

Lakeland Industry & Community Association

Maskwa Monitoring Site
Ambient Air Monitoring
Data Report
For
April 2012

Prepared By:



May 24, 2012

Lakeland Industry & Community Association Ambient Air Monitoring Maskwa

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Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Maskwa
Data Period: April 2012

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Katherine Rapske

Calibration Procedure

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

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

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

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

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

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

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

MONTHLY CONTINUOUS DATA SUMMARY

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – MASKWA

Continuous Ambient Monitoring – April 2012

LICA MASKWA SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)			
						OBJECTIVES					EXCEEDENCES					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												
SO2 (PPB)	172	48	0	0	0.55	12	11	20	8.1	105(ESE)	3.4	11	100.0			
H2S (PPB)	10	3	0	0	0.30	1	VAR	VAR	VAR	VAR	0.9	29	100.0			
THC (PPM)	-	-	-	-	2.13	2.8	21	3	5.3	212(SSW)	2.4	29	100.0			
NOx (PPB)	-	-	-	-	1.93	26	1	15	10.9	308(NW)	6.3	11	100.0			
NO (PPB)	-	-	-	-	0.19	7	1	15, 16	10.9, 12.9	308(NW), 304(WNW)	1.0	7	100.0			
NO ₂ (PPB)	159	-	0	-	1.77	18	1, 11	VAR	VAR	VAR	5.8	11	100.0			
VECTOR WS (KPH)	-	-	-	-	6.90	16.8	5	12	-	207(SSW)	11.7	26	100.0			
VECTOR WD (DEGREES)	-	-	-	-	64(ENE)	-	-	-	-	-	-	-	100.0			
RELATIVE HUMIDITY (%)	-	-	-	-	59.81	91	VAR	VAR	VAR	VAR	86.6	14, 24	100.0			
TEMPERATURE (DEG C)	-	-	-	-	3.02	18.6	22	15, 16	4.5, 7.3	87(E), 211(SSW)	9.4	22	100.0			
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	940	956	9	VAR	VAR	VAR	954.5	9	100.0			
PRECIPITATION (MM)	-	-	-	-	0.06	1.7	27	16	3.9	54(NE)	18.7	27	100.0			

NA-NOT APPLICABLE VAR-VARIOUS

General Monthly Summary

Equipment Operation

The following summary outlines the analyzer performance. Any non-conformances, problems encountered 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 issues were observed during the month. The inlet filter was changed before the monthly calibration was started on April 25th. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

No operational issues were observed during the month. The inlet filter was changed before the monthly calibration was started on April 25th. Data was corrected using daily zero information.

Total Hydrocarbon (PPM)

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

No operational issues were observed during the month. The inlet filter was changed before the monthly calibration was started on April 25th. The H2 gas cylinder was replaced on April 25th. 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 issues were observed during the month. The inlet filter was changed before the monthly calibration was started on April 25th. Data was corrected using daily zero information.

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

- System make / model - MetOne 50.5H Sonic, S/N: H10703

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

No operational issues were observed this month.

Relative Humidity (PERCENT)

- System make / model - Met One 083

No operational issues were observed during the month.

Precipitation (MM)

- System make / model - Met One 387

A new rain gauge was installed on April 10th. It was suspected the heater on the old rain gauge was not working properly.

General Monthly Summary

AQM STATION – LICA – Maskwa

Barometric Pressure (MILLIBAR)

- System make / model - Met One 092
- No operation issues were observed during the month.

Ambient Temperature (DEGC)

- System make / model - Met One 060
- No operational issues were observed during the month.

Trailer Temperature (DEG C)

- System make / model – R&R 61
- No operational issues were observed during the month.

Standard Deviation Wind Direction (DEG)

- System make / model –Met One 50.5H
- No operational issues were 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 issues were observed during the month.

Trailer

The manifold was cleaned on April 26th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2012

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY 1	0	0	0	0	0	0	IZS	0	0	0	0	0	0	1	1	5	5	2	4	2	0	0	0	0	5	0.9	24	
2	0	0	0	0	0	IZS	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
3	0	0	0	0	IZS	0	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0.2	24	
4	0	0	1	IZS	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1	24	
5	0	0	IZS	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1	24	
6	0	IZS	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	2	4	2	6	1	1	6	0.8	24	
7	IZS	2	0	3	7	1	5	7	2	3	2	2	3	2	4	2	4	0	0	1	1	1	1	IZS	7	2.4	24	
8	0	0	2	1	1	1	0	1	0	0	1	1	1	1	1	1	1	1	1	0	0	0	IZS	0	2	0.7	24	
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	IZS	0	0	2	0.1	24	
10	0	0	0	0	0	0	0	2	1	0	0	0	0	0	1	1	2	4	1	0	IZS	0	0	0	4	0.5	24	
11	0	0	0	3	3	4	5	3	2	3	4	3	4	1	0	1	2	7	8	IZS	12	7	2	4	12	3.4	24	
12	8	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	IZS	5	9	5	7	1	9	1.7	24	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0.0	24	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0.0	24	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	0	0	0	0	0	0	0	1	0.1	24
16	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	1	0.2	24
17	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	1	0	0	0	0	0	0	0	0	1	0.0	24
18	0	0	0	0	0	0	0	0	1	0	0	1	IZS	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	0	0	IZS	0	0	0	0	0	0	0	0	1	1	0	0	1	0.1	24	
20	0	1	1	1	0	1	0	0	0	0	IZS	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
21	0	0	0	0	0	0	0	0	1	IZS	3	2	2	0	0	0	0	0	0	0	0	0	0	0	0	3	0.3	24
22	0	0	0	0	0	0	0	0	IZS	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
23	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	2	0.1	24
24	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25	0	0	0	0	0	IZS	0	0	0	0	0	0	0	C	C	C	C	C	5	3	0	1	1	1	0	5	0.6	24
26	1	3	4	6	IZS	3	1	0	0	1	2	0	2	1	1	3	2	1	5	5	2	0	0	4	6	2.0	24	
27	3	4	3	IZS	1	6	1	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1.1	24	
28	0	0	IZS	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	
29	0	IZS	0	0	0	0	0	0	0	1	1	2	3	1	1	2	1	1	1	0	0	0	0	0	3	0.6	24	
30	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	24	
HOURLY MAX	8	4	4	6	7	6	5	7	3	3	4	3	4	4	4	5	5	7	8	5	12	7	7	4				
HOURLY AVG	0.4	0.4	0.4	0.5	0.4	0.6	0.5	0.7	0.5	0.3	0.6	0.5	0.6	0.6	0.3	0.6	0.8	0.8	0.9	0.6	1.0	0.7	0.4	0.4				

STATUS FLAG CODES

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

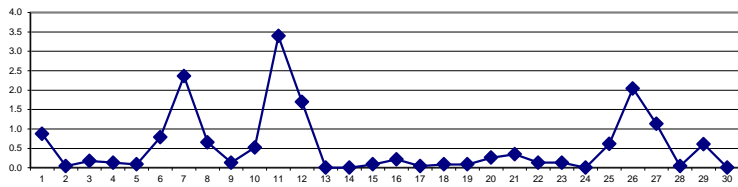
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 172 PPB | 24-HR 48 PPB

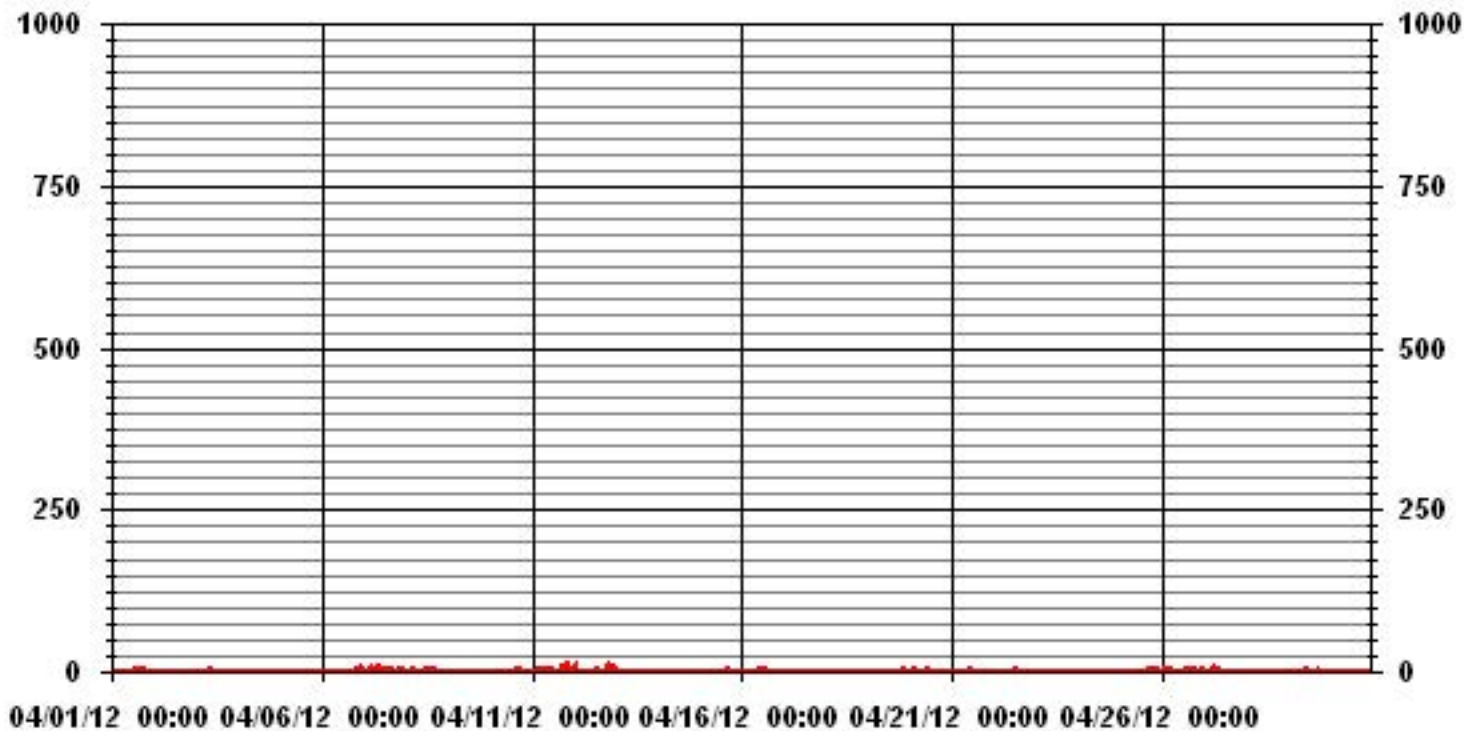
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	159
MAXIMUM 1-HR AVERAGE:	12 PPB @ HOUR(S) 20 ON DAY(S) 11
MAXIMUM 24-HR AVERAGE:	3.4 PPB ON DAY(S) 11
IZS CALIBRATION TIME:	32 HRS
OPERATIONAL TIME:	720 HRS
MONTHLY CALIBRATION TIME:	5 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	1.38
MONTHLY AVERAGE:	0.55 PPB

24 HOUR AVERAGES FOR APRIL 2012



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		0	0	0	0	0	0	IZS	0	0	0	0	0	0	5	4	9	8	7	9	4	0	5	0	0	9	2.2	24	
2		0	0	0	0	0	IZS	0	1	1	1	1	1	0	1	1	1	1	1	0	0	0	0	0	1	1	0.5	24	
3		1	1	1	1	IZS	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2	24	
4		1	1	1	IZS	0	0	0	8	8	2	10	1	0	0	0	0	0	0	0	0	0	0	0	0	10	1.4	24	
5		0	0	IZS	1	1	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0.4	24	
6		0	IZS	0	0	1	1	1	2	1	1	1	1	1	7	1	0	2	1	8	10	9	11	6	7	11	3.1	24	
7		IZS	7	0	13	10	6	11	15	11	12	7	6	13	7	18	12	14	1	1	0	6	6	2	IZS	18	8.1	24	
8		1	1	7	3	4	1	1	4	0	1	3	1	2	2	2	1	1	1	2	1	0	1	IZS	0	7	1.7	24	
9		0	0	0	0	0	0	0	0	1	2	0	0	0	2	1	2	6	4	2	1	0	0	IZS	0	0	6	0.9	24
10		0	0	0	0	0	0	0	7	6	3	1	2	1	2	5	4	5	9	3	1	IZS	1	1	1	9	2.3	24	
11		1	1	1	5	6	7	7	6	6	8	8	9	8	4	1	1	6	12	13	IZS	16	11	6	8	16	6.6	24	
12		12	1	0	0	0	0	0	0	0	0	0	0	2	10	3	0	0	0	IZS	15	13	10	14	8	15	3.8	24	
13		3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	3	0.1	24	
14		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0.0	24
15		0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	IZS	2	2	1	1	1	1	1	1	1	4	0.7	24
16		1	1	0	1	1	1	0	1	1	2	2	2	1	1	IZS	0	0	0	0	0	0	0	0	0	2	0.7	24	
17		0	0	0	0	0	0	0	0	0	0	0	0	4	IZS	2	3	2	1	1	1	1	1	1	1	1	4	0.8	24
18		0	1	1	0	0	0	1	2	1	1	1	3	IZS	0	0	0	0	0	3	2	0	0	0	0	3	0.7	24	
19		0	0	0	0	0	0	0	0	1	1	0	IZS	0	1	1	1	0	1	1	1	2	2	1	1	2	0.6	24	
20		1	2	1	1	1	1	1	1	1	1	IZS	4	4	0	0	0	0	0	0	0	0	0	0	0	4	0.8	24	
21		0	0	0	0	0	0	0	2	IZS	21	10	10	4	2	4	0	1	0	0	0	0	0	0	0	21	2.3	24	
22		0	0	0	0	0	0	0	0	IZS	3	2	3	5	5	0	2	0	0	0	0	0	0	0	0	5	0.9	24	
23		0	0	0	0	0	0	0	IZS	0	0	0	0	0	2	7	1	3	4	0	0	0	0	0	0	7	0.7	24	
24		0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
25		0	0	0	0	0	IZS	0	0	0	0	0	0	0	C	C	C	C	C	C	9	1	4	4	2	1	9	1.2	24
26		2	7	8	8	IZS	7	4	0	1	3	6	2	6	5	4	10	6	4	8	8	7	1	0	9	10	5.0	24	
27		6	6	6	IZS	6	9	2	8	8	2	1	2	1	1	0	0	0	0	0	0	0	0	0	0	9	2.5	24	
28		0	0	IZS	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
29		0	IZS	0	0	0	0	1	0	1	1	5	6	5	2	2	9	4	4	2	1	0	0	0	0	9	1.9	24	
30		IZS	0	0	0	0	0	0	1	1	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	1	0.3	24	
HOURLY MAX		12	7	8	13	10	9	11	15	11	12	21	10	13	10	18	12	14	12	13	15	16	11	14	9				
HOURLY AVG		1.0	1.0	0.9	1.2	1.1	1.2	1.1	2.0	2.1	1.6	2.5	1.9	2.4	2.4	2.0	2.4	2.2	1.7	2.2	1.6	2.1	1.9	1.2	1.4				

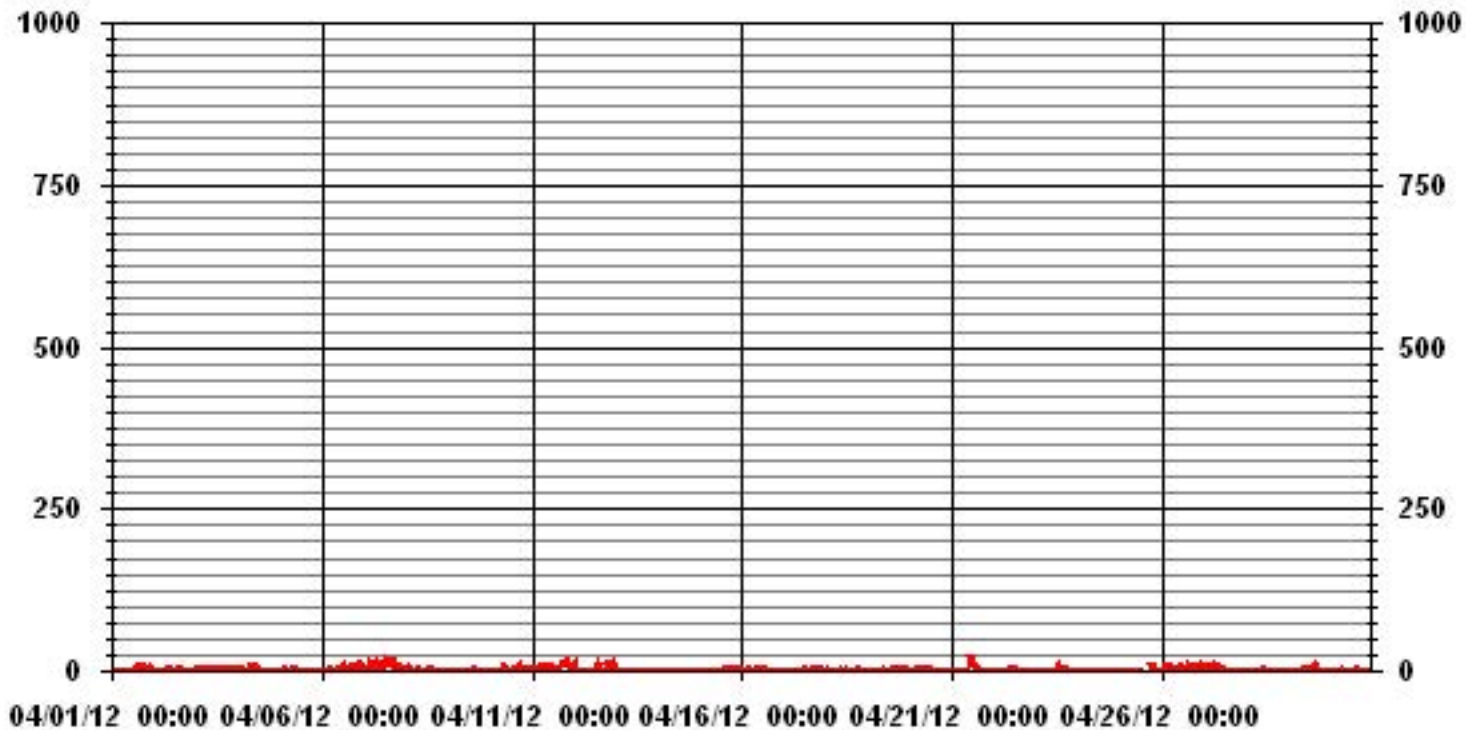
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	319					
MAXIMUM INSTANTANEOUS VALUE:	21	PPB	@ HOUR(S)	10	ON DAY(S)	21
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	3.10					

01 Hour Averages



— LICA30 SO2MAX PPB

LICA30
 SO2_ / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																	
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 20	4.97	12.73	14.34	8.05	10.83	7.61	7.75	3.07	3.51	7.02	3.07	2.19	2.63	3.80	4.83	3.51	100.00	
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	4.97	12.73	14.34	8.05	10.83	7.61	7.75	3.07	3.51	7.02	3.07	2.19	2.63	3.80	4.83	3.51		

Calm : .00 %

Total # Operational Hours : 683

Distribution By Samples

	Direction																	
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 20	34	87	98	55	74	52	53	21	24	48	21	15	18	26	33	24	683	
< 60																		
< 110																		
< 170																		
< 340																		
>= 340																		
Totals	34	87	98	55	74	52	53	21	24	48	21	15	18	26	33	24		

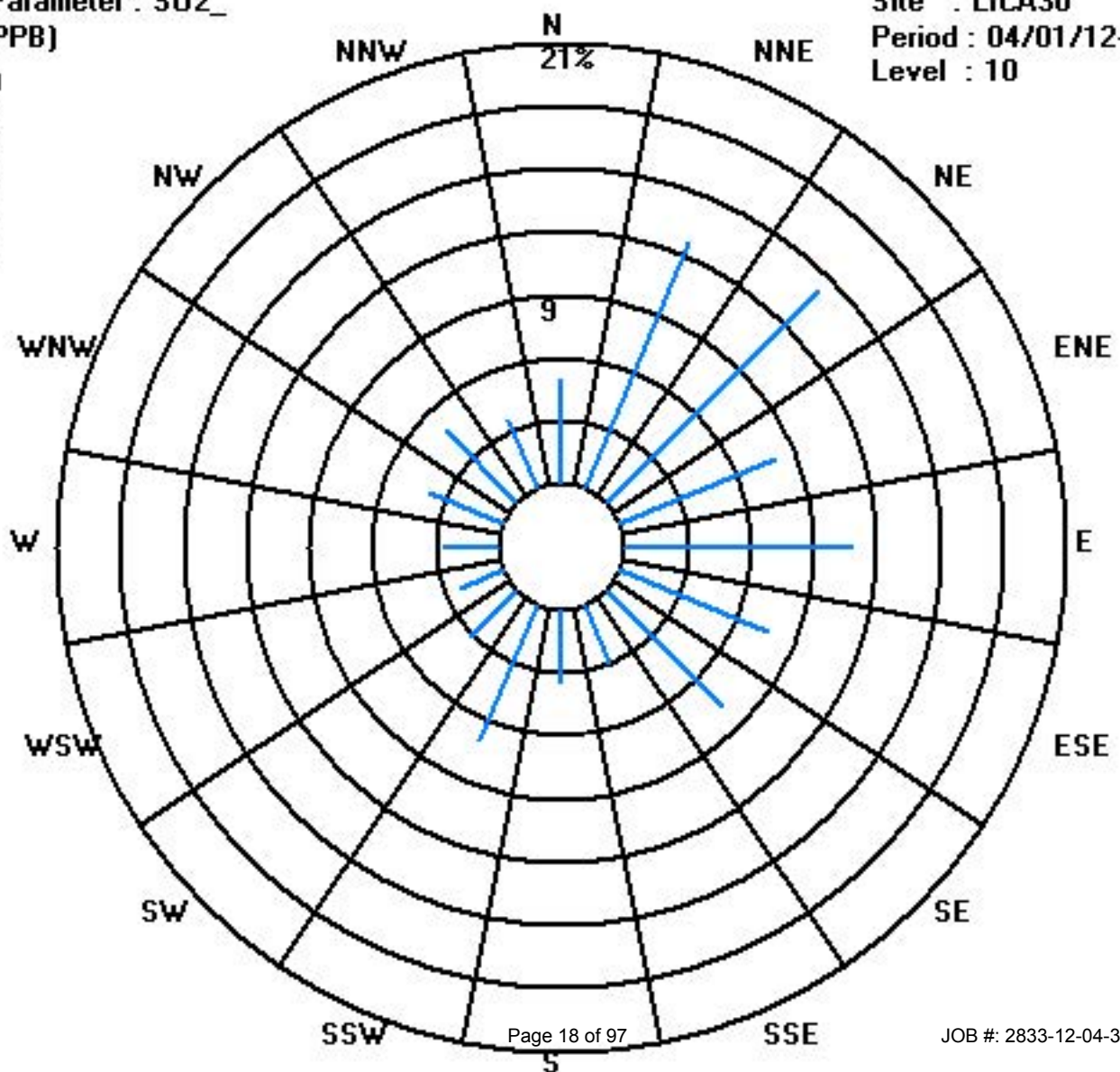
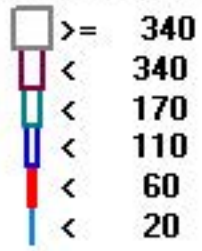
Calm : .00 %

Total # Operational Hours : 683

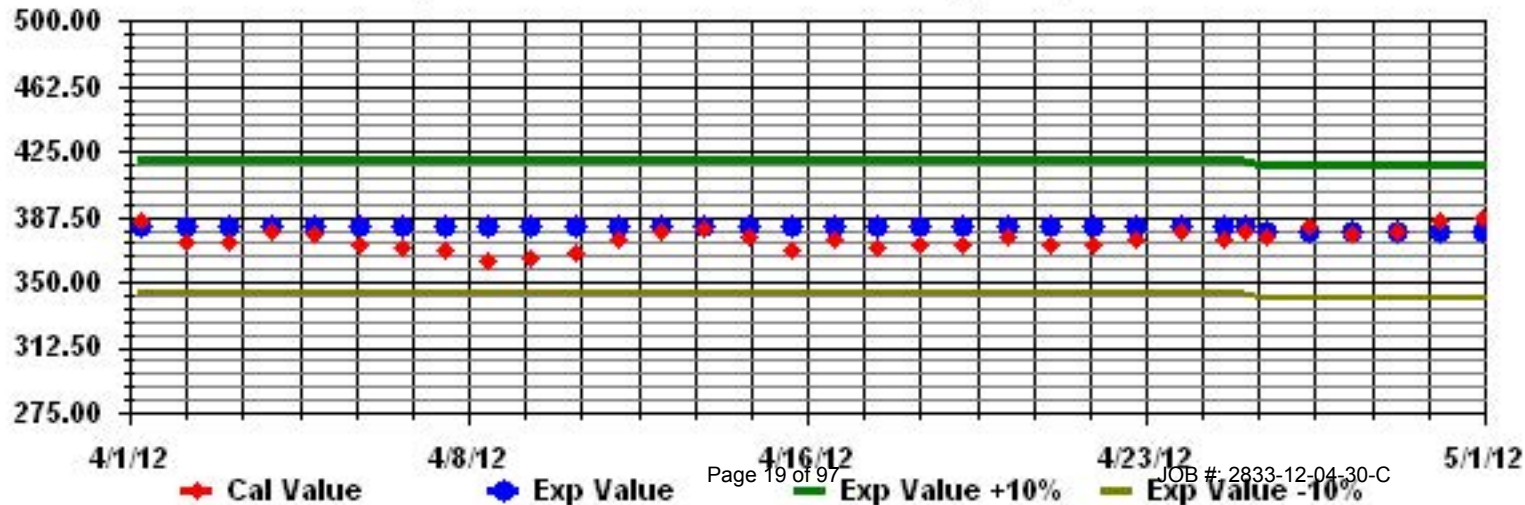
Class Limits (PPB)

Period : 04/01/12-04/30/12

Level : 10



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2012

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		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
2		0	0	0	0	0	IZS	1	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0.2	24	
3		0	0	0	0	IZS	0	1	1	1	0	1	0	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0.6	24	
4		1	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	
5		0	0	IZS	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	0	1	0.7	24		
6		1	IZS	1	1	0	0	0	1	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.3	24	
7		IZS	0	0	1	0	1	1	1	0	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	IZS	1	0.4	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	IZS	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	IZS	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	IZS	0	0	0.0	24			
11		0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	1	1	1	IZS	1	1	1	1	1	1	0.4	24	
12		1	1	1	1	1	0	0	1	1	1	0	1	0	1	1	0	0	0	IZS	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	IZS	1	0	1	1	1	1	0	1	0.2	24	
14		1	1	1	1	1	1	0	0	1	1	1	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	0.4	24	
15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	0	0	0	1	0.0	24	
16		0	1	1	0	0	1	0	1	1	1	0	1	1	0	IZS	0	0	0	0	0	1	0	0	1	0	1	0.4	24	
17		0	1	0	0	0	0	0	1	1	0	0	0	1	IZS	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
18		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	
19		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	
20		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	
21		0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	0	0	0	0	0	1	0	0	1	1	1	0.3	24	
22		1	0	0	1	0	1	1	1	IZS	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0.3	24
23		0	0	1	1	1	0	1	IZS	0	1	0	0	1	0	0	1	1	1	0	0	0	0	1	1	1	1	0.5	24	
24		0	0	0	1	0	0	IZS	1	1	0	1	0	1	1	0	0	1	1	0	0	0	1	0	0	1	0	1	0.4	24
25		0	0	0	1	1	IZS	0	0	0	0	0	0	C	C	C	C	C	1	0	0	0	0	0	0	0	1	0.2	24	
26		0	1	1	1	IZS	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24	
27		1	1	1	IZS	1	1	0	0	1	0	1	1	1	1	0	1	1	1	1	1	0	1	1	1	0	1	0.7	24	
28		0	0	IZS	1	1	0	0	0	1	1	1	0	0	0	0	1	1	1	0	0	0	0	1	1	1	1	0.4	24	
29		0	IZS	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24	
30		IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	24	
HOURLY MAX		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
HOURLY AVG		0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.2	0.2	0.3	0.2	0.4	0.3					

STATUS FLAG CODES

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

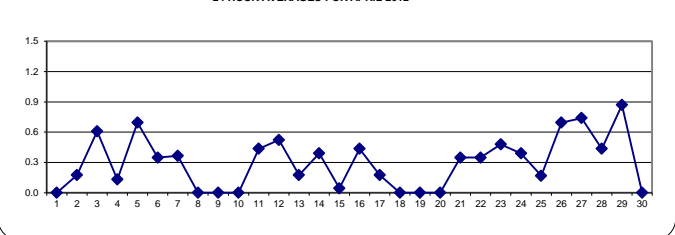
OBJECTIVE LIMIT:

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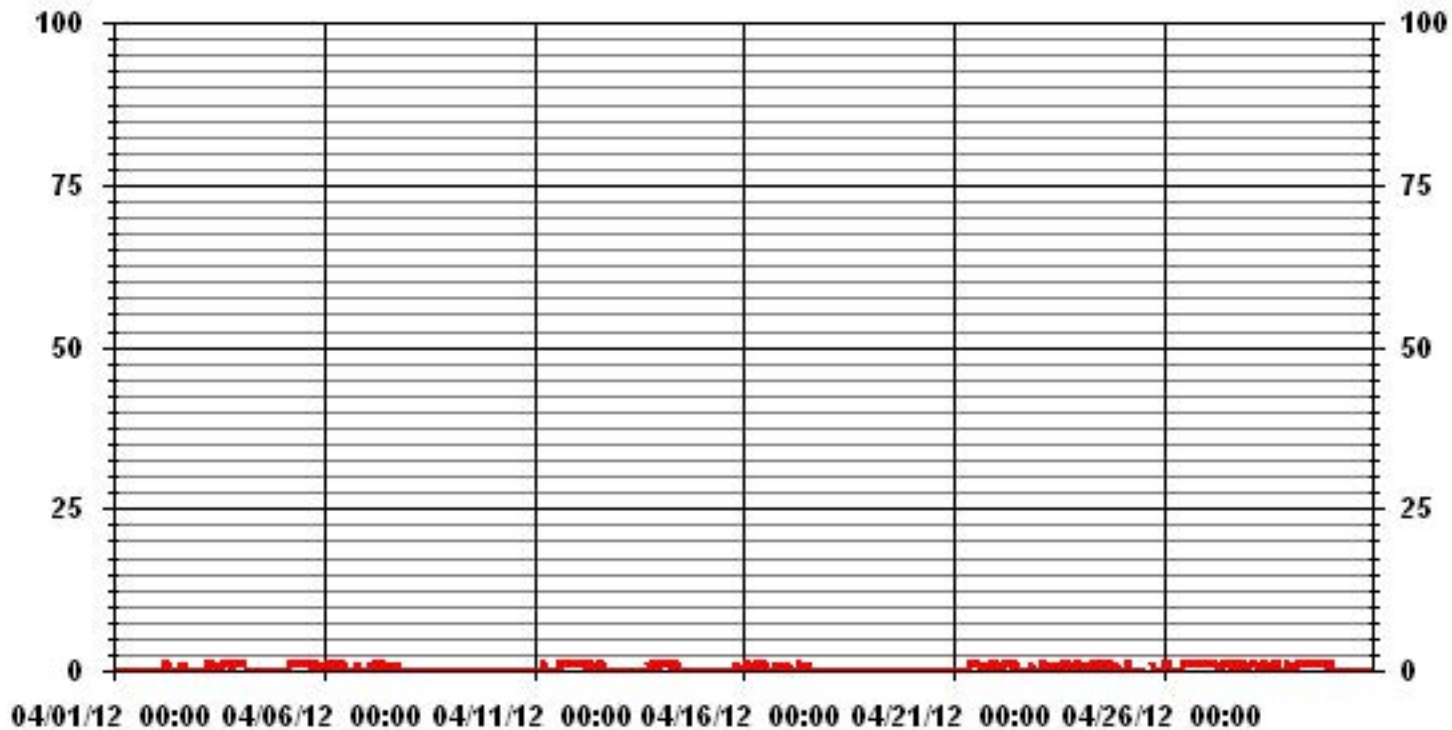
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	205					
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.9	PPB			ON DAY(S)	29
					VAR-VARIOUS	
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.46		MONTHLY AVERAGE:	0.30	PPB	

24 HOUR AVERAGES FOR APRIL 2012



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2012

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	RDGS.																								
		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.																									
DAY																																																				
1		0	0	0	0	0	0	IZS	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0.1	24																							
2		0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	0.7	24																							
3		0	0	0	1	IZS	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	24																							
4		1	1	1	IZS	0	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24																							
5		0	0	IZS	0	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	0.9	24																							
6		1	IZS	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	0.9	24																							
7		IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1.0	24																							
8		0	0	1	0	0	1	1	1	0	0	1	1	1	0	0	0	1	1	0	0	0	0	0	IZS	1	1	0.4	24																							
9		0	1	1	1	1	1	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0	1	IZS	1	0	1	0.6	24																							
10		0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	IZS	0	1	1	0.6	24																							
11		1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	IZS	1	1	1	1	1	0.9	24																							
12		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	1	0.8	24																							
13		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	0.3	24																							
14		1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	IZS	0	0	0	0	0	0	0	0	0	1	0.7	24																							
15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	0	1	1	1	0	0	1	0.2	24																								
16		0	1	1	1	1	1	1	1	1	1	1	1	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24																							
17		1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	1	0.6	24																							
18		0	0	0	0	1	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24																							
19		1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24																							
20		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																							
21		0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	0	1	1	1	1	1	1	0.6	24																							
22		1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	1	1	0.9	24																							
23		1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1.0	24																							
24		1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24																							
25		0	1	1	1	1	IZS	1	1	1	1	1	0	C	C	C	C	C	C	0	0	0	1	1	0	1	0.6	24																								
26		1	1	1	1	IZS	1	1	0	0	1	1	1	2	1	1	1	1	1	1	1	2	1	1	2	2	1.0	24																								
27		1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24																							
28		1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24																							
29		1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	1	1	1	2	2	1.2	24																							
30		IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24																							
HOURLY MAX		1	1	1	1	1	1	1	2	2	1	1	1	1	2	2	2	2	2	1	2	1	2	1	1	2																										
HOURLY AVG		0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.6	0.6	0.7	0.7	0.6	0.6	0.5	0.7	0.6	0.6	0.7																											

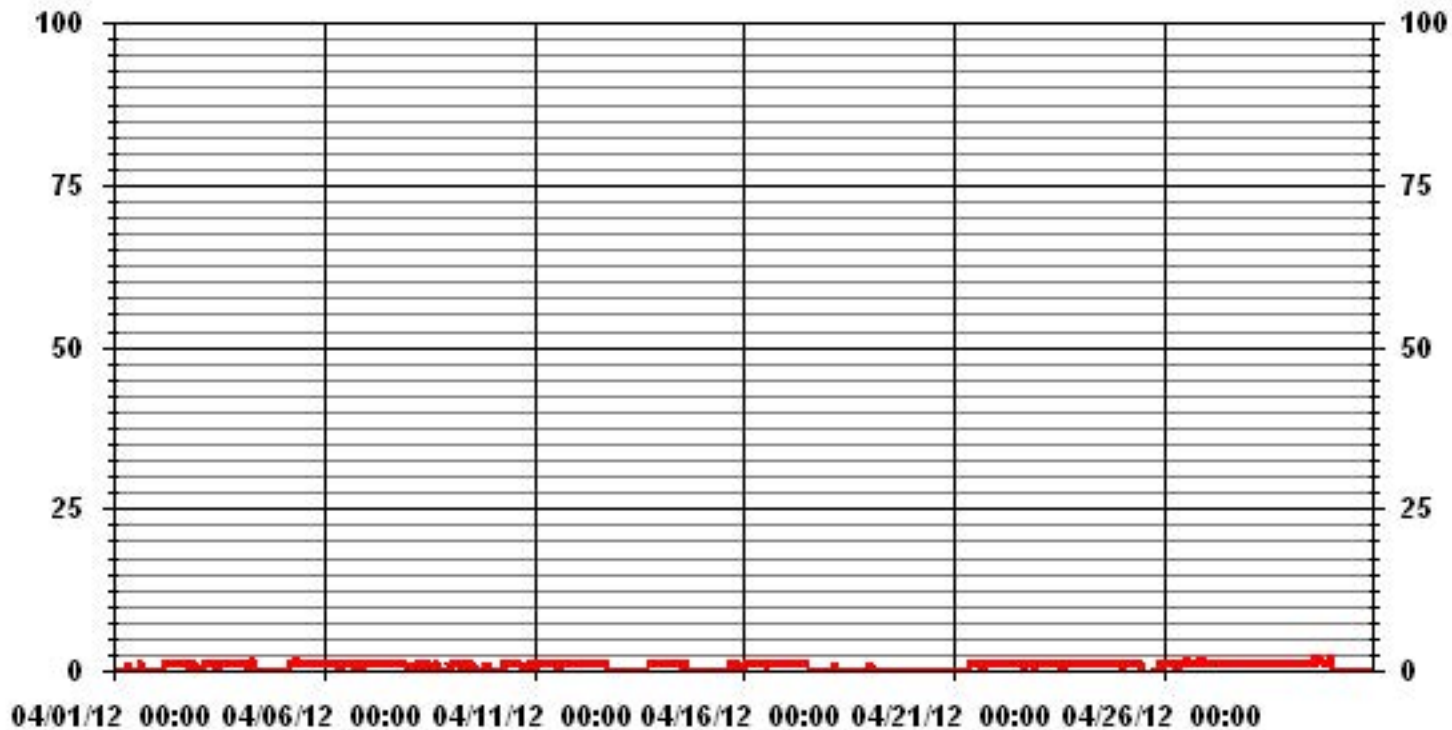
STATUS FLAG CODES

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:	423					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	720 HRS		
MONTHLY CALIBRATION TIME:	6 HRS					
STANDARD DEVIATION:	0.51					

01 Hour Averages



LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	4.97	12.73	14.34	8.05	10.83	7.61	7.75	3.07	3.51	7.02	3.07	2.19	2.63	3.80	4.83	3.51	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.97	12.73	14.34	8.05	10.83	7.61	7.75	3.07	3.51	7.02	3.07	2.19	2.63	3.80	4.83	3.51	

Calm : .00 %

Total # Operational Hours : 683

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	34	87	98	55	74	52	53	21	24	48	21	15	18	26	33	24	683
< 10																	
< 50																	
>= 50																	
Totals	34	87	98	55	74	52	53	21	24	48	21	15	18	26	33	24	

