.6	2.6	2.4
16	Frog Lake	3.2	3.2	NA
17	Clear Range	4.2	4.2	4.4
18	Fishing Lake	2.2	2.2	NA
19	Beaverdam	2.4	2.4	2.0
22	Cold Lake South	4.4	4.4	NA
23	Medley-Martineau	0.9	0.9	NA
24	Fort George	3.8	3.8	3.6
28	Town of Bonnyville	8.1	8.1	NA
29	Cold Lake South 2	4.3	4.3	4.2
32	St. Lina	2.8	2.8	NA
34	Portable	4.6	4.6	NA



Summary

Minimum : 0.9 PPB – Medley-Martineau
 Maximum: 8.1 PPB – Town of Bonnyville
 Average: 3.1 PPB *Includes Duplicates

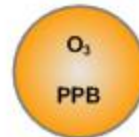


Lakeland Industry & Community Association O₃ Passive Bubble Map

DECEMBER 2010

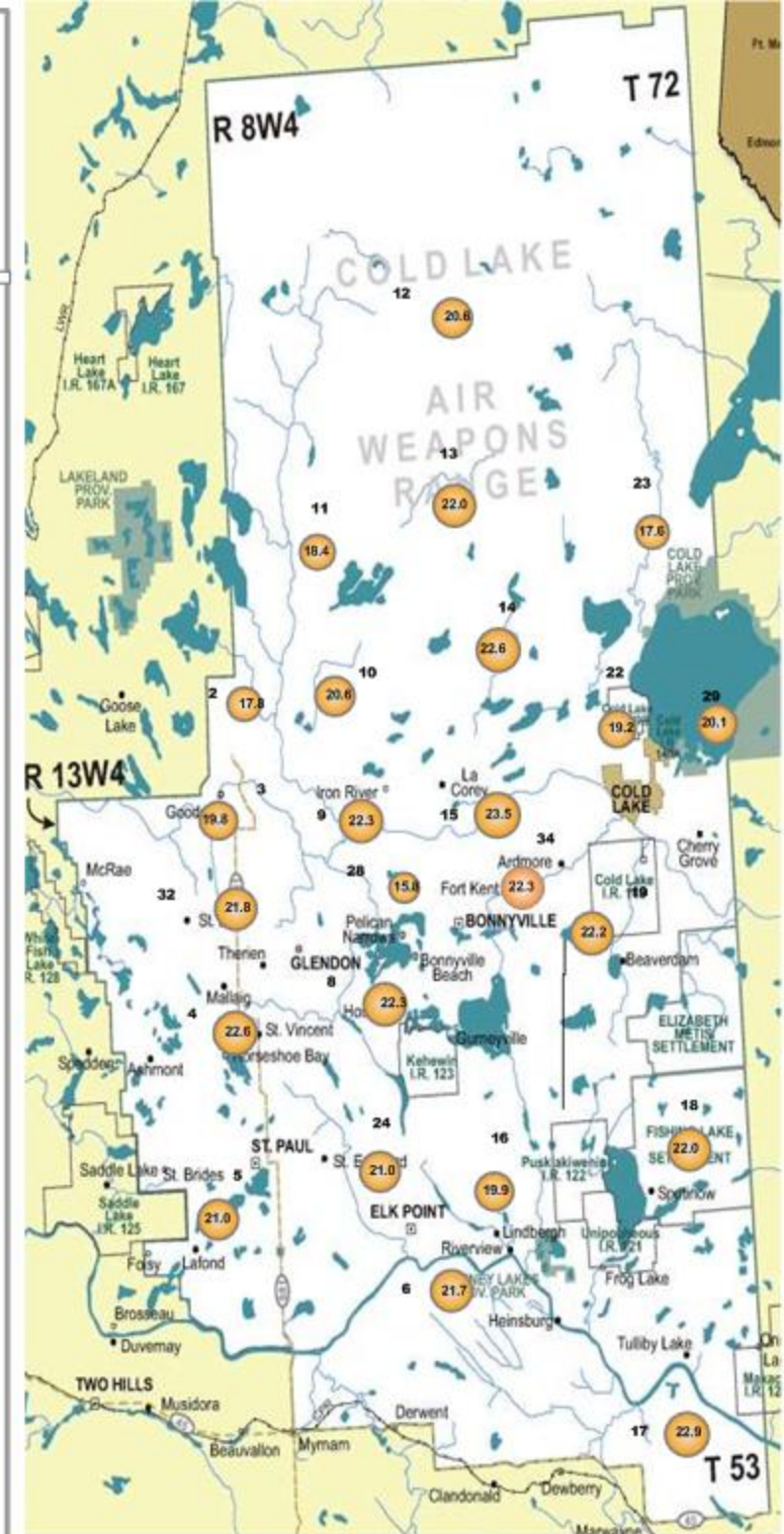
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	17.3 PPB	18.3 PPB
3 – Therien	19.8 PPB	NA
4 – Flat Lake	22.6 PPB	22.5 PPB
5 – Lake Eliza	21.0 PPB	NA
6 – Telegraph Creek	21.4 PPB	22.0 PPB
8 – Muriel-Kehewin	22.3 PPB	NA
9 – Dupre	20.1 PPB	24.4 PPB
10 – La Corey	20.6 PPB	NA
11 – Wolf Lake	18.6 PPB	18.1 PPB
12 – Foster Creek	20.6 PPB	NA
13 – Primrose	21.6 PPB	22.4 PPB
14 – Maskwa	22.6 PPB	NA
15 – Ardmore	23.9 PPB	23.0 PPB
16 – Frog Lake	19.9 PPB	NA
17 – Clear Range	22.7 PPB	23.1 PPB
18 – Fishing Lake	22.0 PPB	NA
19 – Beaverdam	22.2 PPB	21.7 PPB
22 – Cold Lake South	19.2 PPB	NA
23 – Medley-Martineau	17.6 PPB	NA
24 – Fort George	20.6 PPB	21.4 PPB
28 – Town of Bonnyville	15.8 PPB	NA
29 – Cold Lake South 2	19.8 PPB	20.3 PPB
32 – St. Lina	21.8 PPB	NA
34 – Portable	22.3 PPB	NA



Summary

Minimum : 15.8 PPB –Town of Bonnyville
 Maximum: 23.5 PPB –Ardmore
 Average: 20.8 PPB *Includes Duplicates



Lakeland Industry & Community Association SO₂ Passive Bubble Map

DECEMBER 2010

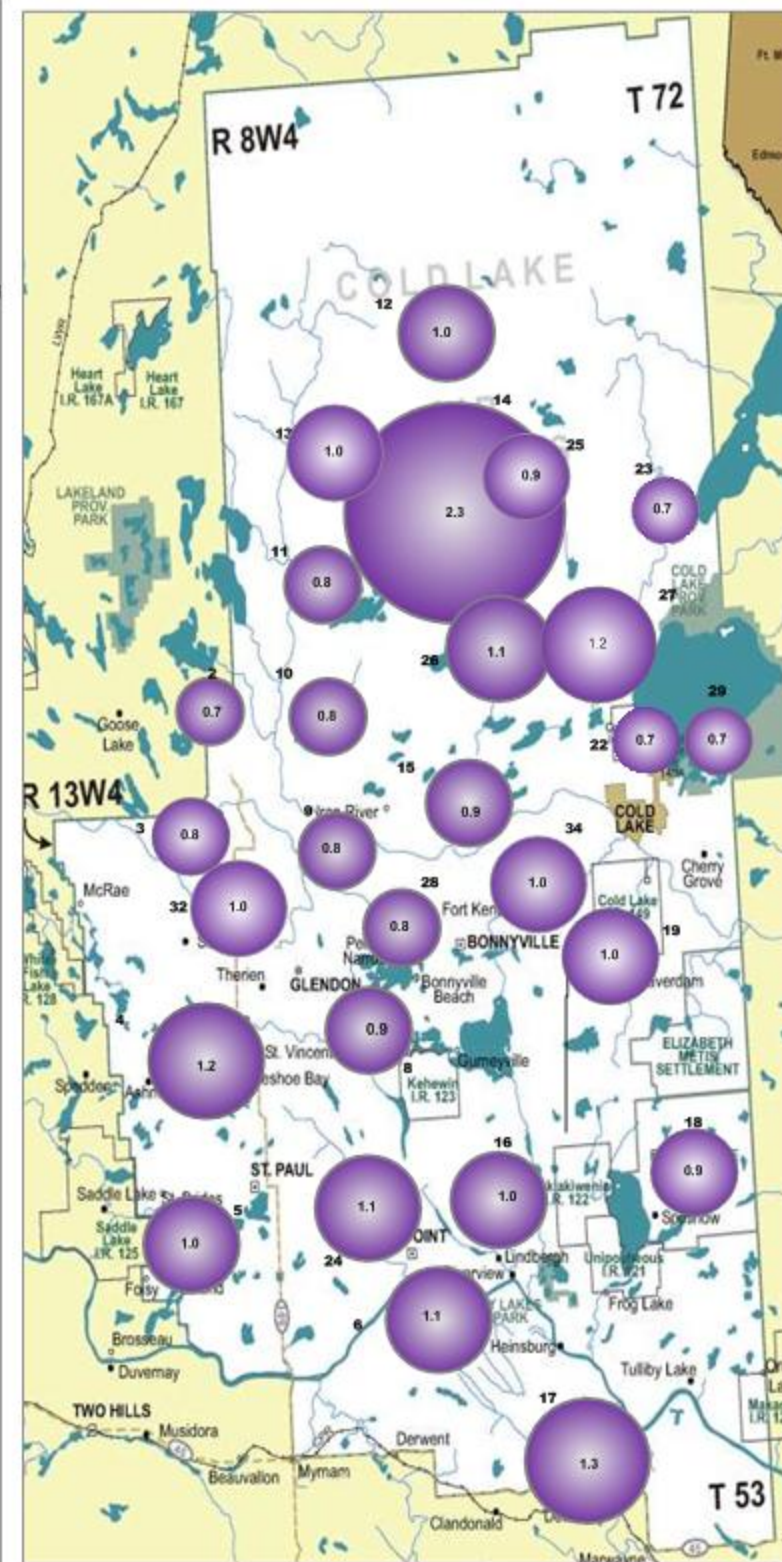
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	0.8 PPB	0.5 PPB
3 – Therien	0.8 PPB	NA
4 – Flat Lake	1.1 PPB	1.2 PPB
5 – Lake Eliza	1.0 PPB	NA
6 – Telegraph Creek	1.0 PPB	1.1 PPB
8 – Muriel-Kehewin	0.9 PPB	NA
9 – Dupre	0.7 PPB	0.8 PPB
10 – La Corey	0.8 PPB	NA
11 – Wolf Lake	0.7 PPB	0.8 PPB
12 – Foster Creek	1.0 PPB	NA
13 – Primrose	0.9 PPB	1.0 PPB
14 – Maskwa	2.3 PPB	NA
15 – Ardmore	0.8 PPB	0.9 PPB
16 – Frog Lake	1.0 PPB	NA
17 – Clear Range	1.3 PPB	NA
18 – Fishing Lake	0.9 PPB	NA
19 – Beaverdam	0.8 PPB	1.2 PPB
22 – Cold Lake South	0.7 PPB	NA
23 – Medley-Martineau	0.7 PPB	NA
24 – Fort George	1.0 PPB	1.1 PPB
25 – Burnt Lake	0.9 PPB	NA
26 – Mahikan	1.0 PPB	1.1 PPB
27 – Mahkeses	1.2 PPB	NA
28 – Town of Bonnyville	0.7 PPB	0.8 PPB
29 – Cold Lake South 2	0.7 PPB	NA
32 – St. Lina	1.0 PPB	NA
34 – Portable	1.0 PPB	NA



Summary

Minimum : 0.7 PPB – Sand River and Cold Lake South 2
 Maximum: 2.3 PPB –Mahkeses
 Average: 1.0 PPB *Includes Duplicates



Passive Field Data

Field Notes

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
2	SO ₂ /NO ₂ /O ₃	11/30/10	10:51	12/30/10	11:44	
2A (Dup)	SO ₂ /NO ₂ /O ₃	11/30/10	10:51	12/30/10	11:44	
3	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/10	10:09	12/30/10	10:56	
3A (Dup)	H ₂ S	11/30/10	10:09	12/30/10	10:56	
4	SO ₂ /NO ₂ /O ₃	12/01/10	14:02	12/31/10	14:22	
4A (Dup)	SO ₂ /NO ₂ /O ₃	12/01/10	14:02	12/31/10	14:22	
5	H ₂ S/SO ₂ /NO ₂ /O ₃	12/01/10	13:15	12/31/10	13:28	
5A (Dup)	NA	NA	NA	NA	NA	
6	SO ₂ /NO ₂ /O ₃	12/01/10	11:50	12/31/10	11:50	
6A (Dup)	SO ₂ /NO ₂ /O ₃	12/01/10	11:50	12/31/10	11:50	
8	SO ₂ /NO ₂ /O ₃	12/01/10	14:51	12/31/10	15:24	
8A (Dup)	NA	NA	NA	NA	NA	
9	SO ₂ /NO ₂ /O ₃	11/29/10	15:52	12/30/10	08:37	
9A (Dup)	SO ₂ /NO ₂ /O ₃	11/29/10	15:52	12/30/10	08:37	
10	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/10	11:47	12/30/10	12:29	
10A (Dup)	NA	NA	NA	NA	NA	
11	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/10	12:31	12/30/10	13:15	
11A (Dup)	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/10	12:31	12/30/10	13:15	
12	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/10	14:07	12/30/10	14:52	
12A (Dup)	NA	NA	NA	NA	NA	
13	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/10	15:53	12/30/10	16:29	
13A (Dup)	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/10	15:53	12/30/10	16:29	
14	H ₂ S/SO ₂ /NO ₂ /O ₃	11/30/10	16:56	12/30/10	17:30	
14A (Dup)	NA	NA	NA	NA	NA	
15	SO ₂ /NO ₂ /O ₃	11/29/10	16:32	12/30/10	07:16	
15A (Dup)	SO ₂ /NO ₂ /O ₃	11/29/10	16:32	12/30/10	07:16	
16	H ₂ S/SO ₂ /NO ₂ /O ₃	12/01/10	10:15	12/30/10	09:59	
16A (Dup)	H ₂ S	12/01/10	10:15	12/30/10	09:59	

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
17	H ₂ S/SO ₂ /NO ₂ /O ₃	12/01/10	11:03	12/31/10	10:54	
17A (Dup)	SO ₂ /NO ₂ /O ₃	12/01/10	11:03	12/31/10	10:54	
18	H ₂ S/SO ₂ /NO ₂ /O ₃	12/01/10	9:27	12/31/10	09:08	
18A (Dup)	H ₂ S	12/01/10	9:27	12/31/10	09:08	
19	SO ₂ /NO ₂ /O ₃	12/01/10	8:25	12/31/10	07:55	
19A (Dup)	SO ₂ /NO ₂ /O ₃	12/01/10	8:25	12/31/10	07:55	
22	H ₂ S/SO ₂ /NO ₂ /O ₃	12/01/10	7:11	12/31/10	17:35	
22A (Dup)	NA	NA	NA	NA	NA	
23	SO ₂ /NO ₂ /O ₃	11/29/10	17:52	12/29/10	16:50	
23A (Dup)	NA	NA	NA	NA	NA	
24	H ₂ S/SO ₂ /NO ₂ /O ₃	12/01/10	12:20	12/31/10	12:28	
24A (Dup)	SO ₂ /NO ₂ /O ₃	12/01/10	12:20	12/31/10	12:28	
25	H ₂ S/SO ₂	11/30/10	15:23	12/30/10	16:07	
25A (Dup)	H ₂ S	11/30/10	15:23	12/30/10	16:07	
26	H ₂ S/SO ₂	11/30/10	16:23	12/30/10	17:05	
26A (Dup)	SO ₂	11/30/10	16:23	12/30/10	17:05	
27	H ₂ S/SO ₂	11/30/10	17:20	12/30/10	17:51	
27A (Dup)	H ₂ S	11/30/10	17:20	12/30/10	17:51	
28	SO ₂ /NO ₂ /O ₃	11/29/10	15:28	12/30/10	07:50	
28A (Dup)	SO ₂	11/29/10	15:28	12/30/10	07:50	
29	H ₂ S/SO ₂ /NO ₂ /O ₃	12/01/10	07:30	12/31/10	17:49	
29A (Dup)	NO ₂ /O ₃	12/01/10	07:30	12/31/10	17:49	
32	H ₂ S/SO ₂ /NO ₂ /O ₃	11/29/10	13:53	12/30/10	09:55	
32A (Dup)	NA	NA	NA	NA	NA	
34	H ₂ S/SO ₂ /NO ₂ /O ₃	11/29/10	12:05	12/31/10	16:31	
34A (Dup)	NA	NA	NA	NA	NA	

Passive Network Laboratory Analysis



Your Project #: 2010/11/30 - 2010/12/30
Site:LICA

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

Report Date: 2011/01/12

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B100485
Received: 2011/01/05, 10:33

Sample Matrix: Air
Samples Received: 45

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis ①	25	2011/01/10	2011/01/12	EINDSOP-00150	Tang.Passive H2S in
NO2 Passive Analysis ①	36	2011/01/12	2011/01/12	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis ①	35	2011/01/07	2011/01/12	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis ①	38	2011/01/11	2011/01/12	EINDSOP-00149	Tang Passive SO2 in
SO2 Passive Analysis ①	2	2011/01/12	2011/01/12	EINDSOP-00149	Tang Passive SO2 in

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

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

Encryption Key

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

LEVI MANCHAK,
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

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Total cover pages: 1



Maxxam Job #: B100485
 Report Date: 2011/01/12

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2010/11/30 - 2010/12/30
 Site Reference: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		Z29328	Z29329	Z29330	Z29331	Z29332		
Sampling Date		2010/11/30 10:51	2010/11/30 10:51	2010/11/30 10:09	2010/11/30 10:09	2010/12/01 14:02		
	Units	2	2A (DUP)	3	3A (DUP)	4	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb			0.20	0.22		0.02	4551425
Calculated NO2	ppb	2.6	2.2	3.5		2.9	0.1	4555955
Calculated O3	ppb	17.3	18.3	19.8		22.7	0.1	4548190
Calculated SO2	ppb	0.8	0.5	0.8		1.1	0.1	4554284

RDL = Reportable Detection Limit

Maxxam ID		Z29333	Z29334	Z29335	Z29336	Z29337		
Sampling Date		2010/12/01 14:02	2010/12/01 13:15	2010/12/01 11:50	2010/12/01 11:50	2010/12/01 14:51		
	Units	4A (DUP)	5	6	6A (DUP)	8	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb		0.20				0.02	4551425
Calculated NO2	ppb	3.3	2.8	3.1	2.9	2.8	0.1	4555955
Calculated O3	ppb	22.5	21.0	21.4	22.0	22.3	0.1	4548190
Calculated SO2	ppb	1.2	1.0	1.0	1.1	0.9	0.1	4554284

RDL = Reportable Detection Limit

Maxxam ID		Z29338	Z29339	Z29340	Z29341	Z29342		
Sampling Date		2010/11/29 15:52	2010/11/29 15:52	2010/11/30 11:47	2010/11/30 12:31	2010/11/30 12:31		
	Units	9	9A (DUP)	10	11	11A (DUP)	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb			0.18	0.16	0.19	0.02	4551425
Calculated NO2	ppb	2.5	2.9	3.3	1.4	1.4	0.1	4555955
Calculated O3	ppb	20.1	24.4	20.6	18.6	18.1	0.1	4548190
Calculated SO2	ppb	0.7	0.8	0.8	0.7	0.8	0.1	4554284

RDL = Reportable Detection Limit



Maxxam Job #: B100485
 Report Date: 2011/01/12

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2010/11/30 - 2010/12/30
 Site Reference: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		Z29343	Z29344	Z29345	Z29346		
Sampling Date		2010/11/30 14:07	2010/11/30 15:53	2010/11/30 15:53	2010/11/30 16:56		
	Units	12	13	13A (DUP)	14	RDL	QC Batch

Passive Monitoring							
Calculated H2S	ppb	0.24	0.16	0.16	0.19	0.02	4551425
Calculated NO2	ppb	1.7	1.5	1.7	2.8	0.1	4555955
Calculated O3	ppb	20.6	21.6	22.4	22.6	0.1	4548190
Calculated SO2	ppb	1.0	0.9	1.0	2.3	0.1	4554284
RDL = Reportable Detection Limit							

Maxxam ID		Z29347	Z29348	Z29349	Z29350	Z29351	
Sampling Date		2010/11/29 16:32	2010/11/29 16:32	2010/12/01 10:15	2010/12/01 10:15	2010/12/01 11:03	
	Units	15	15A (DUP)	16	16A (DUP)	17	RDL QC Batch

Passive Monitoring							
Calculated H2S	ppb			0.24	0.23	0.24	0.02 4551425
Calculated NO2	ppb	2.6	2.4	3.2		4.2	0.1 4555956
Calculated O3	ppb	23.9	23.0	19.9		22.7	0.1 4548196
Calculated SO2	ppb	0.8	0.9	1.0		1.3	0.1 4554286
RDL = Reportable Detection Limit							

Maxxam ID		Z29352	Z29353	Z29354	Z29355	Z29356	
Sampling Date		2010/12/01 11:03	2010/12/01 09:27	2010/12/01 09:27	2010/12/01 08:25	2010/12/01 08:25	
	Units	17A (DUP)	18	18A (DUP)	19	19A (DUP)	RDL QC Batch

Passive Monitoring							
Calculated H2S	ppb		0.21	0.19			0.02 4551425
Calculated NO2	ppb	4.4	2.2	MISSING	2.4	2.0	0.1 4555956
Calculated O3	ppb	23.1	22.0		22.6	21.7	0.1 4548196
Calculated SO2	ppb	MISSING	0.9	MISSING	0.8	1.2	0.1 4554286
RDL = Reportable Detection Limit							



Maxxam Job #: B100485
 Report Date: 2011/01/12

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2010/11/30 - 2010/12/30
 Site Reference: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		Z29357	Z29358	Z29359	Z29360	Z29361		
Sampling Date		2010/12/01 07:11	2010/11/29 17:52	2010/12/01 12:20	2010/12/01 12:20	2010/11/30 15:23		
	Units	22	23	24	24A (DUP)	25	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.19		0.23		0.16	0.02	4551425
Calculated NO2	ppb	4.4	0.9	3.8	3.6		0.1	4555956
Calculated O3	ppb	19.2	17.6	20.6	21.4		0.1	4548196
Calculated SO2	ppb	0.7	0.7	1.0	1.1	0.9	0.1	4554286
RDL = Reportable Detection Limit								

Maxxam ID		Z29362	Z29363	Z29365	Z29366	Z29367		
Sampling Date		2010/11/30 15:23	2010/11/30 16:23	2010/11/30 16:23	2010/11/30 17:20	2010/11/30 17:20		
	Units	25A (DUP)	26	26A (DUP)	27	27A (DUP)	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.15	0.19		0.20	0.20	0.02	4551425
Calculated SO2	ppb		1.0	1.1	1.2		0.1	4554286
RDL = Reportable Detection Limit								

Maxxam ID		Z29368	Z29369	Z29370	Z29373	Z30603		
Sampling Date		2010/11/29 15:28	2010/11/29 15:28	2010/12/01 07:30	2010/12/01 07:30	2010/11/29 13:53		
	Units	28	28A (DUP)	29	29A (DUP)	32	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb			0.20		0.17	0.02	4551425
Calculated NO2	ppb	8.1		4.3	4.2	2.8	0.1	4555956
Calculated O3	ppb	15.8		19.8	20.3	21.8	0.1	4548196
Calculated SO2	ppb	0.7	0.8	0.7		1.0	0.1	4554286
RDL = Reportable Detection Limit								



Maxxam Job #: B100485
Report Date: 2011/01/12

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2010/11/30 - 2010/12/30
Site Reference: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		Z30604		
Sampling Date		2010/11/29 12:05		
	Units	34	RDL	QC Batch

Passive Monitoring				
Calculated H2S	ppb	0.18	0.02	4551425
Calculated NO2	ppb	4.6	0.1	4555956
Calculated O3	ppb	22.3	0.1	4548196
Calculated SO2	ppb	1.0	0.1	4554286
RDL = Reportable Detection Limit				



Maxxam Job #: B100485
Report Date: 2011/01/12

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2010/11/30 - 2010/12/30
Site Reference: LICA
Sampler Initials: SB

General Comments

Sample: Z29352 was not returned for SO2. - DF
Sample: Z29354 was not returned for SO2 or O3. - DF

Results relate only to the items tested.



LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Attention: MICHAEL BISAGA
 Client Project #: 2010/11/30 - 2010/12/30
 P.O. #:
 Site Reference: LICA

Quality Assurance Report
 Maxxam Job Number: PB100485

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4548190 OZ	Calibration Check	Calculated O3	2011/01/07		100	%	91 - 107
	Spiked Blank	Calculated O3	2011/01/07		100	%	N/A
	Method Blank	Calculated O3	2011/01/07	<0.1		ppb	
4548196 OZ	Calibration Check	Calculated O3	2011/01/07		100	%	91 - 107
	Spiked Blank	Calculated O3	2011/01/07		98	%	N/A
	Method Blank	Calculated O3	2011/01/07	<0.1		ppb	
4551425 TM5	Calibration Check	Calculated H2S	2011/01/10		102	%	80 - 120
	Spiked Blank	Calculated H2S	2011/01/10		100	%	N/A
4554284 DF4	Calibration Check	Calculated SO2	2011/01/11		102	%	95 - 105
	Spiked Blank	Calculated SO2	2011/01/11		104	%	N/A
	Method Blank	Calculated SO2	2011/01/11	<0.1		ppb	
4554286 DF4	Calibration Check	Calculated SO2	2011/01/11		102	%	95 - 105
	Spiked Blank	Calculated SO2	2011/01/11		102	%	N/A
	Method Blank	Calculated SO2	2011/01/11	<0.1		ppb	
4555955 DF4	Calibration Check	Calculated NO2	2011/01/12		100	%	76 - 118
	Spiked Blank	Calculated NO2	2011/01/12		99	%	N/A
	Method Blank	Calculated NO2	2011/01/12	<0.1		ppb	
4555956 DF4	Calibration Check	Calculated NO2	2011/01/12		100	%	76 - 118
	Spiked Blank	Calculated NO2	2011/01/12		98	%	N/A
	Method Blank	Calculated NO2	2011/01/12	<0.1		ppb	

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

Validation Signature Page

Maxxam Job #: B100485

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



LINDA LIN, Supervisor, Centre for Passive Sampling Technology

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Volatile Organics Laboratory Analysis

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 7798
Station ID: Lica 1 Canister Installation Date/Time: Dec 03, 2010 @ 8:04 mst
Field Sample ID: LICA VOC/ CLS /Dec 04, 10 Canister Removal Date/Time: Dec 06, 2010 @ 7:25 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
04-Dec-10	04/12/2010 0:00	05/12/2010 0:00	24.00

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

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	24

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

Comments: System leak check prior to sampling. COC # 2335

Technician Signiture: Ting Xu



Your C.O.C. #: 2335

Attention: Michael Bisaga

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

Report Date: 2010/12/16

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0H6966

Received: 2010/12/08, 10:15

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2010/12/10	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2010/12/10	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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Total cover pages: 1

Maxxam Job #: B0H6966
 Report Date: 2010/12/16

RESULTS OF ANALYSES OF AIR

Maxxam ID		IC2344	IC2345	
Sampling Date		2010/12/04	2010/12/04	
COC Number		2335	2335	
	Units	LICA VOC/CLS/DEC 04, 10	LICA VOC/PORT/DEC 04, 10	QC Batch

Volatile Organics				
Pressure on Receipt	psig	24	21	2357489

QC Batch = Quality Control Batch

Maxxam Job #: B0H6966
 Report Date: 2010/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IC2344			IC2345				
Sampling Date		2010/12/04			2010/12/04				
COC Number		2335			2335				
	Units	LICA VOC/CLS/DEC 04, 10	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 04, 10	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2357634
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2357634
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2357634
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2357634
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2357634
Dichlorodifluoromethane (FREON 12)	ppbv	0.80	3.95	0.989	0.83	0.20	4.08	0.989	2357634
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2357634
Chloromethane	ppbv	0.43	0.886	0.620	0.42	0.30	0.858	0.620	2357634
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2357634
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2357634
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2357634
Trichlorofluoromethane (FREON 11)	ppbv	0.39	2.18	1.12	0.42	0.20	2.38	1.12	2357634
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2357634
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2357634
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2357634
2-Propanone	ppbv	1.14	2.70	1.90	1.29	0.80	3.05	1.90	2357634
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2357634
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2357634
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2357634
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2357634
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2357634
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2357634
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2357634
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2357634
Methylene Chloride(Dichloromethane)	ppbv	0.52	1.80	1.04	0.47	0.30	1.63	1.04	2357634
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2357634
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2357634
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2357634
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2357634
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2357634
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2357634

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B0H6966
 Report Date: 2010/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IC2344			IC2345				
Sampling Date		2010/12/04			2010/12/04				
COC Number		2335			2335				
	Units	LICA VOC/CLS/DEC 04, 10	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 04, 10	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2357634
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2357634
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2357634
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2357634
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2357634
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2357634
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2357634
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2357634
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2357634
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2357634
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2357634
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2357634
Benzene	ppbv	0.29	0.925	0.575	0.31	0.18	0.991	0.575	2357634
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2357634
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2357634
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2357634
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2357634
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2357634
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2357634
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2357634
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2357634
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2357634
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2357634
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2357634
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2357634
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2357634
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2357634
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2357634
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2357634
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2357634
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2357634
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2357634
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2357634
QC Batch = Quality Control Batch									

Maxxam Job #: B0H6966
 Report Date: 2010/12/16

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IC2344			IC2345				
Sampling Date		2010/12/04			2010/12/04				
COC Number		2335			2335				
	Units	LICA VOC/CLS/DEC 04, 10	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 04, 10	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	82	N/A	N/A	81		N/A	N/A	2357634
D5-Chlorobenzene	%	67	N/A	N/A	66		N/A	N/A	2357634
Difluorobenzene	%	82	N/A	N/A	81		N/A	N/A	2357634

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

Maxxam Job #: B0H6966
 Report Date: 2010/12/16

Test Summary

Maxxam ID IC2344 **Collected** 2010/12/04
Sample ID LICA VOC/CLS/DEC 04, 10 **Shipped**
Matrix AIR **Received** 2010/12/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2357489	N/A	2010/12/10	LSY
Volatile Organics in Air (TO-15)	GC/MS	2357634	N/A	2010/12/10	LSY

Maxxam ID IC2345 **Collected** 2010/12/04
Sample ID LICA VOC/PORT/DEC 04, 10 **Shipped**
Matrix AIR **Received** 2010/12/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2357489	N/A	2010/12/10	LSY
Volatile Organics in Air (TO-15)	GC/MS	2357634	N/A	2010/12/10	LSY

Maxxam Job #: B0H6966
Report Date: 2010/12/16

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB0H6966

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2357634 LSY	Spiked Blank	Bromochloromethane	2010/12/10		109	%	60 - 140
		D5-Chlorobenzene	2010/12/10		105	%	60 - 140
		Difluorobenzene	2010/12/10		113	%	60 - 140
		2,2,4-Trimethylpentane	2010/12/10		95	%	70 - 130
		Carbon Disulfide	2010/12/10		83	%	70 - 130
		Propene	2010/12/10		93	%	70 - 130
		Vinyl Acetate	2010/12/10		102	%	70 - 130
		Vinyl Bromide	2010/12/10		96	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2010/12/10		107	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2010/12/10		108	%	70 - 130
		Chloromethane	2010/12/10		95	%	70 - 130
		Vinyl Chloride	2010/12/10		90	%	70 - 130
		Chloroethane	2010/12/10		82	%	70 - 130
		1,3-Butadiene	2010/12/10		81	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2010/12/10		100	%	70 - 130
		Trichlorotrifluoroethane	2010/12/10		91	%	70 - 130
		Ethanol	2010/12/10		83	%	70 - 130
		2-propanol	2010/12/10		94	%	70 - 130
		2-Propanone	2010/12/10		100	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2010/12/10		99	%	70 - 130
		Methyl Isobutyl Ketone	2010/12/10		98	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2010/12/10		102	%	70 - 130
		Methyl t-butyl ether (MTBE)	2010/12/10		100	%	70 - 130
		Ethyl Acetate	2010/12/10		97	%	70 - 130
		1,1-Dichloroethylene	2010/12/10		93	%	70 - 130
		cis-1,2-Dichloroethylene	2010/12/10		93	%	70 - 130
		trans-1,2-Dichloroethylene	2010/12/10		98	%	70 - 130
		Methylene Chloride(Dichloromethane)	2010/12/10		83	%	70 - 130
		Chloroform	2010/12/10		97	%	70 - 130
		Carbon Tetrachloride	2010/12/10		109	%	70 - 130
		1,1-Dichloroethane	2010/12/10		90	%	70 - 130
		1,2-Dichloroethane	2010/12/10		105	%	70 - 130
		Ethylene Dibromide	2010/12/10		96	%	70 - 130
		1,1,1-Trichloroethane	2010/12/10		101	%	70 - 130
		1,1,2-Trichloroethane	2010/12/10		92	%	70 - 130
		1,1,2,2-Tetrachloroethane	2010/12/10		83	%	70 - 130
		cis-1,3-Dichloropropene	2010/12/10		99	%	70 - 130
		trans-1,3-Dichloropropene	2010/12/10		108	%	70 - 130
		1,2-Dichloropropane	2010/12/10		85	%	70 - 130
		Bromomethane	2010/12/10		86	%	70 - 130
		Bromoform	2010/12/10		110	%	70 - 130
		Bromodichloromethane	2010/12/10		106	%	70 - 130
		Dibromochloromethane	2010/12/10		113	%	70 - 130
		Heptane	2010/12/10		93	%	70 - 130
		Trichloroethylene	2010/12/10		90	%	70 - 130
		Tetrachloroethylene	2010/12/10		100	%	70 - 130
		Benzene	2010/12/10		85	%	70 - 130
		Toluene	2010/12/10		92	%	70 - 130
		Ethylbenzene	2010/12/10		90	%	70 - 130
		p+m-Xylene	2010/12/10		91	%	70 - 130
		o-Xylene	2010/12/10		91	%	70 - 130
		Styrene	2010/12/10		92	%	70 - 130
		1,3,5-Trimethylbenzene	2010/12/10		89	%	70 - 130
		1,2,4-Trimethylbenzene	2010/12/10		86	%	70 - 130
		4-ethyltoluene	2010/12/10		96	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB0H6966

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2357634 LSY	Spiked Blank	Chlorobenzene	2010/12/10		90	%	70 - 130
		Benzyl chloride	2010/12/10		114	%	70 - 130
		1,3-Dichlorobenzene	2010/12/10		86	%	70 - 130
		1,4-Dichlorobenzene	2010/12/10		87	%	70 - 130
		1,2-Dichlorobenzene	2010/12/10		80	%	70 - 130
		1,2,4-Trichlorobenzene	2010/12/10		117	%	70 - 130
		Hexachlorobutadiene	2010/12/10		125	%	70 - 130
		Hexane	2010/12/10		89	%	70 - 130
		Cyclohexane	2010/12/10		92	%	70 - 130
		Tetrahydrofuran	2010/12/10		91	%	70 - 130
		1,4-Dioxane	2010/12/10		89	%	70 - 130
	Method Blank	Bromochloromethane	2010/12/10		90	%	60 - 140
		D5-Chlorobenzene	2010/12/10		71	%	60 - 140
		Difluorobenzene	2010/12/10		89	%	60 - 140
		2,2,4-Trimethylpentane	2010/12/10	<0.20		ppbv	
		Carbon Disulfide	2010/12/10	<0.50		ppbv	
		Propene	2010/12/10	<0.30		ppbv	
		Vinyl Acetate	2010/12/10	<0.20		ppbv	
		Vinyl Bromide	2010/12/10	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2010/12/10	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2010/12/10	<0.17		ppbv	
		Chloromethane	2010/12/10	<0.30		ppbv	
		Vinyl Chloride	2010/12/10	<0.18		ppbv	
		Chloroethane	2010/12/10	<0.30		ppbv	
		1,3-Butadiene	2010/12/10	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2010/12/10	<0.20		ppbv	
		Trichlorotrifluoroethane	2010/12/10	<0.15		ppbv	
		Ethanol	2010/12/10	<2.3		ppbv	
		2-propanol	2010/12/10	<3.0		ppbv	
		2-Propanone	2010/12/10	0.80, RDL=0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2010/12/10	<3.0		ppbv	
		Methyl Isobutyl Ketone	2010/12/10	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2010/12/10	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2010/12/10	<0.20		ppbv	
		Ethyl Acetate	2010/12/10	<2.2		ppbv	
		1,1-Dichloroethylene	2010/12/10	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2010/12/10	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2010/12/10	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2010/12/10	0.40, RDL=0.30		ppbv	
		Chloroform	2010/12/10	<0.15		ppbv	
		Carbon Tetrachloride	2010/12/10	<0.30		ppbv	
		1,1-Dichloroethane	2010/12/10	<0.20		ppbv	
		1,2-Dichloroethane	2010/12/10	<0.20		ppbv	
		Ethylene Dibromide	2010/12/10	<0.17		ppbv	
		1,1,1-Trichloroethane	2010/12/10	<0.30		ppbv	
		1,1,2-Trichloroethane	2010/12/10	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2010/12/10	<0.20		ppbv	
		cis-1,3-Dichloropropene	2010/12/10	<0.18		ppbv	
		trans-1,3-Dichloropropene	2010/12/10	<0.17		ppbv	
		1,2-Dichloropropane	2010/12/10	<0.40		ppbv	
		Bromomethane	2010/12/10	<0.18		ppbv	
		Bromoform	2010/12/10	<0.20		ppbv	
		Bromodichloromethane	2010/12/10	<0.20		ppbv	
		Dibromochloromethane	2010/12/10	<0.20		ppbv	
		Heptane	2010/12/10	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB0H6966

QA/QC Batch			Date Analyzed					
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2357634	LSY	Method Blank	2010/12/10	<0.30		ppbv		
		Trichloroethylene	2010/12/10	<0.20		ppbv		
		Tetrachloroethylene	2010/12/10	<0.18		ppbv		
		Benzene	2010/12/10	<0.20		ppbv		
		Toluene	2010/12/10	<0.20		ppbv		
		Ethylbenzene	2010/12/10	<0.37		ppbv		
		p+m-Xylene	2010/12/10	<0.20		ppbv		
		o-Xylene	2010/12/10	<0.20		ppbv		
		Styrene	2010/12/10	<0.50		ppbv		
		1,3,5-Trimethylbenzene	2010/12/10	<0.50		ppbv		
		1,2,4-Trimethylbenzene	2010/12/10	<2.2		ppbv		
		4-ethyltoluene	2010/12/10	<1.0		ppbv		
		Chlorobenzene	2010/12/10	<0.40		ppbv		
		Benzyl chloride	2010/12/10	<0.40		ppbv		
		1,3-Dichlorobenzene	2010/12/10	<0.40		ppbv		
		1,4-Dichlorobenzene	2010/12/10	<2.0		ppbv		
		1,2-Dichlorobenzene	2010/12/10	<3.0		ppbv		
		1,2,4-Trichlorobenzene	2010/12/10	<0.30		ppbv		
		Hexachlorobutadiene	2010/12/10	<0.20		ppbv		
		Hexane	2010/12/10	<0.40		ppbv		
		Cyclohexane	2010/12/10	<2.0		ppbv		
		Tetrahydrofuran	2010/12/10	<2.0		ppbv		
		1,4-Dioxane	2010/12/10	<0.60		ppbv		
		Xylene (Total)	2010/12/10			ppbv		