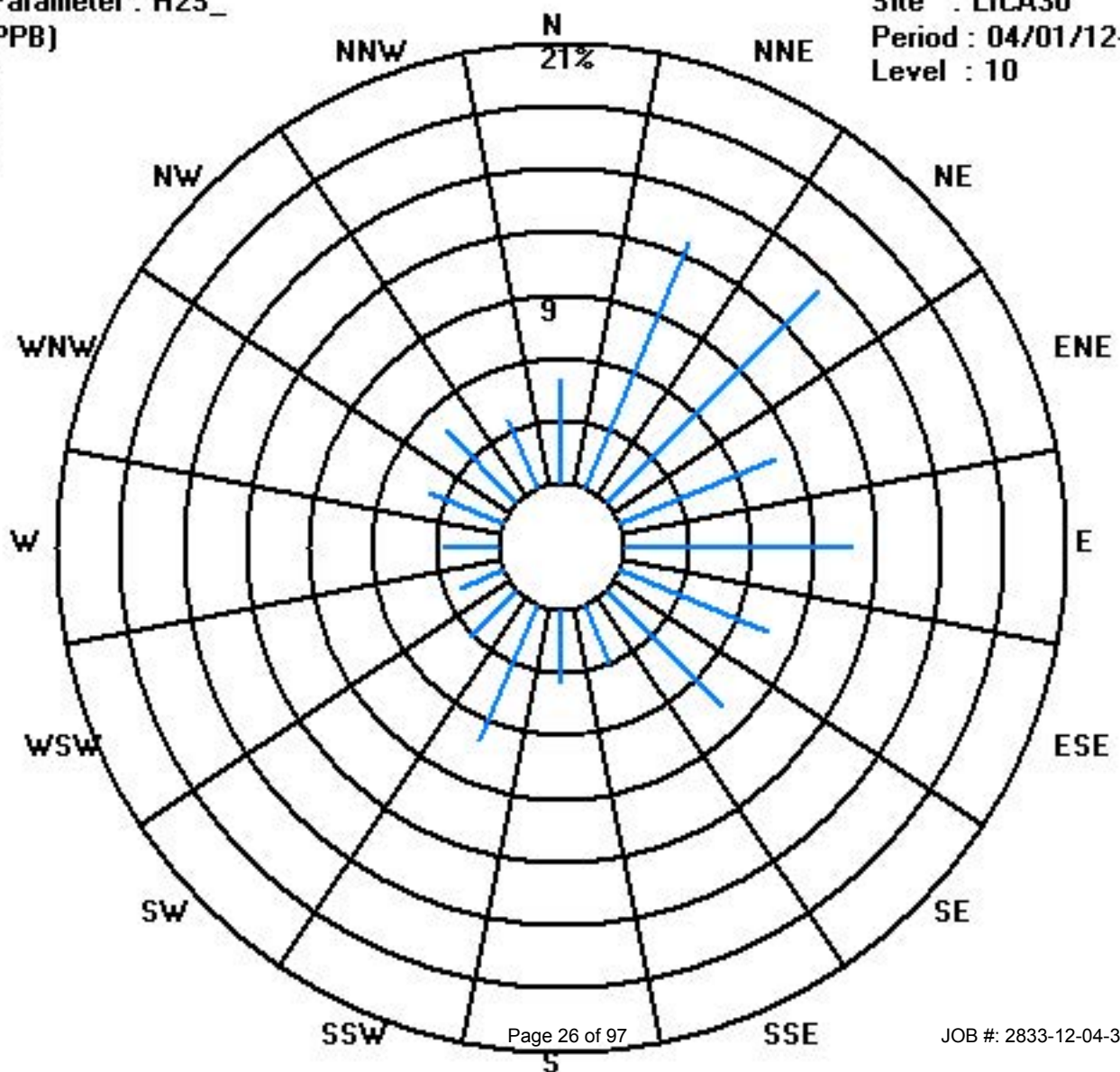
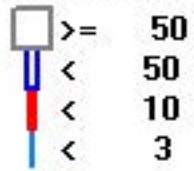
Calm : .00 %

Total # Operational Hours : 683

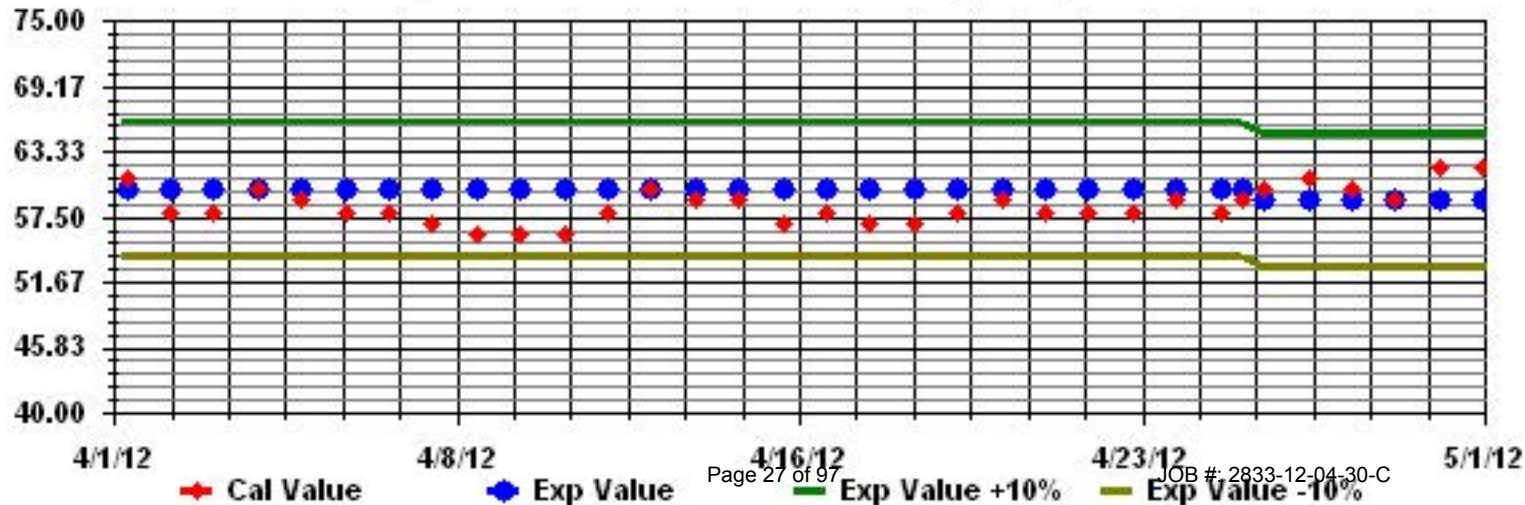
Class Limits (PPB)

Period : 04/01/12-04/30/12

Level : 10



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

APRIL 2012

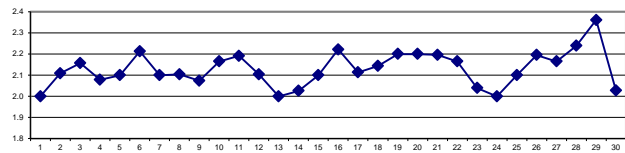
TOTAL HYDROCARBONS hourly averages in ppm

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

STATUS FLAG CODES

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

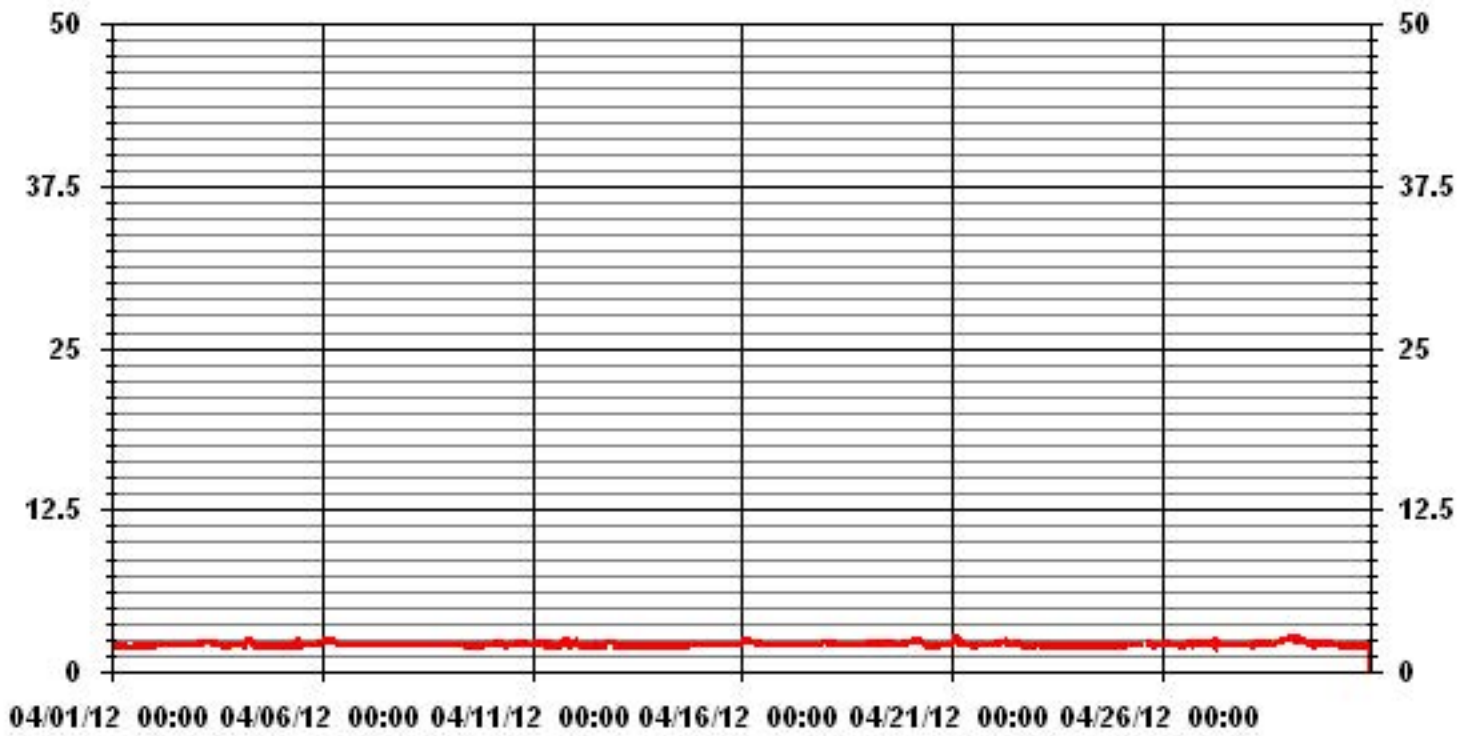
24 AVERAGES FOR APRIL 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	681
MAXIMUM 1-HR AVERAGE:	2.8 PPM @ HOUR(S) 3 ON DAY(S) 21
MAXIMUM 24-HR AVERAGE:	2.4 PPM ON DAY(S) 29
	VAR- VARIOUS
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	7 HRS
OPERATIONAL TIME:	720 HRS
AMT OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.13
MONTHLY AVERAGE:	2.13 PPM

01 Hour Averages



— LICA30 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

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

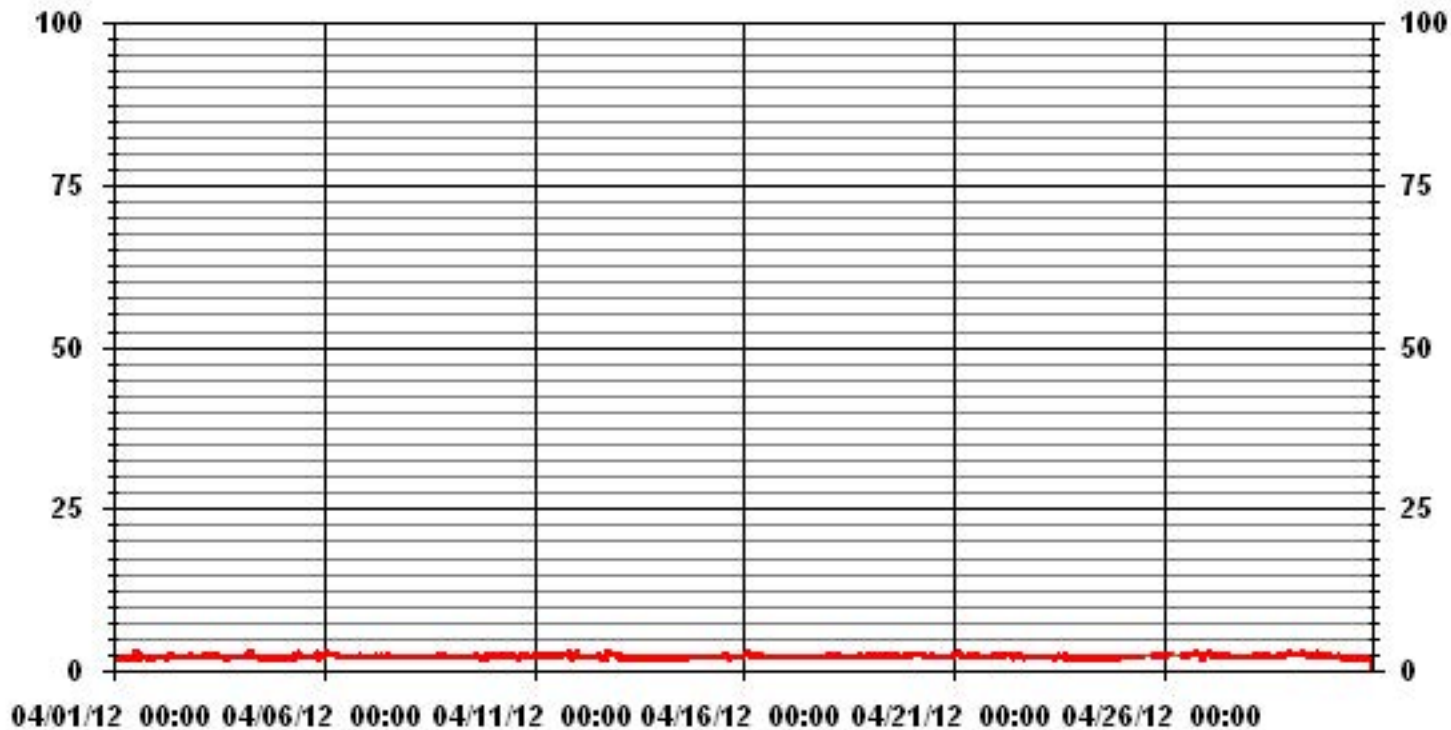
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	679					
MAXIMUM INSTANTANEOUS VALUE:	3.4	PPM	@ HOUR(S)	6	ON DAY(S)	4
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	720 HRS		
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	0.19					

01 Hour Averages



— LICA30 THCMAX PPM

LICA30
 THC / WDR Joint Frequency Distribution (Percent)

April 2012

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	4.99	12.77	14.39	8.07	10.57	7.63	7.78	3.08	3.52	7.04	3.08	2.20	2.64	3.81	4.84	3.52	100.00
< 10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.99	12.77	14.39	8.07	10.57	7.63	7.78	3.08	3.52	7.04	3.08	2.20	2.64	3.81	4.84	3.52	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	34	87	98	55	72	52	53	21	24	48	21	15	18	26	33	24	681
< 10.0																	
< 50.0																	
>= 50.0																	
Totals	34	87	98	55	72	52	53	21	24	48	21	15	18	26	33	24	

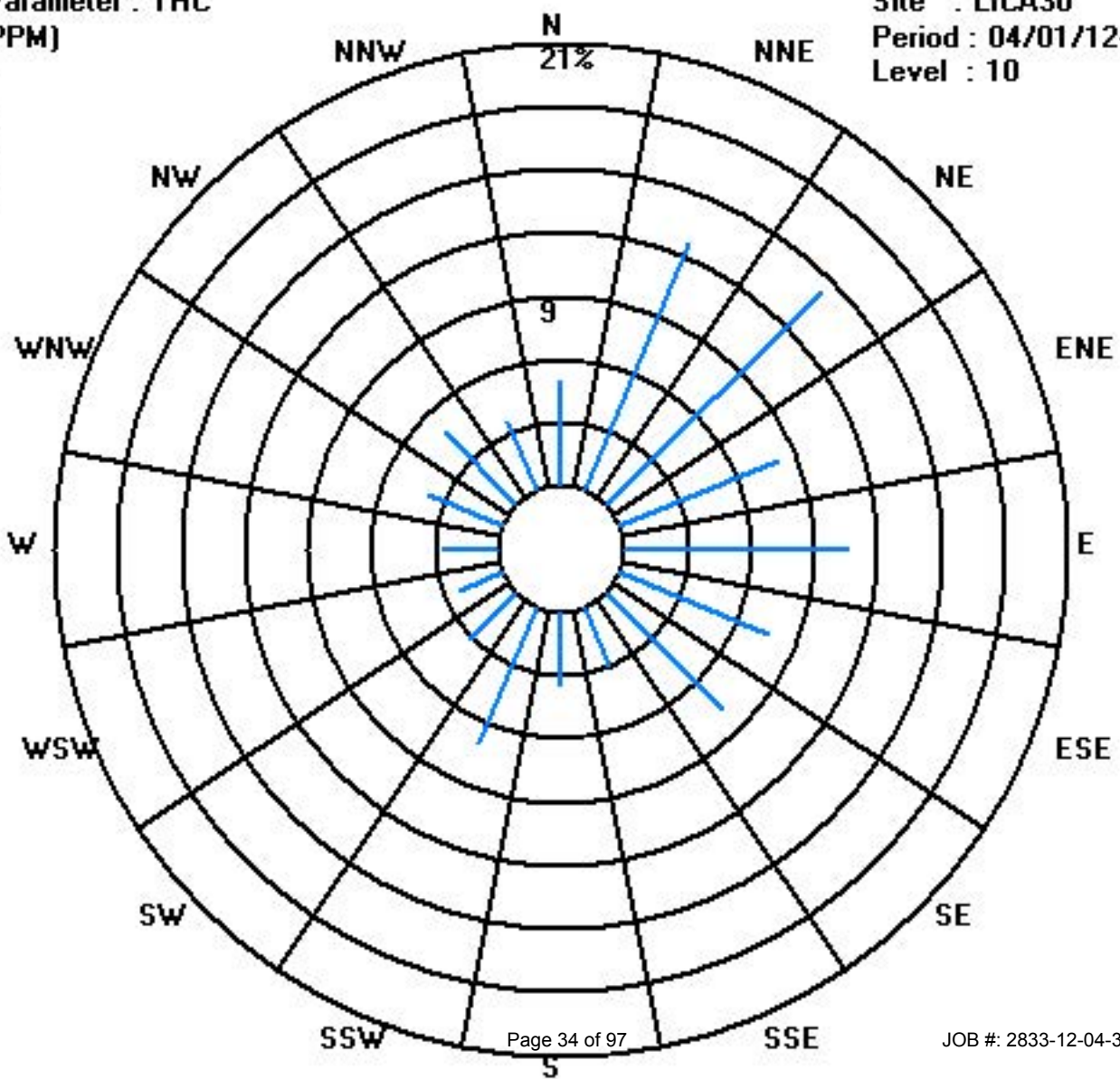
Calm : .00 %

Total # Operational Hours : 681

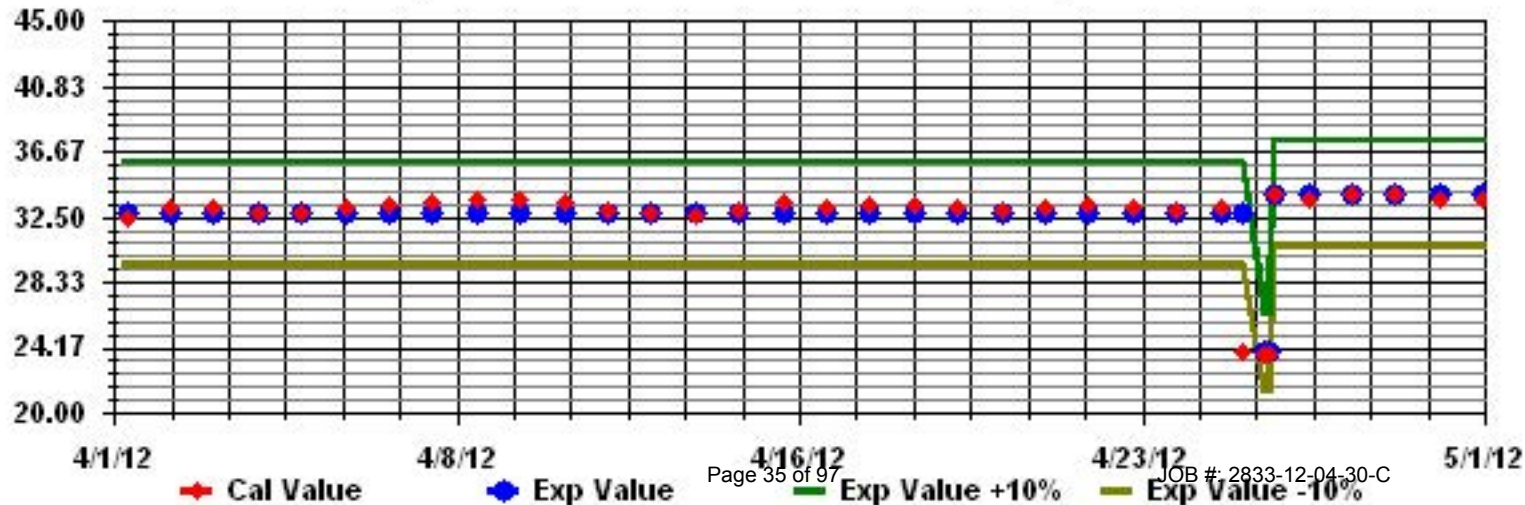
Class Limits (PPM)

Period : 04/01/12-04/30/12

Level : 10



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



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2012

NITROGEN DIOXIDE hourly averages in ppb

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
1	1	1	1	0	0	0	IZS	0	2	3	0	0	0	5	4	18	18	9	11	8	1	7	0	0	18	3.9	24	
2	1	1	1	1	1	IZS	4	2	3	1	2	1	1	1	1	1	0	1	0	0	0	0	1	1	4	1.1	24	
3	1	1	1	1	IZS	1	2	2	2	2	1	1	1	1	1	1	0	0	1	1	1	1	1	1	2	1.1	24	
4	1	1	2	IZS	3	4	6	14	4	2	3	1	1	1	1	1	1	0	0	0	0	1	1	0	14	2.1	24	
5	0	0	IZS	1	1	1	1	1	4	2	2	1	1	1	2	1	1	1	1	1	1	1	0	1	2	4	1.2	24
6	2	IZS	3	3	5	6	5	4	2	2	1	1	0	2	1	1	1	1	5	5	4	9	2	2	9	2.9	24	
7	IZS	3	0	5	10	2	8	9	2	4	3	3	4	3	4	3	6	0	0	0	2	1	2	IZS	10	3.4	24	
8	1	2	3	1	2	1	1	2	2	1	2	1	1	1	1	1	1	1	2	1	1	1	1	IZS	2	3	1.4	24
9	1	1	1	1	1	1	1	2	2	2	1	1	1	1	2	3	2	1	1	0	1	IZS	0	0	3	1.2	24	
10	0	0	0	0	0	1	2	4	3	1	1	1	1	1	3	2	4	6	2	1	IZS	1	2	1	6	1.6	24	
11	1	1	1	5	6	7	9	5	3	5	7	5	6	1	1	1	3	11	12	IZS	18	12	5	8	18	5.8	24	
12	2	2	1	1	1	1	1	1	1	1	1	1	1	6	2	1	1	1	IZS	7	14	9	11	5	14	3.6	24	
13	2	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	0	IZS	0	0	0	0	0	0	0	2	0.7	24
14	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	IZS	1	1	1	0	0	0	0	1	0.3	24	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	IZS	2	2	1	1	0	0	1	2	2	0.5	24	
16	2	4	3	3	3	4	3	2	2	2	2	2	1	1	IZS	1	1	1	1	2	1	1	1	1	4	1.9	24	
17	1	1	1	1	1	1	0	1	1	0	0	0	1	IZS	1	2	1	1	1	1	1	1	1	1	1	2	0.9	24
18	1	1	1	1	1	1	1	2	1	1	1	1	IZS	1	1	0	0	0	1	2	1	1	1	1	1	2	1.0	24
19	1	1	0	0	1	2	1	2	3	2	1	IZS	1	1	1	1	1	1	1	1	2	3	2	1	3	1.3	24	
20	2	3	2	3	2	3	2	2	1	1	IZS	3	4	1	1	1	1	1	1	1	2	1	1	2	4	1.8	24	
21	3	7	9	10	6	2	1	1	4	IZS	5	3	3	1	1	1	0	1	0	0	1	1	1	4	10	2.8	24	
22	2	2	3	5	5	4	3	2	IZS	3	1	2	2	2	0	1	1	1	0	1	0	1	0	0	5	1.8	24	
23	1	0	0	0	0	0	0	IZS	0	0	0	0	0	2	0	1	1	0	0	0	0	0	0	0	2	0.2	24	
24	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
25	0	0	0	0	0	IZS	0	0	0	0	0	0	C	C	C	C	C	C	C	0	1	1	0	0	1	0.1	24	
26	1	4	6	8	IZS	6	2	0	1	2	3	1	3	2	2	5	4	2	7	12	4	1	0	8	12	3.7	24	
27	7	11	9	IZS	3	11	2	9	6	2	2	2	1	1	0	0	0	0	0	0	0	0	1	0	11	2.9	24	
28	0	0	IZS	0	1	2	3	4	2	2	3	3	2	2	1	0	1	1	1	1	1	1	1	1	4	1.4	24	
29	1	IZS	1	1	1	2	4	2	3	3	3	5	6	2	1	3	1	1	1	0	1	1	1	1	6	2.0	24	
30	IZS	1	1	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	2	0.4	24	
HOURLY MAX	NA	11	9	10	10	11	9	14	6	5	7	5	6	6	4	18	18	11	12	12	18	12	11	8				
HOURLY AVG	NA	1.8	1.8	1.9	2.0	2.4	2.3	2.6	1.9	1.6	1.6	1.4	1.6	1.5	1.3	1.8	1.9	1.6	1.8	1.6	2.0	1.9	1.3	1.6				

STATUS FLAG CODES

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

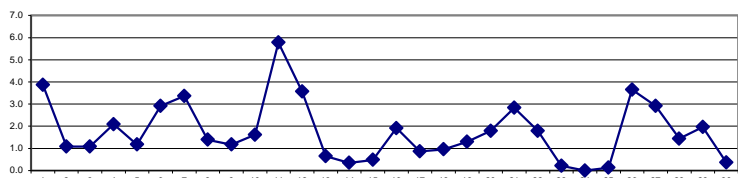
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 159 PPB

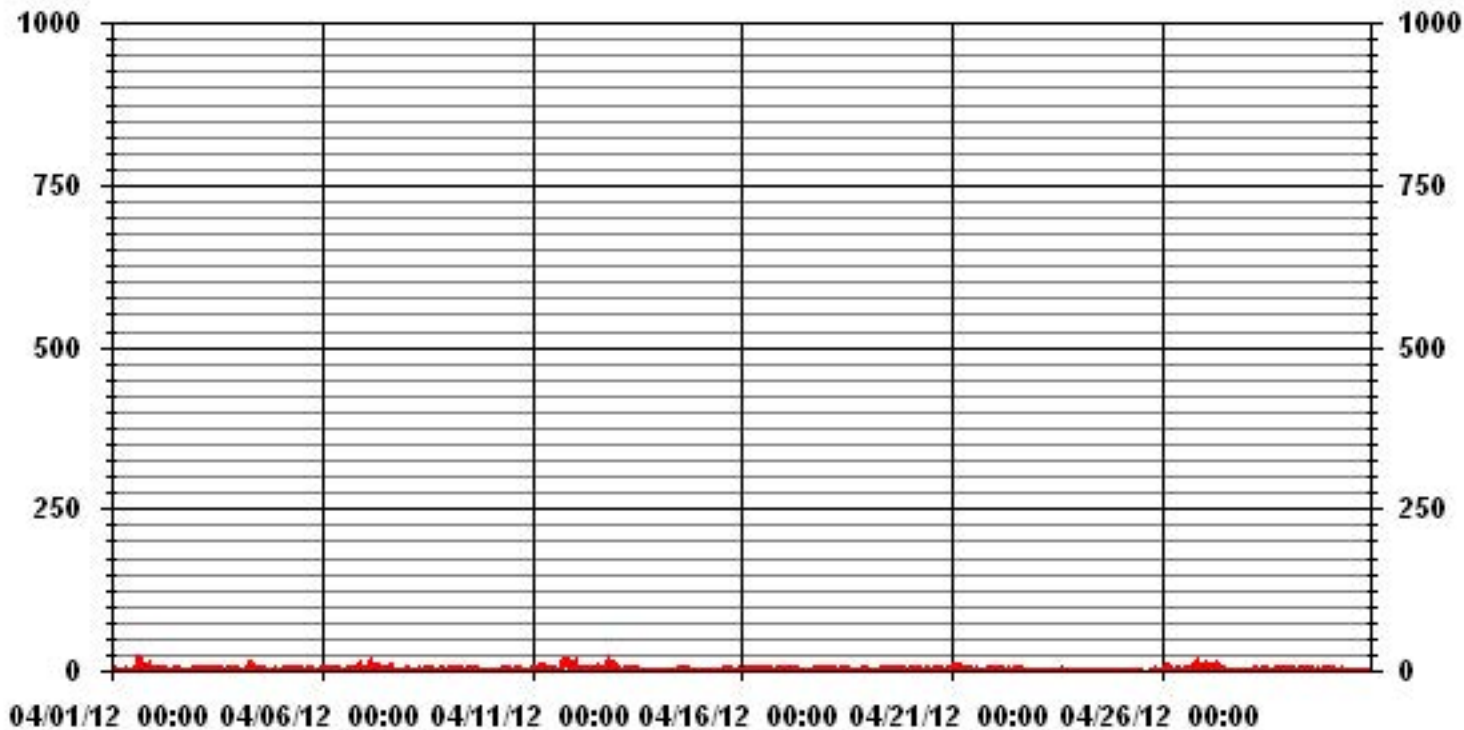
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	501					
MAXIMUM 1-HR AVERAGE:	18	PPB	@ HOUR(S)	VAR	ON DAY(S)	1, 11
MAXIMUM 24-HR AVERAGE:	5.8	PPB			ON DAY(S)	11
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	720 HRS		
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0 %		
STANDARD DEVIATION:	2.48		MONTHLY AVERAGE:	1.77 PPB		

24 HOUR AVERAGES FOR APRIL 2012



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2012

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	2	1	1	1	1	IZS	1	5	5	3	1	1	15	10	25	28	21	21	12	2	20	1	1	28	7.8	24	
2	1	1	1	1	1	IZS	7	3	4	2	2	2	13	2	2	2	1	1	1	1	1	1	1	1	13	2.3	24	
3	1	1	1	1	IZS	2	5	4	4	2	2	2	2	2	2	1	1	1	2	2	1	1	1	1	5	1.8	24	
4	1	2	3	IZS	32	23	33	19	17	4	7	3	2	3	2	1	2	1	1	1	1	1	2	1	33	7.0	24	
5	1	1	IZS	1	1	1	1	1	8	3	3	2	2	2	2	3	1	2	1	2	1	1	2	2	8	1.9	24	
6	3	IZS	4	4	8	8	9	5	3	2	2	12	1	9	1	2	3	3	14	14	15	14	8	9	15	6.7	24	
7	IZS	9	1	18	14	8	15	18	9	10	7	7	14	9	16	15	17	1	1	1	7	6	2	IZS	18	9.3	24	
8	1	3	9	4	4	2	2	6	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	IZS	2	9	2.7	24
9	2	2	2	2	1	2	3	4	4	2	2	1	3	2	3	9	4	3	2	1	2	IZS	1	1	9	2.5	24	
10	1	1	1	1	1	1	18	10	9	4	1	3	2	4	6	6	7	10	4	1	IZS	2	2	2	18	4.2	24	
11	2	2	2	8	9	12	2	8	8	8	10	10	9	5	1	2	8	16	17	IZS	23	17	11	14	23	8.9	24	
12	20	3	2	2	2	2	2	2	2	2	2	2	3	11	4	2	2	2	2	IZS	20	19	13	20	12	20	6.6	24
13	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	8	1.3	24
14	1	1	1	1	1	1	1	1	1	2	1	1	2	2	3	2	IZS	2	2	2	2	1	1	1	3	1.4	24	
15	1	1	1	1	1	1	1	1	1	1	1	1	1	3	5	IZS	3	3	1	1	1	1	1	1	5	5	1.6	24
16	3	4	4	5	7	8	5	4	3	2	3	2	2	2	IZS	2	2	1	2	2	2	2	2	1	8	3.0	24	
17	2	2	2	2	1	1	1	2	2	1	1	1	6	IZS	3	4	3	2	1	1	2	1	2	2	6	2.0	24	
18	2	2	2	2	1	17	2	3	2	1	2	4	IZS	9	1	1	1	1	4	3	2	2	2	2	17	3.0	24	
19	2	6	2	1	5	5	3	3	5	7	2	IZS	2	3	3	2	2	1	2	4	4	4	2	2	7	3.1	24	
20	3	3	3	4	3	3	3	3	2	2	IZS	9	9	2	1	1	2	2	1	1	8	2	2	4	9	3.2	24	
21	5	9	12	13	9	4	3	2	7	IZS	20	9	9	5	3	6	2	3	1	2	4	4	1	32	7.2	24		
22	10	7	6	8	6	7	8	3	IZS	6	3	5	7	7	1	3	2	3	1	2	1	1	1	1	10	4.3	24	
23	1	1	1	1	1	1	1	IZS	1	1	1	1	2	9	2	4	5	1	1	1	1	1	1	1	9	1.7	24	
24	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1.0	24	
25	1	1	1	1	1	IZS	1	1	1	1	1	1	C	C	C	C	C	C	C	C	6	5	2	1	6	1.7	24	
26	4	13	13	12	IZS	10	6	2	2	5	8	2	6	5	6	10	9	6	13	17	16	2	1	17	17	8.0	24	
27	17	17	18	IZS	9	15	4	13	13	3	3	6	3	3	1	1	1	1	1	1	1	1	1	1	18	5.8	24	
28	1	1	IZS	1	2	4	6	15	4	4	4	5	3	3	1	1	2	2	2	2	2	2	2	2	15	3.1	24	
29	2	IZS	2	2	2	4	7	3	4	4	7	9	10	4	3	11	3	4	3	1	1	1	1	2	11	3.9	24	
30	IZS	2	2	2	2	6	2	3	1	1	1	1	0	0	1	1	0	0	1	1	0	1	0	1	6	1.3	24	
HOURLY MAX	20	17	18	18	32	23	33	19	17	10	20	12	14	15	16	25	28	21	21	20	23	20	20	32				
HOURLY AVG	3.5	3.5	3.5	3.6	4.5	5.4	5.4	4.9	4.3	3.1	3.6	3.7	4.3	4.5	3.1	4.3	4.1	3.4	3.6	3.6	4.5	3.8	2.6	4.4				

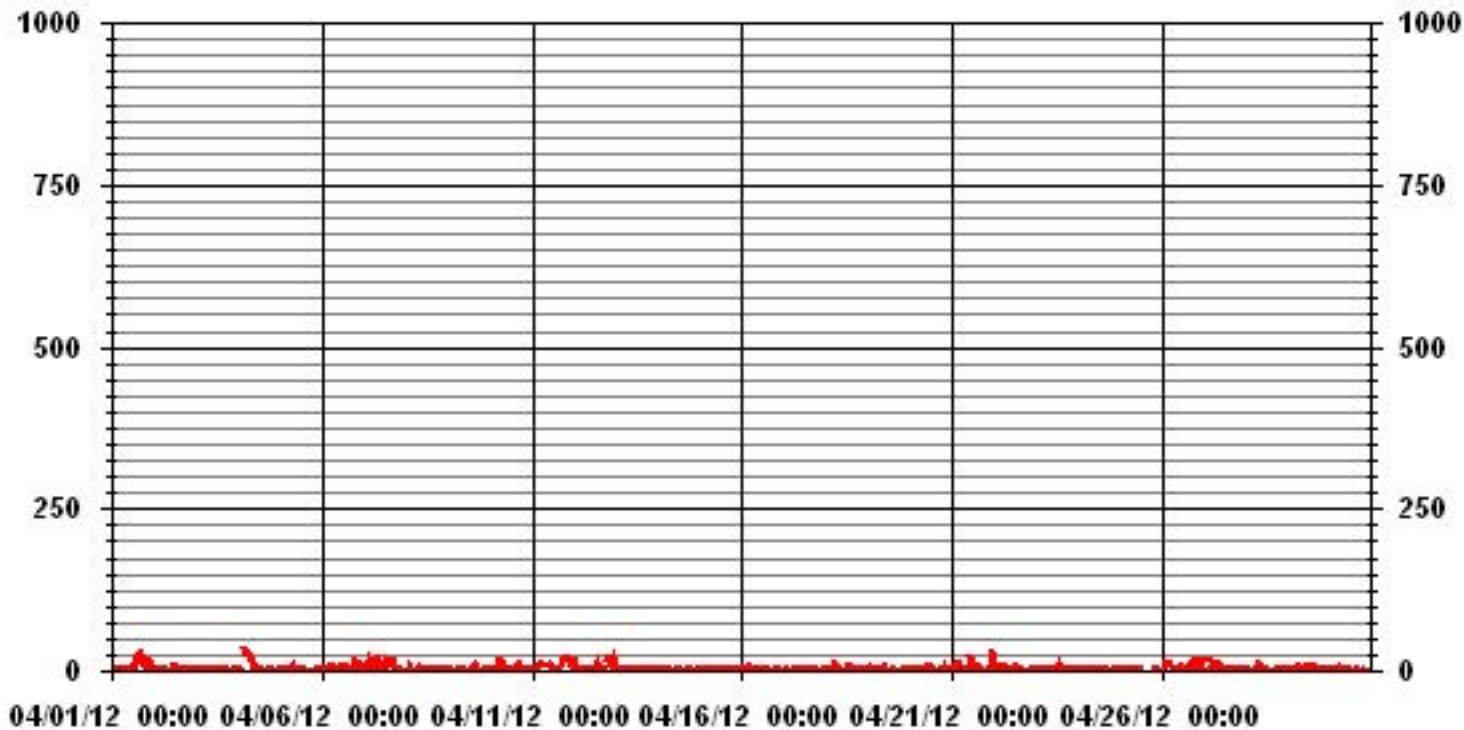
STATUS FLAG CODES

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:	674
MAXIMUM INSTANTANEOUS VALUE:	33 PPB @ HOUR(S) 6 ON DAY(S) 4
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION:	4.86
OPERATIONAL TIME:	720 HRS

01 Hour Averages



— LICA30 NO2MAX PPB

LICA30
 NO2_ / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	4.99	12.77	14.39	8.07	10.71	7.48	7.78	3.08	3.52	7.04	3.08	2.20	2.64	3.81	4.84	3.52	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.99	12.77	14.39	8.07	10.71	7.48	7.78	3.08	3.52	7.04	3.08	2.20	2.64	3.81	4.84	3.52	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	34	87	98	55	73	51	53	21	24	48	21	15	18	26	33	24	681
< 110																	
< 210																	
>= 210																	
Totals	34	87	98	55	73	51	53	21	24	48	21	15	18	26	33	24	

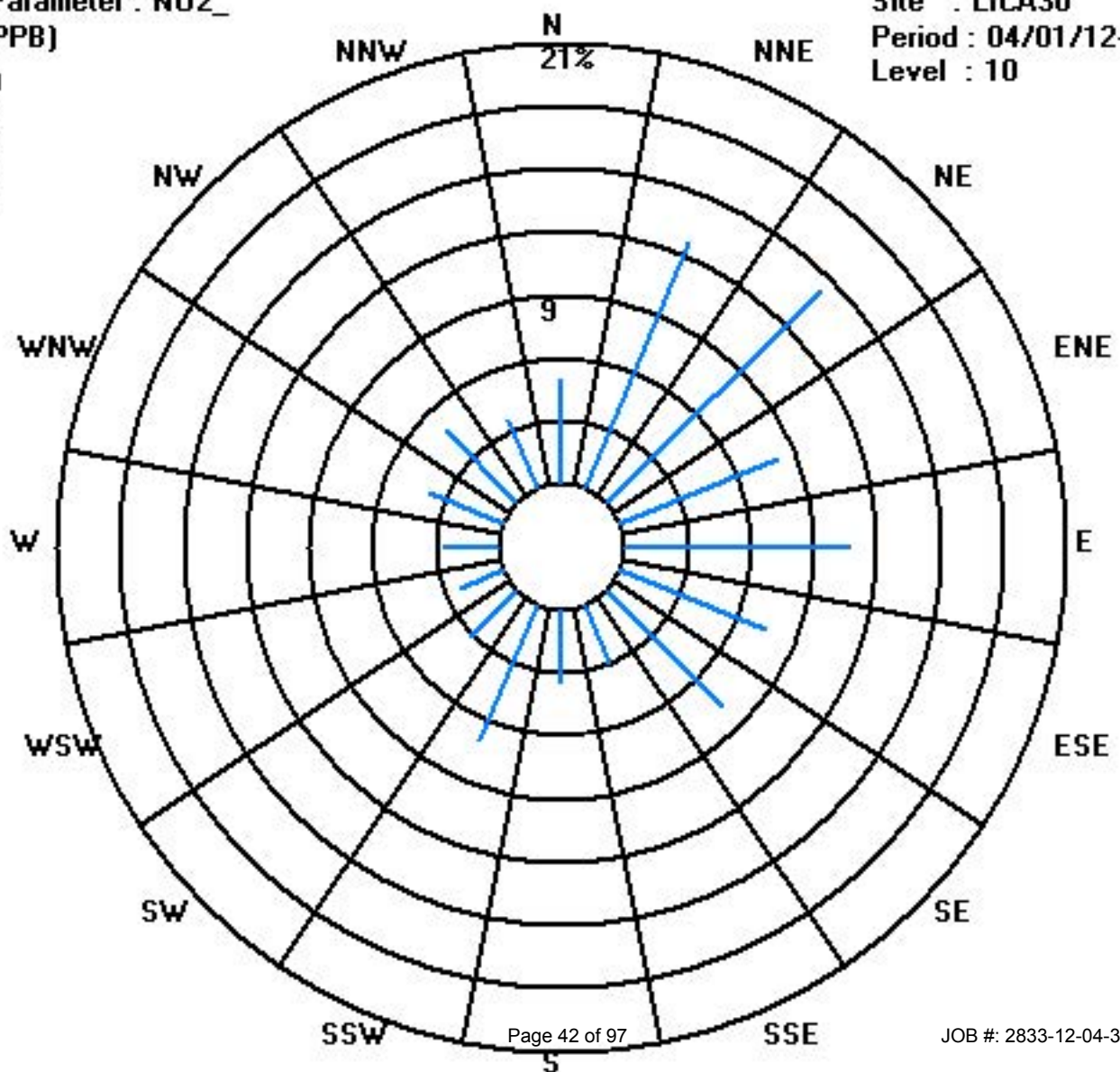
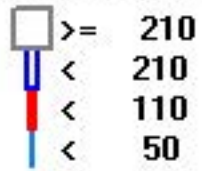
Calm : .00 %

Total # Operational Hours : 681

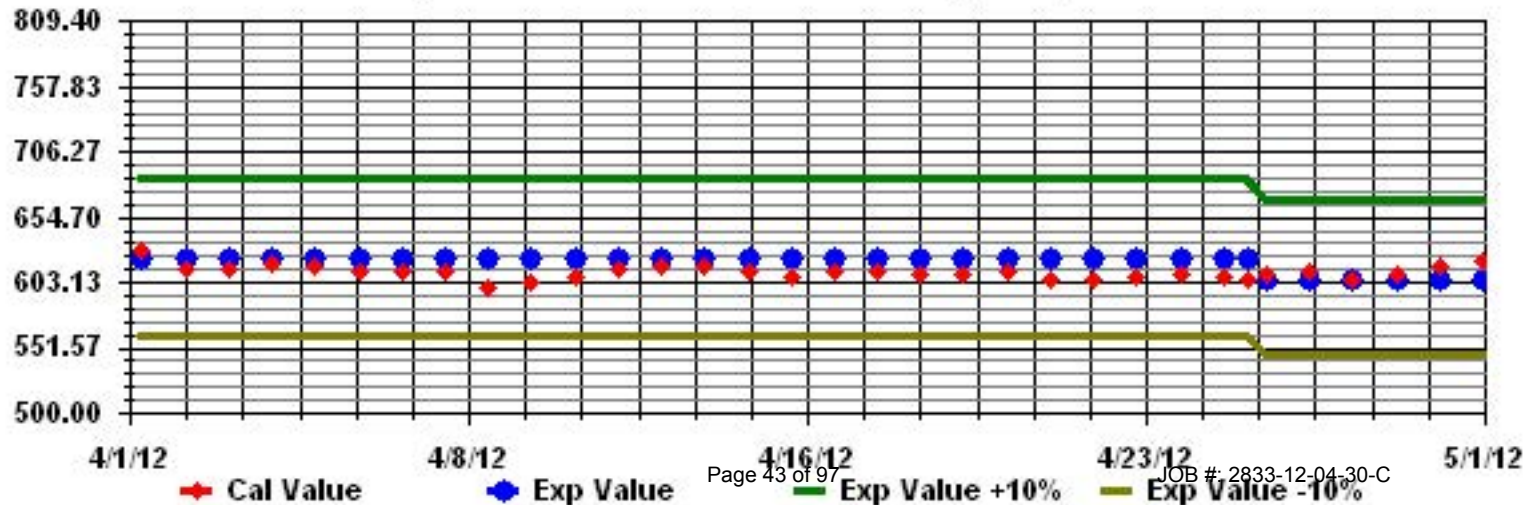
Class Limits (PPB)

Period : 04/01/12-04/30/12

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOICATION - MASKWA

APRIL 2012

NITRIC OXIDE hourly averages in ppb

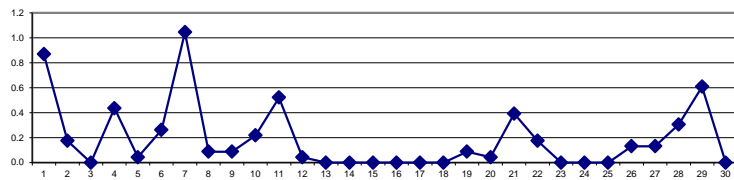
MST

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

STATUS FLAG CODES

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

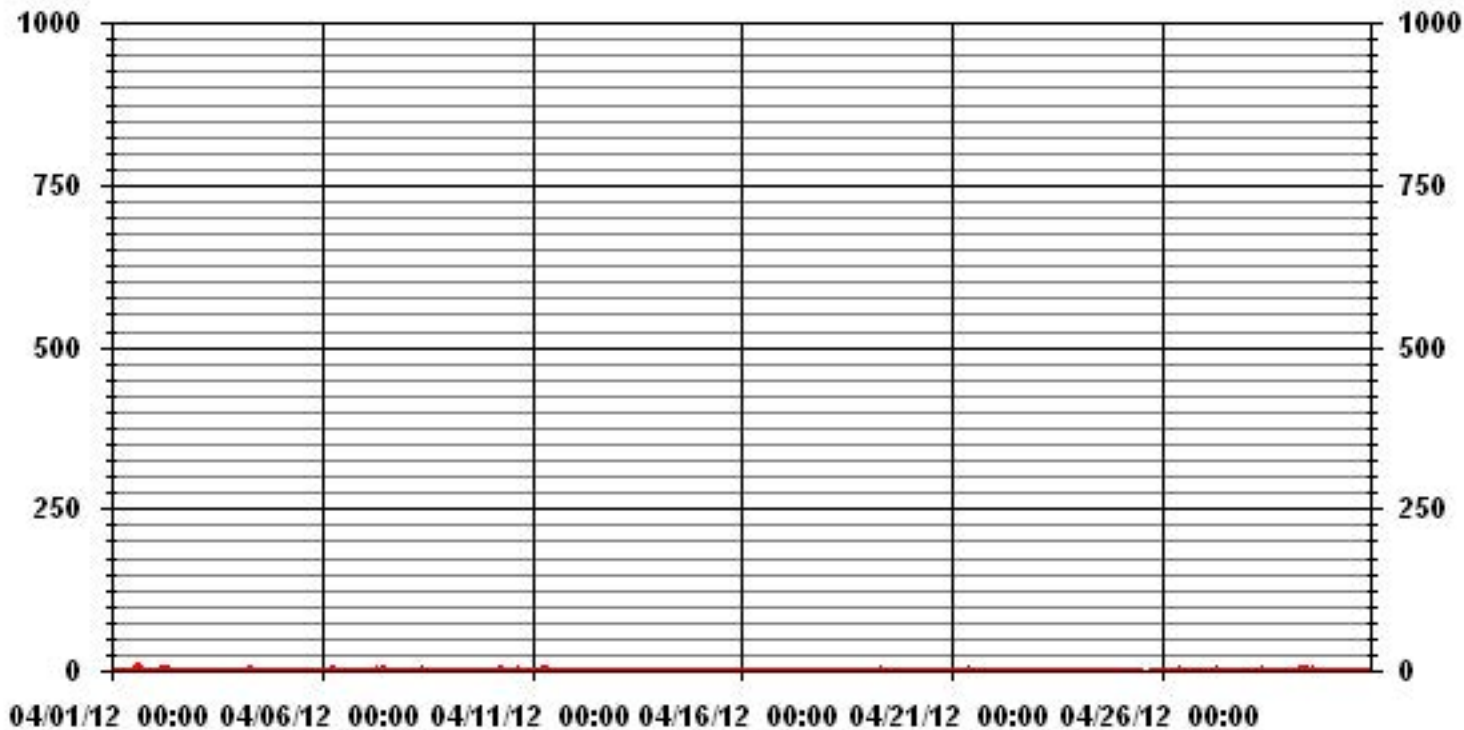
24 HOUR AVERAGES FOR APRIL 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	85		
MAXIMUM 1-HR AVERAGE:	7 PPB	@ HOUR(S)	15, 16
MAXIMUM 24-HR AVERAGE:	1.0 PPB	ON DAY(S)	7
IZS CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	720 HRS
MONTHLY CALIBRATION TIME:	7 HRS	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.64	MONTHLY AVERAGE:	0.19 PPB

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2012

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	IZS	0	1	1	0	0	0	6	3	12	13	12	6	2	1	3	0	1	13	2.7	24	
2	0	0	0	0	0	IZS	2	2	2	2	2	1	18	1	0	1	0	0	0	0	0	0	0	0	18	1.3	24	
3	0	1	0	0	IZS	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	0.5	24	
4	0	1	0	IZS	28	24	39	9	8	2	2	1	0	1	0	0	0	0	0	0	0	1	1	0	39	5.1	24	
5	1	1	IZS	0	1	0	0	0	3	1	1	1	1	1	1	1	0	0	0	0	1	0	0	0	3	0.6	24	
6	0	IZS	1	1	2	2	4	2	1	1	1	11	1	6	1	1	1	0	3	3	2	2	1	2	11	2.1	24	
7	IZS	2	1	4	3	2	6	9	7	7	4	5	9	11	11	7	8	1	0	0	1	1	0	IZS	11	4.5	24	
8	0	0	1	1	0	1	1	2	1	2	2	1	1	1	1	1	1	0	1	1	1	1	IZS	1	2	1.0	24	
9	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	4	1	1	1	0	0	IZS	1	0	4	1.0	24	
10	1	1	0	1	1	1	18	3	3	1	1	2	1	1	3	2	1	2	1	1	IZS	1	1	1	18	2.1	24	
11	1	1	1	1	0	1	2	2	3	4	5	4	4	2	0	0	1	2	1	IZS	1	1	1	1	5	1.7	24	
12	1	0	0	1	1	0	0	0	1	1	1	1	1	3	1	0	1	0	IZS	1	1	1	1	1	3	0.8	24	
13	1	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	IZS	1	1	0	0	1	1	1	0.3	24	
14	1	0	0	0	0	1	1	0	1	0	0	0	1	1	1	1	IZS	1	0	0	0	1	0	0	1	0.4	24	
15	0	1	1	0	1	0	0	0	1	1	0	1	1	1	2	IZS	1	1	1	1	0	0	1	1	2	0.7	24	
16	1	1	1	0	2	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	0	0	1	1	1	1	2	0.9	24
17	1	0	0	0	1	1	0	1	1	0	1	1	3	IZS	2	2	1	1	1	0	0	1	1	1	3	0.9	24	
18	1	1	0	1	1	15	1	1	1	1	1	1	IZS	3	1	1	0	0	0	1	0	1	0	1	15	1.4	24	
19	0	1	1	1	2	2	1	2	2	4	1	IZS	1	1	1	1	1	0	0	0	1	0	1	0	4	1.0	24	
20	0	0	1	1	1	0	1	1	1	1	IZS	2	2	0	0	1	0	1	0	1	8	0	0	1	8	1.0	24	
21	1	1	1	6	1	1	1	2	3	IZS	21	6	5	2	1	3	0	1	0	0	0	1	0	22	3.4	24		
22	1	1	1	1	1	1	12	1	IZS	3	1	1	2	2	0	0	1	0	0	0	0	0	0	0	12	1.3	24	
23	1	1	0	0	0	1	0	IZS	1	1	0	0	0	2	0	1	1	0	0	0	0	0	0	0	2	0.4	24	
24	0	0	0	0	0	0	IZS	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0.1	24	
25	0	0	0	0	0	IZS	1	0	1	0	0	1	C	C	C	C	C	C	C	C	1	1	0	0	1	0.3	24	
26	0	1	1	2	IZS	1	1	1	0	2	3	1	2	2	1	2	1	0	1	2	1	0	0	1	3	1.1	24	
27	1	2	2	IZS	1	3	0	3	3	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	3	0.8	24	
28	0	0	IZS	0	0	0	1	18	1	4	3	3	2	3	0	0	0	0	0	0	0	0	0	0	18	1.5	24	
29	0	IZS	1	1	1	1	2	2	2	2	4	5	6	3	2	3	1	1	1	1	1	1	1	1	6	1.9	24	
30	IZS	0	0	0	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	5	0.3	24	
HOURLY MAX	1	2	2	6	28	24	39	18	8	7	21	11	18	11	11	12	13	12	6	3	8	3	1	22				
HOURLY AVG	0.5	0.6	0.5	0.9	1.8	2.3	3.5	2.3	1.8	1.6	2.0	1.8	2.3	2.1	1.2	1.6	1.3	0.9	0.6	0.5	0.7	0.6	0.4	1.4				

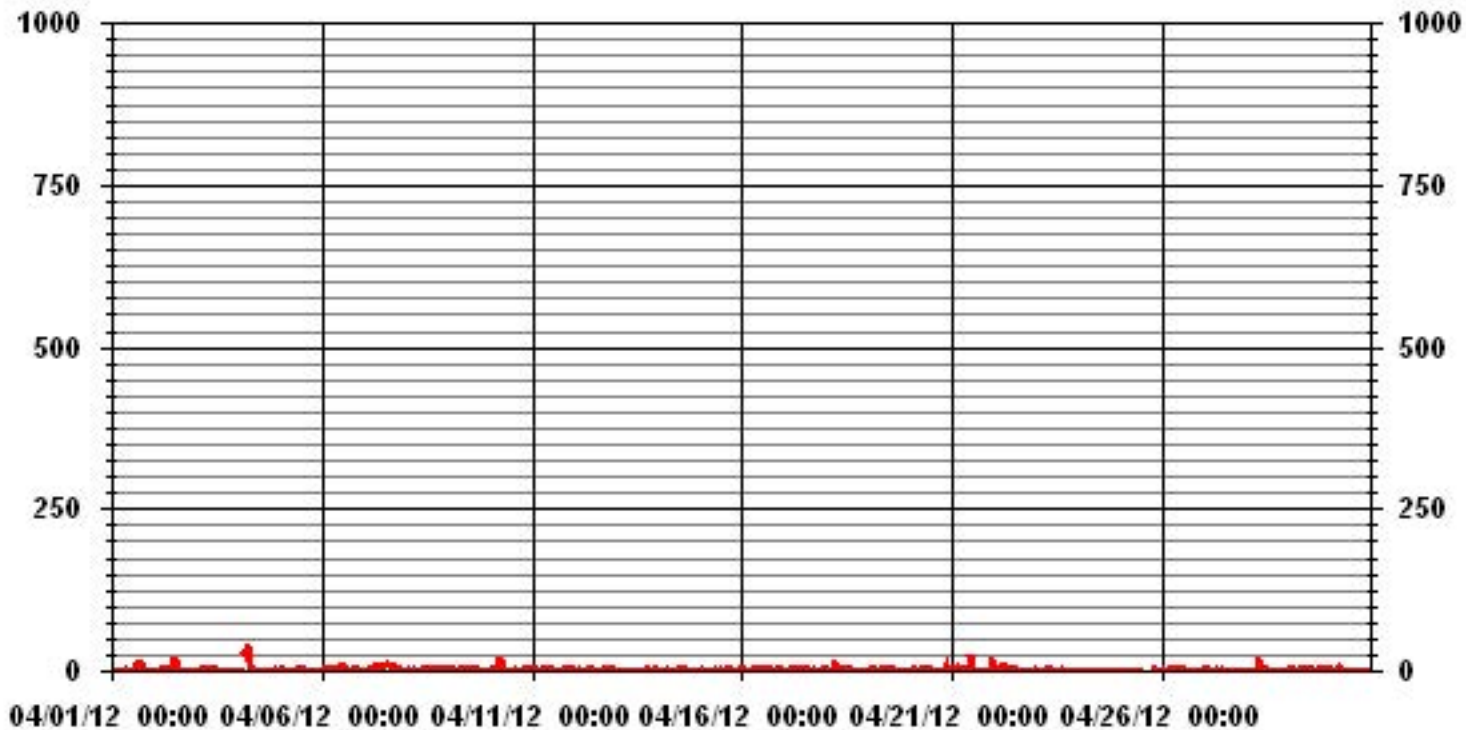
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	418
MAXIMUM INSTANTANEOUS VALUE:	39 PPB @ HOUR(S) 6 ON DAY(S) 4
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION:	3.10
OPERATIONAL TIME:	720 HRS

01 Hour Averages



LICA30
 NO_ / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	4.99	12.77	14.39	8.07	10.71	7.48	7.78	3.08	3.52	7.04	3.08	2.20	2.64	3.81	4.84	3.52	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.99	12.77	14.39	8.07	10.71	7.48	7.78	3.08	3.52	7.04	3.08	2.20	2.64	3.81	4.84	3.52	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	34	87	98	55	73	51	53	21	24	48	21	15	18	26	33	24	681
< 110																	
< 210																	
>= 210																	
Totals	34	87	98	55	73	51	53	21	24	48	21	15	18	26	33	24	

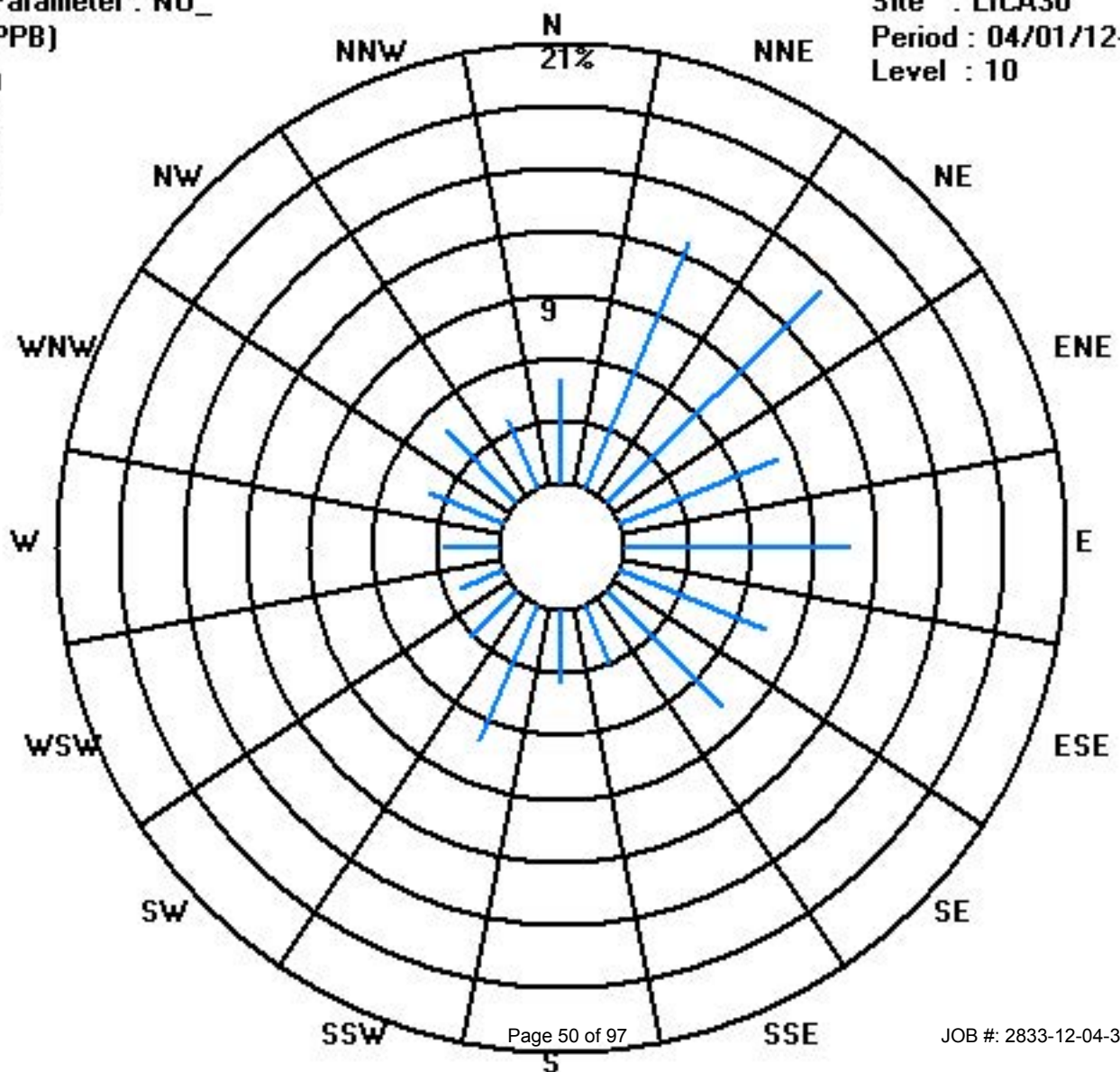
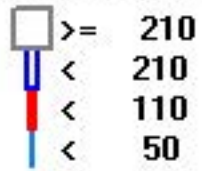
Calm : .00 %

Total # Operational Hours : 681

Class Limits (PPB)

Period : 04/01/12-04/30/12

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2012

OXIDES OF NITROGEN hourly averages in ppb

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR			
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	0	0	0	0	0	0	IZS	1	3	4	1	1	1	7	6	26	25	13	14	9	1	8	1	1	26	5.3	24	
2	1	1	1	1	1	IZS	5	3	4	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	5	1.1	24	
3	0	1	0	0	IZS	2	3	3	4	3	3	2	2	2	1	2	1	1	2	1	1	1	1	1	4	1.6	24	
4	2	2	3	IZS	3	5	8	19	6	2	3	1	1	1	0	0	1	0	0	0	0	0	0	0	19	2.5	24	
5	0	0	IZS	0	0	0	0	0	5	2	2	1	1	1	2	2	0	0	0	0	0	0	1	2	5	0.8	24	
6	2	IZS	3	3	5	6	6	5	2	2	1	1	0	3	0	0	1	1	5	6	4	9	2	2	9	3.0	24	
7	IZS	3	0	5	11	2	10	13	3	6	4	5	7	5	7	4	8	0	0	2	1	1	IZS	13	4.4	24		
8	0	1	3	1	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	IZS	1	3	1.3	24	
9	1	1	1	1	0	1	1	3	2	2	1	0	1	1	2	4	2	1	0	0	0	IZS	0	0	4	1.1	24	
10	0	0	0	0	0	0	3	5	3	1	0	1	1	1	3	3	5	7	2	1	IZS	1	1	1	7	1.7	24	
11	1	1	1	5	6	7	10	6	4	7	9	6	8	1	1	1	3	12	13	IZS	19	12	5	8	19	6.3	24	
12	12	1	1	1	1	1	1	1	1	1	1	1	1	7	2	1	1	1	IZS	9	16	10	12	6	16	3.9	24	
13	3	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	3	0.9	24	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	IZS	0	0	0	0	0	0	0	1	0.1	24	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	IZS	3	2	1	0	0	0	0	0	2	3	0.4	24
16	2	3	3	3	3	4	3	3	2	2	2	2	1	1	IZS	1	1	1	1	1	1	1	1	1	0	4	1.8	24
17	1	0	1	0	0	0	0	1	1	0	0	0	1	IZS	1	2	1	1	1	1	1	0	0	0	2	0.6	24	
18	1	1	0	1	0	2	1	2	2	1	1	2	IZS	1	1	0	0	0	1	2	1	1	1	1	2	1.0	24	
19	0	1	0	0	1	2	2	3	4	2	1	IZS	1	1	2	1	1	1	1	1	2	3	1	1	4	1.4	24	
20	1	2	2	3	2	2	2	2	1	1	IZS	4	4	1	0	0	0	1	0	0	2	0	1	2	4	1.4	24	
21	3	7	9	11	6	2	1	1	5	IZS	9	5	5	2	1	1	0	1	0	0	0	1	0	5	11	3.3	24	
22	2	2	3	4	4	5	5	3	IZS	3	1	3	3	2	0	0	0	1	0	0	0	0	0	0	5	1.8	24	
23	0	0	0	0	0	0	0	IZS	0	0	0	0	0	2	0	1	1	0	0	0	0	0	0	0	2	0.2	24	
24	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
25	0	0	0	0	0	IZS	0	0	0	0	0	0	C	C	C	C	C	C	C	C	0	1	1	0	0	1	0.1	24
26	1	5	7	8	IZS	6	2	0	1	3	5	1	4	2	2	5	4	1	8	13	4	1	0	9	13	4.0	24	
27	8	12	10	IZS	3	12	2	10	6	2	2	3	1	1	0	0	0	0	0	0	0	0	0	0	12	3.1	24	
28	0	0	IZS	0	1	2	4	6	2	4	5	5	3	2	0	0	0	0	1	1	0	1	1	1	6	1.7	24	
29	1	IZS	1	0	1	2	4	2	3	4	3	8	9	3	2	3	1	1	1	0	0	0	0	1	9	2.2	24	
30	IZS	1	1	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	2	0.4	24	
HOURLY MAX	12	12	10	11	11	12	10	19	6	7	9	8	9	7	7	26	25	13	14	13	19	12	12	9				
HOURLY AVG	1.5	1.6	1.8	1.8	1.9	2.4	2.7	3.3	2.3	2.0	2.0	2.0	2.1	1.8	1.3	2.1	2.2	1.7	1.9	1.6	1.9	1.8	1.0	1.6				

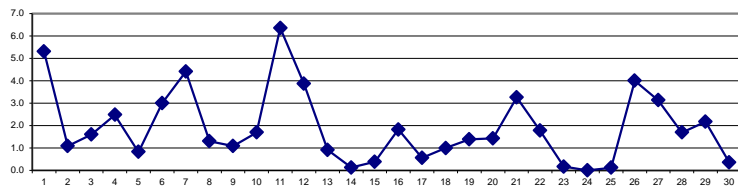
STATUS FLAG CODES

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

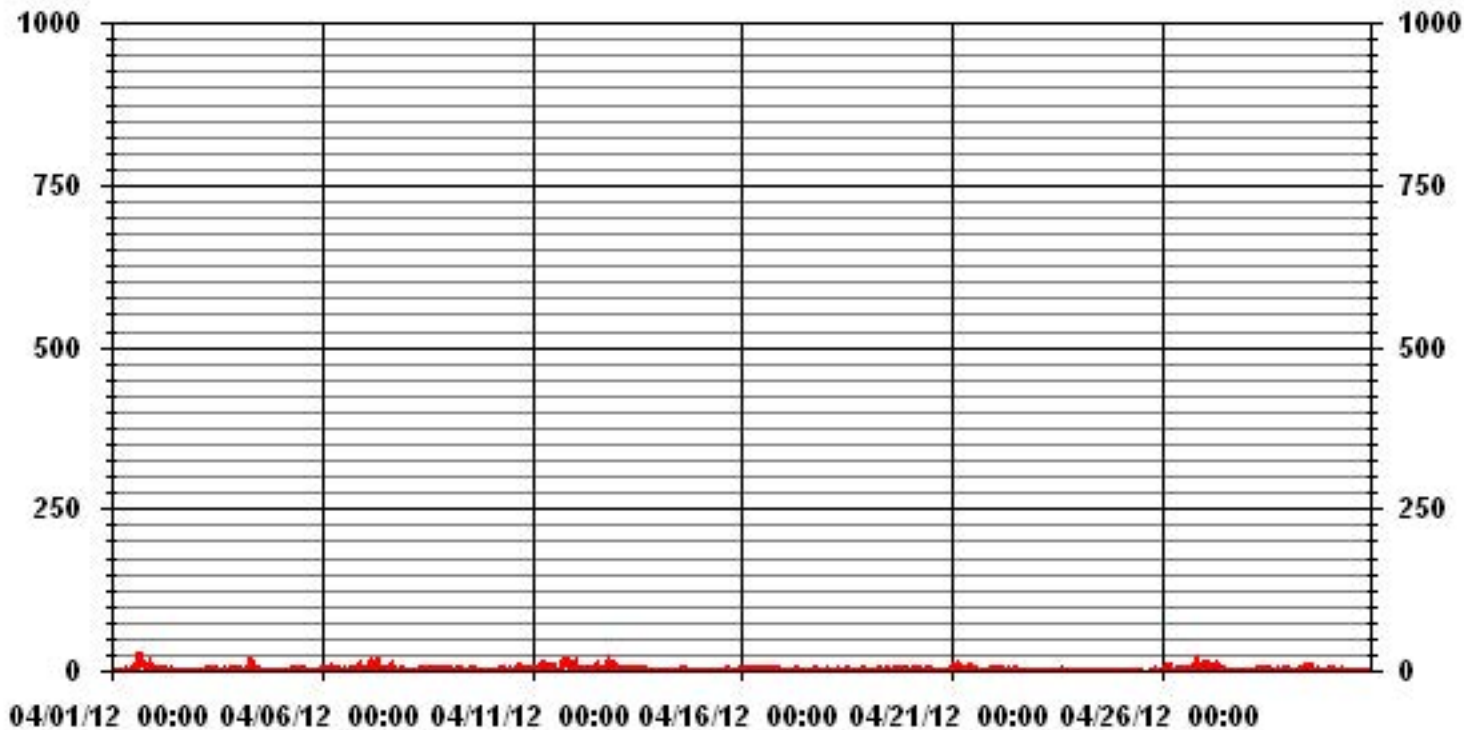
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	437
MAXIMUM 1-HR AVERAGE:	26 PPB @ HOUR(S) 15 ON DAY(S) 1
MAXIMUM 24-HR AVERAGE:	6.3 PPB ON DAY(S) 11
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	3.03
OPERATIONAL TIME:	720 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	1.93 PPB

24 HOUR AVERAGES FOR APRIL 2012



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2012

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	1	1	1	1	0	1	IZS	2	7	7	3	1	1	22	14	37	42	30	27	15	3	23	2	2	42	10.6	24	
2	2	2	2	2	2	IZS	8	5	5	4	4	3	25	2	2	3	0	1	1	1	1	1	1	1	25	3.4	24	
3	1	1	1	1	IZS	3	6	5	6	4	3	3	3	2	2	2	2	3	2	2	2	2	2	2	6	2.7	24	
4	2	3	4	IZS	60	41	68	27	25	6	9	3	2	3	1	1	1	0	1	1	1	1	1	1	68	11.4	24	
5	1	1	IZS	1	1	1	1	1	11	3	3	2	2	2	3	3	1	1	1	1	1	1	2	2	11	2.0	24	
6	3	IZS	4	5	9	10	11	7	3	3	2	23	2	14	2	2	4	3	16	17	16	16	9	11	23	8.3	24	
7	IZS	12	1	22	16	10	21	27	16	17	10	12	22	15	27	21	24	1	1	0	8	6	2	IZS	27	13.2	24	
8	1	3	10	4	4	2	2	8	3	4	5	3	2	2	2	2	2	2	2	2	2	2	IZS	2	10	3.1	24	
9	2	2	2	2	1	1	3	5	5	3	2	1	3	3	3	12	5	3	2	1	1	IZS	1	1	12	2.8	24	
10	1	1	1	1	1	1	35	13	11	4	1	4	3	5	8	7	7	12	4	1	IZS	2	2	2	35	5.5	24	
11	1	1	2	8	9	12	13	9	11	11	14	14	12	6	1	1	9	17	18	IZS	24	17	11	14	24	10.2	24	
12	20	3	2	2	2	1	1	2	1	2	2	1	3	14	5	1	1	1	IZS	22	21	14	21	13	22	6.7	24	
13	8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	IZS	1	1	1	0	1	1	8	1.9	24	
14	1	1	1	1	1	0	1	1	1	1	1	1	2	2	3	2	IZS	2	2	2	2	1	1	1	0	3	1.3	24
15	1	1	1	0	1	0	1	1	1	1	1	1	1	4	7	IZS	3	4	1	1	1	1	1	5	7	1.7	24	
16	3	4	4	4	8	9	5	4	4	3	3	2	2	3	IZS	2	2	1	2	2	2	2	2	1	9	3.2	24	
17	1	2	2	1	1	1	1	2	2	1	1	1	8	IZS	4	5	3	2	1	1	1	1	1	1	8	1.9	24	
18	1	2	1	3	1	27	1	3	3	1	2	5	IZS	11	1	1	1	1	4	3	1	2	2	2	27	3.4	24	
19	1	6	1	1	7	7	3	5	5	9	2	IZS	2	3	4	3	2	2	1	3	4	4	2	2	9	3.4	24	
20	3	3	3	3	3	3	3	3	2	1	IZS	11	11	2	1	1	1	2	1	1	14	2	1	4	14	3.4	24	
21	5	9	11	18	9	4	3	4	10	IZS	41	15	13	6	4	8	2	4	0	2	4	4	1	53	53	10.0	24	
22	11	6	6	8	6	7	19	4	IZS	8	4	6	8	9	1	3	2	3	1	2	1	1	1	0	19	5.1	24	
23	1	1	1	0	1	0	1	IZS	1	1	0	1	2	10	2	5	5	0	0	0	0	1	1	0	10	1.5	24	
24	1	0	1	1	1	1	IZS	1	1	0	1	0	0	0	0	0	1	1	0	0	0	1	1	1	1	0.6	24	
25	0	0	0	0	1	IZS	1	0	0	1	0	1	C	C	C	C	C	C	C	C	C	7	6	2	1	7	1.3	24
26	4	14	14	13	IZS	10	7	2	2	7	11	3	8	7	6	12	10	7	14	18	17	2	1	17	18	9.0	24	
27	18	18	19	IZS	10	18	4	16	16	4	4	7	3	4	1	0	0	0	0	0	0	0	1	1	19	6.3	24	
28	1	1	IZS	1	2	3	7	31	4	8	7	7	4	6	1	1	1	1	1	1	1	2	1	1	31	4.0	24	
29	2	IZS	2	1	2	5	7	4	5	5	10	14	15	5	3	13	4	4	3	1	1	1	1	2	15	4.8	24	
30	IZS	1	2	2	2	11	2	4	1	1	1	1	0	0	0	1	1	1	0	0	0	0	0	IZS	11	1.4	24	
HOURLY MAX	20	18	19	22	60	41	68	31	25	17	41	23	25	22	27	37	42	30	27	22	24	23	21	53				
HOURLY AVG	3.5	3.6	3.6	3.9	5.8	6.8	8.5	6.8	5.7	4.2	5.1	5.1	5.8	5.9	3.9	5.4	4.9	3.9	3.8	3.6	4.7	4.0	2.6	5.1				

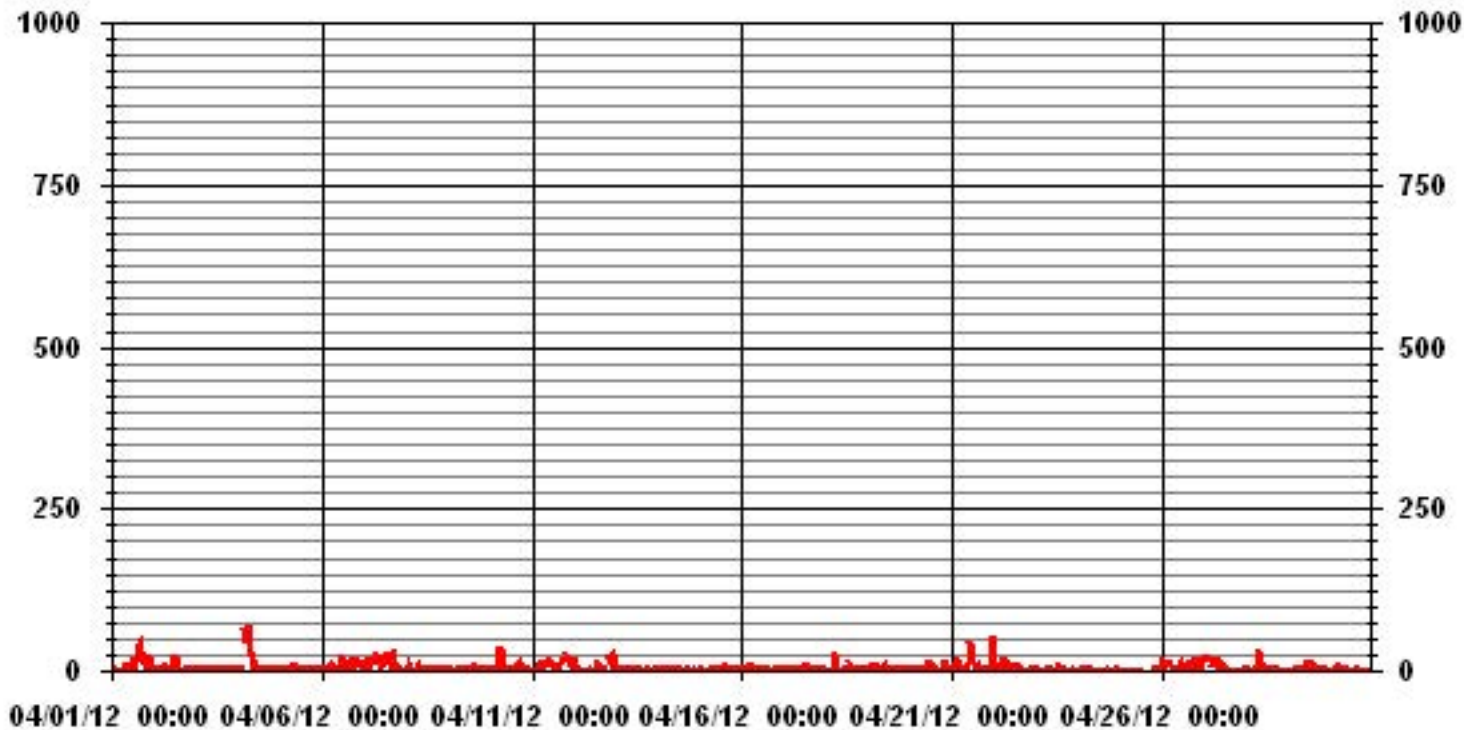
STATUS FLAG CODES

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:	629		
MAXIMUM INSTANTANEOUS VALUE:	68 PPB @ HOUR(S) 6 ON DAY(S) 4		
IZS CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	720 HRS
MONTHLY CALIBRATION TIME:	8 HRS		
STANDARD DEVIATION:	7.26		

01 Hour Averages



LICA30
 NOX_ / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	4.99	12.77	14.39	8.07	10.71	7.48	7.78	3.08	3.52	7.04	3.08	2.20	2.64	3.81	4.84	3.52	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.99	12.77	14.39	8.07	10.71	7.48	7.78	3.08	3.52	7.04	3.08	2.20	2.64	3.81	4.84	3.52	

Calm : .00 %

Total # Operational Hours : 681

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	34	87	98	55	73	51	53	21	24	48	21	15	18	26	33	24	681
< 110																	
< 210																	
>= 210																	
Totals	34	87	98	55	73	51	53	21	24	48	21	15	18	26	33	24	