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 7801
Station ID: Lica 1 Canister Installation Date/Time: Dec 09, 2010 @ 10:27 mst
Field Sample ID: LICA VOC/ CLS /Dec 10, 10 Canister Removal Date/Time: Dec 13, 2010 @ 9:31 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
10-Dec-10	10/12/2010 0:00	11/12/2010 0:00	24.00

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

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

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

Comments: System leak check prior to sampling. COC # 5034

Technician Signiture: Ting Xu



Your C.O.C. #: 5034

Attention: Michael Bisaga

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

Report Date: 2010/12/23

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B011572

Received: 2010/12/16, 09:45

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2010/12/21	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2010/12/21	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Maxxam Job #: B011572
 Report Date: 2010/12/23

RESULTS OF ANALYSES OF AIR

Maxxam ID		IE4370	IE4371	
Sampling Date		2010/12/10	2010/12/10	
COC Number		5034	5034	
	Units	LICA VOC/CLS/DEC 10,10 - 7801	LICA VOC/PORT/DEC 10,10 - 7792	QC Batch

Volatile Organics				
Pressure on Receipt	psig	22	21	2366342

QC Batch = Quality Control Batch

Maxxam Job #: B011572
 Report Date: 2010/12/23

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IE4370			IE4371				
Sampling Date		2010/12/10			2010/12/10				
COC Number		5034			5034				
	Units	LICA VOC/CLS/DEC 10,10 - 7801	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 10,10 - 7792	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2366348
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2366348
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2366348
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2366348
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2366348
Dichlorodifluoromethane (FREON 12)	ppbv	1.03	5.12	0.989	1.07	0.20	5.29	0.989	2366348
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2366348
Chloromethane	ppbv	0.79	1.62	0.620	0.81	0.30	1.67	0.620	2366348
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2366348
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2366348
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2366348
Trichlorofluoromethane (FREON 11)	ppbv	0.50	2.79	1.12	0.52	0.20	2.91	1.12	2366348
Trichlorotrifluoroethane	ppbv	0.17	1.34	1.15	0.18	0.15	1.37	1.15	2366348
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2366348
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2366348
2-Propanone	ppbv	1.69	4.03	1.90	2.24	0.80	5.32	1.90	2366348
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2366348
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2366348
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2366348
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2366348
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2366348
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2366348
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2366348
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2366348
Methylene Chloride(Dichloromethane)	ppbv	0.66	2.31	1.04	0.62	0.30	2.15	1.04	2366348
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2366348
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2366348
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2366348
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2366348
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2366348
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2366348

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B011572
 Report Date: 2010/12/23

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IE4370			IE4371				
Sampling Date		2010/12/10			2010/12/10				
COC Number		5034			5034				
	Units	LICA VOC/CLS/DEC 10,10 - 7801	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 10,10 - 7792	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2366348
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2366348
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2366348
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2366348
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2366348
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2366348
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2366348
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2366348
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2366348
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2366348
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2366348
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2366348
Benzene	ppbv	0.25	0.785	0.575	0.27	0.18	0.852	0.575	2366348
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2366348
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2366348
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2366348
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2366348
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2366348
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2366348
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2366348
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2366348
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2366348
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2366348
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2366348
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2366348
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2366348
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2366348
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2366348
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2366348
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.46	0.20	1.60	0.688	2366348
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2366348
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2366348
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2366348
QC Batch = Quality Control Batch									

Maxxam Job #: B011572
 Report Date: 2010/12/23

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IE4370			IE4371				
Sampling Date		2010/12/10			2010/12/10				
COC Number		5034			5034				
	Units	LICA VOC/CLS/DEC 10,10 - 7801	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 10,10 - 7792	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	77	N/A	N/A	75		N/A	N/A	2366348
D5-Chlorobenzene	%	77	N/A	N/A	76		N/A	N/A	2366348
Difluorobenzene	%	76	N/A	N/A	74		N/A	N/A	2366348

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

Maxxam Job #: B011572
 Report Date: 2010/12/23

Test Summary

Maxxam ID	IE4370	Collected	2010/12/10
Sample ID	LICA VOC/CLS/DEC 10,10 - 7801	Shipped	
Matrix	AIR	Received	2010/12/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2366342	N/A	2010/12/21	MMU
Volatile Organics in Air (TO-15)	GC/MS	2366348	N/A	2010/12/21	MMU

Maxxam ID	IE4371	Collected	2010/12/10
Sample ID	LICA VOC/PORT/DEC 10,10 - 7792	Shipped	
Matrix	AIR	Received	2010/12/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2366342	N/A	2010/12/21	MMU
Volatile Organics in Air (TO-15)	GC/MS	2366348	N/A	2010/12/21	MMU

Maxxam Job #: B011572
Report Date: 2010/12/23

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB011572

QA/QC Batch			Date Analyzed					
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2366348	MMU	Spiked Blank						
		Bromochloromethane	2010/12/21		96	%	60 - 140	
		D5-Chlorobenzene	2010/12/21		97	%	60 - 140	
		Difluorobenzene	2010/12/21		97	%	60 - 140	
		2,2,4-Trimethylpentane	2010/12/21		97	%	70 - 130	
		Carbon Disulfide	2010/12/21		88	%	70 - 130	
		Propene	2010/12/21		93	%	70 - 130	
		Vinyl Acetate	2010/12/21		101	%	70 - 130	
		Vinyl Bromide	2010/12/21		100	%	70 - 130	
		Dichlorodifluoromethane (FREON 12)	2010/12/21		91	%	70 - 130	
		1,2-Dichlorotetrafluoroethane	2010/12/21		105	%	70 - 130	
		Chloromethane	2010/12/21		96	%	70 - 130	
		Vinyl Chloride	2010/12/21		98	%	70 - 130	
		Chloroethane	2010/12/21		92	%	70 - 130	
		1,3-Butadiene	2010/12/21		98	%	70 - 130	
		Trichlorofluoromethane (FREON 11)	2010/12/21		95	%	70 - 130	
		Trichlorotrifluoroethane	2010/12/21		95	%	70 - 130	
		Ethanol	2010/12/21		85	%	70 - 130	
		2-propanol	2010/12/21		98	%	70 - 130	
		2-Propanone	2010/12/21		102	%	70 - 130	
		Methyl Ethyl Ketone (2-Butanone)	2010/12/21		93	%	70 - 130	
		Methyl Isobutyl Ketone	2010/12/21		97	%	70 - 130	
		Methyl Butyl Ketone (2-Hexanone)	2010/12/21		100	%	70 - 130	
		Methyl t-butyl ether (MTBE)	2010/12/21		97	%	70 - 130	
		Ethyl Acetate	2010/12/21		100	%	70 - 130	
		1,1-Dichloroethylene	2010/12/21		92	%	70 - 130	
		cis-1,2-Dichloroethylene	2010/12/21		95	%	70 - 130	
		trans-1,2-Dichloroethylene	2010/12/21		96	%	70 - 130	
		Methylene Chloride(Dichloromethane)	2010/12/21		81	%	70 - 130	
		Chloroform	2010/12/21		93	%	70 - 130	
		Carbon Tetrachloride	2010/12/21		94	%	70 - 130	
		1,1-Dichloroethane	2010/12/21		94	%	70 - 130	
		1,2-Dichloroethane	2010/12/21		98	%	70 - 130	
		Ethylene Dibromide	2010/12/21		93	%	70 - 130	
		1,1,1-Trichloroethane	2010/12/21		93	%	70 - 130	
		1,1,2-Trichloroethane	2010/12/21		91	%	70 - 130	
		1,1,2,2-Tetrachloroethane	2010/12/21		86	%	70 - 130	
		cis-1,3-Dichloropropene	2010/12/21		94	%	70 - 130	
		trans-1,3-Dichloropropene	2010/12/21		95	%	70 - 130	
		1,2-Dichloropropane	2010/12/21		91	%	70 - 130	
		Bromomethane	2010/12/21		93	%	70 - 130	
		Bromoform	2010/12/21		97	%	70 - 130	
		Bromodichloromethane	2010/12/21		93	%	70 - 130	
		Dibromochloromethane	2010/12/21		99	%	70 - 130	
		Heptane	2010/12/21		90	%	70 - 130	
		Trichloroethylene	2010/12/21		93	%	70 - 130	
		Tetrachloroethylene	2010/12/21		93	%	70 - 130	
		Benzene	2010/12/21		91	%	70 - 130	
		Toluene	2010/12/21		91	%	70 - 130	
		Ethylbenzene	2010/12/21		91	%	70 - 130	
		p+m-Xylene	2010/12/21		96	%	70 - 130	
		o-Xylene	2010/12/21		91	%	70 - 130	
		Styrene	2010/12/21		90	%	70 - 130	
		1,3,5-Trimethylbenzene	2010/12/21		90	%	70 - 130	
		1,2,4-Trimethylbenzene	2010/12/21		87	%	70 - 130	
		4-ethyltoluene	2010/12/21		89	%	70 - 130	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB011572

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2366348 MMU	Spiked Blank	Chlorobenzene	2010/12/21		93	%	70 - 130
		Benzyl chloride	2010/12/21		90	%	70 - 130
		1,3-Dichlorobenzene	2010/12/21		90	%	70 - 130
		1,4-Dichlorobenzene	2010/12/21		92	%	70 - 130
		1,2-Dichlorobenzene	2010/12/21		88	%	70 - 130
		1,2,4-Trichlorobenzene	2010/12/21		95	%	70 - 130
		Hexachlorobutadiene	2010/12/21		94	%	70 - 130
		Hexane	2010/12/21		89	%	70 - 130
		Cyclohexane	2010/12/21		91	%	70 - 130
		Tetrahydrofuran	2010/12/21		96	%	70 - 130
		1,4-Dioxane	2010/12/21		88	%	70 - 130
	Method Blank	Bromochloromethane	2010/12/21		100	%	60 - 140
		D5-Chlorobenzene	2010/12/21		99	%	60 - 140
		Difluorobenzene	2010/12/21		99	%	60 - 140
		2,2,4-Trimethylpentane	2010/12/21	<0.20		ppbv	
		Carbon Disulfide	2010/12/21	<0.50		ppbv	
		Propene	2010/12/21	<0.30		ppbv	
		Vinyl Acetate	2010/12/21	<0.20		ppbv	
		Vinyl Bromide	2010/12/21	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2010/12/21	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2010/12/21	<0.17		ppbv	
		Chloromethane	2010/12/21	<0.30		ppbv	
		Vinyl Chloride	2010/12/21	<0.18		ppbv	
		Chloroethane	2010/12/21	<0.30		ppbv	
		1,3-Butadiene	2010/12/21	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2010/12/21	<0.20		ppbv	
		Trichlorotrifluoroethane	2010/12/21	<0.15		ppbv	
		Ethanol	2010/12/21	<2.3		ppbv	
		2-propanol	2010/12/21	<3.0		ppbv	
		2-Propanone	2010/12/21	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2010/12/21	<3.0		ppbv	
		Methyl Isobutyl Ketone	2010/12/21	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2010/12/21	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2010/12/21	<0.20		ppbv	
		Ethyl Acetate	2010/12/21	<2.2		ppbv	
		1,1-Dichloroethylene	2010/12/21	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2010/12/21	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2010/12/21	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2010/12/21	0.83, RDL=0.30		ppbv	
		Chloroform	2010/12/21	<0.15		ppbv	
		Carbon Tetrachloride	2010/12/21	<0.30		ppbv	
		1,1-Dichloroethane	2010/12/21	<0.20		ppbv	
		1,2-Dichloroethane	2010/12/21	<0.20		ppbv	
		Ethylene Dibromide	2010/12/21	<0.17		ppbv	
		1,1,1-Trichloroethane	2010/12/21	<0.30		ppbv	
		1,1,2-Trichloroethane	2010/12/21	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2010/12/21	<0.20		ppbv	
		cis-1,3-Dichloropropene	2010/12/21	<0.18		ppbv	
		trans-1,3-Dichloropropene	2010/12/21	<0.17		ppbv	
		1,2-Dichloropropane	2010/12/21	<0.40		ppbv	
		Bromomethane	2010/12/21	<0.18		ppbv	
		Bromoform	2010/12/21	<0.20		ppbv	
		Bromodichloromethane	2010/12/21	<0.20		ppbv	
		Dibromochloromethane	2010/12/21	<0.20		ppbv	
		Heptane	2010/12/21	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB011572

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2366348	MMU	Method Blank					
		Trichloroethylene	2010/12/21	<0.30		ppbv	
		Tetrachloroethylene	2010/12/21	<0.20		ppbv	
		Benzene	2010/12/21	<0.18		ppbv	
		Toluene	2010/12/21	<0.20		ppbv	
		Ethylbenzene	2010/12/21	<0.20		ppbv	
		p+m-Xylene	2010/12/21	<0.37		ppbv	
		o-Xylene	2010/12/21	<0.20		ppbv	
		Styrene	2010/12/21	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2010/12/21	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2010/12/21	<0.50		ppbv	
		4-ethyltoluene	2010/12/21	<2.2		ppbv	
		Chlorobenzene	2010/12/21	<0.20		ppbv	
		Benzyl chloride	2010/12/21	<1.0		ppbv	
		1,3-Dichlorobenzene	2010/12/21	<0.40		ppbv	
		1,4-Dichlorobenzene	2010/12/21	<0.40		ppbv	
		1,2-Dichlorobenzene	2010/12/21	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2010/12/21	<2.0		ppbv	
		Hexachlorobutadiene	2010/12/21	<3.0		ppbv	
		Hexane	2010/12/21	<0.30		ppbv	
		Cyclohexane	2010/12/21	<0.20		ppbv	
		Tetrahydrofuran	2010/12/21	<0.40		ppbv	
		1,4-Dioxane	2010/12/21	<2.0		ppbv	
		Xylene (Total)	2010/12/21	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2010/12/21	NC		%	25
		Carbon Disulfide	2010/12/21	NC		%	25
		Propene	2010/12/21	3.9		%	25
		Vinyl Acetate	2010/12/21	NC		%	25
		Vinyl Bromide	2010/12/21	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2010/12/21	NC		%	25
		1,2-Dichlorotetrafluoroethane	2010/12/21	NC		%	25
		Chloromethane	2010/12/21	NC		%	25
		Vinyl Chloride	2010/12/21	NC		%	25
		Chloroethane	2010/12/21	NC		%	25
		1,3-Butadiene	2010/12/21	NC		%	25
		Trichlorofluoromethane (FREON 11)	2010/12/21	NC		%	25
		Trichlorotrifluoroethane	2010/12/21	NC		%	25
		Ethanol	2010/12/21	NC		%	25
		2-propanol	2010/12/21	NC		%	25
		2-Propanone	2010/12/21	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2010/12/21	NC		%	25
		Methyl Isobutyl Ketone	2010/12/21	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2010/12/21	NC		%	25
		Methyl t-butyl ether (MTBE)	2010/12/21	NC		%	25
		Ethyl Acetate	2010/12/21	NC		%	25
		1,1-Dichloroethylene	2010/12/21	NC		%	25
		cis-1,2-Dichloroethylene	2010/12/21	NC		%	25
		trans-1,2-Dichloroethylene	2010/12/21	NC		%	25
		Methylene Chloride(Dichloromethane)	2010/12/21	NC		%	25
		Chloroform	2010/12/21	NC		%	25
		Carbon Tetrachloride	2010/12/21	NC		%	25
		1,1-Dichloroethane	2010/12/21	NC		%	25
		1,2-Dichloroethane	2010/12/21	NC		%	25
		Ethylene Dibromide	2010/12/21	NC		%	25

Maxxam Analytics
 Attention: Michael Bisaga
 Client Project #:
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 Project name:

Quality Assurance Report (Continued)

Maxxam Job Number: GB011572

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2366348 MMU	RPD - Sample/Sample Dup	1,1,1-Trichloroethane	2010/12/21	NC		%	25
		1,1,2-Trichloroethane	2010/12/21	NC		%	25
		1,1,2,2-Tetrachloroethane	2010/12/21	NC		%	25
		cis-1,3-Dichloropropene	2010/12/21	NC		%	25
		trans-1,3-Dichloropropene	2010/12/21	NC		%	25
		1,2-Dichloropropane	2010/12/21	NC		%	25
		Bromomethane	2010/12/21	NC		%	25
		Bromoform	2010/12/21	NC		%	25
		Bromodichloromethane	2010/12/21	NC		%	25
		Dibromochloromethane	2010/12/21	NC		%	25
		Heptane	2010/12/21	NC		%	25
		Trichloroethylene	2010/12/21	NC		%	25
		Tetrachloroethylene	2010/12/21	NC		%	25
		Benzene	2010/12/21	NC		%	25
		Toluene	2010/12/21	NC		%	25
		Ethylbenzene	2010/12/21	NC		%	25
		p+m-Xylene	2010/12/21	NC		%	25
		o-Xylene	2010/12/21	NC		%	25
		Styrene	2010/12/21	NC		%	25
		1,3,5-Trimethylbenzene	2010/12/21	NC		%	25
		1,2,4-Trimethylbenzene	2010/12/21	NC		%	25
		4-ethyltoluene	2010/12/21	NC		%	25
		Chlorobenzene	2010/12/21	NC		%	25
		Benzyl chloride	2010/12/21	NC		%	25
		1,3-Dichlorobenzene	2010/12/21	NC		%	25
		1,4-Dichlorobenzene	2010/12/21	NC		%	25
		1,2-Dichlorobenzene	2010/12/21	NC		%	25
		1,2,4-Trichlorobenzene	2010/12/21	NC		%	25
		Hexachlorobutadiene	2010/12/21	NC		%	25
		Hexane	2010/12/21	NC		%	25
		Cyclohexane	2010/12/21	NC		%	25
		Tetrahydrofuran	2010/12/21	NC		%	25
		1,4-Dioxane	2010/12/21	NC		%	25
		Xylene (Total)	2010/12/21	NC		%	25

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 7823
Station ID: Lica 1 Canister Installation Date/Time: Dec 15, 2010 @ 7:37 mst
Field Sample ID: LICA VOC/ CLS /Dec 16, 10 Canister Removal Date/Time: Dec 17, 2010 @ 8:26 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
16-Dec-10	16/12/2010 0:00	17/12/2010 0:00	24.00

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

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

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

Comments: System leak check prior to sampling. COC # 06451

Technician Signiture: Ting Xu

Your C.O.C. #: 06451

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

Report Date: 2011/01/05

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B0I3817****Received: 2010/12/21, 10:25**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2010/12/29	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2010/12/29	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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Total cover pages: 1

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Maxxam Job #: B013817
 Report Date: 2011/01/05

RESULTS OF ANALYSES OF AIR

Maxxam ID		IF5927	IF5928	
Sampling Date		2010/12/16	2010/12/16	
COC Number		06451	06451	
	Units	LICA VOC /CLS/ DEC 16,10 - 7823	LICA VOC /PORT/ DEC 16,10 - 7788	QC Batch