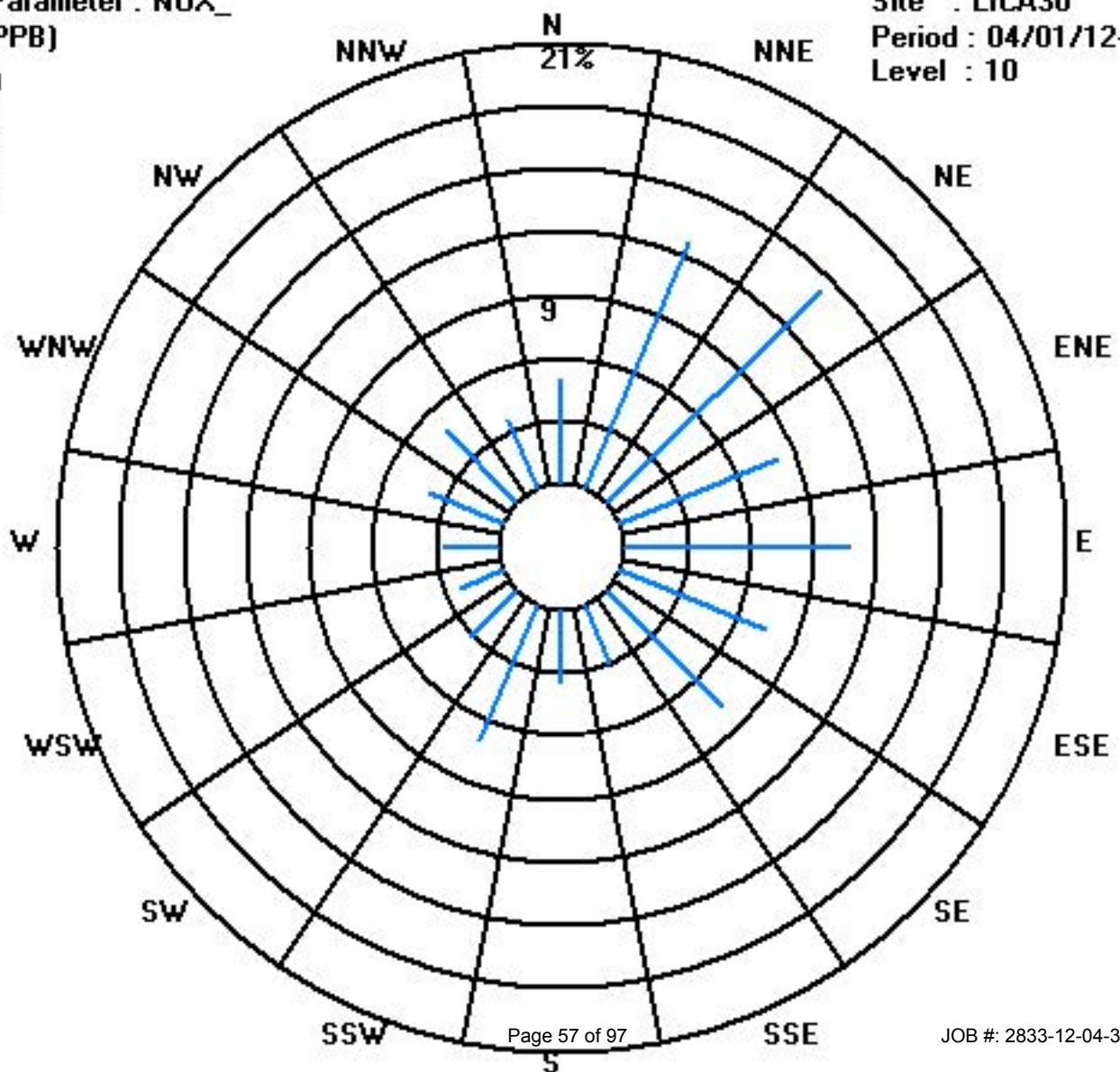
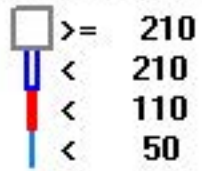
Calm : .00 %

Total # Operational Hours : 681

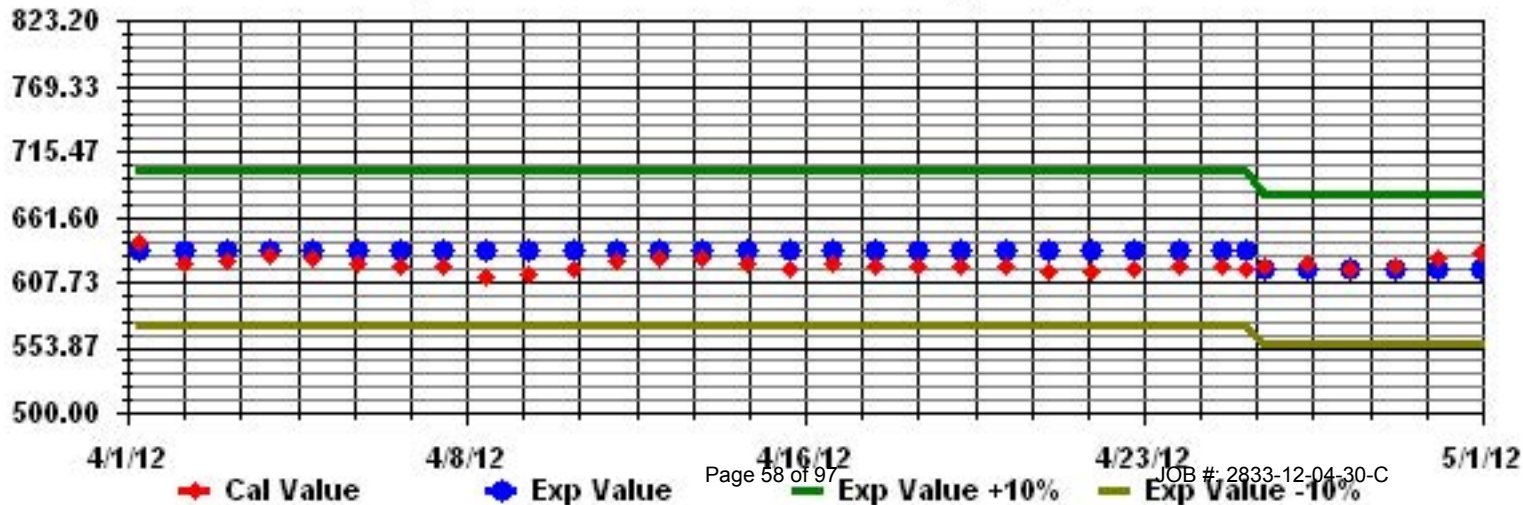
Class Limits (PPB)

Period : 04/01/12-04/30/12

Level : 10

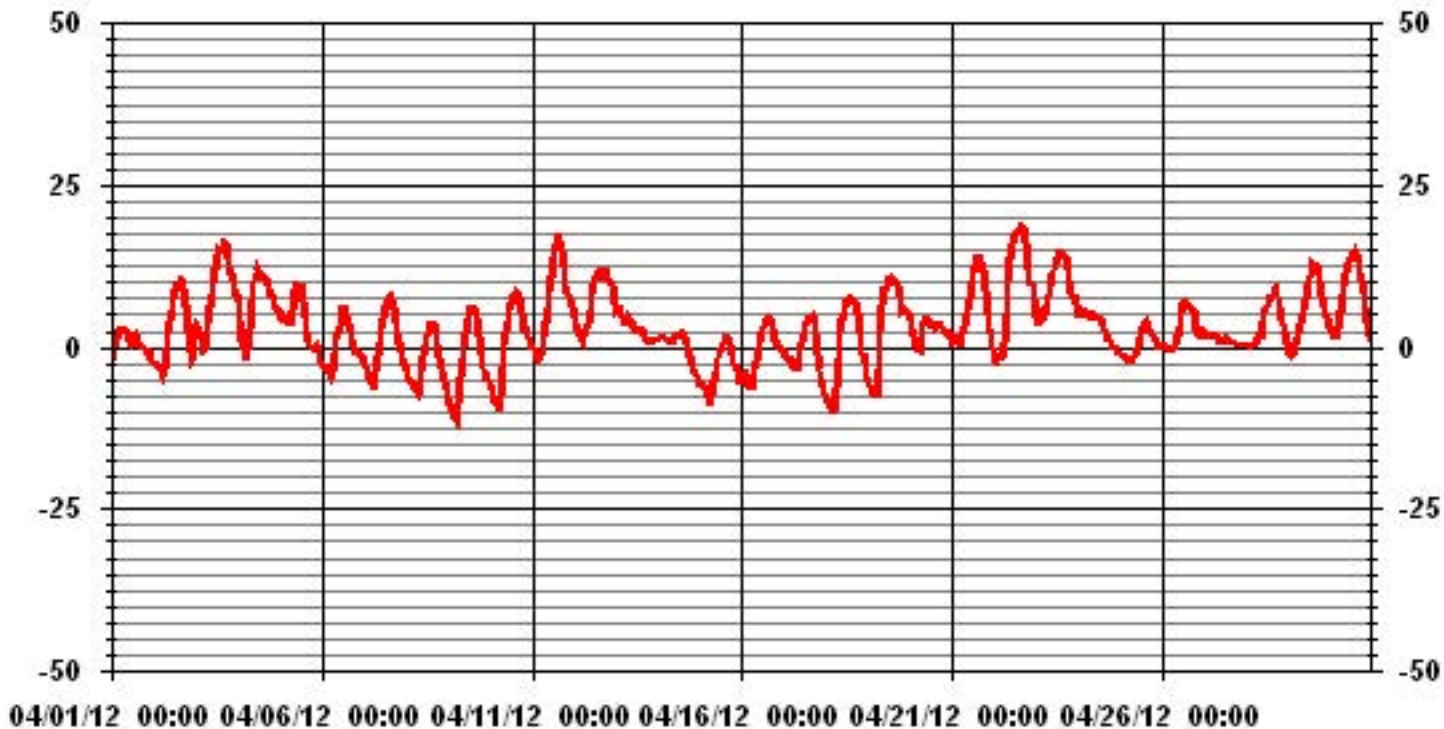


Calibration Graph for Site: LICA30 Parameter: NOX_ Sequence: NO2 Phase: SPAN



Temperature

01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
APRIL 2012
PRECIPITATION hourly averages (mm)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY MAX.	DAILY TOTAL	RDGS.	
DAY	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	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	0.0	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	0.0	24
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	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	0.3	0.3	24
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0.1	0.1	0.1	24
	13	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3	0.1	0	0.2	0.2	0.1	0	0.1	0	0	0	0.2	0.3	0.3	0.3	1.7	24
	14	0.1	0.2	0.1	0.1	0	0	0.3	0.8	0.4	0.5	0.2	0	0	0.1	0	0	0.2	0.1	0.1	0.1	0.1	0.1	0	0	0.1	0.8	3.5	24	
	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.6	0.5	0	0.6	1.3	24	
	17	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	0.1	0.1	24
	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.9	1.3	0.5	0.1	0.1	0	0	0	0	0.1	0	1.3	3.1	24	
	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	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	0.0	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	0.4	0.4	0.4	24	
	24	0.8	0	0.1	0	0.1	0.7	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	1.8	24	
	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6	0.6	0.4	0.1	0.3	0.6	2.0	24	
	27	0.6	1.5	0.4	0	0	0	0.1	0.3	0.9	1	1.3	1.6	1.2	1.2	0.3	0.7	1.7	1.4	1	1.1	1.1	0.2	0.2	0.9	1.7	18.7	24		
	28	0.6	1.3	1.3	0.8	0.8	1	1	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3	7.1	24	
	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
HOURLY MAX		0.8	1.5	1.3	0.8	0.8	1.0	1.0	0.8	0.9	1.0	1.3	1.6	1.2	1.2	1.3	0.7	1.7	1.4	1.0	1.1	1.1	0.6	0.5	0.9					

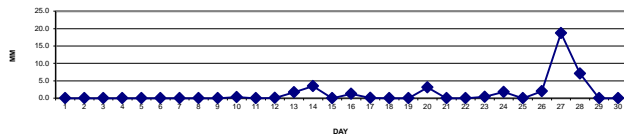
STATUS FLAG CODES

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

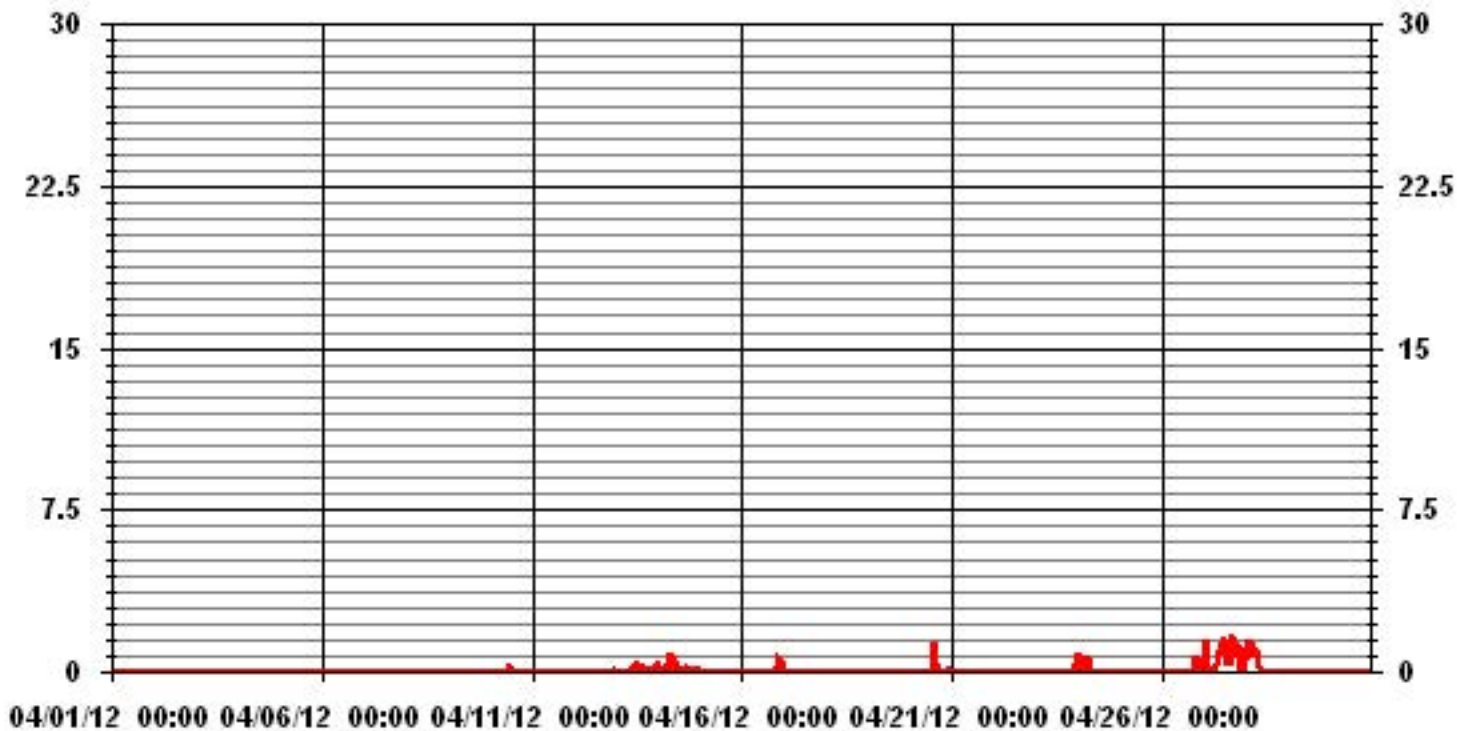
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	1.7	MM	16	ON DAY(S)	27
MAXIMUM DAILY TOTAL	18.7	MM		ON DAY(S)	27
MONTHLY TOTAL	40.1	MM			
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
STANDARD DEVIATION:	0.22		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	0.06	MM

DAILY TOTALS FOR APRIL 2012



01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2012

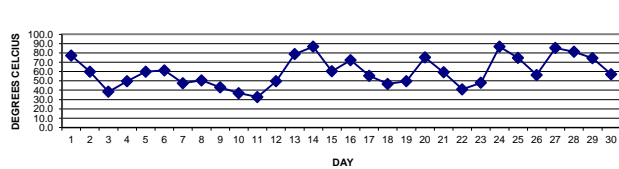
RELATIVE HUMIDITY hourly averages (%)

MST																													
DAY	HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1		67	62	59	57	53	52	58	66	74	79	85	89	89	87	87	88	88	87	86	87	86	87	88	88	89	77.1	24	
2		87	87	87	87	86	86	84	75	72	67	63	55	45	36	30	26	26	28	28	40	56	71	67	46	87	59.8	24	
3		40	42	45	50	60	62	60	52	47	43	40	34	29	25	26	27	23	24	27	30	30	32	35	37	62	38.3	24	
4		40	50	62	68	72	75	73	62	48	42	40	38	40	39	37	38	38	39	41	43	46	50	53	56	75	49.6	24	
5		57	56	54	55	57	62	65	60	51	51	54	50	49	55	59	62	64	64	65	67	68	66	70	76	76	59.9	24	
6		79	80	82	83	85	87	85	76	64	60	53	44	38	38	41	45	46	49	51	54	54	56	59	62	87	61.3	24	
7		63	64	67	70	71	72	71	63	55	45	39	35	31	28	26	27	25	26	29	35	41	46	52	56	72	47.4	24	
8		58	62	64	65	66	67	67	65	61	53	47	43	40	37	35	33	33	33	37	42	46	48	54	59	67	50.6	24	
9		63	67	70	68	73	74	63	46	31	26	24	22	22	21	22	22	23	24	29	35	43	53	54	56	74	43.0	24	
10		58	58	63	63	65	69	60	41	30	27	26	25	24	22	21	19	19	19	25	29	28	28	31	33	69	36.8	24	
11		35	38	39	45	48	50	49	43	38	34	30	26	22	18	18	18	19	22	25	32	33	33	33	37	50	32.7	24	
12		45	51	55	58	60	63	62	58	56	50	43	41	39	40	44	44	44	44	41	45	48	47	45	69	69	49.7	24	
13		78	65	53	55	59	60	59	62	71	74	84	89	90	90	90	90	90	90	90	90	90	91	91	91	91	78.8	24	
14		91	91	91	91	91	91	91	91	91	91	90	87	87	85	83	84	86	85	82	82	80	80	78	79	91	86.6	24	
15		77	77	76	74	73	75	74	71	65	62	53	51	49	45	42	42	39	42	47	54	60	58	68	73	77	60.3	24	
16		71	73	80	83	82	84	80	77	77	68	64	60	54	52	58	51	54	63	69	81	88	88	89	89	89	72.3	24	
17		88	85	84	84	84	82	79	72	58	51	44	38	32	28	26	26	25	27	31	40	51	58	67	71	88	55.5	24	
18		75	76	78	81	82	79	66	54	40	30	29	28	25	24	26	26	25	25	27	33	44	45	42	61	82	46.7	24	
19		64	70	71	73	75	75	65	51	38	35	31	28	30	32	34	37	42	43	47	56	51	49	47	46	75	49.6	24	
20		46	50	57	64	72	77	73	64	63	64	65	72	78	83	86	86	86	85	85	87	89	90	90	90	90	75.1	24	
21		90	91	90	89	89	85	78	72	66	64	61	56	50	47	37	29	28	25	28	35	43	53	54	64	91	59.3	24	
22		72	73	72	74	77	76	73	55	40	24	17	18	18	18	18	17	17	20	31	36	36	38	43	77	40.9	24		
23		50	55	52	53	51	54	53	51	49	44	42	39	38	36	36	36	36	39	44	49	55	59	60	69	69	47.9	24	
24		85	86	87	86	87	89	90	90	89	88	86	86	87	87	87	88	88	86	84	84	84	84	84	84	83	90	86.6	24
25		84	83	82	82	82	81	82	81	81	79	76	72	70	68	65	64	66	67	68	70	70	71	73	73	84	74.6	24	
26		68	68	66	66	65	66	64	64	61	56	52	44	38	36	36	36	35	36	40	67	72	75	72	70	75	56.4	24	
27		78	81	84	83	81	76	76	76	83	87	87	86	87	88	88	89	89	89	90	90	90	90	90	90	90	85.2	24	
28		90	90	90	90	90	90	88	87	82	78	78	77	74	71	70	69	68	70	74	78	80	85	88	90	91	81.1	24	
29		90	90	90	90	91	88	86	79	73	71	68	61	63	55	53	57	57	58	63	70	77	81	86	89	91	74.4	24	
30		90	90	91	91	91	91	84	71	60	44	38	33	33	31	26	25	26	28	31	41	52	60	69	73	91	57.0	24	
HOURLY MAX		91	91	91	91	91	91	91	91	91	91	90	89	90	90	90	90	90	90	90	90	90	91	91	91	91			
HOURLY AVG		69.3	70.4	71.4	72.6	73.9	74.6	72.0	65.9	60.6	56.4	53.7	51.0	49.1	47.5	46.9	46.7	46.9	47.8	50.1	55.7	59.7	62.1	64.1	67.2				

STATUS FLAG CODES

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

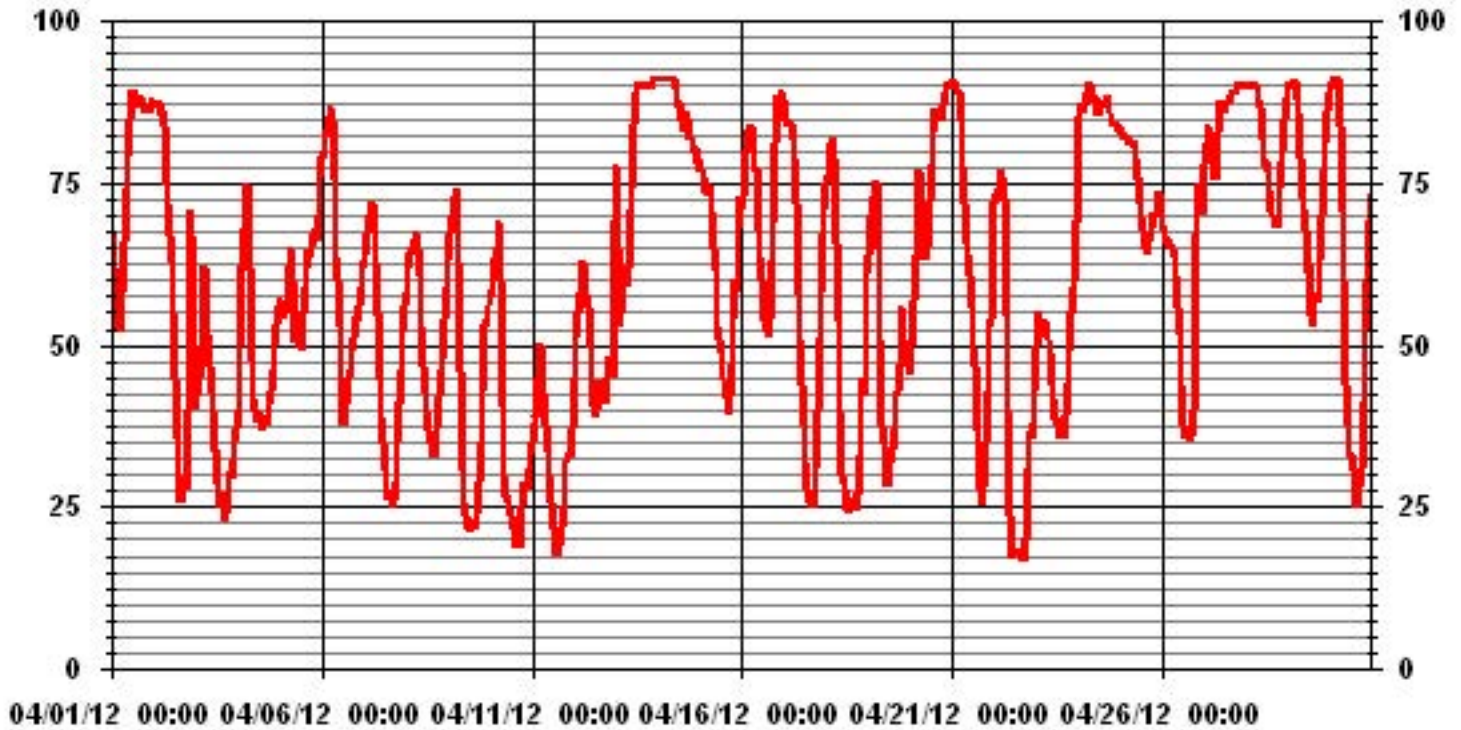
24 HOUR AVERAGES FOR APRIL 2012



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	91	%	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	86.6	%			ON DAY(S)	14, 24
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:		720	HRS
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	21.61		MONTHLY AVERAGE:		59.81	%

01 Hour Averages



Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

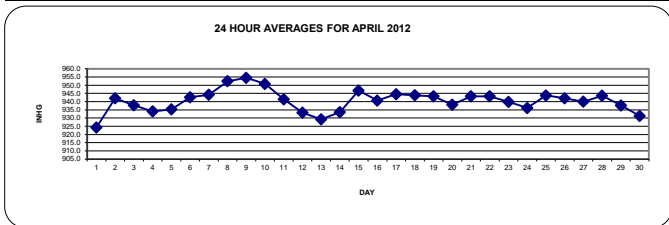
APRIL 2012

BAROMETRIC PRESSURE hourly averages (millibar)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		926	925	925	924	924	923	922	921	921	920	920	919	920	920	921	922	923	925	927	928	930	931	932	933	933	933	924.3	24
2		933	935	936	937	937	939	941	942	943	943	944	945	945	945	946	945	945	945	945	944	944	943	943	943	943	946	942.0	24
3		943	943	942	942	941	940	940	940	940	939	939	939	938	938	937	937	936	935	934	934	933	933	933	932	943	937.8	24	
4		932	931	931	931	931	931	932	933	934	935	935	936	936	936	936	935	935	935	935	936	936	936	935	934	936	934.0	24	
5		934	934	933	932	931	930	931	930	931	931	932	933	934	935	936	938	939	939	940	940	941	941	941	941	941	941	935.3	24
6		941	941	941	941	942	942	942	942	942	943	943	943	943	943	943	943	943	943	944	944	944	944	944	944	944	944	942.7	24
7		944	944	944	944	944	945	945	945	945	945	945	944	944	944	943	943	943	943	943	943	944	944	945	945	946	946	944.3	24
8		947	947	948	948	949	949	950	951	952	953	953	954	954	954	955	955	955	955	955	955	955	955	955	955	955	955	952.5	24
9		955	955	955	955	956	955	955	956	956	956	956	956	955	955	955	954	954	953	953	952	952	952	952	953	953	956	954.5	24
10		953	952	952	952	952	953	953	953	953	953	953	953	952	951	951	950	950	949	948	948	948	947	947	947	947	953	950.8	24
11		946	946	945	944	944	944	944	944	944	944	943	942	941	941	940	939	939	938	938	938	938	937	937	937	937	946	941.4	24
12		937	936	936	935	934	934	934	934	934	933	933	933	933	933	933	932	932	932	932	932	932	932	932	932	932	937	933.3	24
13		931	931	931	931	931	930	930	930	929	929	929	929	929	929	929	928	928	928	928	928	928	928	928	928	928	931	929.2	24
14		928	928	928	928	928	929	929	929	930	931	931	931	932	933	934	935	936	938	939	940	941	941	941	943	944	944	933.6	24
15		944	944	945	946	946	947	948	948	949	949	949	949	948	948	948	947	947	947	946	946	946	945	945	944	949	946.7	24	
16		944	944	943	943	942	942	942	942	942	941	941	941	941	940	939	939	939	938	938	938	938	939	939	944	944	940.7	24	
17		940	940	941	942	942	943	944	945	945	946	946	947	947	946	946	946	946	946	946	945	945	945	945	945	947	944.5	24	
18		945	945	944	944	944	944	944	945	945	946	945	945	945	945	944	944	943	943	943	942	942	942	942	942	942	946	943.9	24
19		942	942	942	942	942	942	944	944	945	945	945	945	945	945	945	944	944	944	943	942	942	942	942	941	945	943.2	24	
20		941	940	940	939	939	938	938	938	938	937	936	936	936	937	937	937	937	938	937	937	937	939	939	940	940	941	938.1	24
21		940	940	939	940	940	941	941	942	943	944	944	945	945	945	945	945	945	945	945	945	945	945	945	945	945	945	943.3	24
22		945	945	945	945	945	945	945	946	946	946	946	945	944	943	942	941	941	941	941	940	940	940	940	941	946	943.3	24	
23		940	940	941	941	941	941	942	942	942	942	942	942	941	941	940	940	939	939	938	938	937	936	936	936	942	939.9	24	
24		935	934	935	935	935	934	934	934	935	935	935	936	936	936	937	937	937	937	938	938	938	939	939	939	939	939	936.2	24
25		940	940	940	941	941	942	942	943	943	943	944	944	945	945	945	945	946	945	946	946	946	946	946	946	946	946	943.8	24
26		946	945	946	946	945	945	944	944	944	944	943	943	942	941	941	940	940	939	939	939	938	939	938	938	946	942.0	24	
27		938	937	937	936	937	937	937	938	938	939	939	940	940	941	941	942	942	942	943	943	943	943	943	943	943	943	940.0	24
28		944	943	943	943	943	944	944	944	944	944	945	944	944	945	945	944	944	944	943	943	943	943	942	942	945	943.6	24	
29		942	942	941	941	941	941	940	940	940	940	939	939	938	938	937	936	935	935	934	934	934	933	933	932	942	937.7	24	
30		932	932	932	932	932	932	932	932	932	932	932	932	931	931	931	930	930	930	930	930	931	931	931	931	932	931.3	24	
HOURLY MAX		955	955	955	955	956	955	955	956	956	956	956	956	955	955	955	955	955	955	955	955	955	955	955	955	955			
HOURLY AVG		940	940	940	940	940	940	940	941	941	941	941	941	941	941	941	940	940	940	940	940	940	940	940	940	940			

STATUS FLAG CODES

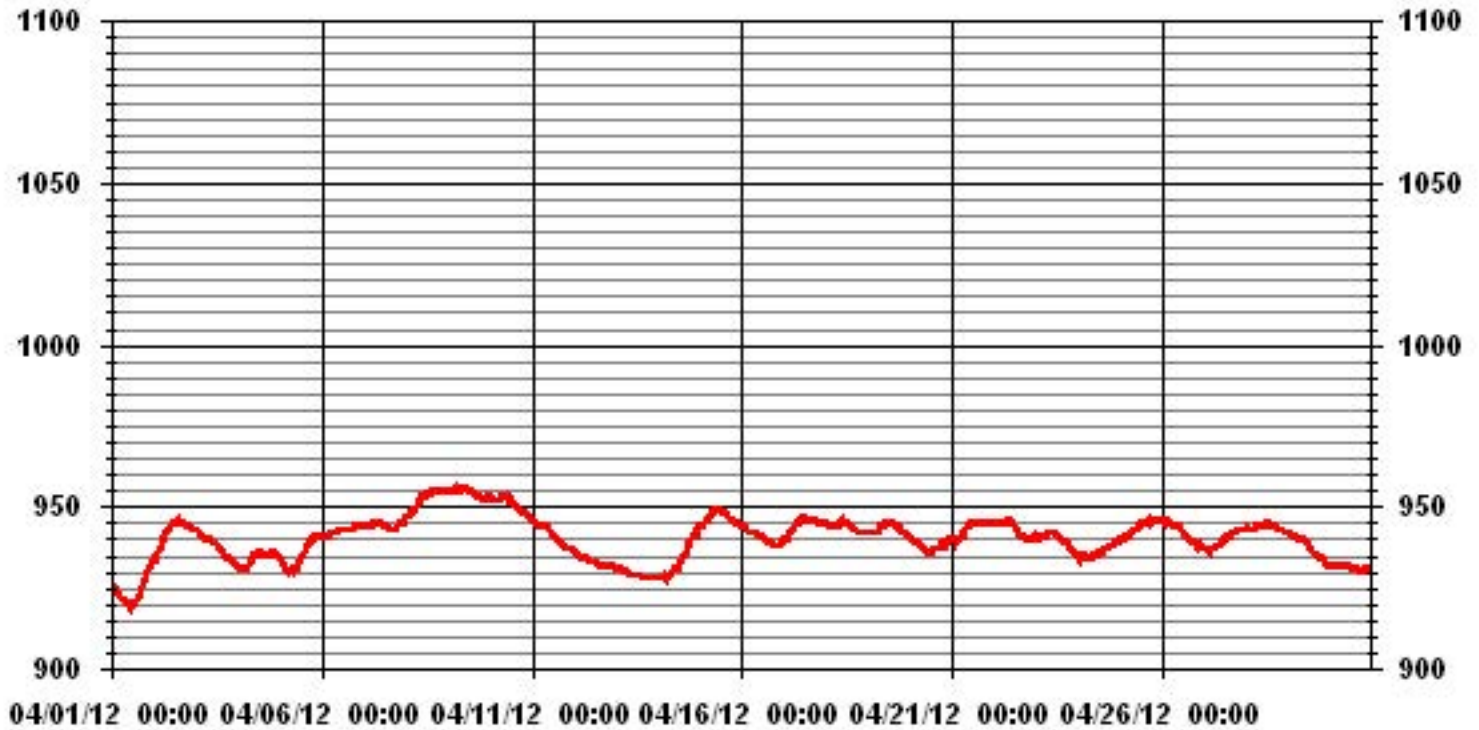
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	956 MB	@ HOUR(S)	VAR	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	954.5 MB			ON DAY(S)	9
				VAR-VARIOUS	
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:		720 HRS	
		AMD OPERATION UPTIME:		100.0 %	
STANDARD DEVIATION:	6.93	MONTHLY AVERAGE:		940 MB	

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

APRIL 2012

WIND SPEED hourly averages (km/hr)

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	3.5	3.6	4.4	6.1	6.5	6.9	8.3	8.9	6.5	10.1	9.8	7.8	7.4	4.3	8	10.9	12.9	14.5	14.9	13.7	11.2	8.4	5.8	5.4	14.9	5.2	24	
2	3.6	5.1	5.6	5.7	4.7	3.7	3.4	3.6	4.8	5.6	6.2	6.9	7.8	6.7	6.7	5.5	5.2	6.2	4.8	3.7	3.8	3.9	5.2	7.8	7.8	3.4	24	
3	10.8	10.9	7.6	5.3	2.9	4.9	4.6	5.7	6.9	11.8	11.5	12	10.7	13.4	12.8	11.7	13.4	14.3	11.7	9.6	9.1	8.9	8.6	8.9	14.3	9	24	
4	6.8	3.6	3.4	2.1	0.6	0.7	2	2.5	3.4	6.3	7.4	8.4	8	9.3	11.6	11.5	9.3	7.8	6.1	5.9	5.6	7.8	10.8	12.5	12.5	5.4	24	
5	12.1	12.3	10.3	10.9	11.7	8.7	7.6	6.8	10.4	12.6	15.2	16.3	16.8	12.1	11.3	8.5	7.6	8.8	8.1	6.1	6.1	3	4.1	2.6	16.8	9.6	24	
6	3.1	4.3	4.9	4.9	5	5	5.2	5.2	6.3	7.3	7.3	9.2	9.7	12.3	12	12.6	11.3	9.8	9.3	7.3	5.7	5.9	6.8	6.9	12.6	5.7	24	
7	7.8	7.2	6.5	6.8	6.4	6.3	7.4	8	8.8	9.8	10.3	11	9.7	10.6	12.3	10.8	11.4	9.5	9.1	8	6.4	4.2	6.7	8	12.3	8.1	24	
8	9.1	4.5	4.7	5.4	6.6	7.8	8.5	9.5	9.5	9.8	9.9	10.2	10.5	11.1	11.1	10.5	10.3	9.4	7.9	6.2	4.2	3.6	2.6	2.6	11.1	7.5	24	
9	2.4	0.3	2.2	1.2	0.9	1.3	3.4	5.6	6	6.4	3.9	2.9	2.3	2.5	4.7	7.1	6.1	6	5.2	3.1	3.2	2.7	4.2	4.5	7.1	2.4	24	
10	4.7	4	2.9	3.7	2.8	2.9	3.5	4.5	6.2	6.8	6.8	7.2	6.2	7.3	7.7	8.1	8	7.4	5.8	5	8.1	10	7.8	8.4	10	5.4	24	
11	8.2	8.1	7.8	5.8	4.6	6.9	6.6	8.6	8.1	7.1	9	12.2	11.7	13.2	12.1	12	11.4	9.2	7.4	6.3	8.1	8.9	8.6	8.8	13.2	8.6	24	
12	7.3	5.4	6	6.6	6.3	6.5	8.1	9.9	10.4	10.5	11.2	10.7	11.2	10	8.5	10	8.1	7.6	9.3	10.4	13.2	11.2	10	9.6	13.2	8.8	24	
13	4.5	5.2	5.3	7.3	7.9	9.3	9.8	8.1	8.8	7.6	8	9.3	7	8.3	8.1	7.6	8.9	7.8	7.1	6.4	6.1	4.6	5.6	5.9	9.8	7.2	24	
14	5.1	4	4.5	4.5	5.2	5.8	6.2	4.4	3.9	4.8	7.7	10	12.1	12	11.3	12.1	10.9	13.9	14	14.8	15.6	13	14.4	16	16	9.4	24	
15	14.9	13.8	14.1	15.2	10.9	13.1	11.5	9.6	7	8.8	6.8	8.6	8.1	6.1	4.3	3	1.5	5.5	4.7	3	2.8	2.7	1.5	2.8	15.2	5.6	24	
16	5.5	4.6	4	3.6	3.6	3.9	7.2	7.5	7.2	8.2	9.7	6.1	5	4.6	6.3	6.1	5.7	3	1.5	0.9	2.5	0.7	5.7	4.5	9.7	3.5	24	
17	8.8	9.4	6	6.8	7.1	8.8	7.6	9.6	9.9	9.6	8.1	7.4	6	5.8	5.6	4.7	4.9	4.9	5	3	1.7	1.7	2.7	1.4	9.9	5.6	24	
18	0.5	2.2	2.9	1.2	1.5	1.6	3.2	4.7	0.5	4.9	5.4	3.6	3.6	0.4	9.6	9.6	8.1	7.7	4.3	4	3.5	4.7	3.7	0.7	9.6	2.3	24	
19	0.9	0.6	0.6	1.8	1.5	1.6	1.4	1.5	2.9	5.6	8	4.9	5.4	7.6	6.6	5.4	9.6	8.2	4.3	3.3	6.2	6.3	6.2	6.2	9.6	3.6	24	
20	6.7	7.4	8	6.8	6.9	5.1	6.3	8.1	8.5	12.2	10.7	9.9	6.2	3.9	4.9	6.2	4.6	3.8	3	1.6	0.7	1.1	3.1	2.2	12.2	4.8	24	
21	2.2	3.7	4.2	5.3	4.6	5.1	7	8.5	10.5	11	10.2	6	6.8	5.3	7.8	9.6	8.7	9.8	6.8	4.6	1.3	1.7	3.8	1.8	11	5.2	24	
22	0.8	0.8	1	0.5	1	0.3	1.5	3	2.7	3.6	6.6	8.2	10.4	8.7	9.1	4.5	7.3	7.5	3.1	1.3	5.7	9.4	9.1	5.4	10.4	2.2	24	
23	3.4	5.1	6.4	5.1	9.8	7.8	8.6	8.1	7.6	7.8	6.3	8.1	6.7	7.7	8	7.7	7.1	8.2	9.4	6.2	5.4	5.5	6.3	4.5	9.8	6.6	24	
24	5.8	5.6	7.5	10.1	8.2	9.7	6.8	9.9	13.5	12	10.4	11.8	11	10.2	8	8.7	8.5	8.9	12.4	10.9	10.2	10.6	9.6	9.2	13.5	9.5	24	
25	9.3	9	9	8.3	8	8.9	9.1	9.1	8.9	9.4	9.8	10.2	10.9	11.6	10.8	10.9	12.3	11.3	11.5	9.7	9.2	8.1	7.1	7.5	12.3	9	24	
26	9.7	10.1	9.6	12.5	10.8	10	10.7	10.5	11.6	13	13.8	14.7	16.2	15.5	14.9	13.7	14.4	11.2	11.4	11	10.9	8.7	8.5	8.2	16.2	11.7	24	
27	8.1	8.9	9.2	11.7	10.7	11.6	10	8.9	9.3	7.5	7.6	6.5	5.9	6	5.7	5.2	3.9	3.8	2.7	2.6	3	3	1.7	1.3	11.7	6.2	24	
28	1.1	1.4	1.2	0.9	0.4	0.9	1.6	1.3	2.3	5	5.6	5.2	6.9	8.5	8.7	8.2	8.6	8.2	7.5	6.3	6.5	6	3.6	2.2	8.7	3.9	24	
29	2.8	1	0.5	1.6	3.5	2.5	2.9	3.1	3.6	4	3.5	2.1	4	2.5	4.5	5.7	6.5	5.2	3.4	3.2	4	3.1	2.7	1.6	6.5	1.9	24	
30	2.5	2.6	2.3	2.6	3.1	2.5	1.2	2.1	6.8	12	8.9	8	6.9	4.5	4.8	4.4	6.3	5.2	5.5	4.9	4.8	4.1	3.1	3.8	12	4.3	24	
HOURLY MAX	14.9	13.8	14.1	15.2	11.7	13.1	11.5	10.5	13.5	13.0	15.2	16.3	16.8	15.5	14.9	13.7	14.4	14.5	14.9	14.8	15.6	13.0	14.4	16.0				
HOURLY AVG	5.7	5.5	5.4	5.7	5.5	5.7	6.0	6.6	7.1	8.4	8.5	8.5	8.4	8.1	8.6	8.4	8.4	8.2	7.2	6.1	6.2	5.8	6.0	5.7				