Volatile Organics				
Pressure on Receipt	psig	22	21	2370613
QC Batch = Quality Control Batch				

Maxxam Job #: B013817
 Report Date: 2011/01/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IF5927			IF5928				
Sampling Date		2010/12/16			2010/12/16				
COC Number		06451			06451				
	Units	LICA VOC /CLS/ DEC 16,10 - 7823	ug/m3	DL (ug/m3)	LICA VOC /PORT/ DEC 16,10 - 7788	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	0.23	1.09	0.934	<0.20	0.20	<0.934	0.934	2370621
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2370621
Propene	ppbv	0.71	1.23	0.516	<0.30	0.30	<0.516	0.516	2370621
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2370621
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2370621
Dichlorodifluoromethane (FREON 12)	ppbv	0.65	3.21	0.989	0.66	0.20	3.24	0.989	2370621
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2370621
Chloromethane	ppbv	0.46	0.954	0.620	0.46	0.30	0.954	0.620	2370621
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2370621
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2370621
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2370621
Trichlorofluoromethane (FREON 11)	ppbv	0.29	1.65	1.12	0.30	0.20	1.70	1.12	2370621
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2370621
Ethanol	ppbv	3.7	6.99	4.33	<2.3	2.3	<4.33	4.33	2370621
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2370621
2-Propanone	ppbv	<0.80	<1.90	1.90	0.90	0.80	2.13	1.90	2370621
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2370621
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2370621
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2370621
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2370621
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2370621
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2370621
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2370621
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2370621
Methylene Chloride(Dichloromethane)	ppbv	0.38	1.31	1.04	0.37	0.30	1.28	1.04	2370621
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2370621
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2370621
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2370621
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2370621
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2370621
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2370621

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B013817
 Report Date: 2011/01/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IF5927			IF5928				
Sampling Date		2010/12/16			2010/12/16				
COC Number		06451			06451				
	Units	LICA VOC /CLS/ DEC 16,10 - 7823	ug/m3	DL (ug/m3)	LICA VOC /PORT/ DEC 16,10 - 7788	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2370621
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2370621
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2370621
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2370621
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2370621
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2370621
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2370621
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2370621
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2370621
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2370621
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2370621
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2370621
Benzene	ppbv	0.36	1.15	0.575	0.19	0.18	0.608	0.575	2370621
Toluene	ppbv	0.52	1.95	0.753	<0.20	0.20	<0.753	0.753	2370621
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2370621
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2370621
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2370621
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2370621
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2370621
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2370621
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2370621
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2370621
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2370621
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2370621
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2370621
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2370621
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2370621
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2370621
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2370621
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.36	0.20	1.25	0.688	2370621
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2370621
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2370621
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2370621
QC Batch = Quality Control Batch									

Maxxam Job #: B013817
 Report Date: 2011/01/05

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IF5927			IF5928				
Sampling Date		2010/12/16			2010/12/16				
COC Number		06451			06451				
	Units	LICA VOC /CLS/ DEC 16,10 - 7823	ug/m3	DL (ug/m3)	LICA VOC /PORT/ DEC 16,10 - 7788	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	85	N/A	N/A	85		N/A	N/A	2370621
D5-Chlorobenzene	%	81	N/A	N/A	83		N/A	N/A	2370621
Difluorobenzene	%	86	N/A	N/A	86		N/A	N/A	2370621

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

Maxxam Job #: B013817
 Report Date: 2011/01/05

Test Summary

Maxxam ID IF5927 **Collected** 2010/12/16
Sample ID LICA VOC /CLS/ DEC 16,10 - 7823 **Shipped**
Matrix AIR **Received** 2010/12/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2370613	N/A	2010/12/29	LSY
Volatile Organics in Air (TO-15)	GC/MS	2370621	N/A	2010/12/29	LSY

Maxxam ID IF5928 **Collected** 2010/12/16
Sample ID LICA VOC /PORT/ DEC 16,10 - 7788 **Shipped**
Matrix AIR **Received** 2010/12/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2370613	N/A	2010/12/29	LSY
Volatile Organics in Air (TO-15)	GC/MS	2370621	N/A	2010/12/29	LSY

Maxxam Job #: B013817
Report Date: 2011/01/05

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB013817

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2370621 LSY	Spiked Blank	Bromochloromethane	2010/12/29		103	%	60 - 140
		D5-Chlorobenzene	2010/12/29		102	%	60 - 140
		Difluorobenzene	2010/12/29		105	%	60 - 140
		2,2,4-Trimethylpentane	2010/12/29		89	%	70 - 130
		Carbon Disulfide	2010/12/29		88	%	70 - 130
		Propene	2010/12/29		82	%	70 - 130
		Vinyl Acetate	2010/12/29		91	%	70 - 130
		Vinyl Bromide	2010/12/29		94	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2010/12/29		88	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2010/12/29		102	%	70 - 130
		Chloromethane	2010/12/29		85	%	70 - 130
		Vinyl Chloride	2010/12/29		86	%	70 - 130
		Chloroethane	2010/12/29		82	%	70 - 130
		1,3-Butadiene	2010/12/29		72	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2010/12/29		89	%	70 - 130
		Trichlorotrifluoroethane	2010/12/29		88	%	70 - 130
		Ethanol	2010/12/29		65 (1)	%	70 - 130
		2-propanol	2010/12/29		77	%	70 - 130
		2-Propanone	2010/12/29		91	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2010/12/29		94	%	70 - 130
		Methyl Isobutyl Ketone	2010/12/29		81	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2010/12/29		77	%	70 - 130
		Methyl t-butyl ether (MTBE)	2010/12/29		91	%	70 - 130
		Ethyl Acetate	2010/12/29		87	%	70 - 130
		1,1-Dichloroethylene	2010/12/29		85	%	70 - 130
		cis-1,2-Dichloroethylene	2010/12/29		84	%	70 - 130
		trans-1,2-Dichloroethylene	2010/12/29		88	%	70 - 130
		Methylene Chloride(Dichloromethane)	2010/12/29		75	%	70 - 130
		Chloroform	2010/12/29		89	%	70 - 130
		Carbon Tetrachloride	2010/12/29		110	%	70 - 130
		1,1-Dichloroethane	2010/12/29		84	%	70 - 130
		1,2-Dichloroethane	2010/12/29		87	%	70 - 130
		Ethylene Dibromide	2010/12/29		93	%	70 - 130
		1,1,1-Trichloroethane	2010/12/29		96	%	70 - 130
		1,1,2-Trichloroethane	2010/12/29		91	%	70 - 130
		1,1,2,2-Tetrachloroethane	2010/12/29		78	%	70 - 130
		cis-1,3-Dichloropropene	2010/12/29		96	%	70 - 130
		trans-1,3-Dichloropropene	2010/12/29		101	%	70 - 130
		1,2-Dichloropropane	2010/12/29		84	%	70 - 130
		Bromomethane	2010/12/29		83	%	70 - 130
		Bromoform	2010/12/29		134 (1)	%	70 - 130
		Bromodichloromethane	2010/12/29		105	%	70 - 130
		Dibromochloromethane	2010/12/29		126	%	70 - 130
		Heptane	2010/12/29		83	%	70 - 130
		Trichloroethylene	2010/12/29		90	%	70 - 130
		Tetrachloroethylene	2010/12/29		93	%	70 - 130
		Benzene	2010/12/29		85	%	70 - 130
		Toluene	2010/12/29		88	%	70 - 130
		Ethylbenzene	2010/12/29		88	%	70 - 130
		p+m-Xylene	2010/12/29		87	%	70 - 130
		o-Xylene	2010/12/29		86	%	70 - 130
		Styrene	2010/12/29		89	%	70 - 130
		1,3,5-Trimethylbenzene	2010/12/29		80	%	70 - 130
		1,2,4-Trimethylbenzene	2010/12/29		76	%	70 - 130
		4-ethyltoluene	2010/12/29		84	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB013817

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2370621 LSY	Spiked Blank	Chlorobenzene	2010/12/29		90	%	70 - 130
		Benzyl chloride	2010/12/29		98	%	70 - 130
		1,3-Dichlorobenzene	2010/12/29		81	%	70 - 130
		1,4-Dichlorobenzene	2010/12/29		83	%	70 - 130
		1,2-Dichlorobenzene	2010/12/29		74	%	70 - 130
		1,2,4-Trichlorobenzene	2010/12/29		110	%	70 - 130
		Hexachlorobutadiene	2010/12/29		119	%	70 - 130
		Hexane	2010/12/29		79	%	70 - 130
		Cyclohexane	2010/12/29		86	%	70 - 130
		Tetrahydrofuran	2010/12/29		84	%	70 - 130
		1,4-Dioxane	2010/12/29		72	%	70 - 130
	Method Blank	Bromochloromethane	2010/12/29		92	%	60 - 140
		D5-Chlorobenzene	2010/12/29		90	%	60 - 140
		Difluorobenzene	2010/12/29		93	%	60 - 140
		2,2,4-Trimethylpentane	2010/12/29	<0.20		ppbv	
		Carbon Disulfide	2010/12/29	<0.50		ppbv	
		Propene	2010/12/29	<0.30		ppbv	
		Vinyl Acetate	2010/12/29	<0.20		ppbv	
		Vinyl Bromide	2010/12/29	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2010/12/29	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2010/12/29	<0.17		ppbv	
		Chloromethane	2010/12/29	<0.30		ppbv	
		Vinyl Chloride	2010/12/29	<0.18		ppbv	
		Chloroethane	2010/12/29	<0.30		ppbv	
		1,3-Butadiene	2010/12/29	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2010/12/29	<0.20		ppbv	
		Trichlorotrifluoroethane	2010/12/29	<0.15		ppbv	
		Ethanol	2010/12/29	<2.3		ppbv	
		2-propanol	2010/12/29	<3.0		ppbv	
		2-Propanone	2010/12/29	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2010/12/29	<3.0		ppbv	
		Methyl Isobutyl Ketone	2010/12/29	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2010/12/29	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2010/12/29	<0.20		ppbv	
		Ethyl Acetate	2010/12/29	<2.2		ppbv	
		1,1-Dichloroethylene	2010/12/29	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2010/12/29	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2010/12/29	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2010/12/29	0.34, RDL=0.30		ppbv	
		Chloroform	2010/12/29	<0.15		ppbv	
		Carbon Tetrachloride	2010/12/29	<0.30		ppbv	
		1,1-Dichloroethane	2010/12/29	<0.20		ppbv	
		1,2-Dichloroethane	2010/12/29	<0.20		ppbv	
		Ethylene Dibromide	2010/12/29	<0.17		ppbv	
		1,1,1-Trichloroethane	2010/12/29	<0.30		ppbv	
		1,1,2-Trichloroethane	2010/12/29	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2010/12/29	<0.20		ppbv	
		cis-1,3-Dichloropropene	2010/12/29	<0.18		ppbv	
		trans-1,3-Dichloropropene	2010/12/29	<0.17		ppbv	
		1,2-Dichloropropane	2010/12/29	<0.40		ppbv	
		Bromomethane	2010/12/29	<0.18		ppbv	
		Bromoform	2010/12/29	<0.20		ppbv	
		Bromodichloromethane	2010/12/29	<0.20		ppbv	
		Dibromochloromethane	2010/12/29	<0.20		ppbv	
		Heptane	2010/12/29	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB013817

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2370621 LSY	Method Blank	Trichloroethylene	2010/12/29	<0.30		ppbv	
		Tetrachloroethylene	2010/12/29	<0.20		ppbv	
		Benzene	2010/12/29	<0.18		ppbv	
		Toluene	2010/12/29	<0.20		ppbv	
		Ethylbenzene	2010/12/29	<0.20		ppbv	
		p+m-Xylene	2010/12/29	<0.37		ppbv	
		o-Xylene	2010/12/29	<0.20		ppbv	
		Styrene	2010/12/29	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2010/12/29	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2010/12/29	<0.50		ppbv	
		4-ethyltoluene	2010/12/29	<2.2		ppbv	
		Chlorobenzene	2010/12/29	<0.20		ppbv	
		Benzyl chloride	2010/12/29	<1.0		ppbv	
		1,3-Dichlorobenzene	2010/12/29	<0.40		ppbv	
		1,4-Dichlorobenzene	2010/12/29	<0.40		ppbv	
		1,2-Dichlorobenzene	2010/12/29	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2010/12/29	<2.0		ppbv	
		Hexachlorobutadiene	2010/12/29	<3.0		ppbv	
		Hexane	2010/12/29	<0.30		ppbv	
		Cyclohexane	2010/12/29	<0.20		ppbv	
		Tetrahydrofuran	2010/12/29	<0.40		ppbv	
		1,4-Dioxane	2010/12/29	<2.0		ppbv	
		Xylene (Total)	2010/12/29	<0.60		ppbv	

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
 Location: Cold Lake South Canister ID: 7832
 Station ID: Lica 1 Canister Installation Date/Time: Dec 21, 2010 @ 9:18 mst
 Field Sample ID: LICA VOC/ CLS /Dec 22, 10 Canister Removal Date/Time: Dec 23, 2010 @ 8:34 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
22-Dec-10	22/12/2010 0:00	23/12/2010 0:00	24.00

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

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

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

Comments: System leak check prior to sampling. COC # 2337

Technician Signiture: Ting Xu

Your C.O.C. #: 2337

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

Report Date: 2011/01/07

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B0I6171****Received: 2010/12/29, 08:45**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/01/05	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/01/05	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

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Maxxam Job #: B0I6171
 Report Date: 2011/01/07

RESULTS OF ANALYSES OF AIR

Maxxam ID		IG6160	IG6161	
Sampling Date		2010/12/22	2010/12/22	
COC Number		2337	2337	
	Units	LICA VOC/CLS/DEC 22,2010 - 7832	LICA VOC/PORT/DEC 22,2010 - 7910	QC Batch

Volatile Organics				
Pressure on Receipt	psig	21	21	2374448

QC Batch = Quality Control Batch

Maxxam Job #: B016171
 Report Date: 2011/01/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IG6160			IG6161				
Sampling Date		2010/12/22			2010/12/22				
COC Number		2337			2337				
	Units	LICA VOC/CLS/DEC 22,2010 - 7832	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 22,2010 - 7910	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2374464
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2374464
Propene	ppbv	0.89	1.53	0.516	0.93	0.30	1.59	0.516	2374464
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2374464
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2374464
Dichlorodifluoromethane (FREON 12)	ppbv	0.66	3.27	0.989	0.66	0.20	3.26	0.989	2374464
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2374464
Chloromethane	ppbv	0.49	1.00	0.620	0.52	0.30	1.08	0.620	2374464
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2374464
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2374464
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2374464
Trichlorofluoromethane (FREON 11)	ppbv	0.30	1.71	1.12	0.32	0.20	1.77	1.12	2374464
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2374464
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2374464
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2374464
2-Propanone	ppbv	1.16	2.76	1.90	1.23	0.80	2.92	1.90	2374464
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2374464
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2374464
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2374464
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2374464
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2374464
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2374464
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2374464
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2374464
Methylene Chloride(Dichloromethane)	ppbv	0.40	1.38	1.04	0.41	0.30	1.43	1.04	2374464
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2374464
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2374464
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2374464
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2374464
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2374464
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2374464

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B016171
 Report Date: 2011/01/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IG6160			IG6161					
Sampling Date		2010/12/22			2010/12/22					
COC Number		2337			2337					
	Units	LICA VOC/CLS/DEC 22,2010 - 7832	ug/m3	DL (ug/m3)	LICA VOC/PORT/DEC 22,2010 - 7910	RDL	ug/m3	DL (ug/m3)	QC Batch	
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2374464	
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2374464	
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2374464	
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2374464	
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2374464	
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2374464	
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2374464	
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2374464	
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2374464	
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2374464	
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2374464	
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2374464	
Benzene	ppbv	0.21	0.665	0.575	<0.18	0.18	<0.575	0.575	2374464	
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2374464	
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2374464	
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2374464	
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2374464	
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2374464	
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2374464	
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2374464	
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2374464	
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2374464	
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2374464	
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2374464	
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2374464	
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2374464	
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2374464	
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2374464	
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2374464	
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2374464	
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2374464	
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2374464	
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2374464	
QC Batch = Quality Control Batch										

Maxxam Job #: B016171
 Report Date: 2011/01/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IG6160			IG6161				
Sampling Date		2010/12/22			2010/12/22				
COC Number		2337			2337				
	Units	LICA	ug/m3	DL (ug/m3)	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/CLS/DEC			VOC/PORT/DEC				
		22,2010 - 7832			22,2010 - 7910				

Surrogate Recovery (%)									
Bromochloromethane	%	87	N/A	N/A	86		N/A	N/A	2374464
D5-Chlorobenzene	%	83	N/A	N/A	83		N/A	N/A	2374464
Difluorobenzene	%	88	N/A	N/A	87		N/A	N/A	2374464

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

Maxxam Job #: B0I6171
 Report Date: 2011/01/07

Test Summary

Maxxam ID IG6160 **Collected** 2010/12/22
Sample ID LICA VOC/CLS/DEC 22,2010 - 7832 **Shipped**
Matrix AIR **Received** 2010/12/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2374448	N/A	2011/01/05	LSY
Volatile Organics in Air (TO-15)	GC/MS	2374464	N/A	2011/01/05	LSY

Maxxam ID IG6161 **Collected** 2010/12/22
Sample ID LICA VOC/PORT/DEC 22,2010 - 7910 **Shipped**
Matrix AIR **Received** 2010/12/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2374448	N/A	2011/01/05	LSY
Volatile Organics in Air (TO-15)	GC/MS	2374464	N/A	2011/01/05	LSY

Maxxam Job #: B0I6171
Report Date: 2011/01/07

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB016171

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2374464 LSY	Spiked Blank	Bromochloromethane	2011/01/05		99	%	60 - 140
		D5-Chlorobenzene	2011/01/05		98	%	60 - 140
		Difluorobenzene	2011/01/05		100	%	60 - 140
		2,2,4-Trimethylpentane	2011/01/05		81	%	70 - 130
		Carbon Disulfide	2011/01/05		81	%	70 - 130
		Propene	2011/01/05		77	%	70 - 130
		Vinyl Acetate	2011/01/05		86	%	70 - 130
		Vinyl Bromide	2011/01/05		86	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/01/05		86	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/01/05		97	%	70 - 130
		Chloromethane	2011/01/05		82	%	70 - 130
		Vinyl Chloride	2011/01/05		81	%	70 - 130
		Chloroethane	2011/01/05		78	%	70 - 130
		1,3-Butadiene	2011/01/05		69 (1)	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/01/05		87	%	70 - 130
		Trichlorotrifluoroethane	2011/01/05		83	%	70 - 130
		Ethanol	2011/01/05		71	%	70 - 130
		2-propanol	2011/01/05		77	%	70 - 130
		2-Propanone	2011/01/05		80	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/01/05		86	%	70 - 130
		Methyl Isobutyl Ketone	2011/01/05		76	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/01/05		74	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/01/05		84	%	70 - 130
		Ethyl Acetate	2011/01/05		82	%	70 - 130
		1,1-Dichloroethylene	2011/01/05		82	%	70 - 130
		cis-1,2-Dichloroethylene	2011/01/05		81	%	70 - 130
		trans-1,2-Dichloroethylene	2011/01/05		83	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/01/05		73	%	70 - 130
		Chloroform	2011/01/05		85	%	70 - 130
		Carbon Tetrachloride	2011/01/05		109	%	70 - 130
		1,1-Dichloroethane	2011/01/05		80	%	70 - 130
		1,2-Dichloroethane	2011/01/05		85	%	70 - 130
		Ethylene Dibromide	2011/01/05		87	%	70 - 130
		1,1,1-Trichloroethane	2011/01/05		93	%	70 - 130
		1,1,2-Trichloroethane	2011/01/05		85	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/01/05		73	%	70 - 130
		cis-1,3-Dichloropropene	2011/01/05		92	%	70 - 130
		trans-1,3-Dichloropropene	2011/01/05		97	%	70 - 130
		1,2-Dichloropropane	2011/01/05		80	%	70 - 130
		Bromomethane	2011/01/05		77	%	70 - 130
		Bromoform	2011/01/05		126	%	70 - 130
		Bromodichloromethane	2011/01/05		101	%	70 - 130
		Dibromochloromethane	2011/01/05		121	%	70 - 130
		Heptane	2011/01/05		79	%	70 - 130
		Trichloroethylene	2011/01/05		84	%	70 - 130
		Tetrachloroethylene	2011/01/05		86	%	70 - 130
		Benzene	2011/01/05		80	%	70 - 130
		Toluene	2011/01/05		83	%	70 - 130
		Ethylbenzene	2011/01/05		81	%	70 - 130
		p+m-Xylene	2011/01/05		80	%	70 - 130
		o-Xylene	2011/01/05		80	%	70 - 130
		Styrene	2011/01/05		83	%	70 - 130
		1,3,5-Trimethylbenzene	2011/01/05		75	%	70 - 130
		1,2,4-Trimethylbenzene	2011/01/05		71	%	70 - 130
		4-ethyltoluene	2011/01/05		78	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB016171