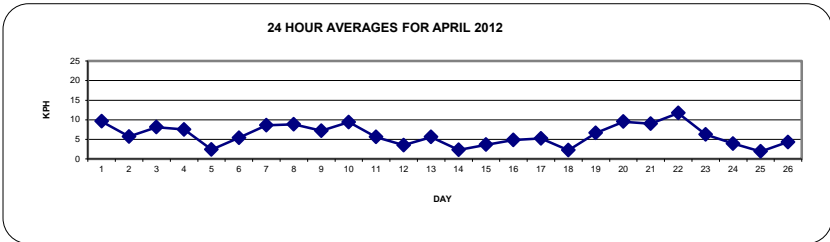
STATUS FLAG CODES

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

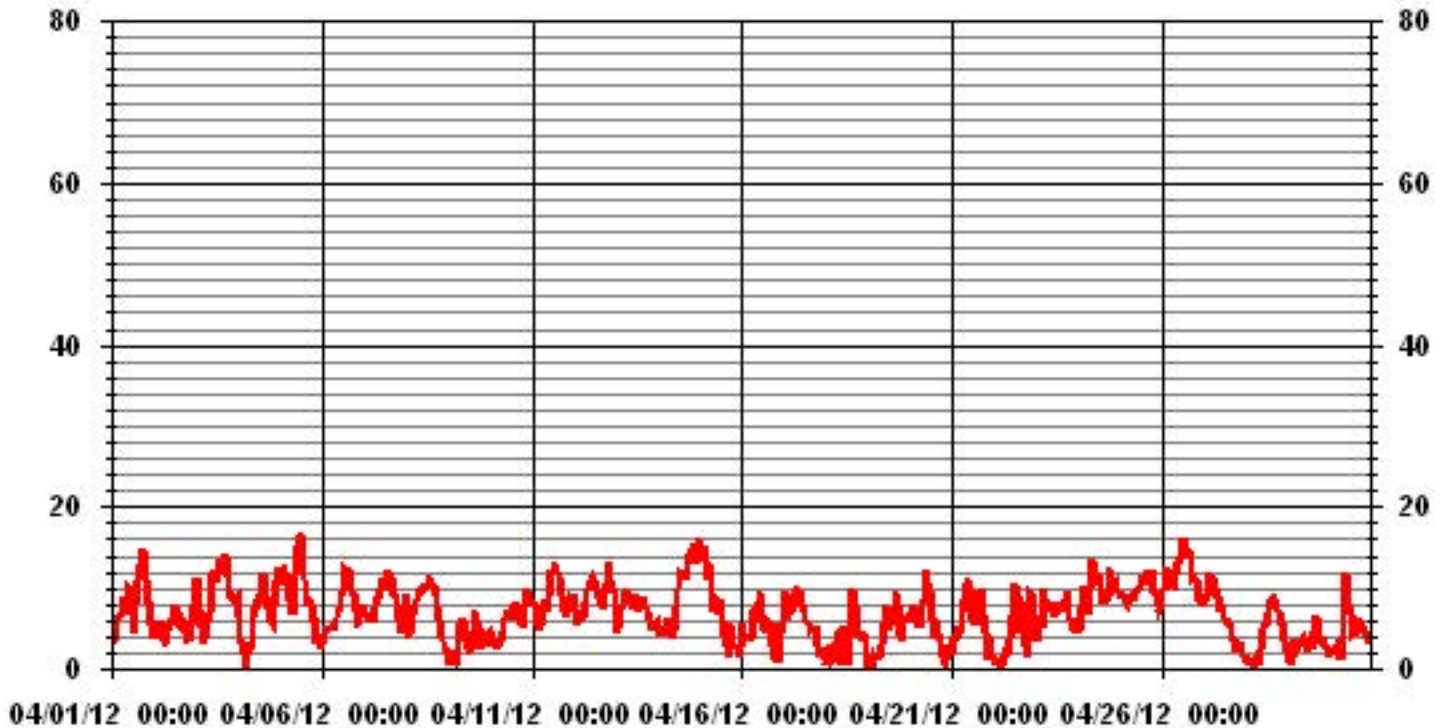
LAST CALIBRATION: December 20, 2011

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	16.8	KPH	@ HOUR(S)	12	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	11.7	KPH			ON DAY(S)	26
CALMS (≤ 1 KPH)	2.28	%				
MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
STANDARD DEVIATION:	3.43		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	6.90	KPH	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2012

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		13.1	13.3	12	15.3	18.3	21.4	31.1	28	20.6	26	28.4	26.2	17.5	20.7	26.7	34.3	45.1	44.9	46.4	41.7	40	32.1	22.1	20.5	46.4	
2		18.1	20.1	22.9	19.7	15.5	14.2	14.7	10.9	12	14.8	21.2	21.6	32.6	27.1	23.1	25.5	19.2	16.8	17.2	6.9	7.4	9.4	12.6	20.7	32.6	
3		26.6	28.4	25.8	19.2	14.6	18.8	15.7	32.6	28.6	28.9	31.3	30.4	29.8	45.1	48.5	33.9	40.4	40.2	30.6	26.8	26	22.7	21.1	21.1	48.5	
4		19.6	14.8	8.5	10	10	10.2	10.9	10.7	12.5	19.6	21.1	27.7	27.5	31.2	33.9	33	29.9	24.2	16.8	17.4	17.7	24.2	23.6	27.7	33.9	
5		24	26.2	26.2	21.4	30.5	31.3	19.4	27.1	38.9	43.5	45.9	52.7	50.5	37.2	37.4	32.4	31	28.4	23.4	16.4	22.4	13.3	11.1	10.9	52.7	
6		6.9	10.9	10.2	12.6	13.7	12.3	14.6	17.2	25.1	24	31.5	32.8	42.4	37	44.6	36.1	42.2	35.9	29.8	24.9	19.9	28.6	29.5	24	44.6	
7		28.2	26.4	26.4	23	21.4	26.9	27.1	28.4	30.2	32.6	35.9	35.4	42.6	41.1	50.6	41.6	36.9	38.9	35	29.5	20.3	17	19.4	23.6	50.6	
8		31.1	17.2	19.3	23.2	22.7	30.9	29.7	35.2	31.7	33.3	35.3	36.1	36.7	46.8	39.8	37.8	35	28.4	29.7	18.3	12.2	11.1	10.4	12	46.8	
9		11.8	8.9	10.2	20.8	15.3	10.7	8.9	12.9	20.1	16.4	16.6	20.5	22.5	15.7	24.5	26.2	22.4	17.9	14.2	7.4	10.4	12.2	13.5	13.5	26.2	
10		15.7	16.8	12.7	12.6	12.4	17.5	10.4	18.1	21.2	20	21	22.7	27.7	23.3	30.6	25.8	26.6	23.1	15	17.9	22	23.4	20.1	22.3	30.6	
11		22.5	21.7	23.1	19.9	21	22.9	24.7	29.3	23.8	22.3	28.6	34.5	35.8	36	44.4	35.2	35.7	31.5	22.6	19.1	24.4	29.5	32.4	29.3	44.4	
12		31.2	16.4	19	21.6	17.5	22.3	26.9	30.2	35.4	39.7	38.8	34.8	37.2	36.9	34.3	33	27.9	20.1	41.1	40.2	41.1	40	44.2	46.8	46.8	
13		10.4	13.7	21.2	16.6	20.9	23.9	26.1	23.8	25.8	22.7	17.9	21.4	20.3	30.4	24.5	24.2	21.8	19	16.8	16.4	13.5	12.4	10.7	10.7	30.4	
14		9.6	7.8	10.4	9.6	10.9	10.9	11.3	10.5	7.8	14.4	19.9	25.1	30.8	29.1	30.4	38.7	33.9	34.1	42.2	43	41.2	35.7	40.7	40.7	43	
15		35.9	35	35.4	34.6	23	28.4	27.3	21.8	18.3	21.2	26.7	27.6	28.1	25.1	23.6	15.5	13.3	15.9	13.5	10.4	6.9	6.3	14.4	6.5	35.9	
16	N	9.1	9.1	8.5	8.5	10	19.1	16.5	15.5	26.2	26.7	21.6	18.3	18.3	25.6	16.1	24.4	15	11.2	11.2	12.9	3.9	18.6	13.1	26.7		
17		24	21.8	18.1	19.4	21.8	29.6	21.5	27.3	24.5	24.2	22.1	26.2	20.5	21	25.1	22	17.2	16.4	11.4	12.6	10.9	12.2	12.2	12.6	29.6	
18		9.1	13.7	11.3	10.7	17.5	12.4	12	7.6	18.8	16.6	22.5	21.2	19.3	17.2	31.9	24.2	21.8	24.4	14.4	12.2	12	9.8	10.2	9.1	31.9	
19		8.5	2.9	8.7	11.1	12.2	14.4	10.4	4.5	10	24	22.8	21.5	22.4	29.6	31.1	24	29.5	19	13.5	9.6	13.3	14.4	17.9	15.7	31.1	
20		17.4	24.2	21.2	17.9	16.9	17.5	22.1	20.9	24.9	33.9	33	31.7	29.1	13.1	14.2	16.1	13.5	13.5	10.7	11.4	10.9	9.3	8.5	9.8	33.9	
21		6.3	10.7	10.2	13.1	11.8	17.5	20.4	28.7	38.5	38.3	32.6	19.9	26.2	21.1	32.8	38.9	32.6	33.4	31	14.8	7.6	5	10.2	7.4	38.9	
22		3	10.3	11.2	9.6	9.6	10	10.2	6.9	7.3	16.6	23.1	31.2	32.3	31.4	27	26.6	26.8	24.9	17.4	8.5	16.4	28.6	21.6	12.4	32.3	
23		10.3	12	15.9	14.6	28.2	22	23.4	24	21.6	28.6	22.3	22.5	23.3	29.9	26	24.7	24.7	18.5	20.7	20.7	13.1	15.3	18.4	11.6	29.9	
24		14.7	16.6	19.4	19.4	18.6	21.4	20.3	22.5	32.8	29.3	27.7	25.8	22	22.9	23.4	24.3	23.1	22.9	27.5	27.1	37	24.5	25.8	23.2	37	
25		26.4	26	25	24.5	25.8	26.4	26.2	27.8	28	29.1	33	35.2	34	32.9	33.2	37.8	36.3	36.3	41.1	32.1	33	28	26	31.9	41.1	
26		32.2	37.7	32.2	41.3	35	32.4	35.9	38.5	36.3	50.8	51	58.4	59.5	49	54.5	47.8	54.2	47.2	56	42	38.7	30.8	28.8	26.2	59.5	
27		26.9	33.9	33	36.4	40.1	41.2	32.6	31.9	29.7	29.5	24.9	25.8	21.2	22.7	21	19	12.7	12.2	10.7	10.7	10.4	11.3	10.9	10	41.2	
28		3.2	10.7	9.1	9.9	5.6	10.2	11.8	12	8.9	14.6	15.9	14.4	14.6	27.1	28.6	20.9	20.5	29.5	21.6	18	19.1	16.4	13.3	9.6	29.5	
29		7.8	9.6	9.8	9.8	11.5	11.3	7.6	11.8	11	10.3	13.3	10.7	17.4	19.4	23.3	20.9	16.6	13.9	10.6	10	21.4	14.6	12	10	23.3	
30		14.2	10	8	11.4	7	6.7	3.9	9.8	24.7	28.6	25.3	26	21.4	26	20.3	23.8	27.5	15.2	15.5	14.1	11.5	10.2	12.4	12	28.6	
PEAK		35.9	37.7	35.4	41.3	40.1	41.2	35.9	38.5	38.9	50.8	51.0	58.4	59.5	49.0	54.5	47.8	54.2	47.2	56.0	43.0	41.2	40.0	44.2	46.8		

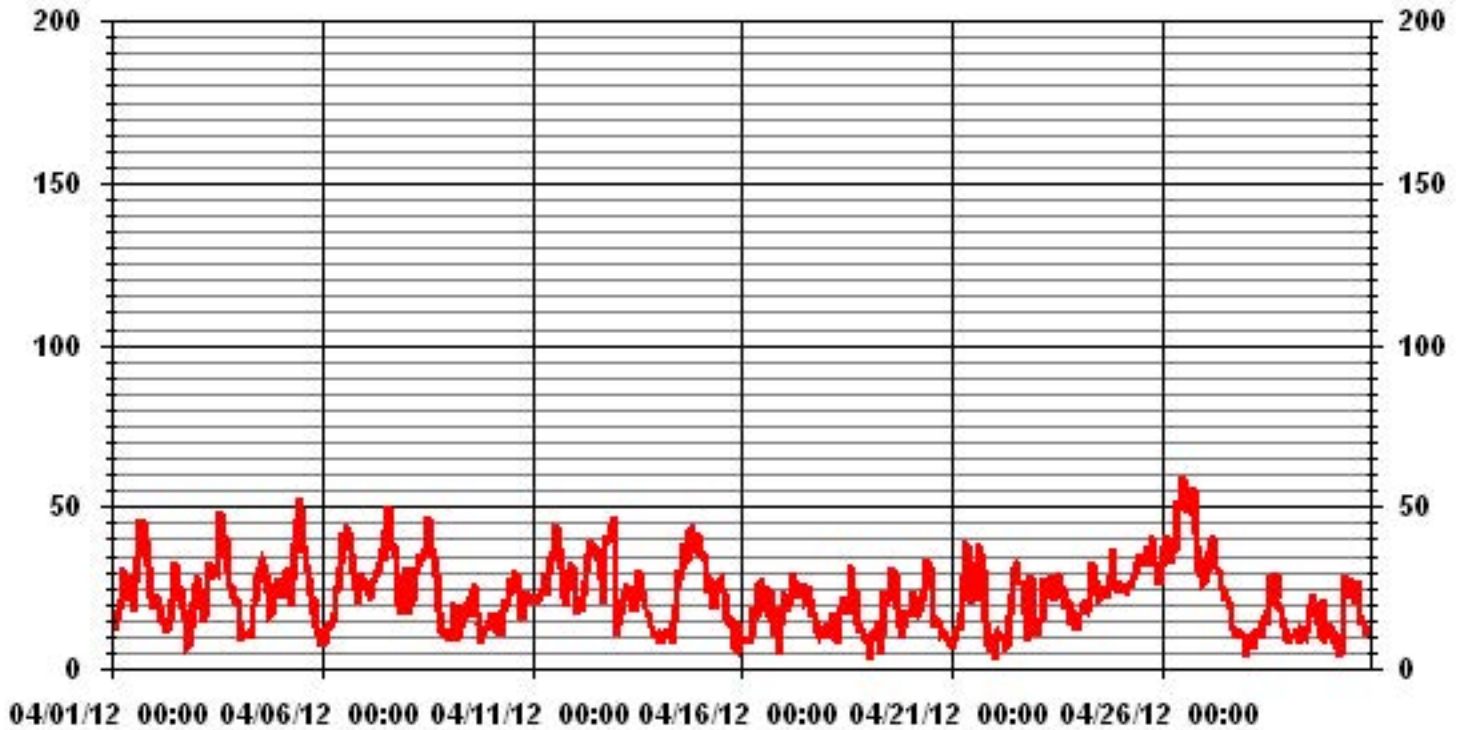
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	59.5	KPH	@ HOUR(S)	12
			ON DAY(S)	26

01 Hour Averages



LICA30
WSP / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	2.36	4.86	5.55	4.58	2.50	1.66	2.91	1.11	2.08	4.44	2.36	1.52	1.80	.27	.97	1.25	40.27
< 12.0	2.63	4.86	8.75	3.47	7.77	5.13	4.02	1.25	1.38	2.08	.55	.69	.69	2.77	3.47	2.36	51.94
< 20.0	.00	2.77	.27	.00	.97	.69	.69	.55	.27	.27	.13	.00	.00	.83	.27	.00	7.77
< 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	5.00	12.50	14.58	8.05	11.25	7.50	7.63	2.91	3.75	6.80	3.05	2.22	2.50	3.88	4.72	3.61	

Calm : .00 %

Total # Operational Hours : 720

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	17	35	40	33	18	12	21	8	15	32	17	11	13	2	7	9	290
< 12.0	19	35	63	25	56	37	29	9	10	15	4	5	5	20	25	17	374
< 20.0		20	2		7	5	5	4	2	2	1			6	2		56
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	36	90	105	58	81	54	55	21	27	49	22	16	18	28	34	26	

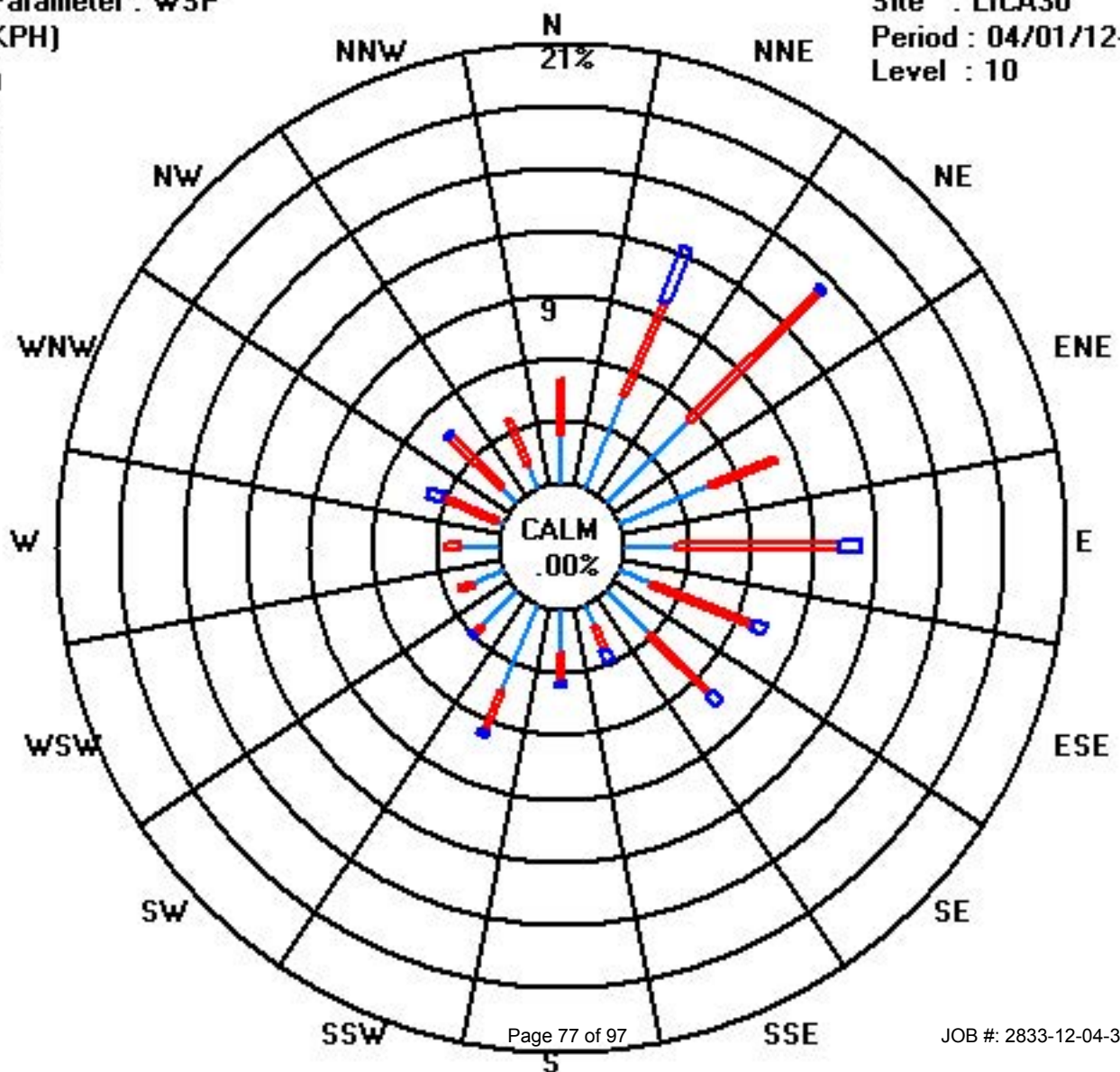
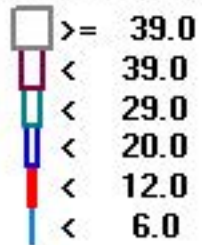
Calm : .00 %

Total # Operational Hours : 720

Class Limits (KPH)

Period : 04/01/12-04/30/12

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -COLD LAKE- MASKWA

APRIL 2012

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	24:00	24-HOUR	24-HOUR			
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.			
DAY																														
1	53	54	44	45	49	50	50	27	9	21	37	37	26	321	320	308	304	297	299	294	284	285	267	260	339	NNW	24			
2	248	267	274	279	270	242	244	222	203	211	232	251	285	271	277	277	282	209	202	153	136	127	125	132	237	SW	24			
3	145	139	122	114	85	106	86	106	131	136	141	135	142	164	172	161	156	156	147	140	136	134	128	126	140	SE	24			
4	119	87	47	30	57	338	281	280	4	322	328	342	344	2	8	13	8	5	3	5	354	8	23	29	7	N	24			
5	30	32	36	34	43	49	48	52	118	159	189	199	207	222	239	257	266	290	287	287	291	230	207	203	228	SW	24			
6	210	191	199	213	218	213	203	224	231	241	255	281	268	295	289	291	287	287	292	323	324	313	330	325	274	W	24			
7	323	321	343	318	320	321	316	319	323	313	316	310	309	303	304	320	317	344	342	340	321	339	4	7	324	NW	24			
8	8	349	321	332	326	331	333	326	342	340	339	341	335	344	349	352	352	357	4	17	4	359	354	5	345	NNW	24			
9	18	27	36	98	357	41	37	29	28	30	35	316	276	32	115	109	106	117	132	148	136	71	59	57	70	ENE	24			
10	64	70	69	59	46	57	32	85	113	130	148	142	118	123	111	118	111	115	122	124	139	141	133	133	115	ESE	24			
11	141	136	124	98	88	110	107	115	116	115	117	115	116	136	131	134	124	107	112	101	105	111	121	111	118	ESE	24			
12	101	74	74	72	60	70	81	86	85	79	78	89	84	103	85	76	65	55	79	100	106	101	106	118	86	E	24			
13	47	50	55	33	48	44	51	54	59	51	42	37	44	56	56	47	39	44	44	43	41	41	33	28	46	NE	24			
14	28	22	30	25	25	25	29	27	29	23	18	22	19	19	18	13	12	17	19	17	21	25	25	26	21	NNE	24			
15	24	26	27	29	34	30	29	24	24	23	63	86	90	90	81	37	158	143	151	138	134	170	193	185	47	NE	24			
16	175	192	204	216	205	194	190	195	198	191	195	208	231	250	214	193	224	246	29	57	130	94	25	15	201	SSW	24			
17	16	17	17	14	14	6	3	18	17	14	11	6	338	348	357	1	328	348	18	92	81	78	84	64	11	NNE	24			
18	170	77	33	3	12	55	43	28	194	171	171	176	169	203	40	33	44	45	80	104	116	127	124	45	75	ENE	24			
19	347	72	58	66	78	69	50	5	211	192	201	199	195	191	200	214	202	194	186	139	151	163	167	175	183	S	24			
20	164	165	163	142	146	131	123	139	130	133	125	116	121	107	59	63	76	88	130	85	253	239	205	229	130	SE	24			
21	219	215	213	212	235	270	282	284	288	298	292	311	304	319	308	288	286	295	285	279	246	209	215	192	280	W	24			
22	199	234	204	166	245	110	95	35	33	110	133	98	123	67	60	87	211	220	274	28	9	34	37	28	78	ENE	24			
23	19	23	38	47	41	51	52	65	57	67	66	55	69	95	81	82	89	42	39	56	55	61	46	46	57	ENE	24			
24	50	54	32	31	25	41	54	40	32	38	41	33	33	37	58	54	47	44	35	40	42	39	42	48	40	NE	24			
25	51	50	61	51	53	56	58	61	62	59	82	93	77	91	92	110	106	106	96	91	93	91	90	86	79	ENE	24			
26	89	100	114	102	100	99	93	89	91	97	96	87	104	97	95	96	100	93	100	100	95	90	87	97	96	E	24			
27	97	104	95	92	96	101	94	98	96	92	87	86	75	76	77	67	54	53	56	48	44	59	48	39	86	E	24			
28	22	33	300	326	330	122	138	205	248	175	202	216	195	189	196	196	192	172	171	172	171	177	171	151	186	S	24			
29	149	189	70	141	180	147	186	203	222	219	211	17	142	143	144	119	127	125	85	68	45	54	70	246	142	SE	24			
30	328	354	7	34	31	31	32	1	20	23	24	18	41	53	54	68	79	74	62	51	56	53	71	52	40	NE	24			
HOURLY AVG	347	354	343	332	357	338	333	326	342	340	339	342	344	348	357	352	352	357	342	340	354	359	354	325						

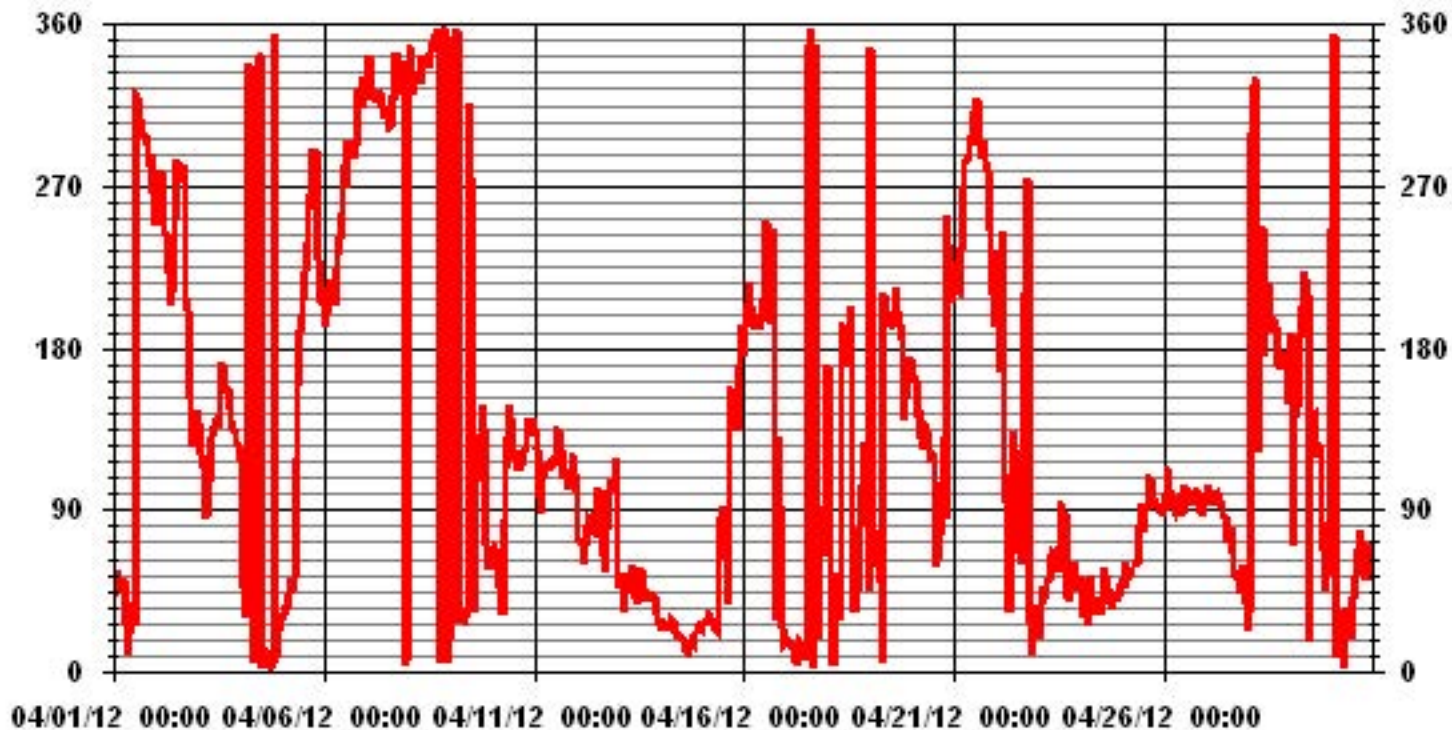
STATUS FLAG CODES

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:	December 20, 2011
DECLINATION:	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	720 HRS
STANDARD DEVIATION:	100.22	AMD OPERATION UPTIME:	100.0 %
		MONTHLY AVERAGE:	64 DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

APRIL 2012

STANDARD DEVIATION WIND DIRECTION (STDWDIR) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00
DAY																								
1	18	25	15	18	20	20	21	33	24	16	19	33	14	28	31	27	26	23	24	23	24	26	30	31
2	34	28	28	22	24	28	32	27	22	25	31	34	34	41	37	41	38	28	16	8	8	12	13	17
3	17	18	22	27	56	39	34	38	36	22	23	24	27	24	26	23	22	21	18	18	18	18	17	19
4	24	43	18	34	50	36	43	31	37	33	35	33	31	25	22	21	20	20	21	21	26	19	13	12
5	13	12	16	13	19	22	22	25	26	24	22	20	24	29	32	36	34	25	26	25	23	29	17	18
6	16	16	14	18	17	14	18	27	33	35	38	33	38	31	31	25	28	30	27	32	34	35	36	33
7	35	35	31	33	36	33	30	32	35	31	34	33	35	35	34	34	32	36	33	32	30	29	21	21
8	20	30	35	35	34	32	34	30	33	38	35	35	35	33	31	35	29	27	22	15	18	24	19	17
9	24	59	21	41	25	21	21	16	28	35	54	59	61	71	50	34	37	30	19	15	14	19	16	17
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11	19	22	23	26	25	26	29	25	28	33	33	28	26	28	28	28	25	28	24	20	21	23	22	23
12	21	24	28	24	21	22	24	28	28	29	30	26	28	27	29	26	26	22	27	24	25	25	27	24
13	21	22	23	15	20	19	21	24	24	23	19	16	21	23	22	23	18	20	20	18	17	17	12	10
14	11	15	10	12	12	13	10	13	13	14	19	16	15	17	18	19	20	18	16	21	15	15	15	14
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16	21	12	13	17	15	15	17	17	18	23	22	32	37	43	37	29	34	43	41	41	20	47	18	18
17	18	16	18	17	18	28	23	18	23	27	31	38	42	43	46	55	41	37	21	17	30	26	23	26
18	48	29	10	40	37	43	18	13	52	46	55	72	66	70	38	27	30	26	25	12	11	11	13	39
19	34	39	50	32	43	48	30	37	42	40	29	60	45	37	44	38	25	20	18	10	12	16	19	19
20	19	19	20	19	18	19	24	25	27	24	26	27	29	38	25	25	30	30	29	36	54	51	31	45
21	19	17	22	16	25	25	23	25	25	25	28	40	35	41	36	32	29	26	27	21	53	33	12	23
22	49	66	43	37	33	49	29	28	30	37	37	36	32	37	29	32	29	28	40	43	16	14	17	14
23	24	15	16	18	19	20	21	27	26	31	34	26	31	31	29	30	28	22	20	22	18	21	18	21
24	19	20	13	13	14	15	23	19	13	19	20	17	17	20	24	24	23	21	16	19	19	19	20	21
25	22	23	25	22	23	24	23	23	25	25	25	28	28	25	27	28	26	26	25	25	24	25	25	27
26	25	26	24	23	25	24	25	27	26	28	27	27	27	25	25	27	27	28	27	26	26	25	24	25
27	26	25	26	25	24	24	24	25	25	28	25	27	28	26	25	22	21	17	19	17	16	18	19	21
28	22	25	32	34	59	49	27	47	32	19	25	27	19	19	19	22	22	22	23	21	20	20	23	28
29	20	36	43	37	22	52	23	31	35	25	51	59	46	61	40	26	27	23	28	28	48	25	42	42
30	34	26	23	21	16	19	43	36	25															

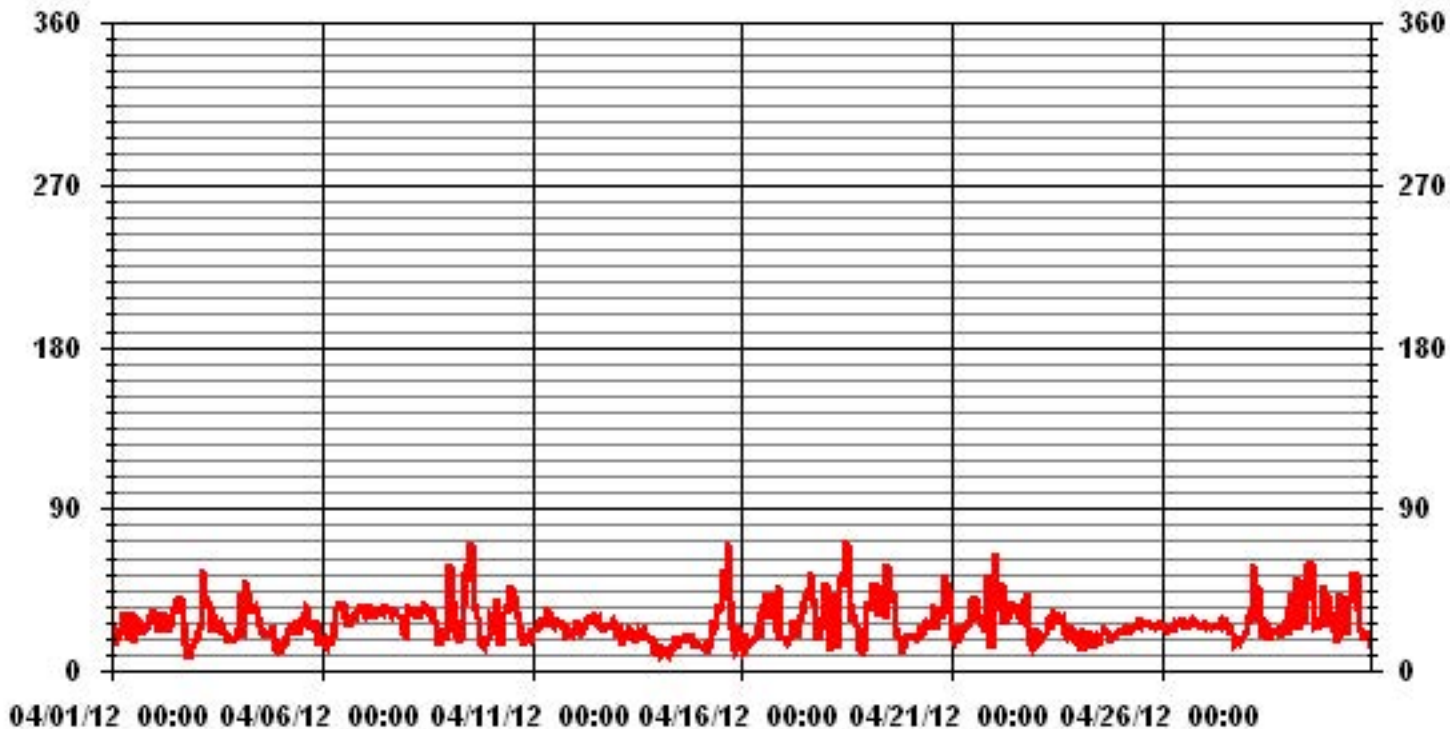
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N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: December 20, 2011

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 720 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	April 25, 2012	Previous Calibration	March 29, 2012
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	13:00	End Time (MST)	17:07
Reason:	Monthly Calibration		
Barometric Pressure	926 mmHg	Station Temperature	23 Deg C
Cal Gas	49.8 ppm	Gas Cyl. #	LL67757
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	December 29, 2013
		Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	508	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	EnviroNics 2000	S/N :	1991	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Chart Recorder Make / Model:	NA	S/N :	NA		
Flow Meter:	EnviroNics 2000	S/N :	1991		

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0 - 1000 ppb				
Sample Flow / Box Temp	597 ccm	33.3 Deg C	596 ccm	33.7 Deg C	
HVPS / Lamp Setting	494	2558	494	2552	
PMT / RxCell Temp	7.7 Deg C	50 Deg C	7.7 Deg C	50 Deg C	
Converter / IZS Temp	NA Deg C	45 Deg C	NA Deg C	45.0 Deg C	
Offset / Slope	42.2	1.242	42.2	1.253	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5022	0	0	1	N/A
	No Zero Adj.			
4935	79.8	792	785	1.0095
4935	79.8	792	793	0.9993
4978	39.9	396	399	0.9924
4998	19.9	197	197	1.0000
5020	0	0	1	N/A
Sum of Least Squares				0.9982
New Correction Factor				0.9993

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	0.0	Auto Zero	0.0
Auto Span	382.0	Auto Span	379.0
Sample Lines Connected		Sample Lines Connected	YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9980
Current Correction Factor Before Span Adjust:	1.0095
Percent Change:	-1.1%

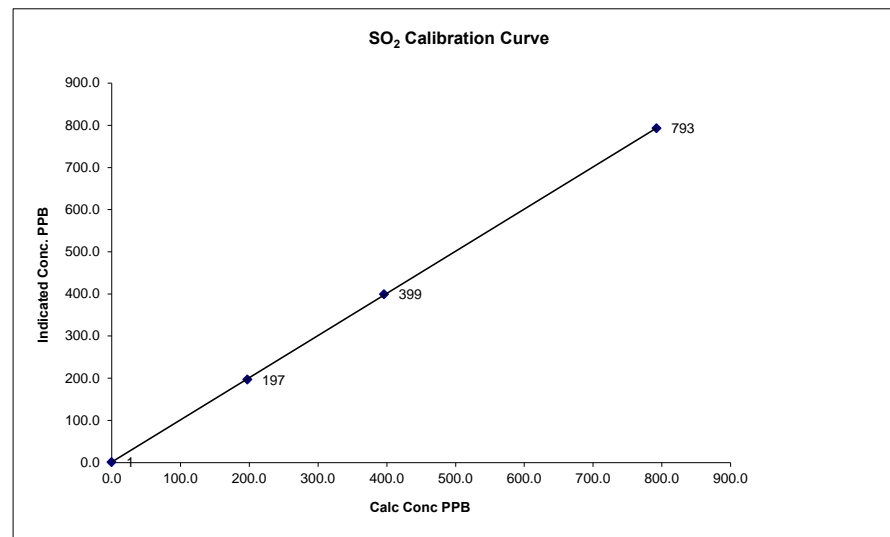
Notes: **N/A : Not applicable**

Calibration Performed by: Jacob Roch / Theo McLaren

SO2 Calibration Curve

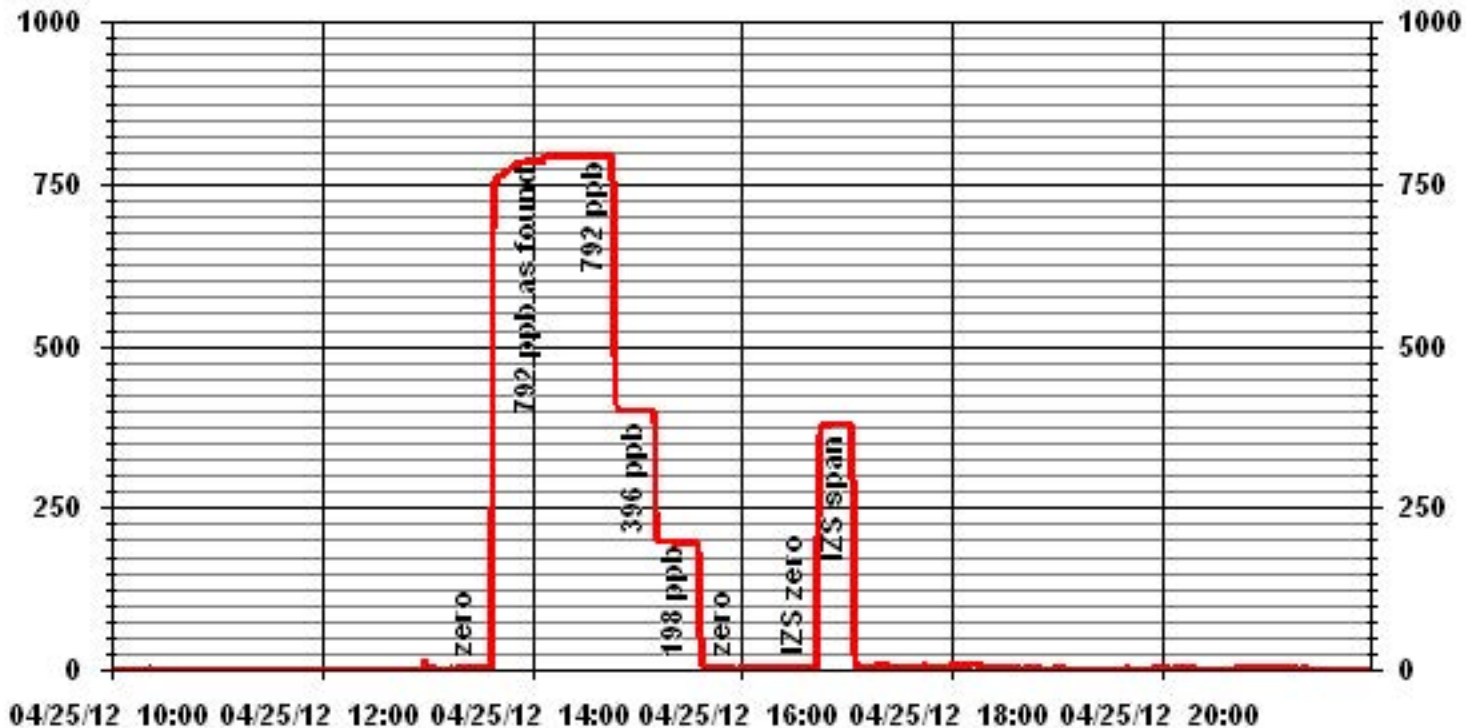
Calibration Date	April 25, 2012
Company	Lakeland Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	13:00
End Time (MST)	17:07

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	1	n/a		0.999981
197	197	1.0025		1.000339
396	399	0.9924		0.896083
792	793	0.9993		



Notes:

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report
Station Information

Calibration Date	April 25, 2012	Previous Calibration	March 29, 2012
Company	Lakelnad Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	13:00	End Time (MST)	17:07
Reason:	Monthly Calibration		
Barometric Pressure	926 mBar	Station Temperature	21 Deg C
Cal Gas	9.9 ppm	Gas Cyl. #	LL42561
		Cal Gas Expiry date	December 27, 2012
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	NA Volts

Equipment Information

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

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 100 ppb		
Sample Flow / Box Temp	476 ccm 32.1 Deg C	476 ccm 32.4 Deg C	
HVPS / Lamp Setting	552 2465	552 2464	
PMT / RxCell Temp	7.9 Deg C 50 Deg C	7.9 Deg C 50 Deg C	
Converter / IZS Temp	315.3 Deg C 45 Deg C	315 Deg C 45.0 Deg C	
Offset / Slope	38.2 0.82	38.2 0.843	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4997	0	0	0	NA
	No Zero Adj.			
4960	40.4	80	78	1.0255
4960	40.4	80	80	1.0000
4982	20.2	40	40	1.0000
4985	11.6	23	22	1.0447
4998	0	0	-1	NA
Sum of Least Squares				1.0024
New Correction Factor				1.0000

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	0.0		0.0
Auto Span	60.0		59.0
Sample Lines Connected			YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0255
Percent Change:	-2.5%

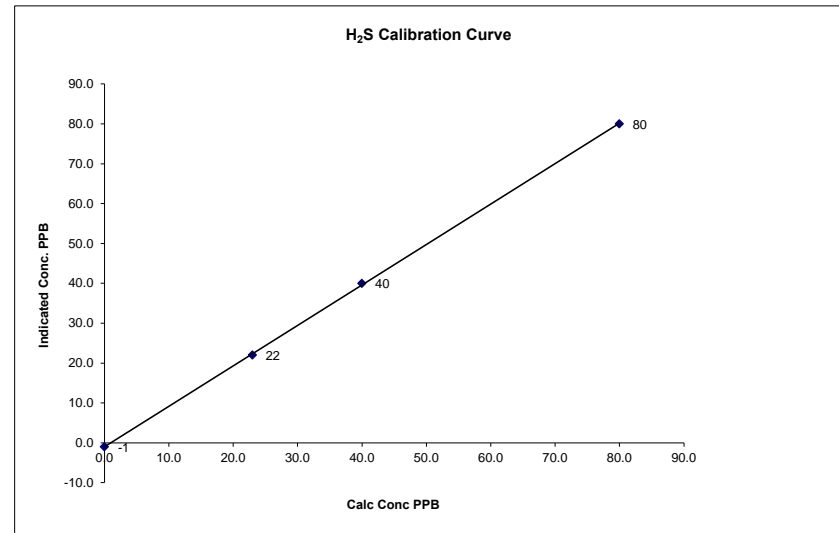
Notes: **NA : Not Applicable**

Calibration Performed by: Jacob Roch / Theo McLaren

H₂S Calibration Curve

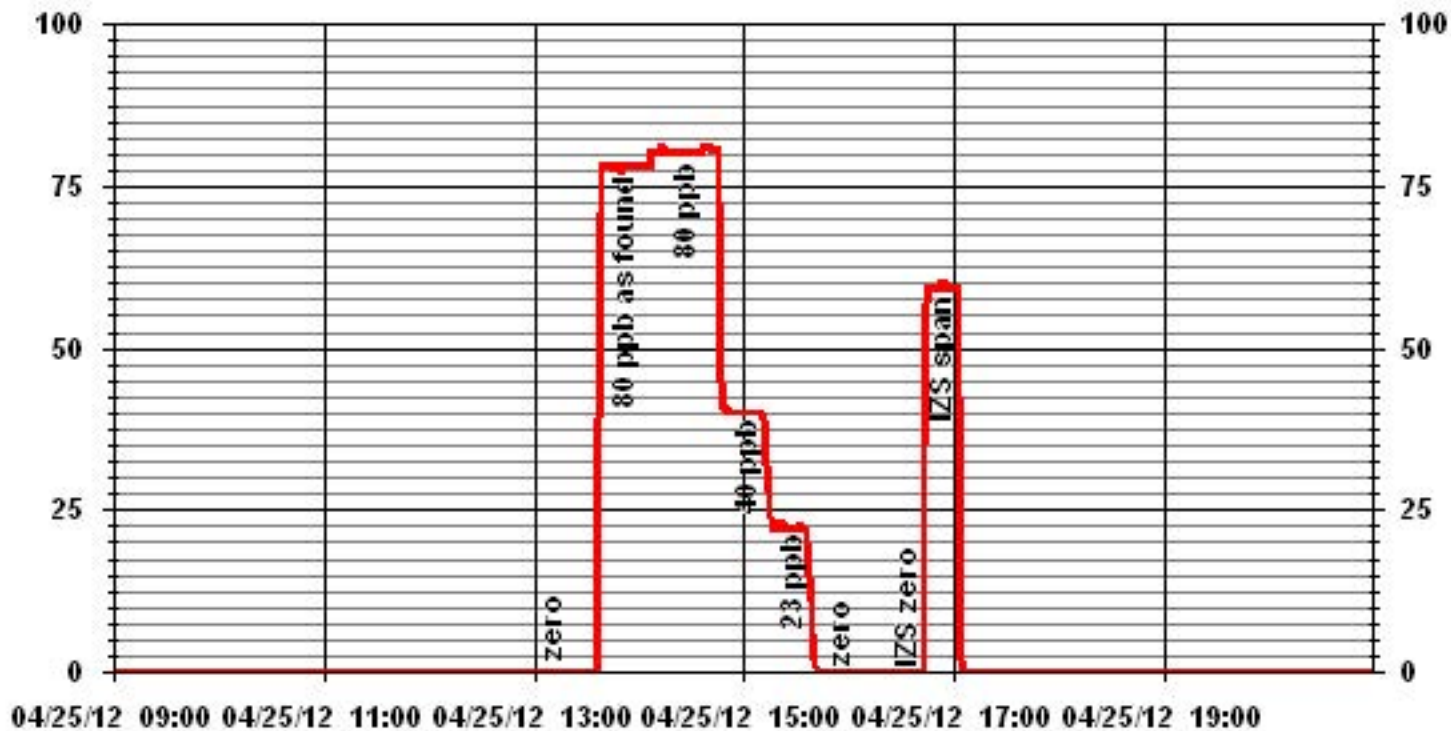
Calibration Date	April 25, 2012
Company	Lakelnad Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	13:00
End Time (MST)	17:07

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999910
0	-1		Intercept	(± 3% F.S.)	-0.999679
23	22	1.0447			
40	40	0.9995			
80	80	0.9998			



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	April 25, 2012	Previous Calibration	March 29, 2012
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	Maskwa		
Start Time (MST)	13:00	End Time (MST)	17:07
Reason:	Monthly Calibration		
Barometric Pressure:	927 mmHg	Station Temperature:	22 Deg C
Calibrator:	API 700	S/N:	690
Cal Gas Concentration:	CH4 600 PPM TOTAL CH4 1161.0 PPM	C3H8 204 PPM Gas Cyl. # LL84144	Cal Gas Expiry Date: December 3, 2013
DAS make & Model:	ESC 8832	S/N :	AO 791
Chart Recorder:	NA	S/N:	NA
Output Voltage Range:	0 - 1 VDC	Chart Speed:	NA mm/hr

Analyzer Information

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

Analyzer Settings

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

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	-0.1	NA
	No Zero Adj.			
2000	74.0	41.4	40.6	1.0203
2000	74.0	41.4	41.7	0.9934
2000	37.0	21.1	21.0	1.0042
2000	21.0	12.1	11.9	1.0138
2000	0.0	0.0	-0.1	NA
New Correction Factor:				0.9934

Percent Change

Previous Calibration Correction Factor:	0.9930
Current Correction Factor Before Span Adjust:	1.0203
Percent Change:	-2.7%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	32.2	23.9
Sample Lines Connected	YES	

Cylinder Pressures			
Span	1100 psi	Hydrogen 1100 psi	Zero Air 32 psi

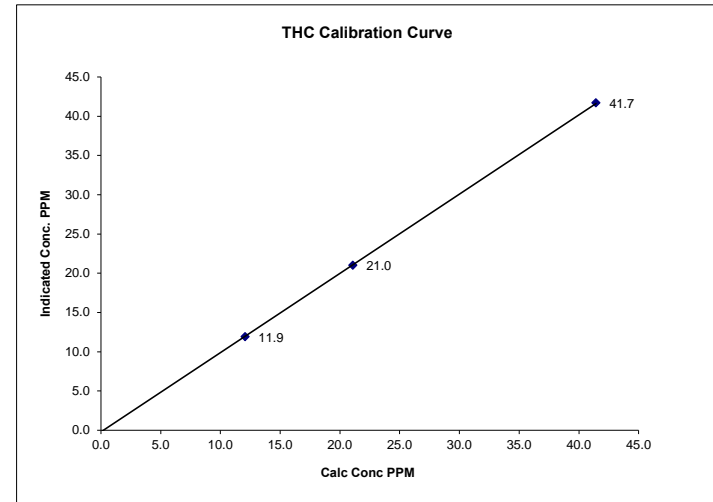
Notes: **NA : Not Applicable**
 Hit Wrong cal program during time to adjust span causing point to drop. Then ten minute delay while getting instructions on which program to use. Then span was adjusted.

Calibration Performed by: Jacob Roch/ Theo McLaren

THC Calibration Curve

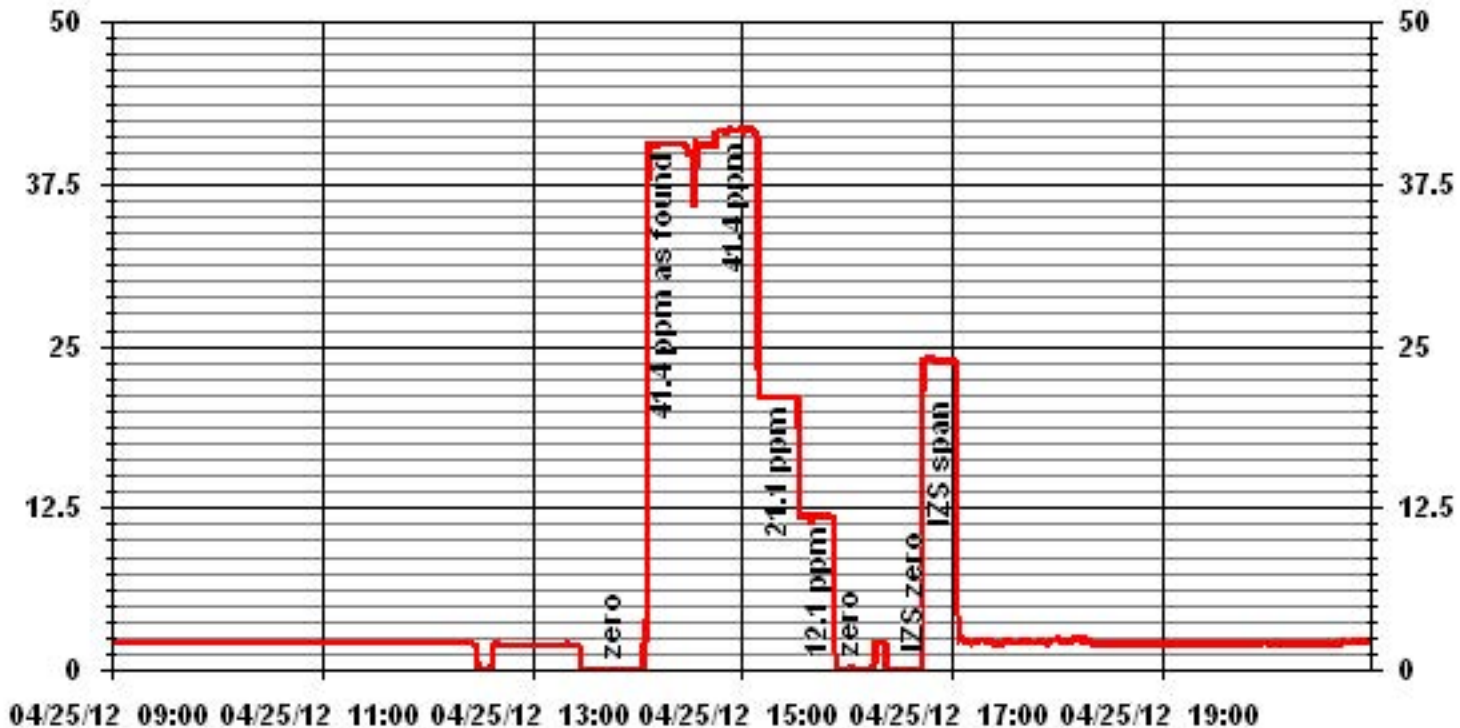
Calibration Date	April 25, 2012		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Maskwa		
Start Time (MST)	13:00	End Time (MST)	17:07

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient (≥ 0.995)	Slope (0.85 to 1.15)	Intercept (± 3% F.S.)
0.0	-0.1	NA	0.999967	1.009835	-0.20249
12.1	11.9	1.0138			
21.1	21.0	1.0042			
41.4	41.7	0.9934			



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	April 25, 2012		Previous Calibration		March 29, 2012	
Company	LICA		Plant/Location		Maskwa	
Start Time (MST)	13:00		End Time (MST)		19:05	
Reason:	Monthly Calibration					
Barometric Pressure	926 mBar	Station Temperature	21 Deg C	MFCF	1	
Cal Gas Concentration	NOx 50.3 ppm	NO	50.3 ppm	Cal Gas Expiry date	December 29, 2013	
Cal Gas Cylinder #	LL67757					
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:	EnviroNics 2000	S/N:	1991		
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Chart Recorder Make / Model:	Not in use		S/N:	NA	
Flow Meter:	EnviroNics 2000	S/N :	1991		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	459 ccm			0 - 1000 ppb			
Sample Flow/Conv. Temp	315 Deg C			469 ccm	315 Deg C		
Ozone Flow / Vacuum	79 ccm	5.4 *Hg-A		79 ccm	5.4 *Hg-A		
HVPS / A ZERO	767 Volts	16.2 MV		767 Volts	17.3 MV		
Rx/ Temp / PMT Temp	50.0 Deg C	6.5 Deg C		50.0 Deg C	6.6 Deg C		
Box Temp / IZS Temp	30.6 Deg C	40.2 Deg C		31.3 Deg C	40.1 Deg C		
Offset	0.9 NOx	0.8 NO		0.9 NOx	0.8 NO		
Slope	1.240 NOx	1.237 NO		1.245 NOx	1.248 NO		
NO2 COEF / Conv Efficiency	NA NO2	0.994		NA NO2	0.994		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
5022	0.0	NA	0	0	NA	1	1	1	NA	NA
	No Zero Adj.									
4935	79.8	NA	800	800	NA	799	791	9	1.0030	1.0132
4935	79.8	NA	800	800	NA	802	800	2	0.9993	1.0000
4976	39.9	NA	400	400	NA	406	404	2	0.9880	0.9929
4998	19.9	NA	199	199	NA	202	202	1	0.9924	0.9924
5020	0.0	NA	0	0	NA	1	1	0	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4921	79.5	NA	800	800	NA	805	806	-1	NA	
	No Adj.									
4921	79.5	560	800	NA	572	802	233	571	1.0035	
4921	79.5	290	800	NA	296	805	509	296	1.0034	
4921	79.5	120	800	NA	122	805	683	123	1.0000	

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 0.998	NO= 1.007	NO2= 1.001
				NOx= 0.9993	NO= 1.0000	NO2= 1.0035
				Average Converter Efficiency= 100.21%		

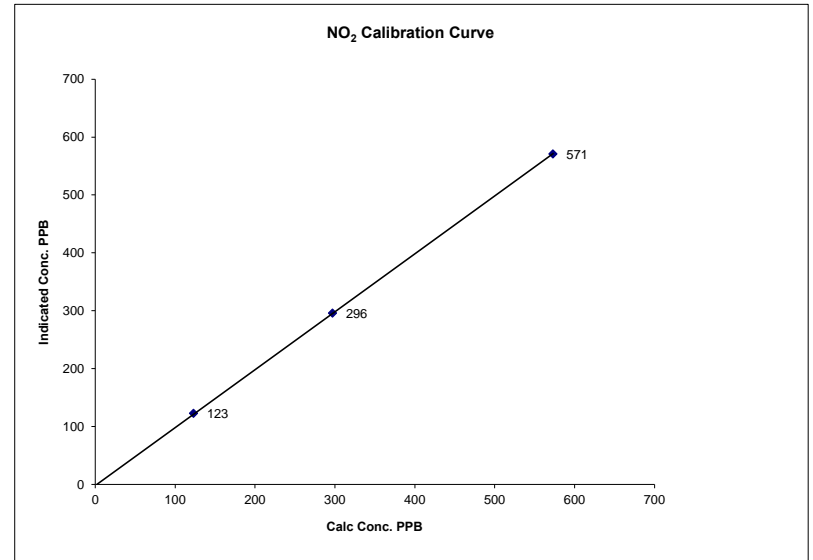
IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	0.0 NOx	0.0 NO2		0.0 NOx	0.0 NO2		
Auto Span	635 NOx	622 NO2		618 NOx	606 NO2		
				Sample Lines Connected: YES			
Percent Change from Previous Calibration				NOx -0.3%	NO -1.0%	NO2 0.0%	
Notes	NA : Not Applicable						
Calibration Performed by: Jacob Roch / Theo McLaren							

NO2 Calibration Curve

Calibration Date	April 25, 2012	
Company	LICA	
Plant / Location	Maskwa	
Start Time (MST)	13:00	End Time (MST) 19:05

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999973
2	-1	N/A	Intercept	(± 3% F.S.)	1.000236
123	123	1.0000			-1.55876
297	296	1.0034			
573	571	1.0035			

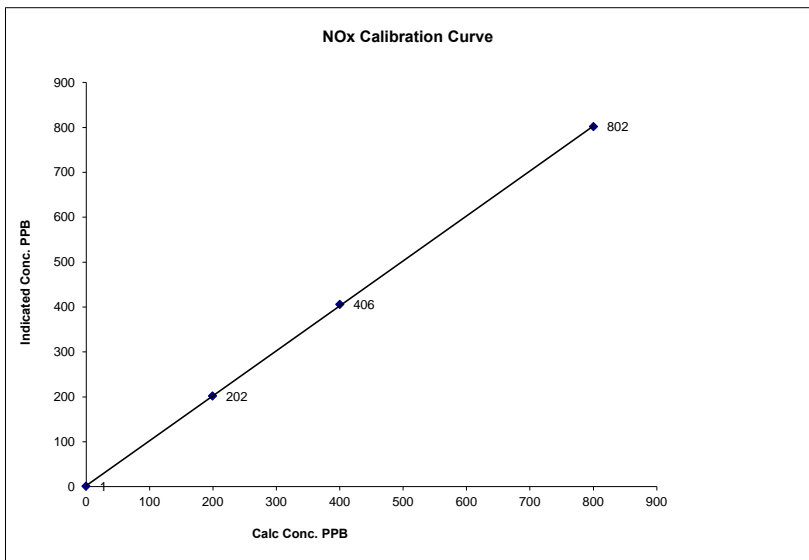


Notes:

NOx Calibration Curve

Calibration Date	April 25, 2012	
Company	LICA	
Plant / Location	Maskwa	
Start Time (MST)	13:00	End Time (MST) 19:05

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999960
0	1	N/A	Slope (0.85 to 1.15)	1.000792
199	202	0.9875	Intercept (± 3% F.S.)	2.46790
400	406	0.9855		
800	802	0.9980		

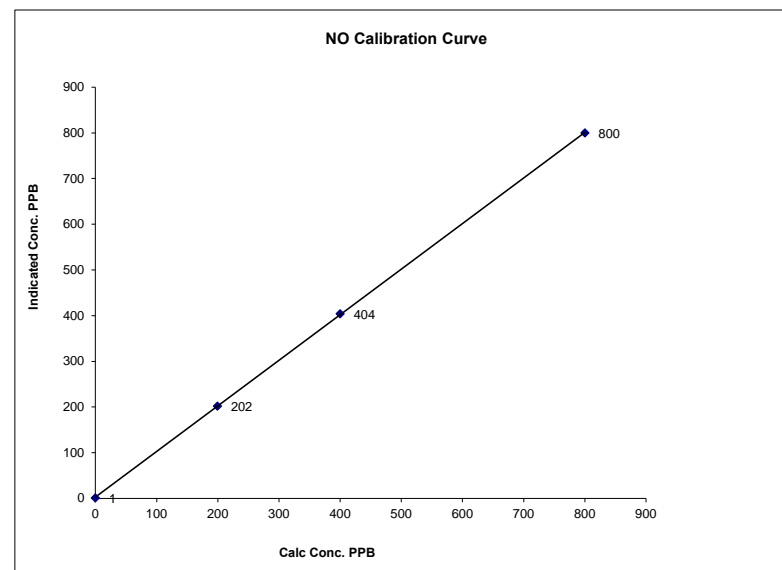


Notes:

NO Calibration Curve

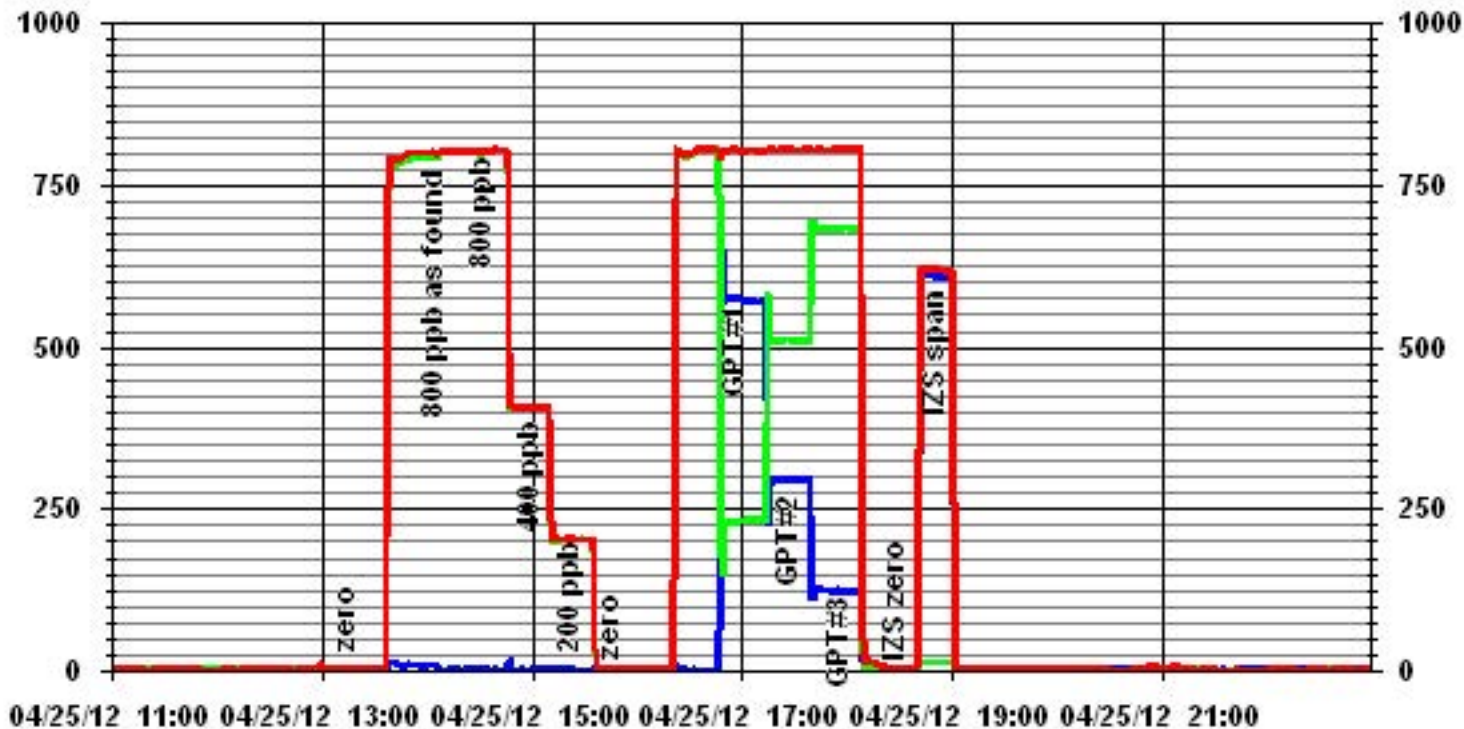
Calibration Date	April 25, 2012	
Company	LICA	
Plant / Location	Maskwa	
Start Time (MST)	13:00	End Time (MST) 19:05

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999975
0	1	N/A	Slope (0.85 to 1.15)	0.994278
199	202	0.9875	Intercept (± 3% F.S.)	8.1736
400	404	0.9904		
800	800	1.0005		



Notes:

01 Minute Averages



— LICA30 NOX_ PPB

— LICA30 NO_ PPB

— LICA30 NO2_ PPB

Lakeland Industry & Community Association

Portable / Elk Point Airport Monitoring Site

Ambient Air Monitoring Data Report

For

April 2012

Prepared By:



May 24, 2012

Lakeland Industry & Community Association Portable / Elk Point Airport 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 / Elk Point Airport
Data Period: April 2012

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Katherine Rapske

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 –
 - ELK POINT AIRPORT -

Continuous Ambient Monitoring – April 2012

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PORTABEL / ELK POINT AIRPORT 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
SO ₂ (PPB)	172	48	0	0	0.01	1	VAR	VAR	VAR	VAR	0.3	3	100.0
H ₂ S (PPB)	10	3	0	0	0.01	1	VAR	VAR	VAR	VAR	0.1	16, 29	100.0
THC (PPM)	-	-	-	-	2.47	8.7	22	3	1.4	140(SE)	3.8	22	100.0
NO ₂ (PPB)	159	-	0	-	2.79	23	18	5	3.4	129(SE)	7.4	18	100.0
NO (PPB)	-	-	-	-	0.44	13	22	6	5.8	120(ESE)	1.6	22	100.0
NO _x (PPB)	-	-	-	-	3.38	32	10, 22	5, 6	6.6, 5.8	110(ESE), 120(ESE)	8.3	18	100.0
O ₃ (PPB)	82	-	0	-	36.33	63	22	VAR	VAR	VAR	49.0	15	1000.0
PM 2.5 (UG/M ³)	-	30	-	2	NA	NA	NA	NA	NA	NA	NA	NA	0.0
VECTOR WS (KPH)	-	-	-	-	13.22	38.9	1	17	-	314(NW)	29.8	26	100.0
VECTOR WD (DEGREES)	-	-	-	-	81(E)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS

Volatile Organics Data Summary
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
- PORTABLE – Elk Point Airport Site

Xontech Model 910A – April 03, 2012

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

Xontech Model 910A – April 10, 2012

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

Xontech Model 910A – April 15, 2012

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

Xontech Model 910A – April 21, 2012

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

Xontech Model 910A – April 27, 2012

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

Polycyclic Aromatic Hydrocarbons (PAHs) Data Summary
LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
- PORTABLE – Elk Point Airport Site

PUF cartridge – April 03, 2012

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

PUF cartridge – April 10, 2012

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

PUF cartridge – April 21, 2012

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

PUF cartridge – April 27, 2012

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

General Monthly Summary

Equipment Operation

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

AQM STATION – LICA – PORTABLE

Sulphur Dioxide (PPB)

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

No operational issues were observed this month. The inlet filter was replaced before the monthly calibration was started on April 12th. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

No operational issues were observed this month. The inlet filter was replaced before the monthly calibration was started on April 12th. The hourly maximum reading recorded at hour 22 on April 27th was invalid as the data went above the full scale. This was likely due to an analyzer spike. Some daily span results went above +10% of the limited range because the expected span value was set too low after the installation calibration last month. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

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

No operational issues were observed this month. The inlet filter was replaced before the monthly calibration was started on April 12th. 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 were observed this month. The inlet filter was replaced before the monthly calibration was started on April 12th. The hourly maximum reading recorded at hour 17 on April 29th was invalid as less than 100% of data of the hour was collected: Reason unknown. Data was corrected using daily zero information.

THC (PPM)

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

No operational issues were observed this month. The inlet filter was replaced before the monthly calibration was started on April 12th. Data was corrected using daily zero information.

Particulate Matter 2.5 (ug/m³)

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

No hourly data was recorded this month as the Teom unit was removed from the trailer and sent to the manufacturer for repair on March 15th.

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

- System make / model –RM Young 5103VK, S/N: 43708

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

No operational issues were observed this month.

The latest wind system calibration was done on November 24th, 2011 by manufacturer.

General Monthly Summary

AQM STATION – LICA – PORTABLE

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 recorded this month.

Air Quality Index (AQI)

No AQI report for April is included in this report as not enough parameters (no PM2.5) were available to calculate the AQI value.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Volatile Organics (VOCs)

The volatile organics were sampled from April 3rd to April 27th. 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. Due to field tech shortage, the scheduled sample running date for April 9th was moved to April 10th.

Polycyclic Aromatic Hydrocarbons (PAHs)

The PAHs scheduled to be sampled from April 3rd to April 27th. 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. Due to field tech shortage, the scheduled sample running date for April 9th was moved to April 10th. No sample was collected on April 15th as the PUFF glass holder was broken when received.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -PORTABLESITE - Elk Point Airport

APRIL 2012

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	MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PEAK		O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_	O3_

STATUS FLAG CODES NA - NOT APPLICABLE

AQI CLASS	OZONE (O ₃)					PARTICULATE MATTER 2.5 (PM _{2.5})					NITROGEN DIOXIDE (NO ₂)					SULPHUR DIOXIDE (SO ₂)					FREQUENCY	
	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
GOOD (1-25)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
OVERALL	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	720	100.0%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

APRIL 2012

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

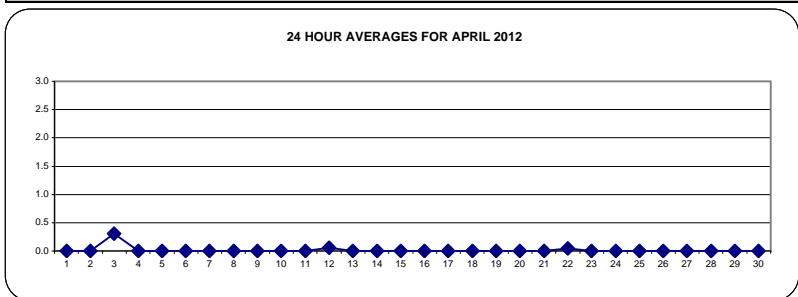
MST

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.	
DAY																												
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	IZS	0	0.0	24
3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	1	1	IZS	0	0	0	1	0.3	24
4	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	IZS	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	IZS	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	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	IZS	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	IZS	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	IZS	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	24	
12	0	0	0	0	0	0	0	C	C	C	C	C	IZS	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
13	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	IZS	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	IZS	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	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	0	0.0	24	
18	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	
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	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	1	0	0	0	0	1	0.0	24
23	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	
24	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
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	IZS	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	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	
HOURLY MAX	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	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	0.1	0.0	0.0	0.0	0.0	0.0			

STATUS FLAG CODES

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

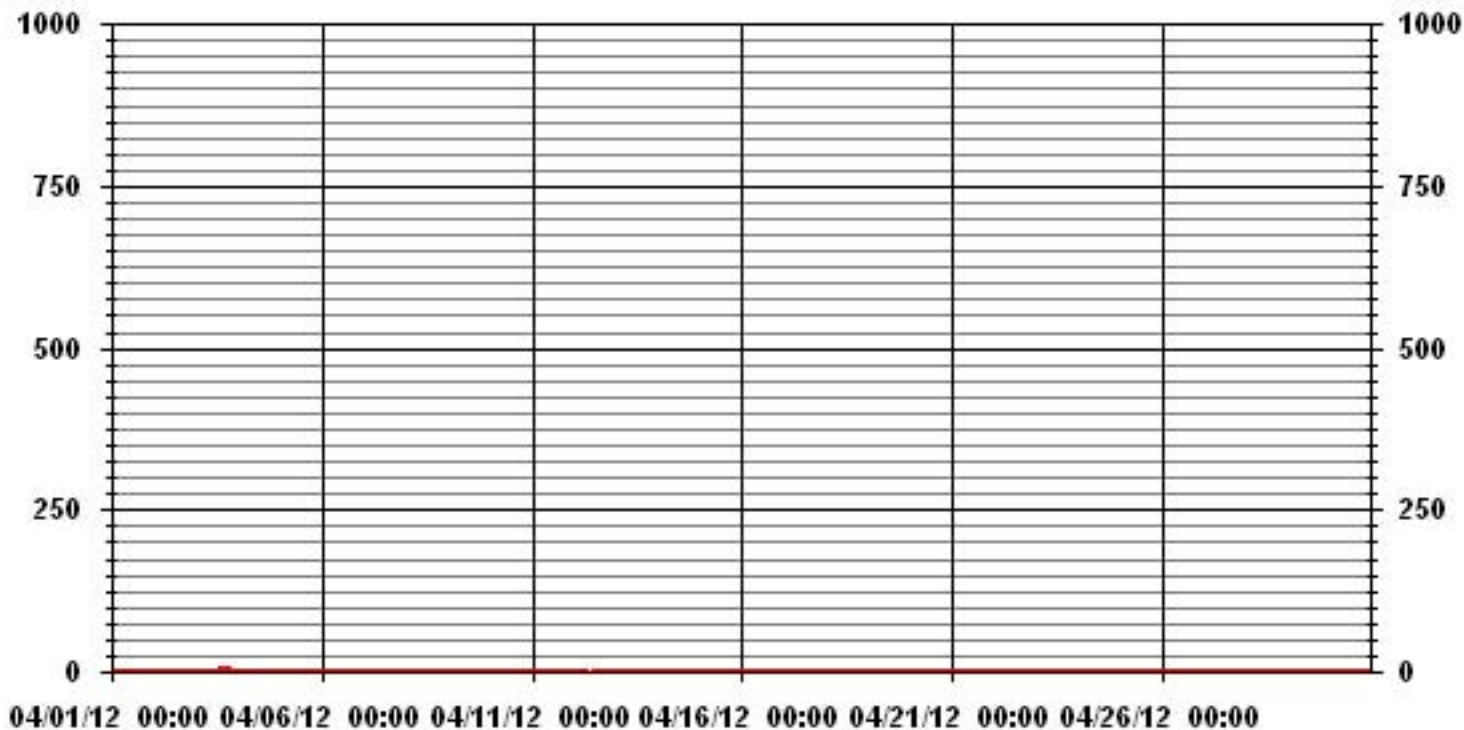
OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 1-HR 172 PPB 24-HR 48 PPB



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	9
MAXIMUM 1-HR AVERAGE:	1 PPB @ HOUR(S) VAR ON DAY(S)
MAXIMUM 24-HR AVERAGE:	0.3 PPB ON DAY(S) 3
IZS CALIBRATION TIME:	30 HRS
OPERATIONAL TIME:	720 HRS
MONTHLY CALIBRATION TIME:	5 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.11
MONTHLY AVERAGE:	0.01 PPB

01 Hour Averages



— LICA35 SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -PORTABLE SITE - Elk Point Airport

APRIL 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppt

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

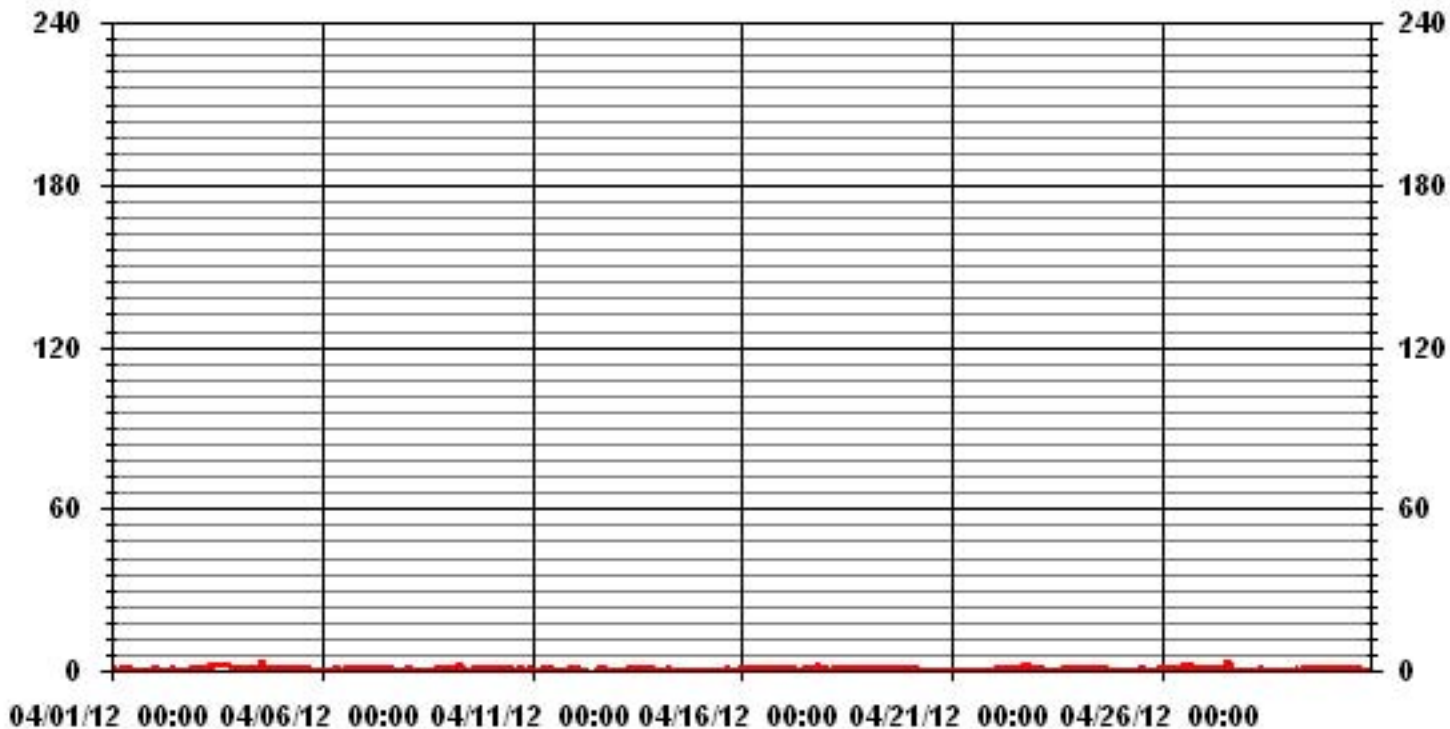
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	361
MAXIMUM INSTANTANEOUS VALUE:	4 PPB @ HOUR(S) 14, 14 ON DAY(S) 4, 27
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	6 HRS
OPERATIONAL TIME:	720 HRS
STANDARD DEVIATION:	0.60