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2374464 LSY	Spiked Blank	Chlorobenzene	2011/01/05		83	%	70 - 130
		Benzyl chloride	2011/01/05		96	%	70 - 130
		1,3-Dichlorobenzene	2011/01/05		76	%	70 - 130
		1,4-Dichlorobenzene	2011/01/05		78	%	70 - 130
		1,2-Dichlorobenzene	2011/01/05		69 (1)	%	70 - 130
		1,2,4-Trichlorobenzene	2011/01/05		96	%	70 - 130
		Hexachlorobutadiene	2011/01/05		101	%	70 - 130
		Hexane	2011/01/05		74	%	70 - 130
		Cyclohexane	2011/01/05		80	%	70 - 130
		Tetrahydrofuran	2011/01/05		78	%	70 - 130
		1,4-Dioxane	2011/01/05		72	%	70 - 130
	Method Blank	Bromochloromethane	2011/01/05		87	%	60 - 140
		D5-Chlorobenzene	2011/01/05		84	%	60 - 140
		Difluorobenzene	2011/01/05		88	%	60 - 140
		2,2,4-Trimethylpentane	2011/01/05	<0.20		ppbv	
		Carbon Disulfide	2011/01/05	<0.50		ppbv	
		Propene	2011/01/05	<0.30		ppbv	
		Vinyl Acetate	2011/01/05	<0.20		ppbv	
		Vinyl Bromide	2011/01/05	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/01/05	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/01/05	<0.17		ppbv	
		Chloromethane	2011/01/05	<0.30		ppbv	
		Vinyl Chloride	2011/01/05	<0.18		ppbv	
		Chloroethane	2011/01/05	<0.30		ppbv	
		1,3-Butadiene	2011/01/05	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/01/05	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/01/05	<0.15		ppbv	
		Ethanol	2011/01/05	<2.3		ppbv	
		2-propanol	2011/01/05	<3.0		ppbv	
		2-Propanone	2011/01/05	0.93, RDL=0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/01/05	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/01/05	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/01/05	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/01/05	<0.20		ppbv	
		Ethyl Acetate	2011/01/05	<2.2		ppbv	
		1,1-Dichloroethylene	2011/01/05	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/01/05	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/01/05	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/01/05	0.35, RDL=0.30		ppbv	
		Chloroform	2011/01/05	<0.15		ppbv	
		Carbon Tetrachloride	2011/01/05	<0.30		ppbv	
		1,1-Dichloroethane	2011/01/05	<0.20		ppbv	
		1,2-Dichloroethane	2011/01/05	<0.20		ppbv	
		Ethylene Dibromide	2011/01/05	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/01/05	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/01/05	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/01/05	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/01/05	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/01/05	<0.17		ppbv	
		1,2-Dichloropropane	2011/01/05	<0.40		ppbv	
		Bromomethane	2011/01/05	<0.18		ppbv	
		Bromoform	2011/01/05	<0.20		ppbv	
		Bromodichloromethane	2011/01/05	<0.20		ppbv	
		Dibromochloromethane	2011/01/05	<0.20		ppbv	
		Heptane	2011/01/05	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB016171

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2374464 LSY	Method Blank	Trichloroethylene	2011/01/05	<0.30		ppbv	
		Tetrachloroethylene	2011/01/05	<0.20		ppbv	
		Benzene	2011/01/05	<0.18		ppbv	
		Toluene	2011/01/05	<0.20		ppbv	
		Ethylbenzene	2011/01/05	<0.20		ppbv	
		p+m-Xylene	2011/01/05	<0.37		ppbv	
		o-Xylene	2011/01/05	<0.20		ppbv	
		Styrene	2011/01/05	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/01/05	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/01/05	<0.50		ppbv	
		4-ethyltoluene	2011/01/05	<2.2		ppbv	
		Chlorobenzene	2011/01/05	<0.20		ppbv	
		Benzyl chloride	2011/01/05	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/01/05	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/01/05	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/01/05	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/01/05	<2.0		ppbv	
		Hexachlorobutadiene	2011/01/05	<3.0		ppbv	
		Hexane	2011/01/05	<0.30		ppbv	
		Cyclohexane	2011/01/05	<0.20		ppbv	
		Tetrahydrofuran	2011/01/05	<0.40		ppbv	
		1,4-Dioxane	2011/01/05	<2.0		ppbv	
		Xylene (Total)	2011/01/05	<0.60		ppbv	

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 7813
Station ID: Lica 1 Canister Installation Date/Time: Dec 23, 2010 @ 13:39 mst
Field Sample ID: LICA VOC/CLS /Dec 28, 10 Canister Removal Date/Time: Dec 29, 2010 @ 7:19 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
28-Dec-10	28/12/2010 0:00	29/12/2010 0:00	24.00

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

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

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

Comments: System leak check prior to sampling. COC # 06479

Technician Signiture: Ting Xu

Your C.O.C. #: 06479

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2011/01/07****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B100032****Received: 2011/01/04, 08:55**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2011/01/05	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) ¶	2	N/A	2011/01/05	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Maxxam Job #: B100032
 Report Date: 2011/01/07

RESULTS OF ANALYSES OF AIR

Maxxam ID		IH2137	IH2138	
Sampling Date		2010/12/28	2010/12/28	
COC Number		06479	06479	
	Units	LICA VOC\CLS\DEC 28,10 - 7813	LICA VOC\PORT\ DEC 28,10 - 7821	QC Batch

Volatile Organics				
Pressure on Receipt	psig	22	21	2374448
QC Batch = Quality Control Batch				

Maxxam Job #: B100032
 Report Date: 2011/01/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IH2137			IH2138				
Sampling Date		2010/12/28			2010/12/28				
COC Number		06479			06479				
	Units	LICA VOC\CLS\DEC 28,10 - 7813	ug/m3	DL (ug/m3)	LICA VOC\PORT\ DEC 28,10 - 7821	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	<0.20	0.20	<0.934	0.934	2374464
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2374464
Propene	ppbv	1.21	2.08	0.516	0.95	0.30	1.63	0.516	2374464
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2374464
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2374464
Dichlorodifluoromethane (FREON 12)	ppbv	0.66	3.25	0.989	0.67	0.20	3.33	0.989	2374464
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2374464
Chloromethane	ppbv	0.49	1.02	0.620	0.54	0.30	1.11	0.620	2374464
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2374464
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2374464
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2374464
Trichlorofluoromethane (FREON 11)	ppbv	0.31	1.73	1.12	0.32	0.20	1.79	1.12	2374464
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2374464
Ethanol	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2374464
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2374464
2-Propanone	ppbv	1.07	2.53	1.90	<0.80	0.80	<1.90	1.90	2374464
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2374464
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2374464
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2374464
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2374464
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2374464
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2374464
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2374464
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2374464
Methylene Chloride(Dichloromethane)	ppbv	0.42	1.45	1.04	0.42	0.30	1.46	1.04	2374464
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2374464
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2374464
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2374464
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2374464
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2374464

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B100032
 Report Date: 2011/01/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IH2137			IH2138				
Sampling Date		2010/12/28			2010/12/28				
COC Number		06479			06479				
	Units	LICA VOC\CLS\DEC 28,10 - 7813	ug/m3	DL (ug/m3)	LICA VOC\PORT\ DEC 28,10 - 7821	RDL	ug/m3	DL (ug/m3)	QC Batch

1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2374464
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2374464
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2374464
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2374464
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2374464
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2374464
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2374464
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2374464
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2374464
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2374464
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2374464
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2374464
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2374464
Benzene	ppbv	<0.18	<0.575	0.575	0.18	0.18	0.579	0.575	2374464
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2374464
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2374464
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2374464
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2374464
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2374464
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2374464
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2374464
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2374464
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2374464
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2374464
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2374464
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2374464
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2374464
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2374464
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2374464
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2374464
Cyclohexane	ppbv	<0.20	<0.688	0.688	0.24	0.20	0.837	0.688	2374464
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2374464

QC Batch = Quality Control Batch

Maxxam Job #: B100032
 Report Date: 2011/01/07

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		IH2137			IH2138				
Sampling Date		2010/12/28			2010/12/28				
COC Number		06479			06479				
	Units	LICA VOC\CLS\DEC 28,10 - 7813	ug/m3	DL (ug/m3)	LICA VOC\PORT\ DEC 28,10 - 7821	RDL	ug/m3	DL (ug/m3)	QC Batch

1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2374464
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2374464
Surrogate Recovery (%)									
Bromochloromethane	%	86	N/A	N/A	85		N/A	N/A	2374464
D5-Chlorobenzene	%	84	N/A	N/A	81		N/A	N/A	2374464
Difluorobenzene	%	87	N/A	N/A	86		N/A	N/A	2374464

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

Maxxam Job #: B100032
 Report Date: 2011/01/07

Test Summary

Maxxam ID IH2137 **Collected** 2010/12/28
Sample ID LICA VOC\CLS\DEC 28,10 - 7813 **Shipped**
Matrix AIR **Received** 2011/01/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2374448	N/A	2011/01/05	LSY
Volatile Organics in Air (TO-15)	GC/MS	2374464	N/A	2011/01/05	LSY

Maxxam ID IH2138 **Collected** 2010/12/28
Sample ID LICA VOC\PORT\ DEC 28,10 - 7821 **Shipped**
Matrix AIR **Received** 2011/01/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2374448	N/A	2011/01/05	LSY
Volatile Organics in Air (TO-15)	GC/MS	2374464	N/A	2011/01/05	LSY

Maxxam Job #: B100032
Report Date: 2011/01/07

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB100032

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2374464 LSY	Spiked Blank	Bromochloromethane	2011/01/05		99	%	60 - 140
		D5-Chlorobenzene	2011/01/05		98	%	60 - 140
		Difluorobenzene	2011/01/05		100	%	60 - 140
		2,2,4-Trimethylpentane	2011/01/05		81	%	70 - 130
		Carbon Disulfide	2011/01/05		81	%	70 - 130
		Propene	2011/01/05		77	%	70 - 130
		Vinyl Acetate	2011/01/05		86	%	70 - 130
		Vinyl Bromide	2011/01/05		86	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2011/01/05		86	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2011/01/05		97	%	70 - 130
		Chloromethane	2011/01/05		82	%	70 - 130
		Vinyl Chloride	2011/01/05		81	%	70 - 130
		Chloroethane	2011/01/05		78	%	70 - 130
		1,3-Butadiene	2011/01/05		69 (1)	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2011/01/05		87	%	70 - 130
		Trichlorotrifluoroethane	2011/01/05		83	%	70 - 130
		Ethanol	2011/01/05		71	%	70 - 130
		2-propanol	2011/01/05		77	%	70 - 130
		2-Propanone	2011/01/05		80	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2011/01/05		86	%	70 - 130
		Methyl Isobutyl Ketone	2011/01/05		76	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2011/01/05		74	%	70 - 130
		Methyl t-butyl ether (MTBE)	2011/01/05		84	%	70 - 130
		Ethyl Acetate	2011/01/05		82	%	70 - 130
		1,1-Dichloroethylene	2011/01/05		82	%	70 - 130
		cis-1,2-Dichloroethylene	2011/01/05		81	%	70 - 130
		trans-1,2-Dichloroethylene	2011/01/05		83	%	70 - 130
		Methylene Chloride(Dichloromethane)	2011/01/05		73	%	70 - 130
		Chloroform	2011/01/05		85	%	70 - 130
		Carbon Tetrachloride	2011/01/05		109	%	70 - 130
		1,1-Dichloroethane	2011/01/05		80	%	70 - 130
		1,2-Dichloroethane	2011/01/05		85	%	70 - 130
		Ethylene Dibromide	2011/01/05		87	%	70 - 130
		1,1,1-Trichloroethane	2011/01/05		93	%	70 - 130
		1,1,2-Trichloroethane	2011/01/05		85	%	70 - 130
		1,1,2,2-Tetrachloroethane	2011/01/05		73	%	70 - 130
		cis-1,3-Dichloropropene	2011/01/05		92	%	70 - 130
		trans-1,3-Dichloropropene	2011/01/05		97	%	70 - 130
		1,2-Dichloropropane	2011/01/05		80	%	70 - 130
		Bromomethane	2011/01/05		77	%	70 - 130
		Bromoform	2011/01/05		126	%	70 - 130
		Bromodichloromethane	2011/01/05		101	%	70 - 130
		Dibromochloromethane	2011/01/05		121	%	70 - 130
		Heptane	2011/01/05		79	%	70 - 130
		Trichloroethylene	2011/01/05		84	%	70 - 130
		Tetrachloroethylene	2011/01/05		86	%	70 - 130
		Benzene	2011/01/05		80	%	70 - 130
		Toluene	2011/01/05		83	%	70 - 130
		Ethylbenzene	2011/01/05		81	%	70 - 130
		p+m-Xylene	2011/01/05		80	%	70 - 130
		o-Xylene	2011/01/05		80	%	70 - 130
		Styrene	2011/01/05		83	%	70 - 130
		1,3,5-Trimethylbenzene	2011/01/05		75	%	70 - 130
		1,2,4-Trimethylbenzene	2011/01/05		71	%	70 - 130
		4-ethyltoluene	2011/01/05		78	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB100032

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2374464 LSY	Spiked Blank	Chlorobenzene	2011/01/05		83	%	70 - 130
		Benzyl chloride	2011/01/05		96	%	70 - 130
		1,3-Dichlorobenzene	2011/01/05		76	%	70 - 130
		1,4-Dichlorobenzene	2011/01/05		78	%	70 - 130
		1,2-Dichlorobenzene	2011/01/05		69 (1)	%	70 - 130
		1,2,4-Trichlorobenzene	2011/01/05		96	%	70 - 130
		Hexachlorobutadiene	2011/01/05		101	%	70 - 130
		Hexane	2011/01/05		74	%	70 - 130
		Cyclohexane	2011/01/05		80	%	70 - 130
		Tetrahydrofuran	2011/01/05		78	%	70 - 130
		1,4-Dioxane	2011/01/05		72	%	70 - 130
	Method Blank	Bromochloromethane	2011/01/05		87	%	60 - 140
		D5-Chlorobenzene	2011/01/05		84	%	60 - 140
		Difluorobenzene	2011/01/05		88	%	60 - 140
		2,2,4-Trimethylpentane	2011/01/05	<0.20		ppbv	
		Carbon Disulfide	2011/01/05	<0.50		ppbv	
		Propene	2011/01/05	<0.30		ppbv	
		Vinyl Acetate	2011/01/05	<0.20		ppbv	
		Vinyl Bromide	2011/01/05	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2011/01/05	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2011/01/05	<0.17		ppbv	
		Chloromethane	2011/01/05	<0.30		ppbv	
		Vinyl Chloride	2011/01/05	<0.18		ppbv	
		Chloroethane	2011/01/05	<0.30		ppbv	
		1,3-Butadiene	2011/01/05	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2011/01/05	<0.20		ppbv	
		Trichlorotrifluoroethane	2011/01/05	<0.15		ppbv	
		Ethanol	2011/01/05	<2.3		ppbv	
		2-propanol	2011/01/05	<3.0		ppbv	
		2-Propanone	2011/01/05	0.93, RDL=0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2011/01/05	<3.0		ppbv	
		Methyl Isobutyl Ketone	2011/01/05	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2011/01/05	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2011/01/05	<0.20		ppbv	
		Ethyl Acetate	2011/01/05	<2.2		ppbv	
		1,1-Dichloroethylene	2011/01/05	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2011/01/05	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2011/01/05	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2011/01/05	0.35, RDL=0.30		ppbv	
		Chloroform	2011/01/05	<0.15		ppbv	
		Carbon Tetrachloride	2011/01/05	<0.30		ppbv	
		1,1-Dichloroethane	2011/01/05	<0.20		ppbv	
		1,2-Dichloroethane	2011/01/05	<0.20		ppbv	
		Ethylene Dibromide	2011/01/05	<0.17		ppbv	
		1,1,1-Trichloroethane	2011/01/05	<0.30		ppbv	
		1,1,2-Trichloroethane	2011/01/05	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2011/01/05	<0.20		ppbv	
		cis-1,3-Dichloropropene	2011/01/05	<0.18		ppbv	
		trans-1,3-Dichloropropene	2011/01/05	<0.17		ppbv	
		1,2-Dichloropropane	2011/01/05	<0.40		ppbv	
		Bromomethane	2011/01/05	<0.18		ppbv	
		Bromoform	2011/01/05	<0.20		ppbv	
		Bromodichloromethane	2011/01/05	<0.20		ppbv	
		Dibromochloromethane	2011/01/05	<0.20		ppbv	
		Heptane	2011/01/05	<0.30		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB100032

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2374464 LSY	Method Blank	Trichloroethylene	2011/01/05	<0.30		ppbv	
		Tetrachloroethylene	2011/01/05	<0.20		ppbv	
		Benzene	2011/01/05	<0.18		ppbv	
		Toluene	2011/01/05	<0.20		ppbv	
		Ethylbenzene	2011/01/05	<0.20		ppbv	
		p+m-Xylene	2011/01/05	<0.37		ppbv	
		o-Xylene	2011/01/05	<0.20		ppbv	
		Styrene	2011/01/05	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2011/01/05	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2011/01/05	<0.50		ppbv	
		4-ethyltoluene	2011/01/05	<2.2		ppbv	
		Chlorobenzene	2011/01/05	<0.20		ppbv	
		Benzyl chloride	2011/01/05	<1.0		ppbv	
		1,3-Dichlorobenzene	2011/01/05	<0.40		ppbv	
		1,4-Dichlorobenzene	2011/01/05	<0.40		ppbv	
		1,2-Dichlorobenzene	2011/01/05	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2011/01/05	<2.0		ppbv	
		Hexachlorobutadiene	2011/01/05	<3.0		ppbv	
		Hexane	2011/01/05	<0.30		ppbv	
		Cyclohexane	2011/01/05	<0.20		ppbv	
		Tetrahydrofuran	2011/01/05	<0.40		ppbv	
		1,4-Dioxane	2011/01/05	<2.0		ppbv	
		Xylene (Total)	2011/01/05	<0.60		ppbv	

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

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

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

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

Polycyclic Aromatic Hydrocarbons Laboratory Analysis

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Dec 04,10

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Dec 03, 2010 @ 8:31 mst
 Removal Date/Time: Dec 03, 2010 @ 8:01 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
04-Dec-10	04/12/2010 0:00	05/12/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
03-Dec-10	06-Dec-10	14-Dec-10	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
720	229	-10.4	330.35

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

Comments: COC# 2336
GB0D9096 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Dec 04 , 10
- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 2336

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

Report Date: 2010/12/21

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B0H6923****Received: 2010/12/08, 09:20**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2010/12/09	2010/12/18	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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

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Total cover pages: 1

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Maxxam Job #: B0H6923
 Report Date: 2010/12/21

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

Maxxam ID		IC2214		IC2215		
Sampling Date		2010/12/04		2010/12/04		
COC Number		2336		2336		
	Units	LICA PUFF+QFF/CLS/DEC 04, 10	RDL	LICA PUFF+QFF/PORT/DEC 04, 10	RDL	QC Batch

Semivolatile Organics						
1-Methylnaphthalene	ug	0.78	0.10	0.73	0.10	2354921
1-Methylphenanthrene	ug	<0.10	0.10	<0.10	0.10	2354921
2-Chloronaphthalene	ug	<0.10	0.10	<0.10	0.10	2354921
2-Methylantracene	ug	<0.10	0.10	<0.10	0.10	2354921
2-Methylnaphthalene	ug	1.32	0.10	1.07	0.10	2354921
3-Methylcholanthrene	ug	<2.0	2.0	<2.0	2.0	2354921
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	<0.10	0.10	2354921
9,10-Dimethylantracene	ug	<0.40	0.40	<0.40	0.40	2354921
Acenaphthene	ug	0.096	0.050	<0.10	0.10	2354921
Acenaphthylene	ug	0.104	0.050	0.162	0.050	2354921
Anthracene	ug	<0.050	0.050	<0.050	0.050	2354921
Benzo(a)anthracene	ug	<0.050	0.050	<0.050	0.050	2354921
Benzo(a)fluorene	ug	<0.10	0.10	<0.10	0.10	2354921
Benzo(a)pyrene	ug	<0.050	0.050	<0.050	0.050	2354921
Benzo(b)fluoranthene	ug	0.066	0.050	0.072	0.050	2354921
Benzo(b)fluorene	ug	<0.10	0.10	<0.10	0.10	2354921
Benzo(e)pyrene	ug	<0.10	0.10	<0.10	0.10	2354921
Benzo(g,h,i)perylene	ug	<0.050	0.050	<0.050	0.050	2354921
Benzo(k)fluoranthene	ug	<0.050	0.050	<0.050	0.050	2354921
Biphenyl	ug	1.10	0.10	1.30	0.10	2354921
Chrysene	ug	0.068	0.050	0.090	0.050	2354921
Coronene	ug	<0.10	0.10	<0.10	0.10	2354921
Dibenz(a,h)anthracene	ug	<0.050	0.050	<0.050	0.050	2354921
Dibenzo(a,e)pyrene	ug	<0.20	0.20	<0.20	0.20	2354921
Fluoranthene	ug	0.138	0.050	0.166	0.050	2354921
Fluorene	ug	0.360	0.050	0.400	0.050	2354921
Indeno(1,2,3-cd)pyrene	ug	<0.050	0.050	<0.050	0.050	2354921
m-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2354921
Naphthalene	ug	1.91	0.072	1.78	0.072	2354921
o-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2354921
Perylene	ug	<0.10	0.10	<0.10	0.10	2354921

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B0H6923
 Report Date: 2010/12/21

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

Maxxam ID		IC2214		IC2215		
Sampling Date		2010/12/04		2010/12/04		
COC Number		2336		2336		
	Units	LICA PUFF+QFF/CLS/DEC 04, 10	RDL	LICA PUFF+QFF/PORT/DEC 04, 10	RDL	QC Batch

Phenanthrene	ug	0.644	0.050	0.742	0.050	2354921
p-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2354921
Pyrene	ug	0.078	0.050	0.096	0.050	2354921
Quinoline	ug	<0.40	0.40	<0.40	0.40	2354921
Tetralin	ug	<0.10	0.10	<0.10	0.10	2354921
Surrogate Recovery (%)						
D10-2-Methylnaphthalene	%	72		74		2354921
D10-Fluoranthene	%	88		88		2354921
D10-Fluorene (FS)	%	66		64		2354921
D10-Phenanthrene	%	80		80		2354921
D12-Benzo(a)anthracene	%	90		88		2354921
D12-Benzo(a)pyrene	%	88		86		2354921
D12-Benzo(b)fluoranthene	%	86		84		2354921
D12-Benzo(ghi)perylene	%	88		88		2354921
D12-Benzo(k)fluoranthene	%	86		82		2354921
D12-Chrysene	%	86		82		2354921
D12-Indeno(1,2,3-cd)pyrene	%	86		86		2354921
D12-Perylene	%	88		84		2354921
D14-Dibenzo(a,h)anthracene	%	86		86		2354921
D14-Terphenyl (FS)	%	87		86		2354921
D8-Acenaphthylene	%	76		78		2354921
D8-Naphthalene	%	70		72		2354921

QC Batch = Quality Control Batch

Maxxam Job #: B0H6923
 Report Date: 2010/12/21

Test Summary

Maxxam ID	IC2214	Collected	2010/12/04
Sample ID	LICA PUFF+QFF/CLS/DEC 04, 10	Shipped	
Matrix	PUF AND FILTER	Received	2010/12/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2354921	2010/12/09	2010/12/18	JIW

Maxxam ID	IC2215	Collected	2010/12/04
Sample ID	LICA PUFF+QFF/PORT/DEC 04, 10	Shipped	
Matrix	PUF AND FILTER	Received	2010/12/08

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2354921	2010/12/09	2010/12/18	JIW

Maxxam Job #: B0H6923
Report Date: 2010/12/21

GENERAL COMMENTS

PAHMS-F(WS:2354921)

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

9.10-Dimethylanthracene and 7,12-Dimethylbenzo(a)anthracene are above 25% RSD in continuing calibration.

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

Sample IC2214-01: PAHMS-F(WS:2354921)

Since Triphenylene co-elutes with Chrysene, the maximum possible value for this compound would be 0.068ug, which is the value reported for Chrysene.

Since Dibenzo(a,c) anthracene co-elutes with Dibenzo(a,h) anthracene it would have a value below the estimated mdl.

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

Sample IC2215-01: PAHMS-F(WS:2354921)

Since Triphenylene co-elutes with Chrysene, the maximum possible value for this compound would be 0.09ug, which is the value reported for Chrysene.

Since Dibenzo(a,c) anthracene co-elutes with Dibenzo(a,h) anthracene it would have a value below the estimated mdl.

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

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

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB0H6923

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2354921 JIW	Spiked Blank	D10-2-Methylnaphthalene	2010/12/18		78	%	50 - 150
		D10-Fluoranthene	2010/12/18		88	%	50 - 150
		D10-Phenanthrene	2010/12/18		80	%	50 - 150
		D12-Benzo(a)anthracene	2010/12/18		84	%	50 - 150
		D12-Benzo(a)pyrene	2010/12/18		88	%	50 - 150
		D12-Benzo(b)fluoranthene	2010/12/18		84	%	50 - 150
		D12-Benzo(ghi)perylene	2010/12/18		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2010/12/18		86	%	50 - 150
		D12-Chrysene	2010/12/18		86	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2010/12/18		84	%	50 - 150
		D12-Perylene	2010/12/18		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2010/12/18		82	%	50 - 150
		D8-Acenaphthylene	2010/12/18		80	%	50 - 150
		D8-Naphthalene	2010/12/18		78	%	50 - 150
		Acenaphthene	2010/12/18		73	%	60 - 130
	RPD	Acenaphthene	2010/12/18	5.6		%	50
	Spiked Blank	Acenaphthylene	2010/12/18		78	%	60 - 130
	RPD	Acenaphthylene	2010/12/18	6.5		%	50
	Spiked Blank	Anthracene	2010/12/18		76	%	60 - 130
	RPD	Anthracene	2010/12/18	3.4		%	50
	Spiked Blank	Benzo(a)anthracene	2010/12/18		72	%	60 - 130
	RPD	Benzo(a)anthracene	2010/12/18	5.1		%	50
	Spiked Blank	Benzo(a)pyrene	2010/12/18		66	%	60 - 130
	RPD	Benzo(a)pyrene	2010/12/18	5.2		%	50
	Spiked Blank	Benzo(b)fluoranthene	2010/12/18		72	%	60 - 130
	RPD	Benzo(b)fluoranthene	2010/12/18	7.1		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2010/12/18		77	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2010/12/18	6.3		%	50
	Spiked Blank	Benzo(k)fluoranthene	2010/12/18		82	%	60 - 130
	RPD	Benzo(k)fluoranthene	2010/12/18	6.6		%	50
	Spiked Blank	Chrysene	2010/12/18		80	%	60 - 130
	RPD	Chrysene	2010/12/18	1.6		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2010/12/18		72	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2010/12/18	7.7		%	50
	Spiked Blank	Fluoranthene	2010/12/18		82	%	60 - 130
	RPD	Fluoranthene	2010/12/18	3.0		%	50
	Spiked Blank	Fluorene	2010/12/18		70	%	60 - 130
	RPD	Fluorene	2010/12/18	7.9		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2010/12/18		74	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2010/12/18	7.2		%	50
	Spiked Blank	Naphthalene	2010/12/18		65	%	60 - 130
	RPD	Naphthalene	2010/12/18	13.3		%	50
	Spiked Blank	Phenanthrene	2010/12/18		72	%	60 - 130
	RPD	Phenanthrene	2010/12/18	4.4		%	50
	Spiked Blank	Pyrene	2010/12/18		75	%	60 - 130
	RPD	Pyrene	2010/12/18	5.2		%	50
	Method Blank	D10-2-Methylnaphthalene	2010/12/18		78	%	50 - 150
		D10-Fluoranthene	2010/12/18		90	%	50 - 150
		D10-Phenanthrene	2010/12/18		78	%	50 - 150
		D12-Benzo(a)anthracene	2010/12/18		82	%	50 - 150
		D12-Benzo(a)pyrene	2010/12/18		86	%	50 - 150
		D12-Benzo(b)fluoranthene	2010/12/18		82	%	50 - 150
		D12-Benzo(ghi)perylene	2010/12/18		86	%	50 - 150
		D12-Benzo(k)fluoranthene	2010/12/18		84	%	50 - 150
		D12-Chrysene	2010/12/18		82	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB0H6923

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2354921 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2010/12/18		84	%	50 - 150
		D12-Perylene	2010/12/18		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2010/12/18		82	%	50 - 150
		D8-Acenaphthylene	2010/12/18		80	%	50 - 150
		D8-Naphthalene	2010/12/18		78	%	50 - 150
		1-Methylnaphthalene	2010/12/18	<0.10		ug	
		1-Methylphenanthrene	2010/12/18	<0.10		ug	
		2-Chloronaphthalene	2010/12/18	<0.10		ug	
		2-Methylantracene	2010/12/18	<0.10		ug	
		2-Methylnaphthalene	2010/12/18	<0.10		ug	
		3-Methylcholanthrene	2010/12/18	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2010/12/18	<0.10		ug	
		9,10-Dimethylantracene	2010/12/18	<0.40		ug	
		Acenaphthene	2010/12/18	<0.050		ug	
		Acenaphthylene	2010/12/18	<0.050		ug	
		Anthracene	2010/12/18	<0.050		ug	
		Benzo(a)anthracene	2010/12/18	<0.050		ug	
		Benzo(a)fluorene	2010/12/18	<0.10		ug	
		Benzo(a)pyrene	2010/12/18	<0.050		ug	
		Benzo(b)fluoranthene	2010/12/18	<0.050		ug	
		Benzo(b)fluorene	2010/12/18	<0.10		ug	
		Benzo(e)pyrene	2010/12/18	<0.10		ug	
		Benzo(g,h,i)perylene	2010/12/18	<0.050		ug	
		Benzo(k)fluoranthene	2010/12/18	<0.050		ug	
		Biphenyl	2010/12/18	<0.10		ug	
		Chrysene	2010/12/18	<0.050		ug	
		Coronene	2010/12/18	<0.10		ug	
		Dibenz(a,h)anthracene	2010/12/18	<0.050		ug	
		Dibenzo(a,e)pyrene	2010/12/18	<0.20		ug	
		Fluoranthene	2010/12/18	<0.050		ug	
		Fluorene	2010/12/18	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2010/12/18	<0.050		ug	
		m-Terphenyl	2010/12/18	<0.10		ug	
		Naphthalene	2010/12/18	<0.072		ug	
		o-Terphenyl	2010/12/18	<0.10		ug	
		Perylene	2010/12/18	<0.10		ug	
		Phenanthrene	2010/12/18	<0.050		ug	
		p-Terphenyl	2010/12/18	<0.10		ug	
		Pyrene	2010/12/18	<0.050		ug	
		Quinoline	2010/12/18	<0.40		ug	
		Tetralin	2010/12/18	<0.10		ug	

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/Dec 10,10

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Dec 09, 2010 @ 10:41 mst
Removal Date/Time: Dec 13, 2010 @ 9:44 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
10-Dec-10	10/12/2010 0:00	11/12/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
08-Dec-10	13-Dec-10	19-Dec-10	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
718	229	-19.5	330.35

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

Comments: COC# 5035

GB0H1747 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Dec 10, 10

- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 5035

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2010/12/23****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B011562****Received: 2010/12/16, 09:06**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2010/12/17	2010/12/22	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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Total cover pages: 1

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

Maxxam ID		IE4311	IE4312		
Sampling Date		2010/12/10	2010/12/10		
COC Number		5035	5035		
	Units	LICA PUFF+QFF/CLS/DEC 10,10	LICA PUFF+QFF/PORT/DEC 10,10	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.39	0.26	0.10	2362953
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2362953
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2362953
2-Methylantracene	ug	<0.10	<0.10	0.10	2362953
2-Methylnaphthalene	ug	0.79	0.37	0.10	2362953
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2362953
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2362953
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2362953
Acenaphthene	ug	<0.050	<0.050	0.050	2362953
Acenaphthylene	ug	0.066	<0.050	0.050	2362953
Anthracene	ug	<0.050	<0.050	0.050	2362953
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2362953
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2362953
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2362953
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2362953
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2362953
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2362953
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2362953
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2362953
Biphenyl	ug	0.21	0.32	0.10	2362953
Chrysene	ug	<0.050	0.054	0.050	2362953
Coronene	ug	<0.10	<0.10	0.10	2362953
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2362953
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2362953
Fluoranthene	ug	0.068	0.106	0.050	2362953
Fluorene	ug	0.082	0.122	0.050	2362953
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2362953
m-Terphenyl	ug	<0.10	<0.10	0.10	2362953
Naphthalene	ug	0.974	0.744	0.072	2362953
o-Terphenyl	ug	<0.10	<0.10	0.10	2362953
Perylene	ug	<0.10	<0.10	0.10	2362953

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B011562
 Report Date: 2010/12/23

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

Maxxam ID		IE4311	IE4312		
Sampling Date		2010/12/10	2010/12/10		
COC Number		5035	5035		
	Units	LICA PUFF+QFF/CLS/DEC 10,10	LICA PUFF+QFF/PORT/DEC 10,10	RDL	QC Batch
Phenanthrene	ug	0.200	0.262	0.050	2362953
p-Terphenyl	ug	<0.10	<0.10	0.10	2362953
Pyrene	ug	<0.050	0.064	0.050	2362953
Quinoline	ug	<0.40	<0.40	0.40	2362953
Tetralin	ug	<0.10	<0.10	0.10	2362953
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	66	68		2362953
D10-Fluoranthene	%	92	90		2362953
D10-Fluorene (FS)	%	62	70		2362953
D10-Phenanthrene	%	80	80		2362953
D12-Benzo(a)anthracene	%	98	100		2362953
D12-Benzo(a)pyrene	%	98	98		2362953
D12-Benzo(b)fluoranthene	%	94	92		2362953
D12-Benzo(ghi)perylene	%	98	96		2362953
D12-Benzo(k)fluoranthene	%	90	92		2362953
D12-Chrysene	%	88	90		2362953
D12-Indeno(1,2,3-cd)pyrene	%	98	96		2362953
D12-Perylene	%	96	96		2362953
D14-Dibenzo(a,h)anthracene	%	100	98		2362953
D14-Terphenyl (FS)	%	83	86		2362953
D8-Acenaphthylene	%	72	74		2362953
D8-Naphthalene	%	62	66		2362953
QC Batch = Quality Control Batch					

Maxxam Job #: B011562
 Report Date: 2010/12/23

Test Summary

Maxxam ID IE4311 **Collected** 2010/12/10
Sample ID LICA PUFF+QFF/CLS/DEC 10,10 **Shipped**
Matrix PUF AND FILTER **Received** 2010/12/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2362953	2010/12/17	2010/12/22	JIW

Maxxam ID IE4312 **Collected** 2010/12/10
Sample ID LICA PUFF+QFF/PORT/DEC 10,10 **Shipped**
Matrix PUF AND FILTER **Received** 2010/12/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2362953	2010/12/17	2010/12/22	JIW

Maxxam Job #: B011562
Report Date: 2010/12/23

GENERAL COMMENTS

PAHMS-F(WS:2362953)

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

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

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

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

Sample IE4311-01: PAHMS-F(WS:2362953)

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

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

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

Sample IE4312-01: PAHMS-F(WS:2362953)

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

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene it would have a value below the estimated mdl.

Since Triphenylene co-elutes with Chrysene, the maximum possible value for this compound would be 0.054ug, which is the value reported for Chrysene.