01 Hour Averages



— LICA35 SO2MAX PPB

LICA-ELK
 SO2_ / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 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	5.54	5.10	2.77	4.52	11.53	14.16	14.16	3.79	2.77	2.62	2.04	1.75	5.40	7.00	8.90	7.88	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.54	5.10	2.77	4.52	11.53	14.16	14.16	3.79	2.77	2.62	2.04	1.75	5.40	7.00	8.90	7.88	

Calm : .00 %

Total # Operational Hours : 685

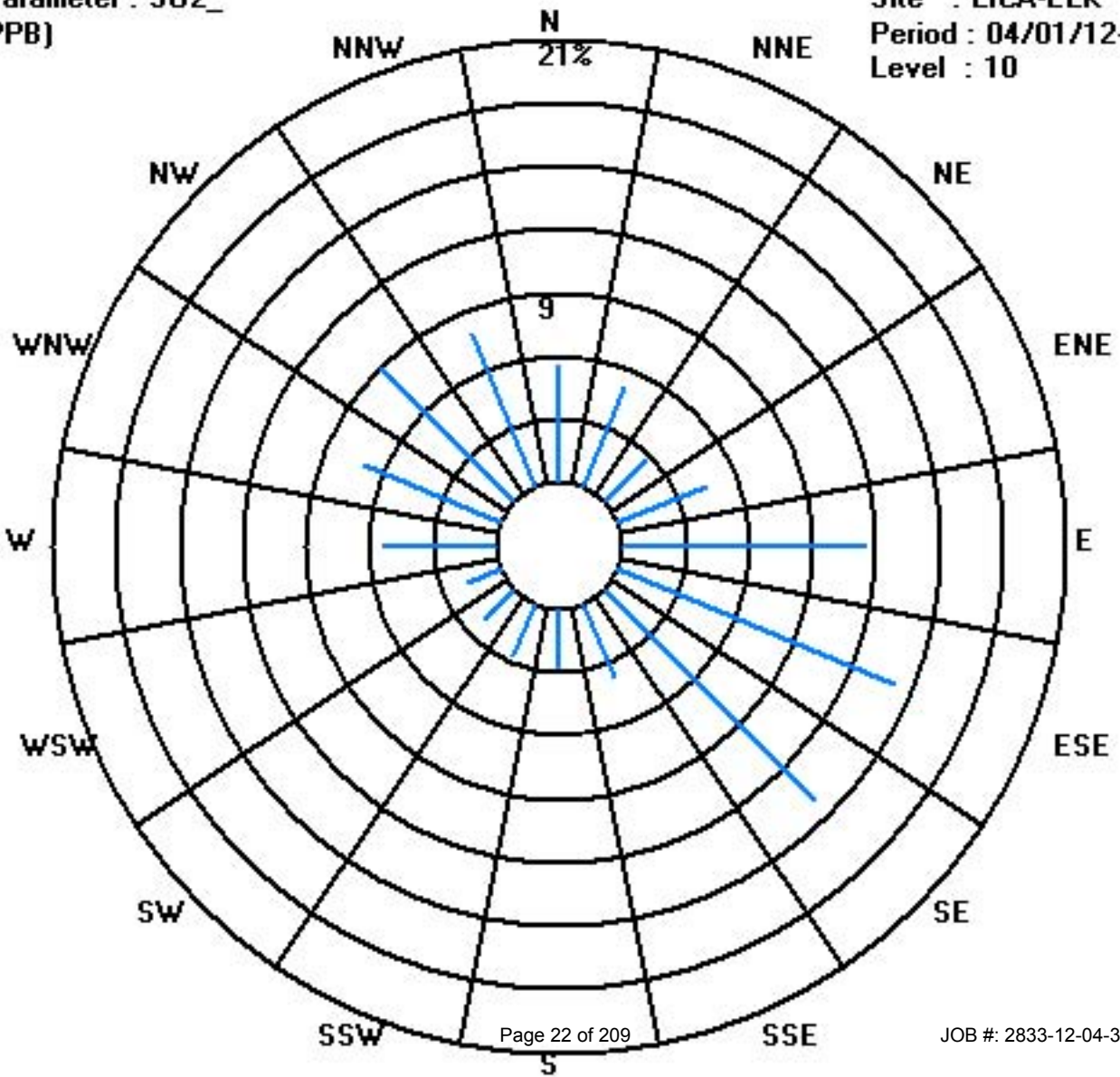
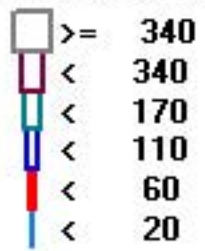
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	38	35	19	31	79	97	97	26	19	18	14	12	37	48	61	54	685
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	38	35	19	31	79	97	97	26	19	18	14	12	37	48	61	54	

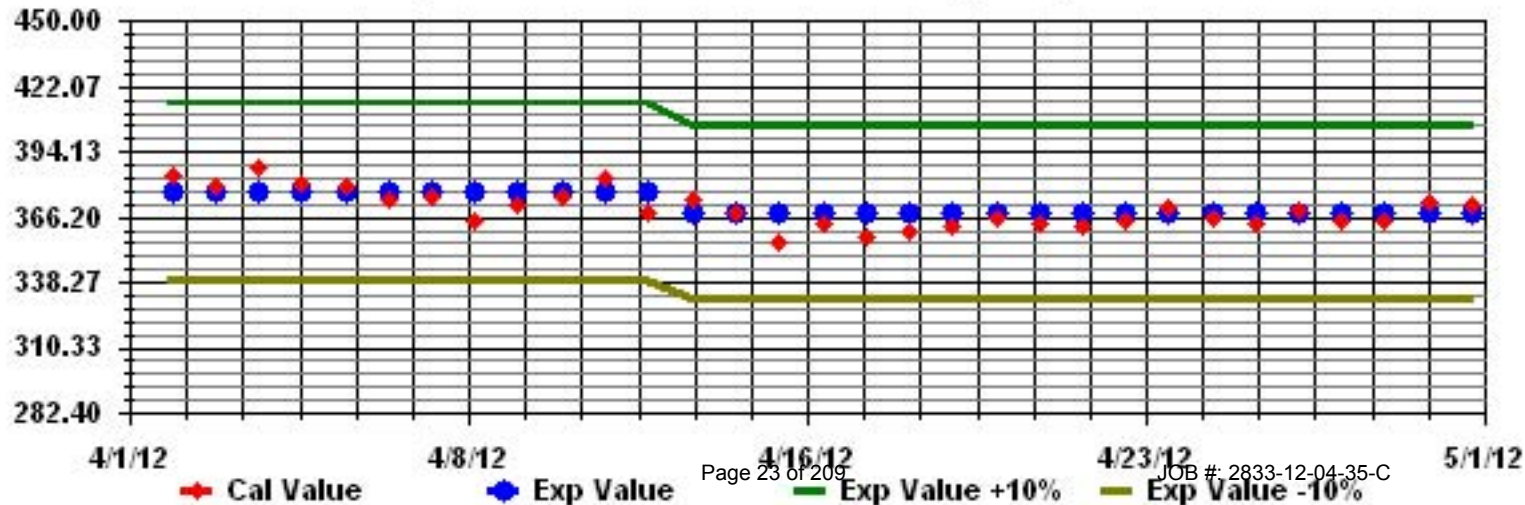
Calm : .00 %

Total # Operational Hours : 685

Class Limits (PPB)



Calibration Graph for Site: LICA35 Parameter: S02_ Sequence: S02 Phase: SPAll



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE - Elk Point Airport

APRIL 2012

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	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
DAY																														
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
4		0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
9		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
11		0	0	0	0	0	0	0	0	0	0	0	0	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	C	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
13		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
14		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
16		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
HOURLY MAX		0	0	0	0	0	0	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 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	24

STATUS FLAG CODES

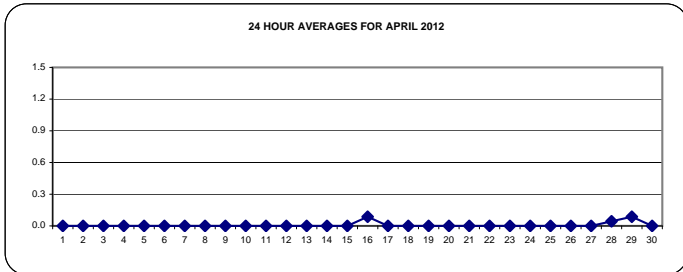
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

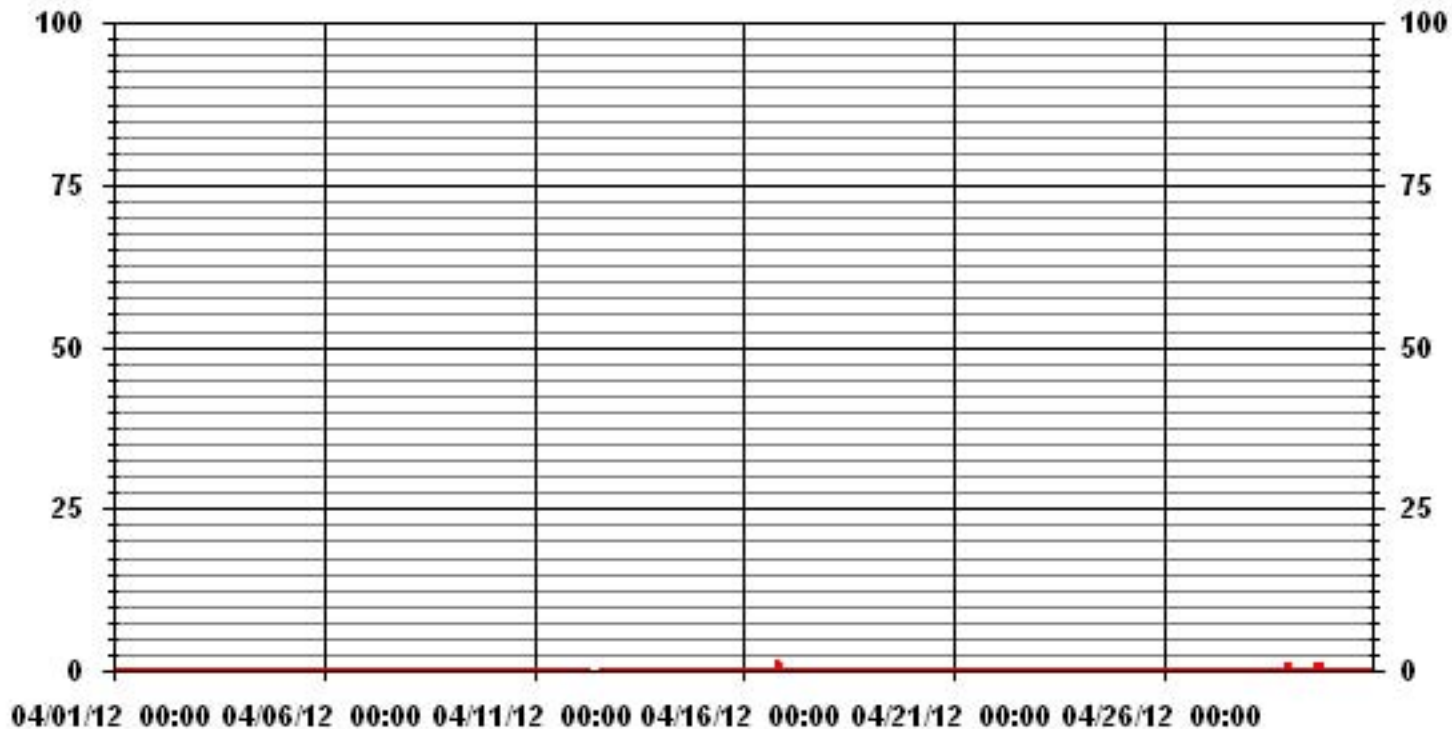
ALBERTA ENVIRONMENT: 1-HR 10 PPB 24-HR 3 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	5
MAXIMUM 1-HR AVERAGE:	1 PPB @ HOUR(S) VAR ON DAY(S) VAR
MAXIMUM 24-HR AVERAGE:	0.1 PPB ON DAY(S) 16, 29 VAR-VARIOUS
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	8 HRS
OPERATIONAL TIME:	720 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.09
MONTHLY AVERAGE:	0.01 PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

APRIL 2012

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

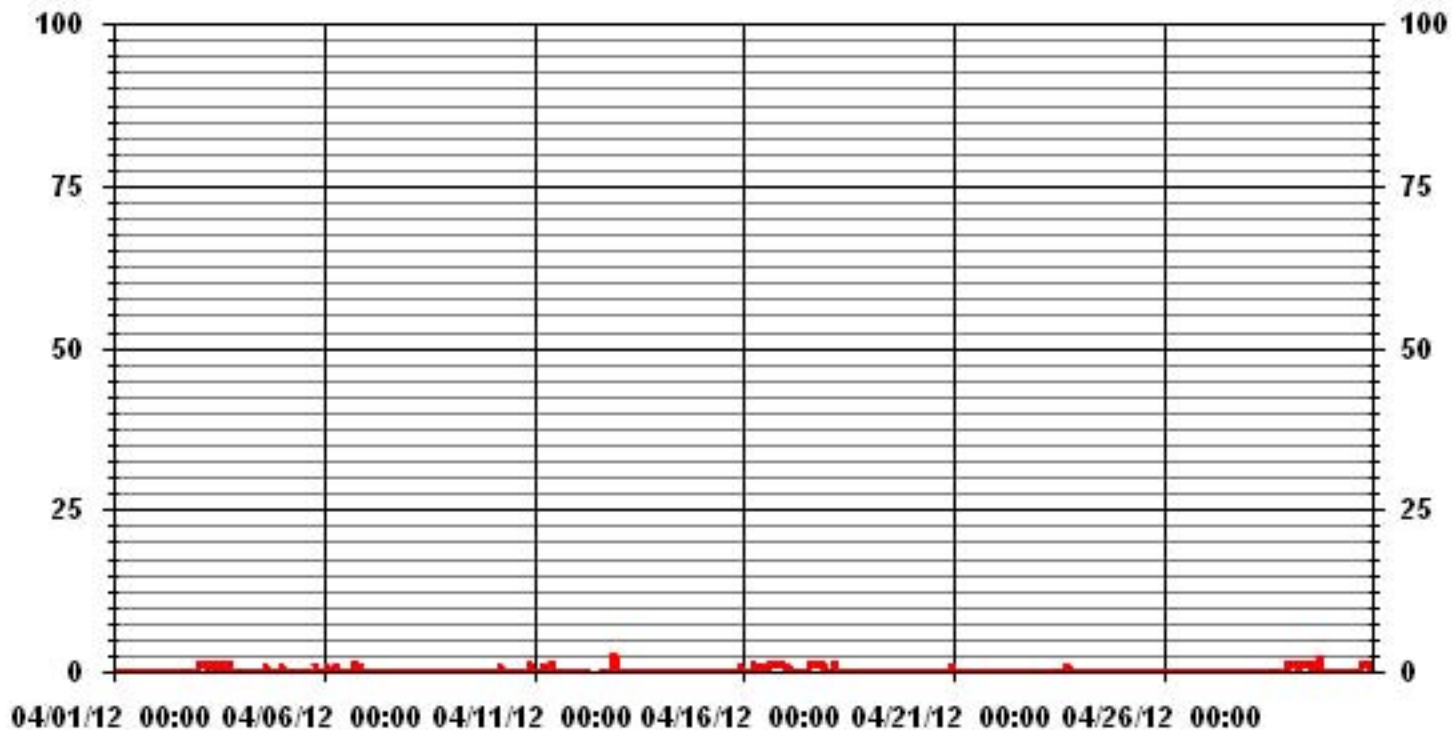
STATUS FLAG CODES

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:	77					
MAXIMUM INSTANTANEOUS VALUE:	3	PPB	@ HOUR(S)	22	ON DAY(S)	12
	VAR - VARIOUS					
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	719	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	0.34					

01 Hour Averages



LICA-ELK
H2S_ / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
Parameter : H2S_
Units : PPB

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	5.57	5.13	2.78	4.54	11.14	14.22	14.22	3.81	2.78	2.63	2.05	1.75	5.42	7.03	8.94	7.91	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.57	5.13	2.78	4.54	11.14	14.22	14.22	3.81	2.78	2.63	2.05	1.75	5.42	7.03	8.94	7.91	

Calm : .00 %

Total # Operational Hours : 682

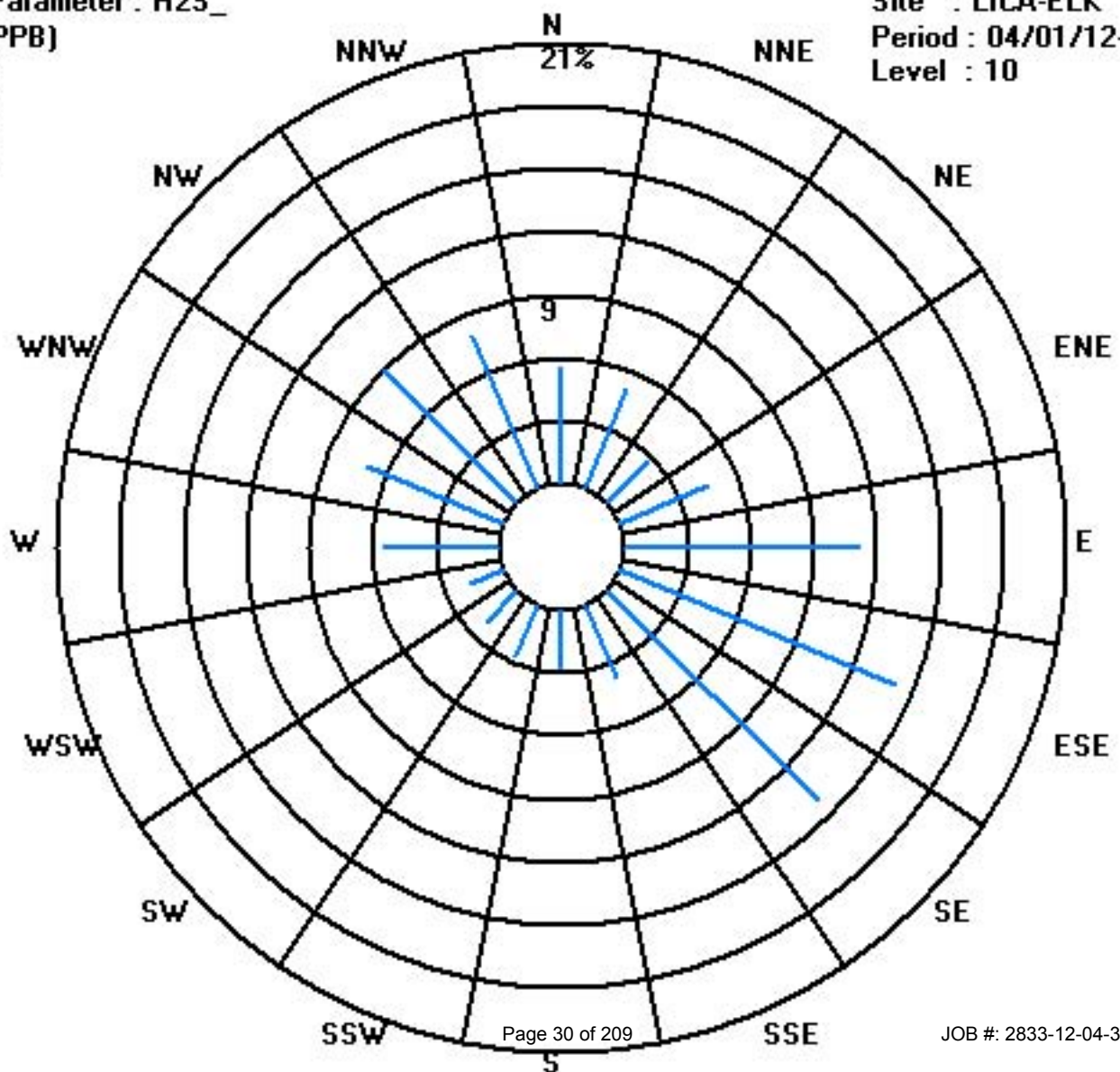
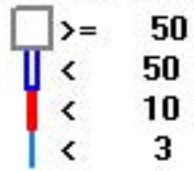
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	38	35	19	31	76	97	97	26	19	18	14	12	37	48	61	54	682
< 10																	
< 50																	
>= 50																	
Totals	38	35	19	31	76	97	97	26	19	18	14	12	37	48	61	54	

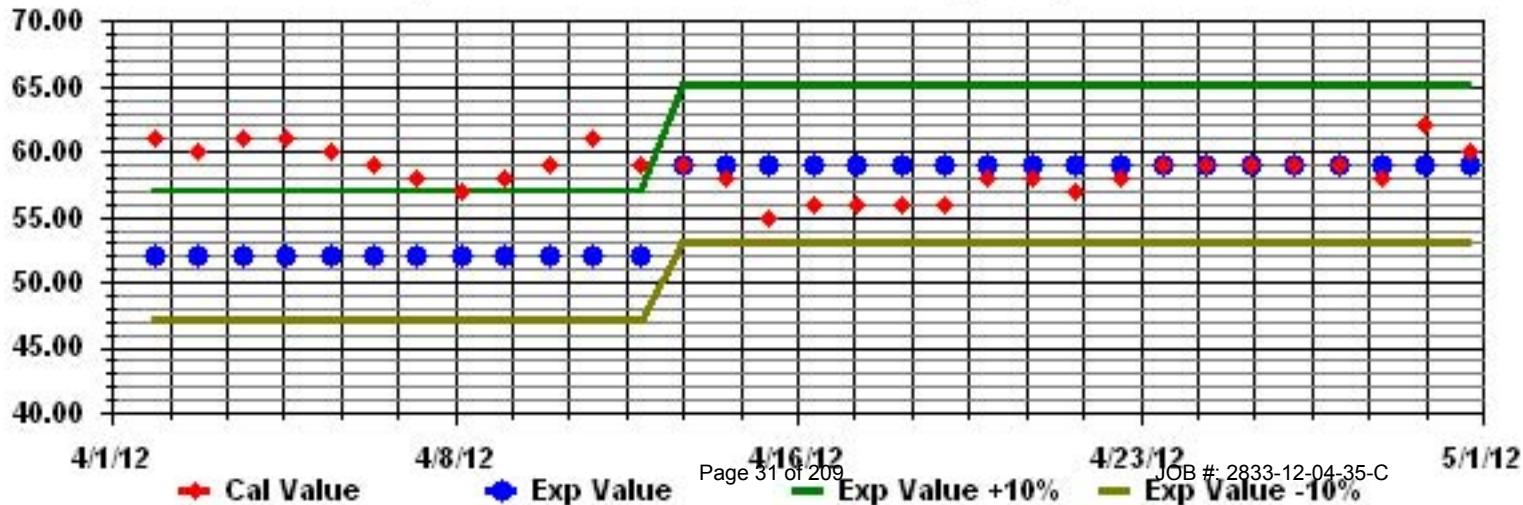
Calm : .00 %

Total # Operational Hours : 682

Class Limits (PPB)



Calibration Graph for Site: LICA35 Parameter: H2S_ Sequence: H2S Phase: SPAll



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Poinr Airport

APRIL 2012

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

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

STATUS FLAG CODES

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

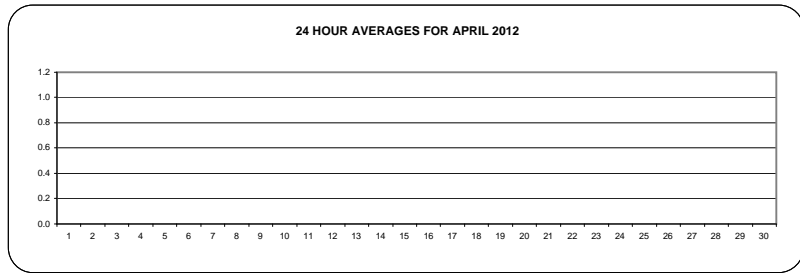
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT:	1-HR	-	PPB	24-HR	30	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-
NUMBER OF 24-HR EXCEEDENCES:	0 PROPOSED CANADA WIDE GUIDELINE
NUMBER OF NON-ZERO READINGS:	0
MAXIMUM 1-HR AVERAGE:	NA UG/M ³ @ HOUR(S) NA ON DAY(S) NA
MAXIMUM 24-HR AVERAGE:	NA UG/M ³ ON DAY(S) NA
IZS CALIBRATION TIME:	0 HRS
MONTHLY CALIBRATION TIME:	0 HRS
OPERATIONAL TIME:	0 HRS
AMD OPERATION UPTIME:	0.0 %
STANDARD DEVIATION:	NA UG/M ³
MONTHLY AVERAGE:	NA UG/M ³

24 HOUR AVERAGES FOR APRIL 2012



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

APRIL 2012

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	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00					
1	1	2	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	IZS	2	2	0.4	24		
2	2	3	3	7	6	4	7	4	3	3	2	2	1	1	0	0	0	0	0	3	11	10	IZS	7	4	11	3.5	24		
3	3	6	5	2	3	4	6	4	3	2	2	0	0	0	0	0	0	0	1	1	IZS	5	6	4	6	2.3	24			
4	4	5	6	9	7	7	14	16	10	1	0	0	0	0	0	0	0	1	1	IZS	1	1	1	1	16	3.5	24			
5	5	0	0	0	0	1	2	9	3	1	0	0	0	0	0	0	0	0	0	IZS	3	3	4	6	9	9	1.8	24		
6	6	5	7	9	8	8	5	12	5	2	1	1	0	0	0	0	0	0	IZS	0	0	2	4	9	7	12	3.7	24		
7	7	13	7	14	4	3	4	2	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	5	4	2	14	2.5	24	
8	8	0	1	2	2	10	3	1	0	0	0	0	0	0	0	0	0	0	0	0	2	3	1	3	10	1.2	24			
9	9	5	5	6	18	11	18	19	8	1	0	0	0	0	0	0	0	0	IZS	0	0	0	3	10	7	13	12	19	5.9	24
10	10	10	9	14	12	14	23	16	7	2	1	1	0	0	IZS	0	0	0	0	1	3	5	1	2	6	23	5.5	24		
11	11	4	3	2	2	2	2	2	2	1	1	1	1	IZS	1	1	1	1	2	2	2	2	1	2	2	4	1.7	24		
12	12	2	2	2	1	2	2	1	C	C	C	C	C	C	C	1	1	3	3	3	1	1	1	1	1	3	1.7	24		
13	13	1	1	1	1	1	2	2	1	1	1	1	1	IZS	1	1	1	2	2	1	1	1	1	1	1	1	2	1.2	24	
14	14	1	3	3	1	3	1	2	3	1	1	IZS	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0.9	24	
15	15	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	2	4	1	3	1	4	0.5	24		
16	16	2	2	2	1	6	20	11	3	IZS	1	1	0	0	0	0	1	1	1	2	5	3	1	1	0	20	2.8	24		
17	17	1	1	2	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	2	12	16	12	13	16	2.6	24		
18	18	11	18	12	11	13	23	IZS	12	7	2	1	1	1	1	0	0	1	1	1	4	11	12	17	10	23	7.4	24		
19	19	9	7	6	8	17	IZS	12	10	7	6	3	1	1	0	0	1	1	1	1	3	9	7	4	5	17	5.2	24		
20	20	4	6	7	5	IZS	5	5	4	3	2	2	2	2	3	2	1	1	1	1	2	9	6	13	18	18	4.5	24		
21	21	9	6	5	IZS	4	4	4	2	0	0	0	0	0	0	0	0	0	3	7	5	6	7	13	13	3.3	24			
22	22	10	16	IZS	21	20	21	19	12	8	4	1	0	0	0	0	1	2	3	1	1	5	2	2	21	6.5	24			
23	23	3	IZS	6	4	3	4	3	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	6	1.1	24			
24	24	IZS	1	1	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	2	0.3	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	IZS	1	1	0.0	24	
26	26	0	1	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	IZS	1	1	1	0.5	24		
27	27	1	1	1	1	1	2	3	2	2	2	1	1	1	1	1	0	2	3	4	IZS	3	2	2	4	1.7	24			
28	28	2	3	2	1	2	2	4	8	4	3	2	1	2	1	0	1	0	0	1	IZS	7	7	6	5	8	2.8	24		
29	29	7	8	9	10	9	9	9	6	6	4	4	3	2	2	2	2	2	1	IZS	4	4	7	11	7	11	5.6	24		
30	30	15	4	3	7	10	11	6	3	2	0	0	0	0	0	0	0	0	IZS	0	0	1	0	0	0	15	2.7	24		
HOURLY MAX	NA	18	14	21	20	23	19	12	8	6	4	3	2	3	2	2	2	3	3	11	12	16	17	18						
HOURLY AVG	NA	4.3	4.4	4.7	5.4	6.6	5.8	3.9	2.0	1.3	0.8	0.4	0.4	0.4	0.3	0.4	0.4	0.6	1.0	2.3	3.7	3.8	4.7	4.6						

STATUS FLAG CODES

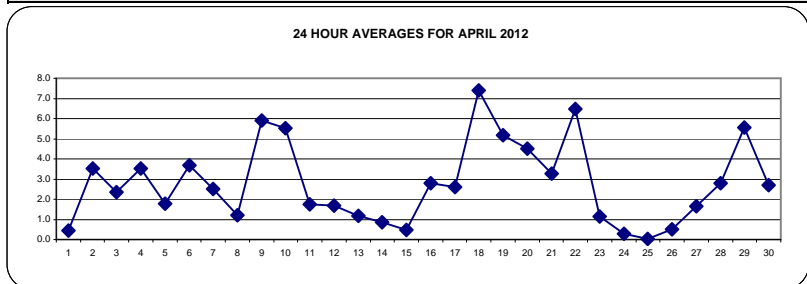
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

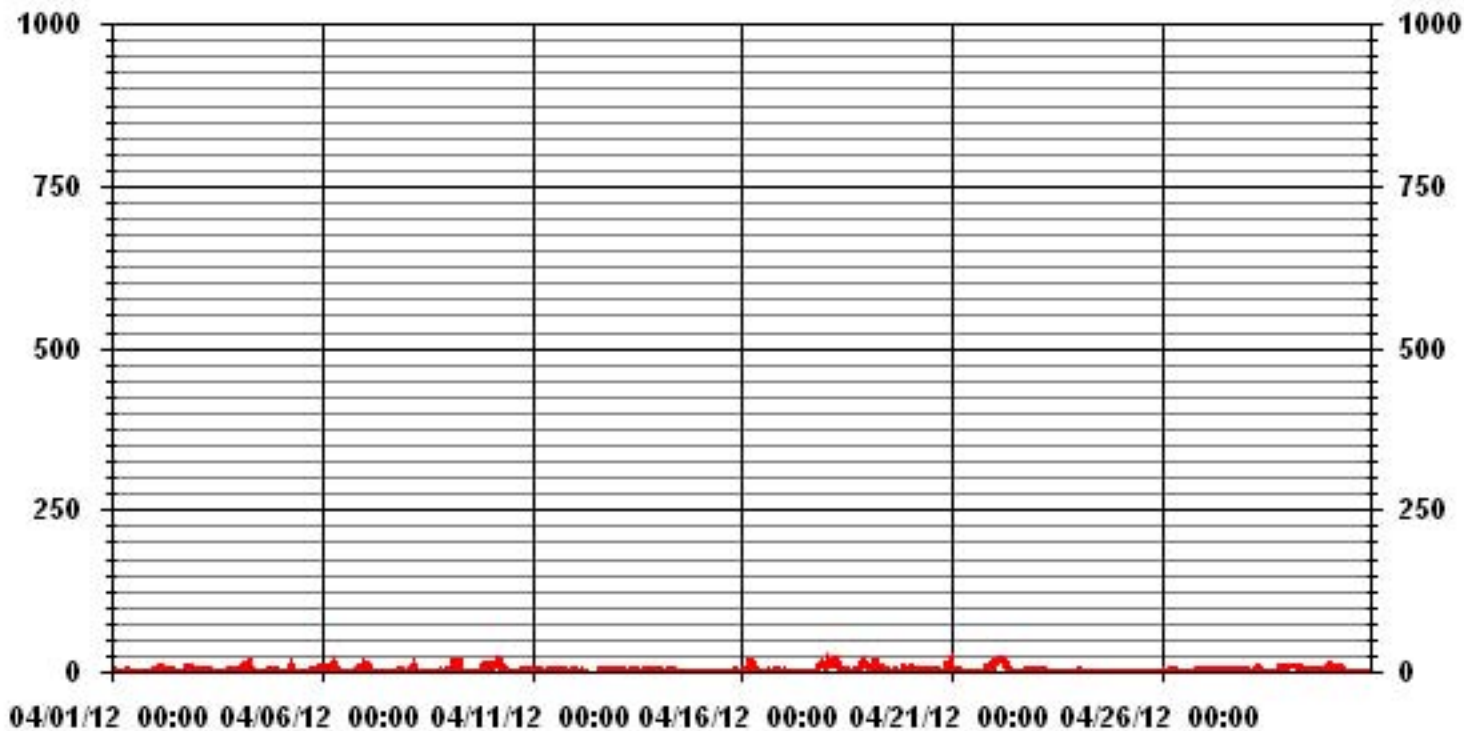
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	435
MAXIMUM 1-HR AVERAGE:	23 PPB @ HOUR(S) 5 ON DAY(S) 18
MAXIMUM 24-HR AVERAGE:	7.4 PPB ON DAY(S) 18
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION:	4.15
OPERATIONAL TIME:	720 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	2.79 PPB

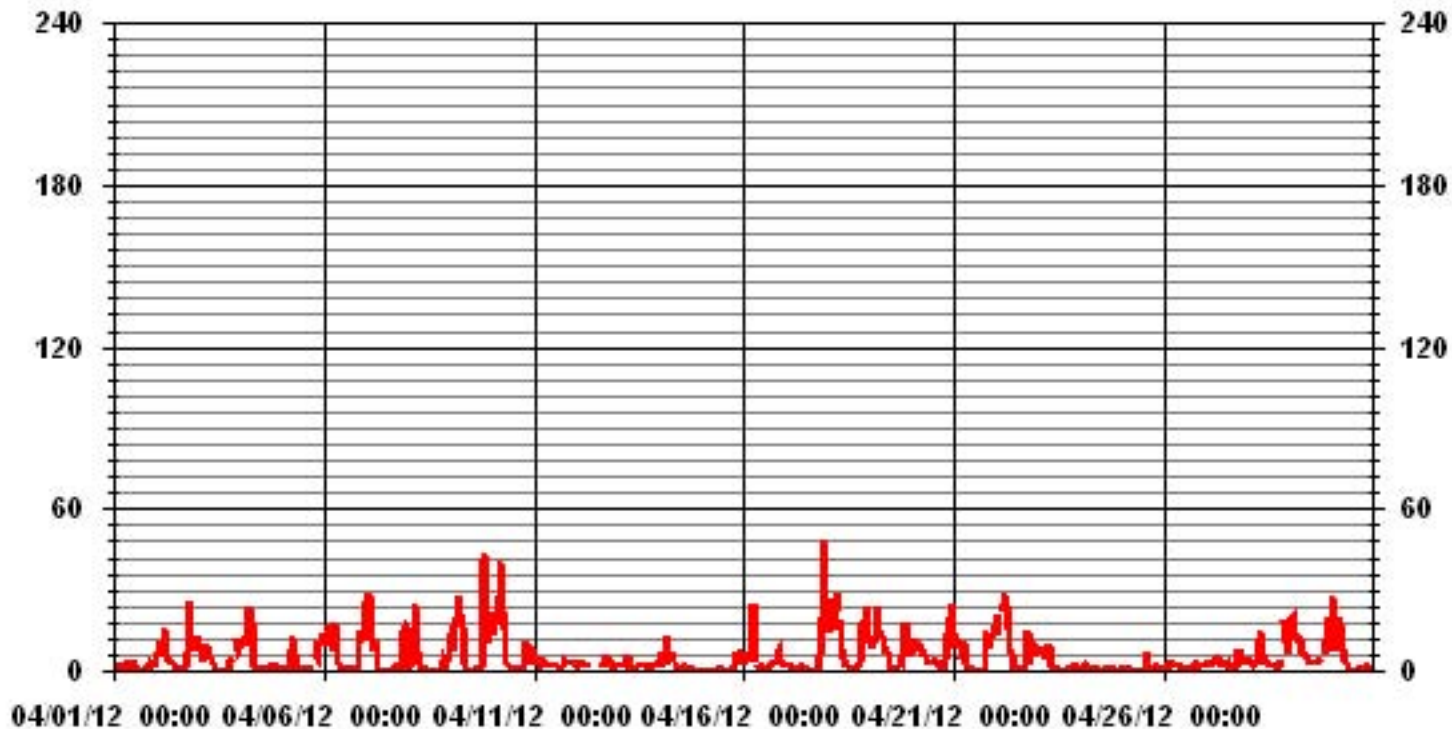


01 Hour Averages



— LICA35 IIO2_ PPB

01 Hour Averages



— LICA35 IIO2MAX PPB

LICA-ELK
 NO2_ / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 Parameter : NO2_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50	5.57	5.13	2.78	4.54	11.14	14.22	14.22	3.81	2.78	2.63	2.05	1.75	5.42	7.03	8.94	7.91	100.00	
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	5.57	5.13	2.78	4.54	11.14	14.22	14.22	3.81	2.78	2.63	2.05	1.75	5.42	7.03	8.94	7.91		

Calm : .00 %

Total # Operational Hours : 682

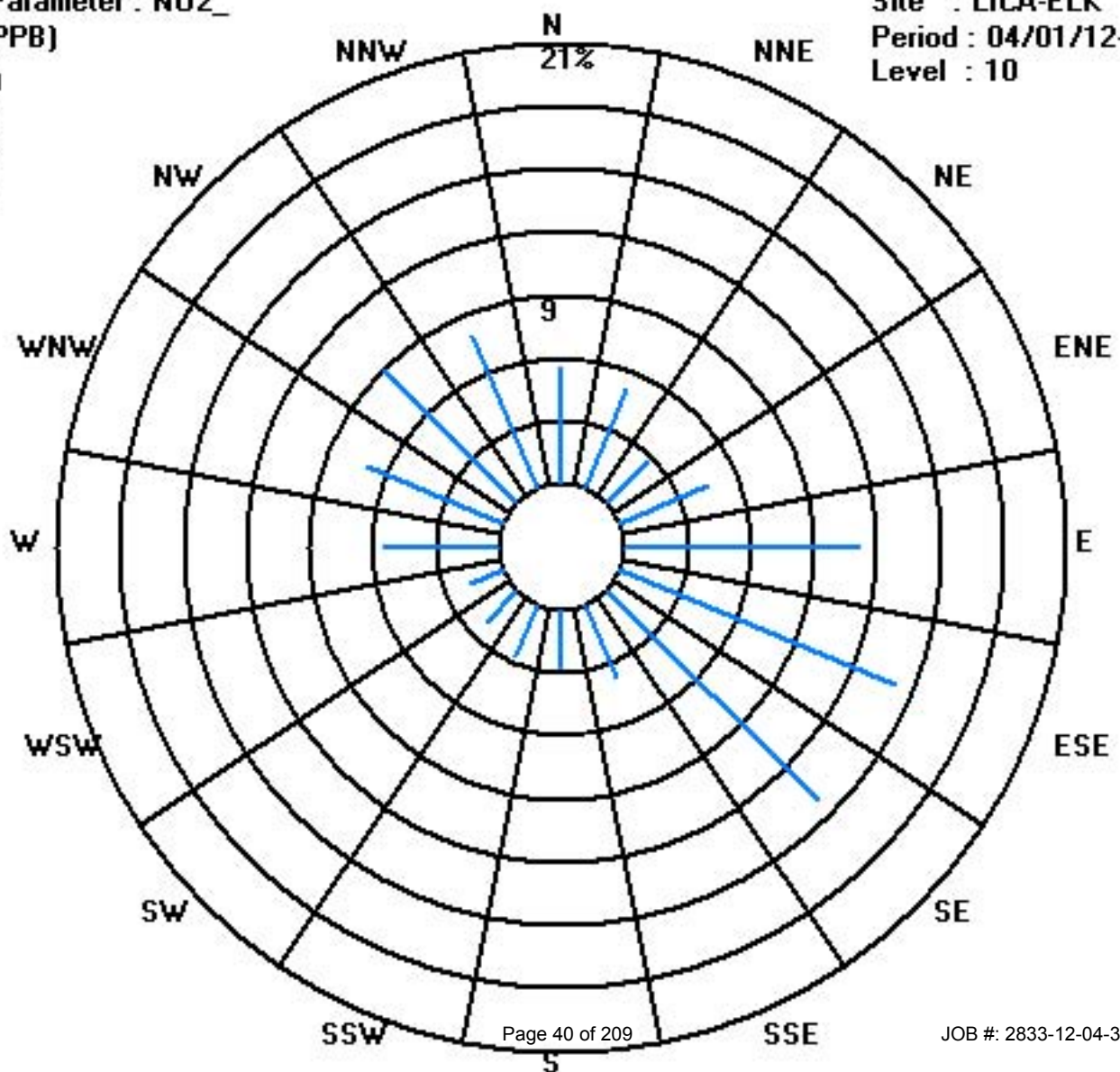
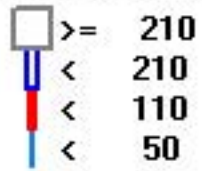
Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50	38	35	19	31	76	97	97	26	19	18	14	12	37	48	61	54	682	
< 110																		
< 210																		
>= 210																		
Totals	38	35	19	31	76	97	97	26	19	18	14	12	37	48	61	54		