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

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB011562

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2362953 JIW	Spiked Blank	D10-2-Methylnaphthalene	2010/12/21		78	%	50 - 150
		D10-Fluoranthene	2010/12/21		92	%	50 - 150
		D10-Phenanthrene	2010/12/21		84	%	50 - 150
		D12-Benzo(a)anthracene	2010/12/21		94	%	50 - 150
		D12-Benzo(a)pyrene	2010/12/21		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2010/12/21		92	%	50 - 150
		D12-Benzo(ghi)perylene	2010/12/21		96	%	50 - 150
		D12-Benzo(k)fluoranthene	2010/12/21		86	%	50 - 150
		D12-Chrysene	2010/12/21		84	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2010/12/21		96	%	50 - 150
		D12-Perylene	2010/12/21		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2010/12/21		96	%	50 - 150
		D8-Acenaphthylene	2010/12/21		78	%	50 - 150
		D8-Naphthalene	2010/12/21		78	%	50 - 150
		Acenaphthene	2010/12/21		74	%	60 - 130
	RPD	Acenaphthene	2010/12/21	0.3		%	50
	Spiked Blank	Acenaphthylene	2010/12/21		77	%	60 - 130
	RPD	Acenaphthylene	2010/12/21	1.6		%	50
	Spiked Blank	Anthracene	2010/12/21		72	%	60 - 130
	RPD	Anthracene	2010/12/21	4.4		%	50
	Spiked Blank	Benzo(a)anthracene	2010/12/21		82	%	60 - 130
	RPD	Benzo(a)anthracene	2010/12/21	6.8		%	50
	Spiked Blank	Benzo(a)pyrene	2010/12/21		74	%	60 - 130
	RPD	Benzo(a)pyrene	2010/12/21	4.3		%	50
	Spiked Blank	Benzo(b)fluoranthene	2010/12/21		77	%	60 - 130
	RPD	Benzo(b)fluoranthene	2010/12/21	5.7		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2010/12/21		91	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2010/12/21	1.6		%	50
	Spiked Blank	Benzo(k)fluoranthene	2010/12/21		87	%	60 - 130
	RPD	Benzo(k)fluoranthene	2010/12/21	4.2		%	50
	Spiked Blank	Chrysene	2010/12/21		79	%	60 - 130
	RPD	Chrysene	2010/12/21	6.7		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2010/12/21		92	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2010/12/21	1.9		%	50
	Spiked Blank	Fluoranthene	2010/12/21		84	%	60 - 130
	RPD	Fluoranthene	2010/12/21	1.5		%	50
	Spiked Blank	Fluorene	2010/12/21		75	%	60 - 130
	RPD	Fluorene	2010/12/21	1		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2010/12/21		90	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2010/12/21	3.0		%	50
	Spiked Blank	Naphthalene	2010/12/21		73	%	60 - 130
	RPD	Naphthalene	2010/12/21	1.7		%	50
	Spiked Blank	Phenanthrene	2010/12/21		75	%	60 - 130
	RPD	Phenanthrene	2010/12/21	0.7		%	50
	Spiked Blank	Pyrene	2010/12/21		79	%	60 - 130
	RPD	Pyrene	2010/12/21	0.6		%	50
	Method Blank	D10-2-Methylnaphthalene	2010/12/22		66	%	50 - 150
		D10-Fluoranthene	2010/12/22		90	%	50 - 150
		D10-Phenanthrene	2010/12/22		76	%	50 - 150
		D12-Benzo(a)anthracene	2010/12/22		92	%	50 - 150
		D12-Benzo(a)pyrene	2010/12/22		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2010/12/22		92	%	50 - 150
		D12-Benzo(ghi)perylene	2010/12/22		96	%	50 - 150
		D12-Benzo(k)fluoranthene	2010/12/22		88	%	50 - 150
		D12-Chrysene	2010/12/22		86	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB011562

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2362953 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2010/12/22		96	%	50 - 150
		D12-Perylene	2010/12/22		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2010/12/22		96	%	50 - 150
		D8-Acenaphthylene	2010/12/22		66	%	50 - 150
		D8-Naphthalene	2010/12/22		66	%	50 - 150
		1-Methylnaphthalene	2010/12/22	<0.10		ug	
		1-Methylphenanthrene	2010/12/22	<0.10		ug	
		2-Chloronaphthalene	2010/12/22	<0.10		ug	
		2-Methylanthracene	2010/12/22	<0.10		ug	
		2-Methylnaphthalene	2010/12/22	<0.10		ug	
		3-Methylcholanthrene	2010/12/22	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2010/12/22	<0.10		ug	
		9,10-Dimethylanthracene	2010/12/22	<0.40		ug	
		Acenaphthene	2010/12/22	<0.050		ug	
		Acenaphthylene	2010/12/22	<0.050		ug	
		Anthracene	2010/12/22	<0.050		ug	
		Benzo(a)anthracene	2010/12/22	<0.050		ug	
		Benzo(a)fluorene	2010/12/22	<0.10		ug	
		Benzo(a)pyrene	2010/12/22	<0.050		ug	
		Benzo(b)fluoranthene	2010/12/22	<0.050		ug	
		Benzo(b)fluorene	2010/12/22	<0.10		ug	
		Benzo(e)pyrene	2010/12/22	<0.10		ug	
		Benzo(g,h,i)perylene	2010/12/22	<0.050		ug	
		Benzo(k)fluoranthene	2010/12/22	<0.050		ug	
		Biphenyl	2010/12/22	<0.10		ug	
		Chrysene	2010/12/22	<0.050		ug	
		Coronene	2010/12/22	<0.10		ug	
		Dibenz(a,h)anthracene	2010/12/22	<0.050		ug	
		Dibenzo(a,e)pyrene	2010/12/22	<0.20		ug	
		Fluoranthene	2010/12/22	<0.050		ug	
		Fluorene	2010/12/22	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2010/12/22	<0.050		ug	
		m-Terphenyl	2010/12/22	<0.10		ug	
		Naphthalene	2010/12/22	<0.072		ug	
		o-Terphenyl	2010/12/22	<0.10		ug	
		Perylene	2010/12/22	<0.10		ug	
		Phenanthrene	2010/12/22	<0.050		ug	
		p-Terphenyl	2010/12/22	<0.10		ug	
		Pyrene	2010/12/22	<0.050		ug	
		Quinoline	2010/12/22	<0.40		ug	
		Tetralin	2010/12/22	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Dec 16,10

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Dec 15, 2010 @ 7:54 mst
 Removal Date/Time: Dec 17, 2010 @ 8:34 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
16-Dec-10	16/12/2010 0:00	17/12/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
14-Dec-10	17-Dec-10	24-Dec-10	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
722	229	-16.6	330.35

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

Comments: COC# 06452

GB0H1753 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Dec 16, 10

- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 06452

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2011/01/04****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B0I3837****Received: 2010/12/21, 09:15**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2010/12/23	2010/12/30	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

THERESA STEPHENSON, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763=====
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Total cover pages: 1

Maxxam Job #: B013837
 Report Date: 2011/01/04

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

Maxxam ID		IF6016		IF6017		
Sampling Date		2010/12/16		2010/12/16		
COC Number		06452		06452		
	Units	LICA PUFF+QFF/CLS/DEC 16, 10	RDL	LICA PUFF+QFF/PORT/DEC 16, 10	RDL	QC Batch

Semivolatile Organics						
1-Methylnaphthalene	ug	1.53	0.10	0.74	0.10	2367433
1-Methylphenanthrene	ug	<0.10	0.10	<0.10	0.10	2367433
2-Chloronaphthalene	ug	<0.10	0.10	<0.10	0.10	2367433
2-Methylantracene	ug	<0.10	0.10	<0.10	0.10	2367433
2-Methylnaphthalene	ug	2.94	0.10	1.19	0.10	2367433
3-Methylcholanthrene	ug	<2.0	2.0	<2.0	2.0	2367433
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	<0.10	0.10	2367433
9,10-Dimethylantracene	ug	<0.40	0.40	<0.40	0.40	2367433
Acenaphthene	ug	0.166	0.050	<0.080	0.080	2367433
Acenaphthylene	ug	0.398	0.050	0.148	0.050	2367433
Anthracene	ug	<0.050	0.050	<0.050	0.050	2367433
Benzo(a)anthracene	ug	0.086	0.050	<0.050	0.050	2367433
Benzo(a)fluorene	ug	<0.10	0.10	<0.10	0.10	2367433
Benzo(a)pyrene	ug	0.074	0.050	<0.050	0.050	2367433
Benzo(b)fluoranthene	ug	0.128	0.050	0.070	0.050	2367433
Benzo(b)fluorene	ug	<0.10	0.10	<0.10	0.10	2367433
Benzo(e)pyrene	ug	<0.10	0.10	<0.10	0.10	2367433
Benzo(g,h,i)perylene	ug	0.096	0.050	0.058	0.050	2367433
Benzo(k)fluoranthene	ug	<0.050	0.050	<0.050	0.050	2367433
Biphenyl	ug	0.93	0.10	0.77	0.10	2367433
Chrysene	ug	0.128	0.050	0.078	0.050	2367433
Coronene	ug	<0.10	0.10	<0.10	0.10	2367433
Dibenz(a,h)anthracene	ug	<0.050	0.050	<0.050	0.050	2367433
Dibenzo(a,e)pyrene	ug	<0.20	0.20	<0.20	0.20	2367433
Fluoranthene	ug	0.324	0.050	0.174	0.050	2367433
Fluorene	ug	0.388	0.050	0.264	0.050	2367433
Indeno(1,2,3-cd)pyrene	ug	0.068	0.050	<0.050	0.050	2367433
m-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2367433
Naphthalene	ug	1.73	0.072	1.22	0.072	2367433
o-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2367433
Perylene	ug	<0.10	0.10	<0.10	0.10	2367433

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B013837
 Report Date: 2011/01/04

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

Maxxam ID		IF6016		IF6017		
Sampling Date		2010/12/16		2010/12/16		
COC Number		06452		06452		
	Units	LICA PUFF+QFF/CLS/DEC 16, 10	RDL	LICA PUFF+QFF/PORT/DEC 16, 10	RDL	QC Batch
Phenanthrene	ug	0.752	0.050	0.586	0.050	2367433
p-Terphenyl	ug	<0.10	0.10	<0.10	0.10	2367433
Pyrene	ug	0.280	0.050	0.132	0.050	2367433
Quinoline	ug	<0.40	0.40	<0.40	0.40	2367433
Tetralin	ug	<0.10	0.10	<0.10	0.10	2367433
Surrogate Recovery (%)						
D10-2-Methylnaphthalene	%	60		72		2367433
D10-Fluoranthene	%	90		92		2367433
D10-Fluorene (FS)	%	58		68		2367433
D10-Phenanthrene	%	80		86		2367433
D12-Benzo(a)anthracene	%	94		96		2367433
D12-Benzo(a)pyrene	%	92		96		2367433
D12-Benzo(b)fluoranthene	%	90		94		2367433
D12-Benzo(ghi)perylene	%	92		96		2367433
D12-Benzo(k)fluoranthene	%	84		86		2367433
D12-Chrysene	%	82		84		2367433
D12-Indeno(1,2,3-cd)pyrene	%	94		96		2367433
D12-Perylene	%	92		94		2367433
D14-Dibenzo(a,h)anthracene	%	94		96		2367433
D14-Terphenyl (FS)	%	80		82		2367433
D8-Acenaphthylene	%	70		80		2367433
D8-Naphthalene	%	56		68		2367433
QC Batch = Quality Control Batch						

Maxxam Job #: B013837
Report Date: 2011/01/04

Test Summary

Maxxam ID IF6016 **Collected** 2010/12/16
Sample ID LICA PUFF+QFF/CLS/DEC 16, 10 **Shipped**
Matrix PUF AND FILTER **Received** 2010/12/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2367433	2010/12/23	2010/12/30	JIW

Maxxam ID IF6017 **Collected** 2010/12/16
Sample ID LICA PUFF+QFF/PORT/DEC 16, 10 **Shipped**
Matrix PUF AND FILTER **Received** 2010/12/21

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2367433	2010/12/23	2010/12/30	JIW

Maxxam Job #: B013837
Report Date: 2011/01/04

GENERAL COMMENTS

PAHMS-F(WS:2367433)

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

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

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

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

Sample IF6016-01: PAHMS-F(WS:2367433)

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene it would have a value below the estimated mdl.

Since Triphenylene co-elutes with Chrysene, the maximum possible value for this compound would be 0.128ug, which is the value reported for Chrysene.

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

Sample IF6017-01: PAHMS-F(WS:2367433)

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

Since Dibenzo(a,c) anthracene co-elutes with Dibenz(a,h) anthracene it would have a value below the estimated mdl.

Since Triphenylene co-elutes with Chrysene, the maximum possible value for this compound would be 0.078ug, which is the value reported for Chrysene.

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

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB0I3837

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2367433 JIW	Spiked Blank	D10-2-Methylnaphthalene	2010/12/30		68	%	50 - 150
		D10-Fluoranthene	2010/12/30		86	%	50 - 150
		D10-Phenanthrene	2010/12/30		76	%	50 - 150
		D12-Benzo(a)anthracene	2010/12/30		88	%	50 - 150
		D12-Benzo(a)pyrene	2010/12/30		92	%	50 - 150
		D12-Benzo(b)fluoranthene	2010/12/30		90	%	50 - 150
		D12-Benzo(ghi)perylene	2010/12/30		92	%	50 - 150
		D12-Benzo(k)fluoranthene	2010/12/30		84	%	50 - 150
		D12-Chrysene	2010/12/30		82	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2010/12/30		92	%	50 - 150
		D12-Perylene	2010/12/30		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2010/12/30		92	%	50 - 150
		D8-Acenaphthylene	2010/12/30		70	%	50 - 150
		D8-Naphthalene	2010/12/30		68	%	50 - 150
		Acenaphthene	2010/12/30		68	%	60 - 130
	RPD	Acenaphthene	2010/12/30	5.0		%	50
	Spiked Blank	Acenaphthylene	2010/12/30		68	%	60 - 130
	RPD	Acenaphthylene	2010/12/30	6.1		%	50
	Spiked Blank	Anthracene	2010/12/30		67	%	60 - 130
	RPD	Anthracene	2010/12/30	5.8		%	50
	Spiked Blank	Benzo(a)anthracene	2010/12/30		79	%	60 - 130
	RPD	Benzo(a)anthracene	2010/12/30	4.3		%	50
	Spiked Blank	Benzo(a)pyrene	2010/12/30		72	%	60 - 130
	RPD	Benzo(a)pyrene	2010/12/30	3.1		%	50
	Spiked Blank	Benzo(b)fluoranthene	2010/12/30		75	%	60 - 130
	RPD	Benzo(b)fluoranthene	2010/12/30	10.7		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2010/12/30		84	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2010/12/30	1.2		%	50
	Spiked Blank	Benzo(k)fluoranthene	2010/12/30		86	%	60 - 130
	RPD	Benzo(k)fluoranthene	2010/12/30	4.7		%	50
	Spiked Blank	Chrysene	2010/12/30		78	%	60 - 130
	RPD	Chrysene	2010/12/30	1		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2010/12/30		82	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2010/12/30	1.5		%	50
	Spiked Blank	Fluoranthene	2010/12/30		83	%	60 - 130
	RPD	Fluoranthene	2010/12/30	3.6		%	50
	Spiked Blank	Fluorene	2010/12/30		69	%	60 - 130
	RPD	Fluorene	2010/12/30	5.0		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2010/12/30		83	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2010/12/30	2.4		%	50
	Spiked Blank	Naphthalene	2010/12/30		65	%	60 - 130
	RPD	Naphthalene	2010/12/30	3.8		%	50
	Spiked Blank	Phenanthrene	2010/12/30		70	%	60 - 130
	RPD	Phenanthrene	2010/12/30	5.2		%	50
	Spiked Blank	Pyrene	2010/12/30		77	%	60 - 130
	RPD	Pyrene	2010/12/30	3.2		%	50
	Method Blank	D10-2-Methylnaphthalene	2010/12/30		66	%	50 - 150
		D10-Fluoranthene	2010/12/30		80	%	50 - 150
		D10-Phenanthrene	2010/12/30		70	%	50 - 150
		D12-Benzo(a)anthracene	2010/12/30		80	%	50 - 150
		D12-Benzo(a)pyrene	2010/12/30		82	%	50 - 150
		D12-Benzo(b)fluoranthene	2010/12/30		80	%	50 - 150
		D12-Benzo(ghi)perylene	2010/12/30		82	%	50 - 150
		D12-Benzo(k)fluoranthene	2010/12/30		74	%	50 - 150
		D12-Chrysene	2010/12/30		72	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB013837

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2367433 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2010/12/30		80	%	50 - 150
		D12-Perylene	2010/12/30		80	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2010/12/30		80	%	50 - 150
		D8-Acenaphthylene	2010/12/30		68	%	50 - 150
		D8-Naphthalene	2010/12/30		64	%	50 - 150
		1-Methylnaphthalene	2010/12/30	<0.10		ug	
		1-Methylphenanthrene	2010/12/30	<0.10		ug	
		2-Chloronaphthalene	2010/12/30	<0.10		ug	
		2-Methylanthracene	2010/12/30	<0.10		ug	
		2-Methylnaphthalene	2010/12/30	<0.10		ug	
		3-Methylcholanthrene	2010/12/30	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2010/12/30	<0.10		ug	
		9,10-Dimethylanthracene	2010/12/30	<0.40		ug	
		Acenaphthene	2010/12/30	<0.050		ug	
		Acenaphthylene	2010/12/30	<0.050		ug	
		Anthracene	2010/12/30	<0.050		ug	
		Benzo(a)anthracene	2010/12/30	<0.050		ug	
		Benzo(a)fluorene	2010/12/30	<0.10		ug	
		Benzo(a)pyrene	2010/12/30	<0.050		ug	
		Benzo(b)fluoranthene	2010/12/30	<0.050		ug	
		Benzo(b)fluorene	2010/12/30	<0.10		ug	
		Benzo(e)pyrene	2010/12/30	<0.10		ug	
		Benzo(g,h,i)perylene	2010/12/30	<0.050		ug	
		Benzo(k)fluoranthene	2010/12/30	<0.050		ug	
		Biphenyl	2010/12/30	<0.10		ug	
		Chrysene	2010/12/30	<0.050		ug	
		Coronene	2010/12/30	<0.10		ug	
		Dibenz(a,h)anthracene	2010/12/30	<0.050		ug	
		Dibenzo(a,e)pyrene	2010/12/30	<0.20		ug	
		Fluoranthene	2010/12/30	<0.050		ug	
		Fluorene	2010/12/30	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2010/12/30	<0.050		ug	
		m-Terphenyl	2010/12/30	<0.10		ug	
		Naphthalene	2010/12/30	<0.072		ug	
		o-Terphenyl	2010/12/30	<0.10		ug	
		Perylene	2010/12/30	<0.10		ug	
		Phenanthrene	2010/12/30	<0.050		ug	
		p-Terphenyl	2010/12/30	<0.10		ug	
		Pyrene	2010/12/30	<0.050		ug	
		Quinoline	2010/12/30	<0.40		ug	
		Tetralin	2010/12/30	<0.10		ug	

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Dec 22,10

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Dec 21, 2010 @ 9:42 mst
 Removal Date/Time: Dec 23, 2010 @ 8:46 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
22-Dec-10	22/12/2010 0:00	23/12/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
20-Dec-10	23-Dec-10	30-Dec-10	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
718	229	-16.0	330.35

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

Comments: COC# 2338

GB0H1759 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Dec 22, 10

- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 2338

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

Report Date: 2011/01/05

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B0I6169****Received: 2010/12/29, 08:40**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2010/12/29	2011/01/04	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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Total cover pages: 1

Page 1 of 7

Page 227 of 241

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

Maxxam ID		IG6154	IG6155		
Sampling Date		2010/12/22	2010/12/22		
COC Number		2338	2338		
	Units	LICA PUFF+QFF/CLS/DEC 22,10	LICA PUFF+QFF/PORT/DEC 22,10	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.78	0.40	0.10	2369555
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2369555
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2369555
2-Methylantracene	ug	<0.10	<0.10	0.10	2369555
2-Methylnaphthalene	ug	1.51	0.64	0.10	2369555
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2369555
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2369555
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2369555
Acenaphthene	ug	0.124	<0.050	0.050	2369555
Acenaphthylene	ug	0.268	0.066	0.050	2369555
Anthracene	ug	<0.050	<0.050	0.050	2369555
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2369555
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2369555
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2369555
Benzo(b)fluoranthene	ug	0.072	<0.050	0.050	2369555
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2369555
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2369555
Benzo(g,h,i)perylene	ug	0.070	<0.050	0.050	2369555
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2369555
Biphenyl	ug	0.50	0.40	0.10	2369555
Chrysene	ug	0.074	<0.050	0.050	2369555
Coronene	ug	<0.10	<0.10	0.10	2369555
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2369555
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2369555
Fluoranthene	ug	0.190	0.104	0.050	2369555
Fluorene	ug	0.250	0.164	0.050	2369555
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2369555
m-Terphenyl	ug	<0.10	<0.10	0.10	2369555
Naphthalene	ug	1.19	0.740	0.072	2369555
o-Terphenyl	ug	<0.10	<0.10	0.10	2369555
Perylene	ug	<0.10	<0.10	0.10	2369555

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

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

Maxxam ID		IG6154	IG6155		
Sampling Date		2010/12/22	2010/12/22		
COC Number		2338	2338		
	Units	LICA PUFF+QFF/CLS/DEC 22,10	LICA PUFF+QFF/PORT/DEC 22,10	RDL	QC Batch
Phenanthrene	ug	0.614	0.388	0.050	2369555
p-Terphenyl	ug	<0.10	<0.10	0.10	2369555
Pyrene	ug	0.144	<0.050	0.050	2369555
Quinoline	ug	<0.40	<0.40	0.40	2369555
Tetralin	ug	<0.10	<0.10	0.10	2369555
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	62	74		2369555
D10-Fluoranthene	%	86	88		2369555
D10-Fluorene (FS)	%	61	74		2369555
D10-Phenanthrene	%	76	80		2369555
D12-Benzo(a)anthracene	%	92	88		2369555
D12-Benzo(a)pyrene	%	94	92		2369555
D12-Benzo(b)fluoranthene	%	90	86		2369555
D12-Benzo(ghi)perylene	%	94	94		2369555
D12-Benzo(k)fluoranthene	%	88	92		2369555
D12-Chrysene	%	86	86		2369555
D12-Indeno(1,2,3-cd)pyrene	%	94	92		2369555
D12-Perylene	%	94	94		2369555
D14-Dibenzo(a,h)anthracene	%	92	92		2369555
D14-Terphenyl (FS)	%	82	82		2369555
D8-Acenaphthylene	%	68	78		2369555
D8-Naphthalene	%	60	72		2369555
QC Batch = Quality Control Batch					

Maxxam Job #: B0I6169
 Report Date: 2011/01/05

Test Summary

Maxxam ID IG6154 **Collected** 2010/12/22
Sample ID LICA PUFF+QFF/CLS/DEC 22,10 **Shipped**
Matrix PUF AND FILTER **Received** 2010/12/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2369555	2010/12/29	2011/01/04	JIW

Maxxam ID IG6155 **Collected** 2010/12/22
Sample ID LICA PUFF+QFF/PORT/DEC 22,10 **Shipped**
Matrix PUF AND FILTER **Received** 2010/12/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2369555	2010/12/29	2011/01/04	JIW

Maxxam Job #: B0I6169
Report Date: 2011/01/05

GENERAL COMMENTS

PAHMS-F(WS:2369555)

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

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

Sample IG6154-01: PAHMS-F(WS:2369555)

Since Dibenzo(a,c) anthracene co-elutes with Dibenzo(a,h) anthracene it would have a value below the estimated mdl.

Since Triphenylene co-elutes with Chrysene, the maximum possible value for this compound would be 0.074ug, which is the value reported for Chrysene.

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

Sample IG6155-01: PAHMS-F(WS:2369555)

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

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

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB016169

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2369555 JIW	Spiked Blank	D10-2-Methylnaphthalene	2011/01/04		72	%	50 - 150
		D10-Fluoranthene	2011/01/04		88	%	50 - 150
		D10-Phenanthrene	2011/01/04		76	%	50 - 150
		D12-Benzo(a)anthracene	2011/01/04		86	%	50 - 150
		D12-Benzo(a)pyrene	2011/01/04		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/01/04		92	%	50 - 150
		D12-Benzo(ghi)perylene	2011/01/04		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/01/04		88	%	50 - 150
		D12-Chrysene	2011/01/04		88	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/01/04		94	%	50 - 150
		D12-Perylene	2011/01/04		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/01/04		92	%	50 - 150
		D8-Acenaphthylene	2011/01/04		74	%	50 - 150
		D8-Naphthalene	2011/01/04		72	%	50 - 150
		Acenaphthene	2011/01/04		73	%	60 - 130
	RPD	Acenaphthene	2011/01/04	4.7		%	50
	Spiked Blank	Acenaphthylene	2011/01/04		74	%	60 - 130
	RPD	Acenaphthylene	2011/01/04	6.6		%	50
	Spiked Blank	Anthracene	2011/01/04		70	%	60 - 130
	RPD	Anthracene	2011/01/04	2.9		%	50
	Spiked Blank	Benzo(a)anthracene	2011/01/04		77	%	60 - 130
	RPD	Benzo(a)anthracene	2011/01/04	1.9		%	50
	Spiked Blank	Benzo(a)pyrene	2011/01/04		74	%	60 - 130
	RPD	Benzo(a)pyrene	2011/01/04	0		%	50
	Spiked Blank	Benzo(b)fluoranthene	2011/01/04		77	%	60 - 130
	RPD	Benzo(b)fluoranthene	2011/01/04	1		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2011/01/04		86	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2011/01/04	0.3		%	50
	Spiked Blank	Benzo(k)fluoranthene	2011/01/04		90	%	60 - 130
	RPD	Benzo(k)fluoranthene	2011/01/04	0.3		%	50
	Spiked Blank	Chrysene	2011/01/04		81	%	60 - 130
	RPD	Chrysene	2011/01/04	2.2		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2011/01/04		83	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2011/01/04	1.5		%	50
	Spiked Blank	Fluoranthene	2011/01/04		85	%	60 - 130
	RPD	Fluoranthene	2011/01/04	2.0		%	50
	Spiked Blank	Fluorene	2011/01/04		71	%	60 - 130
	RPD	Fluorene	2011/01/04	5.9		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2011/01/04		84	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2011/01/04	1.8		%	50
	Spiked Blank	Naphthalene	2011/01/04		67	%	60 - 130
	RPD	Naphthalene	2011/01/04	9.6		%	50
	Spiked Blank	Phenanthrene	2011/01/04		68	%	60 - 130
	RPD	Phenanthrene	2011/01/04	4.3		%	50
	Spiked Blank	Pyrene	2011/01/04		79	%	60 - 130
	RPD	Pyrene	2011/01/04	1.3		%	50
	Method Blank	D10-2-Methylnaphthalene	2011/01/04		68	%	50 - 150
		D10-Fluoranthene	2011/01/04		88	%	50 - 150
		D10-Phenanthrene	2011/01/04		70	%	50 - 150
		D12-Benzo(a)anthracene	2011/01/04		84	%	50 - 150
		D12-Benzo(a)pyrene	2011/01/04		92	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/01/04		94	%	50 - 150
		D12-Benzo(ghi)perylene	2011/01/04		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/01/04		86	%	50 - 150
		D12-Chrysene	2011/01/04		88	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB016169

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2369555 JIW	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/01/04		92	%	50 - 150
		D12-Perylene	2011/01/04		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/01/04		92	%	50 - 150
		D8-Acenaphthylene	2011/01/04		72	%	50 - 150
		D8-Naphthalene	2011/01/04		68	%	50 - 150
		1-Methylnaphthalene	2011/01/04	<0.10		ug	
		1-Methylphenanthrene	2011/01/04	<0.10		ug	
		2-Chloronaphthalene	2011/01/04	<0.10		ug	
		2-Methylantracene	2011/01/04	<0.10		ug	
		2-Methylnaphthalene	2011/01/04	<0.10		ug	
		3-Methylcholanthrene	2011/01/04	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/01/04	<0.10		ug	
		9,10-Dimethylantracene	2011/01/04	<0.40		ug	
		Acenaphthene	2011/01/04	<0.050		ug	
		Acenaphthylene	2011/01/04	<0.050		ug	
		Anthracene	2011/01/04	<0.050		ug	
		Benzo(a)anthracene	2011/01/04	<0.050		ug	
		Benzo(a)fluorene	2011/01/04	<0.10		ug	
		Benzo(a)pyrene	2011/01/04	<0.050		ug	
		Benzo(b)fluoranthene	2011/01/04	<0.050		ug	
		Benzo(b)fluorene	2011/01/04	<0.10		ug	
		Benzo(e)pyrene	2011/01/04	<0.10		ug	
		Benzo(g,h,i)perylene	2011/01/04	<0.050		ug	
		Benzo(k)fluoranthene	2011/01/04	<0.050		ug	
		Biphenyl	2011/01/04	<0.10		ug	
		Chrysene	2011/01/04	<0.050		ug	
		Coronene	2011/01/04	<0.10		ug	
		Dibenz(a,h)anthracene	2011/01/04	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/01/04	<0.20		ug	
		Fluoranthene	2011/01/04	<0.050		ug	
		Fluorene	2011/01/04	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/01/04	<0.050		ug	
		m-Terphenyl	2011/01/04	<0.10		ug	
		Naphthalene	2011/01/04	<0.072		ug	
		o-Terphenyl	2011/01/04	<0.10		ug	
		Perylene	2011/01/04	<0.10		ug	
		Phenanthrene	2011/01/04	<0.050		ug	
		p-Terphenyl	2011/01/04	<0.10		ug	
		Pyrene	2011/01/04	<0.050		ug	
		Quinoline	2011/01/04	<0.40		ug	
		Tetralin	2011/01/04	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/Dec 28,10

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: Dec 23, 2010 @ 13:55 mst
Removal Date/Time: Dec 29, 2010 @ 7:31 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
28-Dec-10	28/12/2010 0:00	29/12/2010 0:00	24.00

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
21-Dec-10	29-Dec-10	31-Dec-10	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 05-May-10

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
700	229	-13.7	330.36

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

Comments: COC# 06480

GB0H1763 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Dec 28, 10

- Noticed condensation on the PUFF glass holder

Technician Signiture: Ting Xu

Your C.O.C. #: 06480

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

Report Date: 2011/01/13

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B100046****Received: 2011/01/04, 08:45**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2011/01/08	2011/01/11	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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Total cover pages: 1

Page 1 of 7

Page 235 of 241

Maxxam Job #: B100046
 Report Date: 2011/01/13

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

Maxxam ID		IH2180	IH2181		
Sampling Date		2010/12/28	2010/12/28		
COC Number		06480	06480		
	Units	LICA PUFF+QFF/CLS/DEC 28,10	LICA PUFF+QFF/PORT/DEC 28,10	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.21	0.23	0.10	2375782
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2375782
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2375782
2-Methylantracene	ug	<0.10	<0.10	0.10	2375782
2-Methylnaphthalene	ug	0.34	0.33	0.10	2375782
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2375782
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2375782
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2375782
Acenaphthene	ug	0.076	<0.050	0.050	2375782
Acenaphthylene	ug	0.116	0.080	0.050	2375782
Anthracene	ug	<0.050	<0.050	0.050	2375782
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2375782
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2375782
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2375782
Benzo(b)fluoranthene	ug	0.052	<0.050	0.050	2375782
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2375782
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2375782
Benzo(g,h,i)perylene	ug	<0.050	0.052	0.050	2375782
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2375782
Biphenyl	ug	0.34	0.32	0.10	2375782
Chrysene	ug	0.052	0.054	0.050	2375782
Coronene	ug	<0.10	<0.10	0.10	2375782
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2375782
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2375782
Fluoranthene	ug	0.132	0.112	0.050	2375782
Fluorene	ug	0.148	0.146	0.050	2375782
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2375782
m-Terphenyl	ug	<0.10	<0.10	0.10	2375782
Naphthalene	ug	0.200	0.308	0.072	2375782
o-Terphenyl	ug	<0.10	<0.10	0.10	2375782
Perylene	ug	<0.10	<0.10	0.10	2375782

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B100046
 Report Date: 2011/01/13

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

Maxxam ID		IH2180	IH2181		
Sampling Date		2010/12/28	2010/12/28		
COC Number		06480	06480		
	Units	LICA PUFF+QFF/CLS/DEC 28,10	LICA PUFF+QFF/PORT/DEC 28,10	RDL	QC Batch

Phenanthrene	ug	0.340	0.340	0.050	2375782
p-Terphenyl	ug	<0.10	<0.10	0.10	2375782
Pyrene	ug	0.092	0.072	0.050	2375782
Quinoline	ug	<0.40	<0.40	0.40	2375782
Tetralin	ug	<0.10	<0.10	0.10	2375782
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	46 (1)	62		2375782
D10-Fluoranthene	%	90	86		2375782
D10-Fluorene (FS)	%	50	59		2375782
D10-Phenanthrene	%	74	78		2375782
D12-Benzo(a)anthracene	%	90	92		2375782
D12-Benzo(a)pyrene	%	90	92		2375782
D12-Benzo(b)fluoranthene	%	84	90		2375782
D12-Benzo(ghi)perylene	%	96	94		2375782
D12-Benzo(k)fluoranthene	%	88	86		2375782
D12-Chrysene	%	86	88		2375782
D12-Indeno(1,2,3-cd)pyrene	%	92	92		2375782
D12-Perylene	%	90	92		2375782
D14-Dibenzo(a,h)anthracene	%	94	94		2375782
D14-Terphenyl (FS)	%	89	84		2375782
D8-Acenaphthylene	%	54	68		2375782
D8-Naphthalene	%	40 (1)	58		2375782

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

Maxxam Job #: B100046
 Report Date: 2011/01/13

Test Summary

Maxxam ID IH2180 **Collected** 2010/12/28
Sample ID LICA PUFF+QFF/CLS/DEC 28,10 **Shipped**
Matrix PUF AND FILTER **Received** 2011/01/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2375782	2011/01/08	2011/01/11	WZ

Maxxam ID IH2181 **Collected** 2010/12/28
Sample ID LICA PUFF+QFF/PORT/DEC 28,10 **Shipped**
Matrix PUF AND FILTER **Received** 2011/01/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2375782	2011/01/08	2011/01/11	WZ

Maxxam Job #: B100046
Report Date: 2011/01/13

GENERAL COMMENTS

PAHMS-F

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

Low recovery of Naphthalene in Spike:dup and spike is OK.

Low recoveries of surrogates for the blank was due to some of the extract spilt before cleanup.

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

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

Sample IH2180-01: PAHMS-F

Low recovery of surrogate D10-2-Methylnaphthalene and D8-Naphthalene in sample.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB100046

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2375782 WZ	Spiked Blank	D10-2-Methylnaphthalene	2011/01/11		74	%	50 - 150
		D10-Fluoranthene	2011/01/11		88	%	50 - 150
		D10-Phenanthrene	2011/01/11		80	%	50 - 150
		D12-Benzo(a)anthracene	2011/01/11		90	%	50 - 150
		D12-Benzo(a)pyrene	2011/01/11		92	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/01/11		86	%	50 - 150
		D12-Benzo(ghi)perylene	2011/01/11		96	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/01/11		90	%	50 - 150
		D12-Chrysene	2011/01/11		90	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2011/01/11		92	%	50 - 150
		D12-Perylene	2011/01/11		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/01/11		94	%	50 - 150
		RPD	D8-Acenaphthylene	2011/01/11		74	%
	D8-Naphthalene		2011/01/11		70	%	50 - 150
	Acenaphthene		2011/01/11		72	%	60 - 130
	Acenaphthene		2011/01/11	11.1		%	50
	Acenaphthylene		2011/01/11		75	%	60 - 130
	Acenaphthylene		2011/01/11	12.1		%	50
	Anthracene		2011/01/11		76	%	60 - 130
	Anthracene		2011/01/11	3.9		%	50
	Benzo(a)anthracene		2011/01/11		84	%	60 - 130
	Benzo(a)anthracene		2011/01/11	1.2		%	50
	Benzo(a)pyrene		2011/01/11		76	%	60 - 130
	Benzo(a)pyrene		2011/01/11	2.7		%	50
	Benzo(b)fluoranthene		2011/01/11		80	%	60 - 130
	Benzo(b)fluoranthene		2011/01/11	3.1		%	50
	Benzo(g,h,i)perylene		2011/01/11		86	%	60 - 130
	Benzo(g,h,i)perylene		2011/01/11	2.3		%	50
	Benzo(k)fluoranthene		2011/01/11		88	%	60 - 130
	Benzo(k)fluoranthene	2011/01/11	1.1		%	50	
	Spiked Blank	Chrysene	2011/01/11		84	%	60 - 130
		Chrysene	2011/01/11	3.2		%	50
		Dibenz(a,h)anthracene	2011/01/11		83	%	60 - 130
		Dibenz(a,h)anthracene	2011/01/11	0.3		%	50
		Fluoranthene	2011/01/11		84	%	60 - 130
		Fluoranthene	2011/01/11	3.8		%	50
		Fluorene	2011/01/11		74	%	60 - 130
		Fluorene	2011/01/11	5.2		%	50
		Indeno(1,2,3-cd)pyrene	2011/01/11		82	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2011/01/11	0		%	50
Naphthalene		2011/01/11		67	%	60 - 130	
Naphthalene		2011/01/11	20.0		%	50	
Spiked Blank		Phenanthrene	2011/01/11		73	%	60 - 130
	Phenanthrene	2011/01/11	0.3		%	50	
	Pyrene	2011/01/11		78	%	60 - 130	
	Pyrene	2011/01/11	2.5		%	50	
	Method Blank	D10-2-Methylnaphthalene	2011/01/11		48 (1)	%	50 - 150
		D10-Fluoranthene	2011/01/11		62	%	50 - 150
		D10-Phenanthrene	2011/01/11		52	%	50 - 150
		D12-Benzo(a)anthracene	2011/01/11		62	%	50 - 150
		D12-Benzo(a)pyrene	2011/01/11		66	%	50 - 150
		D12-Benzo(b)fluoranthene	2011/01/11		62	%	50 - 150
		D12-Benzo(ghi)perylene	2011/01/11		68	%	50 - 150
		D12-Benzo(k)fluoranthene	2011/01/11		60	%	50 - 150
		D12-Chrysene	2011/01/11		60	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB100046

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2375782 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2011/01/11		64	%	50 - 150
		D12-Perylene	2011/01/11		66	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2011/01/11		64	%	50 - 150
		D8-Acenaphthylene	2011/01/11		48 (1)	%	50 - 150
		D8-Naphthalene	2011/01/11		46 (1)	%	50 - 150
		1-Methylnaphthalene	2011/01/11	<0.10		ug	
		1-Methylphenanthrene	2011/01/11	<0.10		ug	
		2-Chloronaphthalene	2011/01/11	<0.10		ug	
		2-Methylanthracene	2011/01/11	<0.10		ug	
		2-Methylnaphthalene	2011/01/11	<0.10		ug	
		3-Methylcholanthrene	2011/01/11	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2011/01/11	<0.10		ug	
		9,10-Dimethylanthracene	2011/01/11	<0.40		ug	
		Acenaphthene	2011/01/11	<0.050		ug	
		Acenaphthylene	2011/01/11	<0.050		ug	
		Anthracene	2011/01/11	<0.050		ug	
		Benzo(a)anthracene	2011/01/11	<0.050		ug	
		Benzo(a)fluorene	2011/01/11	<0.10		ug	
		Benzo(a)pyrene	2011/01/11	<0.050		ug	
		Benzo(b)fluoranthene	2011/01/11	<0.050		ug	
		Benzo(b)fluorene	2011/01/11	<0.10		ug	
		Benzo(e)pyrene	2011/01/11	<0.10		ug	
		Benzo(g,h,i)perylene	2011/01/11	<0.050		ug	
		Benzo(k)fluoranthene	2011/01/11	<0.050		ug	
		Biphenyl	2011/01/11	<0.10		ug	
		Chrysene	2011/01/11	<0.050		ug	
		Coronene	2011/01/11	<0.10		ug	
		Dibenz(a,h)anthracene	2011/01/11	<0.050		ug	
		Dibenzo(a,e)pyrene	2011/01/11	<0.20		ug	
		Fluoranthene	2011/01/11	<0.050		ug	
		Fluorene	2011/01/11	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2011/01/11	<0.050		ug	
		m-Terphenyl	2011/01/11	<0.10		ug	
		Naphthalene	2011/01/11	<0.072		ug	
		o-Terphenyl	2011/01/11	<0.10		ug	
		Perylene	2011/01/11	<0.10		ug	
		Phenanthrene	2011/01/11	<0.050		ug	
		p-Terphenyl	2011/01/11	<0.10		ug	
		Pyrene	2011/01/11	<0.050		ug	
		Quinoline	2011/01/11	<0.40		ug	
		Tetralin	2011/01/11	<0.10		ug	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
 Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
 Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
 (1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.