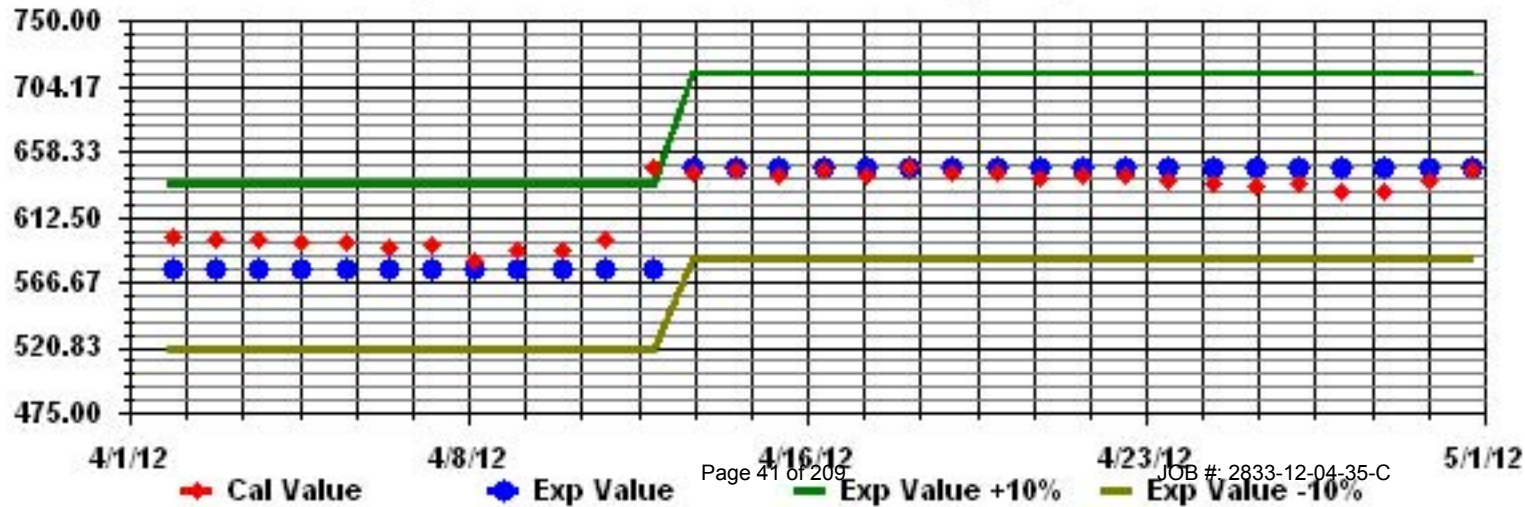
Calm : .00 %

Total # Operational Hours : 682

Class Limits (PPB)



Calibration Graph for Site: LICA35 Parameter: NO2_ Sequence: NO2 Phase: SPAll



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

APRIL 2012

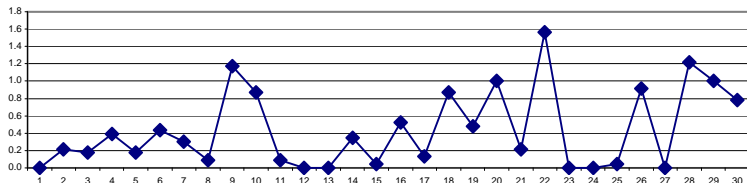
NITRIC OXIDE hourly averages in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 24-HOUR				
DAY	HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	AVG.	RDGS.		
1	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2	24
2	0	0.2	0	0	1	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
3	0	0.3	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
4	0	0.4	0	0	0	0	1	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.4	24		
5	0	0.2	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.2	24		
6	0	0.4	1	1	0	0	0	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3	0.4	24		
7	2	0.3	1	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24		
8	0	0.1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1	24		
9	0	1.2	0	2	0	2	5	12	4	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	12	1.2	24		
10	0	0.9	0	0	0	1	8	6	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0.9	24		
11	0	0.1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24		
12	0	0.0	0	0	0	0	0	0	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
13	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
14	0	0.3	1	0	0	1	0	1	1	1	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24		
16	0	0.5	0	0	0	0	5	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.5	24		
17	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0.1	24		
18	0	0.9	2	0	0	1	6	0	6	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0.9	24		
19	0	0.5	0	0	0	0	1	2	2	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.5	24		
20	0	1.0	0	0	0	0	0	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	1	0	4	10	1.0	24		
21	0	0.2	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24		
22	0	1.6	0	0	0	1	1	8	13	6	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	13	1.6	24		
23	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
24	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	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	1	0.0	24		
26	1	0.9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.9	24		
27	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
28	0	1.2	0	0	0	0	0	2	8	5	4	3	2	2	1	0	0	0	0	0	0	0	0	0	0	8	1.2	24		
29	1	1.0	1	1	0	0	2	3	3	3	2	2	1	1	1	0	1	0	0	0	0	0	0	1	0	3	1.0	24		
30	2	0.8	0	0	0	3	6	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0.8	24		
HOURLY MAX	2	2	2	1	3	8	13	8	5	4	3	2	2	1	1	1	1	1	1	1	1	1	1	2	4	10				
HOURLY AVG	0.2	0.2	0.3	0.1	0.5	1.6	2.0	1.7	1.1	0.7	0.5	0.2	0.2	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	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

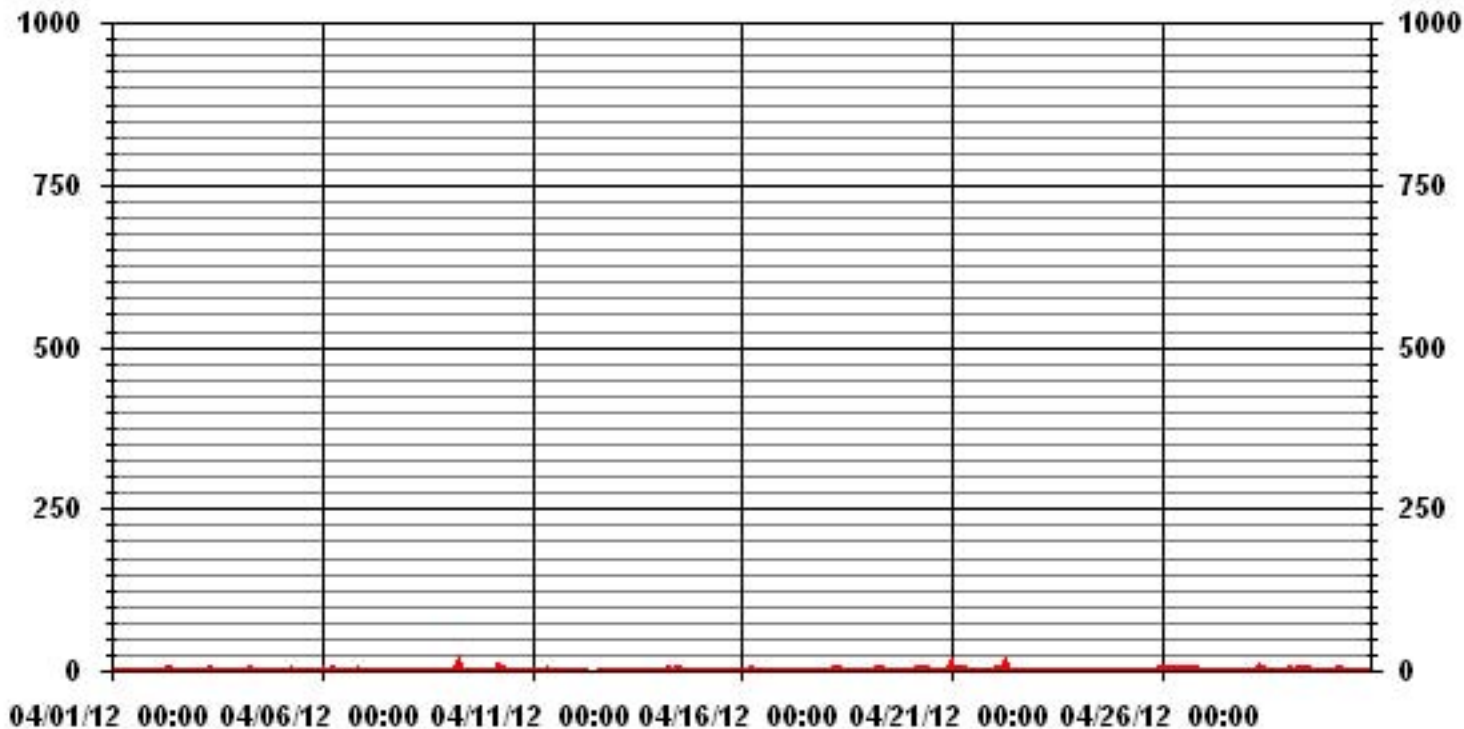
24 HOUR AVERAGES FOR APRIL 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	146
MAXIMUM 1-HR AVERAGE:	13 PPB @ HOUR(S) 6 ON DAY(S) 22
MAXIMUM 24-HR AVERAGE:	1.6 PPB ON DAY(S) 22
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION:	1.29
OPERATIONAL TIME:	720 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	0.44 PPB

01 Hour Averages



— LICA35 NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

APRIL 2012

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	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	1	0	1	1	IZS	1	1	1	0.4	24	
2	1	2	4	2	2	1	2	1	2	2	1	1	1	0	0	1	0	0	2	2	2	IZS	5	0	5	1.5	24		
3	1	1	0	0	0	0	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	IZS	2	0	0	2	1.0	24	
4	0	0	1	0	2	4	7	10	1	1	1	0	0	0	1	0	0	0	0	IZS	1	0	0	0	10	1.3	24		
5	0	0	0	0	0	1	2	2	2	1	1	1	1	1	1	0	0	1	IZS	1	1	1	4	2	4	1.0	24		
6	0	2	5	2	1	1	7	4	2	1	1	1	1	1	0	0	1	IZS	1	0	2	3	3	1	7	1.7	24		
7	7	4	9	3	2	3	2	0	0	1	1	0	0	1	0	0	IZS	1	0	0	0	2	2	2	9	1.7	24		
8	0	0	0	1	20	2	1	1	1	1	1	1	1	1	0	IZS	1	0	1	0	0	0	1	1	20	1.5	24		
9	3	1	9	2	10	18	18	13	2	1	1	1	0	0	IZS	1	0	0	0	23	23	1	1	1	23	5.6	24		
10	2	0	2	2	22	92	16	6	2	1	1	1	0	IZS	1	1	0	0	1	2	2	1	0	1	92	6.8	24		
11	0	0	0	0	1	1	1	1	2	2	1	1	IZS	1	1	1	1	1	1	0	0	0	0	0	2	0.7	24		
12	0	0	0	0	0	0	0	C	C	C	C	C	C	C	C	1	1	1	1	0	0	0	0	0	1	0.3	24		
13	0	0	0	0	0	1	1	0	0	0	0	0	IZS	1	1	0	1	1	0	0	0	0	0	1	1	0.3	24		
14	1	2	2	1	4	1	2	3	1	1	IZS	2	1	1	1	1	1	1	1	1	0	1	1	1	4	1.3	24		
15	1	1	1	1	1	1	1	0	1	IZS	1	1	1	1	1	1	0	0	1	4	1	1	1	0	4	1.0	24		
16	1	1	2	0	3	13	15	2	IZS	2	1	1	1	1	1	1	1	1	1	1	0	0	0	0	15	2.1	24		
17	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	0	0	0	0	0	2	22	2	1	22	1.8	24		
18	1	9	2	2	6	17	IZS	11	5	3	1	1	1	1	0	1	0	1	0	1	1	1	1	0	17	2.9	24		
19	1	1	1	1	5	IZS	3	3	3	4	3	1	1	0	1	1	1	1	1	1	1	1	1	1	5	1.6	24		
20	1	1	2	1	IZS	3	2	2	2	1	2	2	1	1	2	1	1	1	1	1	3	2	10	51	51	4.1	24		
21	2	1	1	IZS	3	2	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	4	1.4	24		
22	1	1	IZS	1	3	40	27	9	5	4	1	1	1	1	1	1	1	1	1	0	1	0	0	1	40	4.4	24		
23	0	IZS	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	0.7	24		
24	IZS	1	0	1	0	0	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	0	IZS	1	0.5	24		
25	1	0	1	1	0	0	0	1	0	1	1	1	0	1	6	1	0	0	0	0	0	0	IZS	2	6	0.7	24		
26	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	IZS	1	1	2	1.7	24		
27	0	1	0	0	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	1	IZS	1	0	1	1	0.7	24		
28	1	1	0	0	1	1	9	18	9	7	6	6	3	2	1	1	1	1	1	IZS	2	1	0	1	18	3.2	24		
29	7	7	4	1	2	3	7	4	4	4	3	2	2	2	1	2	1	1	IZS	1	2	1	5	3	7	3.0	24		
30	9	1	1	2	11	11	6	3	2	1	1	1	1	1	1	1	1	IZS	1	1	0	0	1	0	11	2.5	24		
HOURLY MAX	9	9	9	3	22	92	27	18	9	7	6	6	3	2	6	2	2	1	2	23	23	22	10	51					
HOURLY AVG	1.5	1.4	1.8	0.9	3.6	7.6	4.9	3.7	2.0	1.7	1.4	1.2	0.9	0.9	1.0	0.8	0.7	0.6	0.8	1.5	1.7	1.6	1.4	2.6					

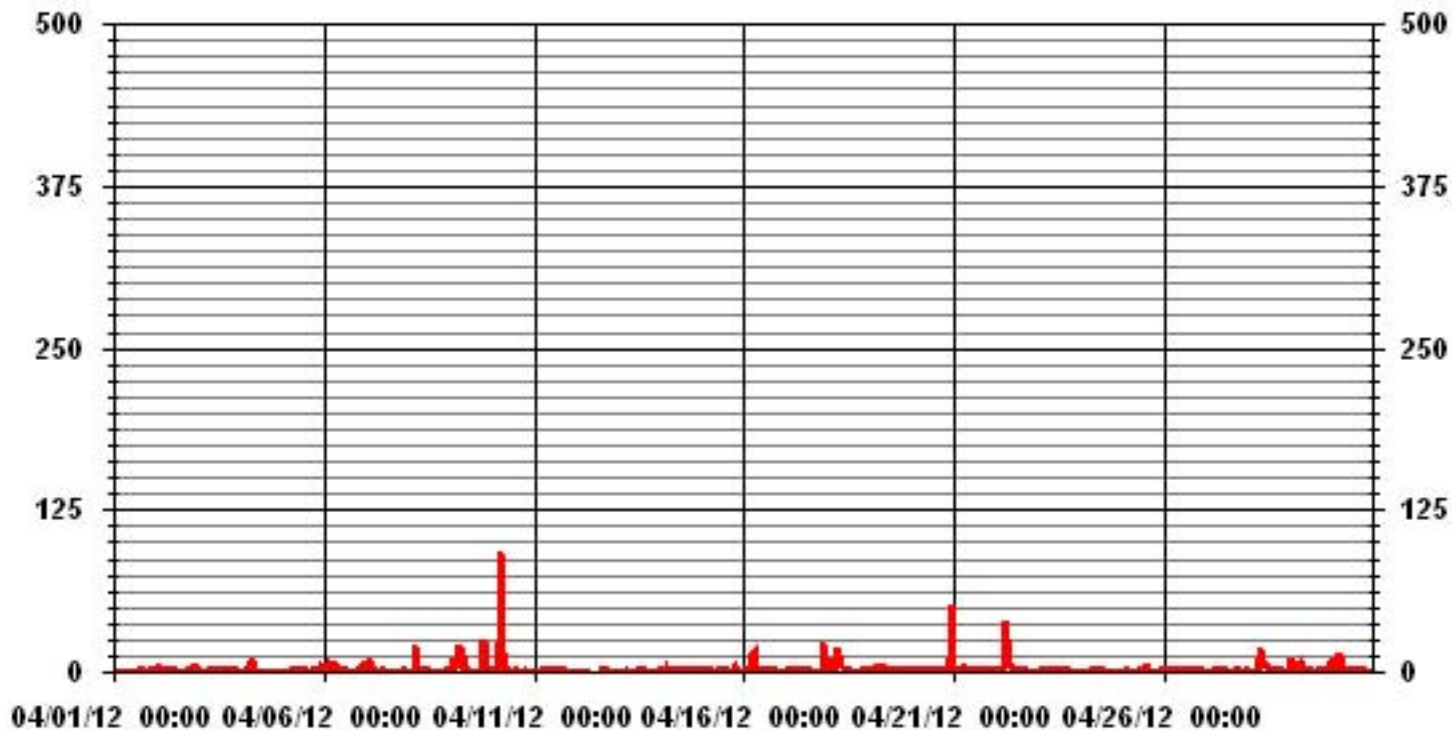
STATUS FLAG CODES

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:	504					
MAXIMUM INSTANTANEOUS VALUE:	92	PPB	@ HOUR(S)	5	ON DAY(S)	10
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	5.19					

01 Hour Averages



LICA-ELK
 NO_ / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 Parameter : NO_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50	5.57	5.13	2.78	4.54	11.14	14.22	14.22	3.81	2.78	2.63	2.05	1.75	5.42	7.03	8.94	7.91	100.00	
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	5.57	5.13	2.78	4.54	11.14	14.22	14.22	3.81	2.78	2.63	2.05	1.75	5.42	7.03	8.94	7.91		

Calm : .00 %

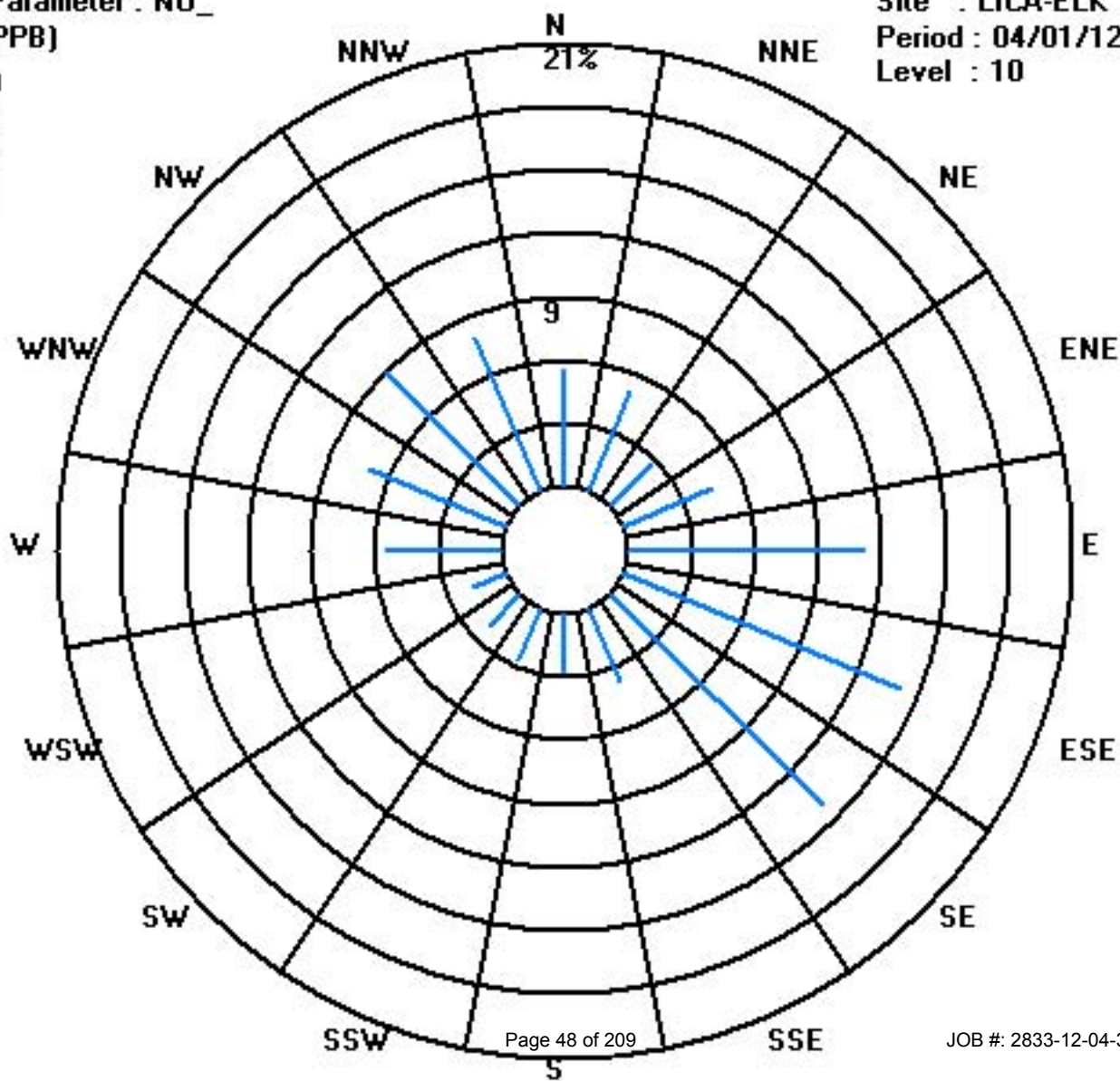
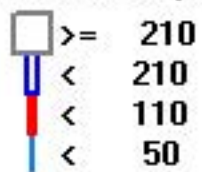
Total # Operational Hours : 682

Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50	38	35	19	31	76	97	97	26	19	18	14	12	37	48	61	54	682	
< 110																		
< 210																		
>= 210																		
Totals	38	35	19	31	76	97	97	26	19	18	14	12	37	48	61	54		

Calm : .00 %

Total # Operational Hours : 682



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

APRIL 2012

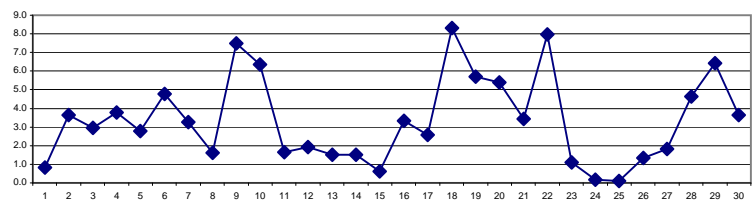
OXIDES OF NITROGEN hourly averages in ppb

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	1	1	2	0	0	0	0	2	2	2	1	1	0	1	0	0	0	0	0	1	1	IZS	1	3	0.8	24	
2	2	3	7	5	4	7	4	4	3	3	2	1	0	0	0	0	0	0	3	11	11	IZS	9	5	11	3.7	24	
3	6	5	3	3	5	6	6	5	4	3	2	1	0	0	0	0	0	0	2	2	IZS	5	6	4	6	3.0	24	
4	5	6	8	7	7	14	19	14	1	0	0	0	0	0	0	0	0	0	0	0	IZS	2	2	1	1	19	3.8	24
5	1	1	1	1	1	2	10	5	3	1	1	1	1	1	1	1	1	1	IZS	4	4	5	7	10	10	2.8	24	
6	6	9	11	9	9	6	15	7	3	2	2	1	1	1	0	0	0	IZS	1	0	3	5	11	8	15	4.8	24	
7	16	8	18	5	4	5	3	0	0	0	0	0	0	0	0	0	IZS	1	0	0	1	6	5	3	18	3.3	24	
8	0	1	2	2	12	4	1	0	0	1	1	1	1	0	0	IZS	0	0	0	0	3	3	2	3	12	1.6	24	
9	7	5	8	19	14	24	31	14	3	1	1	0	0	0	IZS	0	0	0	0	3	10	7	13	12	31	7.5	24	
10	10	8	14	13	15	32	22	10	3	2	1	0	0	IZS	0	0	0	0	1	3	5	1	1	5	32	6.3	24	
11	4	2	2	1	2	2	2	1	2	2	1	1	IZS	1	1	1	1	2	2	2	2	1	1	2	4	1.7	24	
12	1	1	1	1	1	1	1	C	C	C	C	C	C	C	C	2	2	4	4	4	4	2	2	2	2	4	1.9	24
13	2	2	2	2	2	3	3	2	1	2	1	IZS	1	1	1	1	2	1	1	1	1	1	1	1	1	3	1.5	24
14	1	3	3	1	4	1	3	4	2	1	IZS	2	1	3	1	1	1	1	1	0	0	1	0	0	4	1.5	24	
15	0	0	0	1	1	0	0	0	0	1	IZS	0	0	0	0	0	0	0	0	0	2	4	1	3	1	4	0.6	24
16	2	2	3	1	6	24	16	3	IZS	2	1	1	0	0	0	1	1	2	2	5	3	1	1	0	24	3.3	24	
17	0	1	1	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	2	12	17	12	13	17	2.6	24	
18	11	20	12	11	14	29	IZS	18	11	4	1	1	1	1	0	1	0	1	1	4	11	12	17	10	29	8.3	24	
19	9	7	6	8	18	IZS	14	12	9	9	4	1	1	0	0	1	1	2	1	3	9	7	4	5	18	5.7	24	
20	3	6	8	5	IZS	6	6	5	4	3	2	2	2	3	2	1	1	1	1	2	10	6	17	28	28	5.4	24	
21	9	6	5	IZS	4	5	5	2	1	0	0	0	0	0	0	0	0	0	3	7	5	6	7	14	14	3.4	24	
22	10	16	IZS	21	21	29	32	17	12	6	2	0	0	0	0	1	2	3	1	1	5	2	2	32	8.0	24		
23	3	IZS	6	4	2	4	3	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	6	1.1	24	
24	IZS	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0.2	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	2	2	0.1	24	
26	1	2	2	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	IZS	1	1	2	1.3	24	
27	1	1	1	1	1	2	3	2	2	2	1	1	1	1	1	1	0	3	3	4	IZS	4	3	3	4	1.8	24	
28	3	3	2	2	2	3	7	17	10	8	6	4	4	2	2	2	1	1	2	IZS	8	7	6	5	17	4.7	24	
29	7	9	9	10	9	10	12	8	9	6	6	4	3	3	2	2	2	2	IZS	5	4	7	12	7	12	6.4	24	
30	18	4	3	7	13	17	10	4	2	0	0	0	0	0	0	0	IZS	1	1	1	2	1	0	18	3.7	24		
HOURLY MAX	18	20	18	21	21	32	32	18	12	9	6	4	4	3	2	2	2	4	4	11	12	17	17	28				
HOURLY AVG	4.9	4.6	4.8	5.0	6.0	8.2	7.9	5.6	3.3	2.3	1.4	0.9	0.7	0.6	0.5	0.6	0.5	0.9	1.2	2.4	4.1	4.1	5.2	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

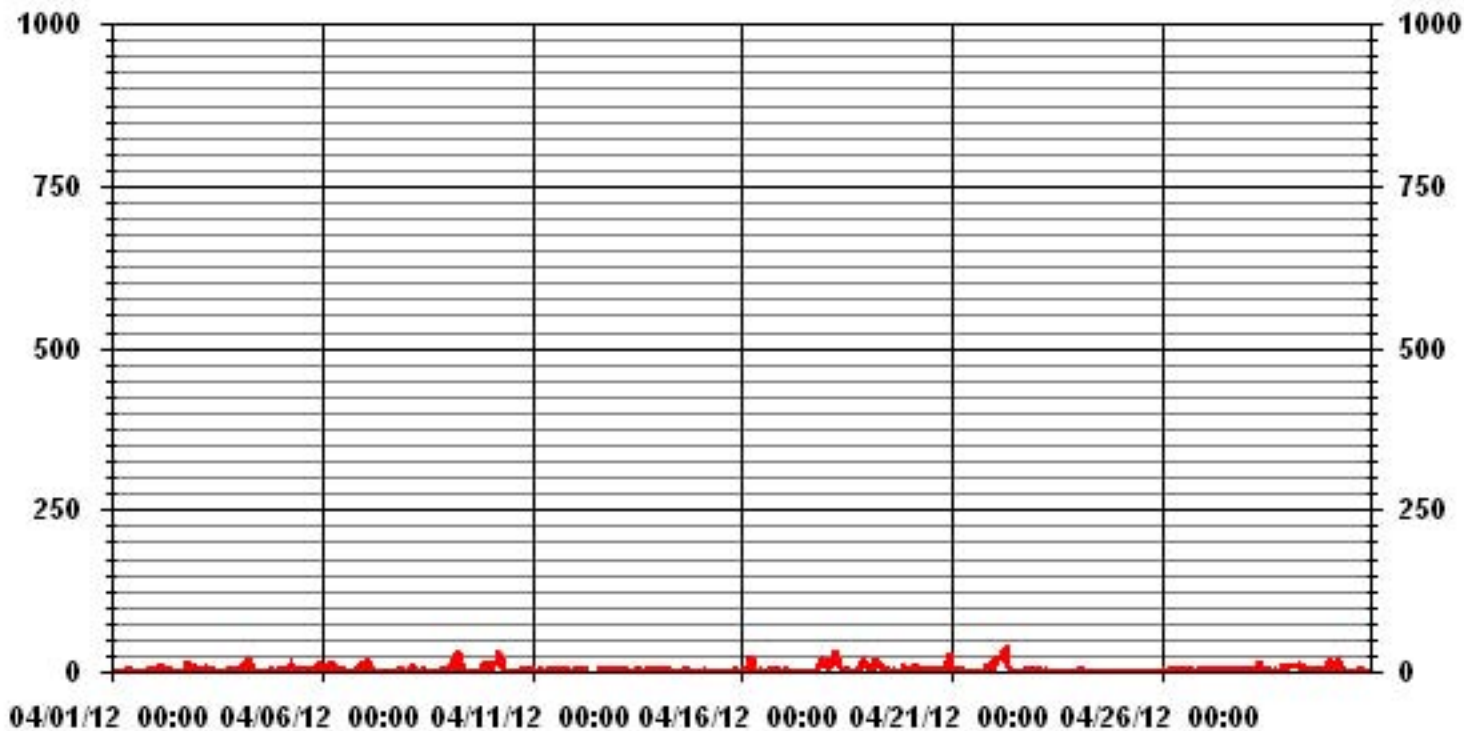
24 HOUR AVERAGES FOR APRIL 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	492
MAXIMUM 1-HR AVERAGE:	32 PPB @ HOUR(S) 5, 6 ON DAY(S) 10, 22
MAXIMUM 24-HR AVERAGE:	8.3 PPB ON DAY(S) 18
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	8 HRS
OPERATIONAL TIME:	720 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION	4.99
MONTHLY AVERAGE	3.38 PPB

01 Hour Averages



— LICA35 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

APRIL 2012

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	4	2	3	2	1	0	1	3	4	4	4	2	3	1	2	1	1	1	2	2	4	3	IZS	3	4	2.3	24	
2	6	6	11	11	8	17	7	6	5	5	3	2	1	1	0	1	1	1	9	27	18	IZS	17	8	27	7.4	24	
3	15	13	4	5	7	11	8	7	5	5	3	2	1	1	1	1	1	2	4	4	IZS	12	9	7	15	5.6	24	
4	7	10	12	9	17	26	27	28	3	1	0	0	1	0	0	0	0	1	1	IZS	3	2	2	2	28	6.6	24	
5	2	2	1	1	2	9	15	9	6	3	3	3	3	2	3	1	2	2	IZS	7	6	11	16	17	17	5.5	24	
6	10	14	22	12	11	8	25	15	5	3	3	2	2	2	1	1	1	IZS	2	1	17	13	16	13	25	8.7	24	
7	34	22	38	17	9	15	10	1	1	1	1	0	1	1	1	1	IZS	4	2	1	3	17	20	18	38	9.5	24	
8	1	2	3	11	43	10	6	1	1	1	1	2	1	1	1	IZS	1	1	1	1	5	5	4	7	43	4.8	24	
9	17	8	23	22	26	45	39	31	4	3	1	1	1	1	IZS	1	0	0	0	64	67	10	17	21	67	17.5	24	
10	21	12	21	18	48	126	39	21	4	2	2	0	0	IZS	1	1	1	1	2	11	11	3	3	9	126	15.5	24	
11	6	4	4	2	3	5	5	3	4	4	2	2	IZS	2	2	2	2	4	3	3	3	2	2	3	6	3.1	24	
12	3	2	3	3	2	2	1	C	C	C	C	C	C	C	C	3	3	6	6	5	3	2	2	3	6	3.1	24	
13	3	3	3	3	3	6	7	2	2	2	2	IZS	2	2	2	2	2	2	1	1	1	2	1	3	7	2.5	24	
14	1	7	7	2	17	8	6	9	5	3	IZS	3	2	3	3	1	1	2	2	1	1	1	1	1	17	3.8	24	
15	1	1	1	1	1	1	1	1	1	IZS	1	1	0	0	0	0	0	1	2	8	7	2	8	2	8	1.8	24	
16	5	6	7	3	19	38	37	6	IZS	4	2	1	1	1	1	2	4	3	4	7	8	3	3	3	38	7.3	24	
17	2	2	2	1	0	0	0	IZS	2	1	1	1	0	0	0	0	0	0	0	6	21	70	22	18	70	6.5	24	
18	13	36	18	16	29	45	IZS	29	14	8	2	2	2	2	1	2	1	2	3	17	19	19	25	14	45	13.9	24	
19	11	8	10	12	27	IZS	17	16	12	11	10	2	2	1	1	1	2	5	3	5	18	16	6	8	27	8.9	24	
20	7	8	12	10	IZS	11	9	8	6	4	4	4	3	4	6	2	2	2	1	4	15	14	29	74	74	10.4	24	
21	17	8	11	IZS	8	11	14	4	2	1	1	1	0	0	0	0	0	1	15	12	8	12	14	18	18	6.9	24	
22	13	20	IZS	24	28	68	51	24	13	11	2	1	2	1	0	1	1	9	16	1	6	11	5	6	68	13.7	24	
23	8	IZS	9	7	4	10	10	2	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	10	2.6	24	
24	IZS	2	2	3	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	3	0.5	24	
25	1	0	1	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	2	1	0	IZS	2	9	0.7	24	
26	2	3	3	2	5	3	4	4	4	4	1	2	2	3	2	2	3	1	3	4	4	IZS	3	3	5	2.9	24	
27	2	3	2	1	3	4	6	5	6	4	2	2	4	1	2	2	1	5	4	7	IZS	5	4	4	7	3.4	24	
28	4	4	3	3	5	5	22	34	17	12	11	11	7	5	3	3	4	2	4	IZS	20	12	7	7	34	8.9	24	
29	26	27	17	14	13	13	19	10	10	9	7	6	4	4	3	4	3	4	IZS	7	13	19	24	17	27	11.9	24	
30	37	8	8	15	30	27	15	6	4	1	0	0	0	0	0	2	0	IZS	2	2	3	2	1	1	37	7.1	24	
HOURLY MAX	37	36	38	24	48	126	51	34	17	12	11	11	7	5	9	4	4	9	16	64	67	70	29	74				
HOURLY AVG	9.6	8.4	9.0	7.9	12.8	18.1	13.9	10.2	5.0	3.9	2.5	1.9	1.6	1.4	1.6	1.3	1.3	2.2	3.3	7.5	10.2	9.6	9.4	10.1				

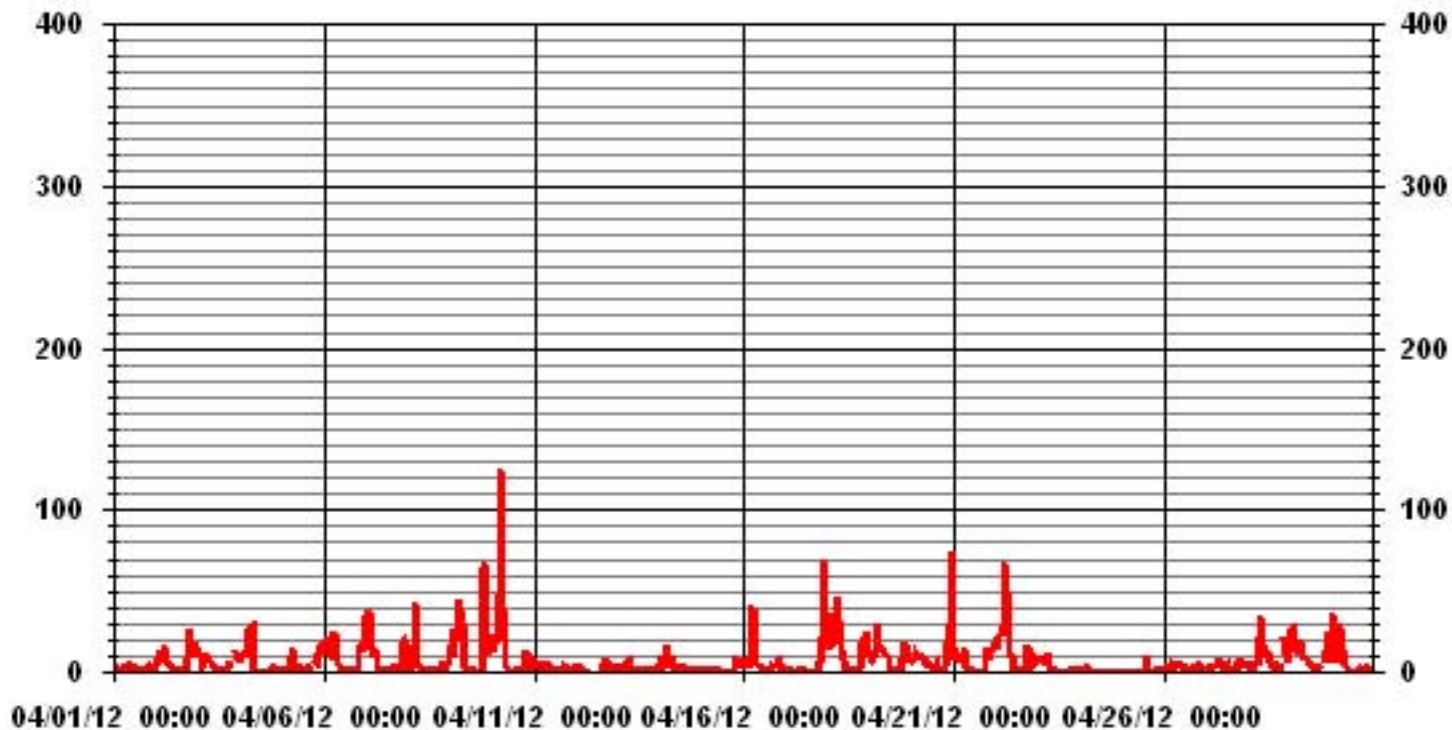
STATUS FLAG CODES

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:	603
MAXIMUM INSTANTANEOUS VALUE:	126 PPB @ HOUR(S) 5 ON DAY(S) 10
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	8 HRS
STANDARD DEVIATION:	10.71
OPERATIONAL TIME:	720 HRS

01 Hour Averages



— LICA35 NOXMAX PPB

LICA-ELK
 NOX_ / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 Parameter : NOX_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	5.57	5.13	2.78	4.54	11.14	14.22	14.22	3.81	2.78	2.63	2.05	1.75	5.42	7.03	8.94	7.91	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.57	5.13	2.78	4.54	11.14	14.22	14.22	3.81	2.78	2.63	2.05	1.75	5.42	7.03	8.94	7.91	

Calm : .00 %

Total # Operational Hours : 682

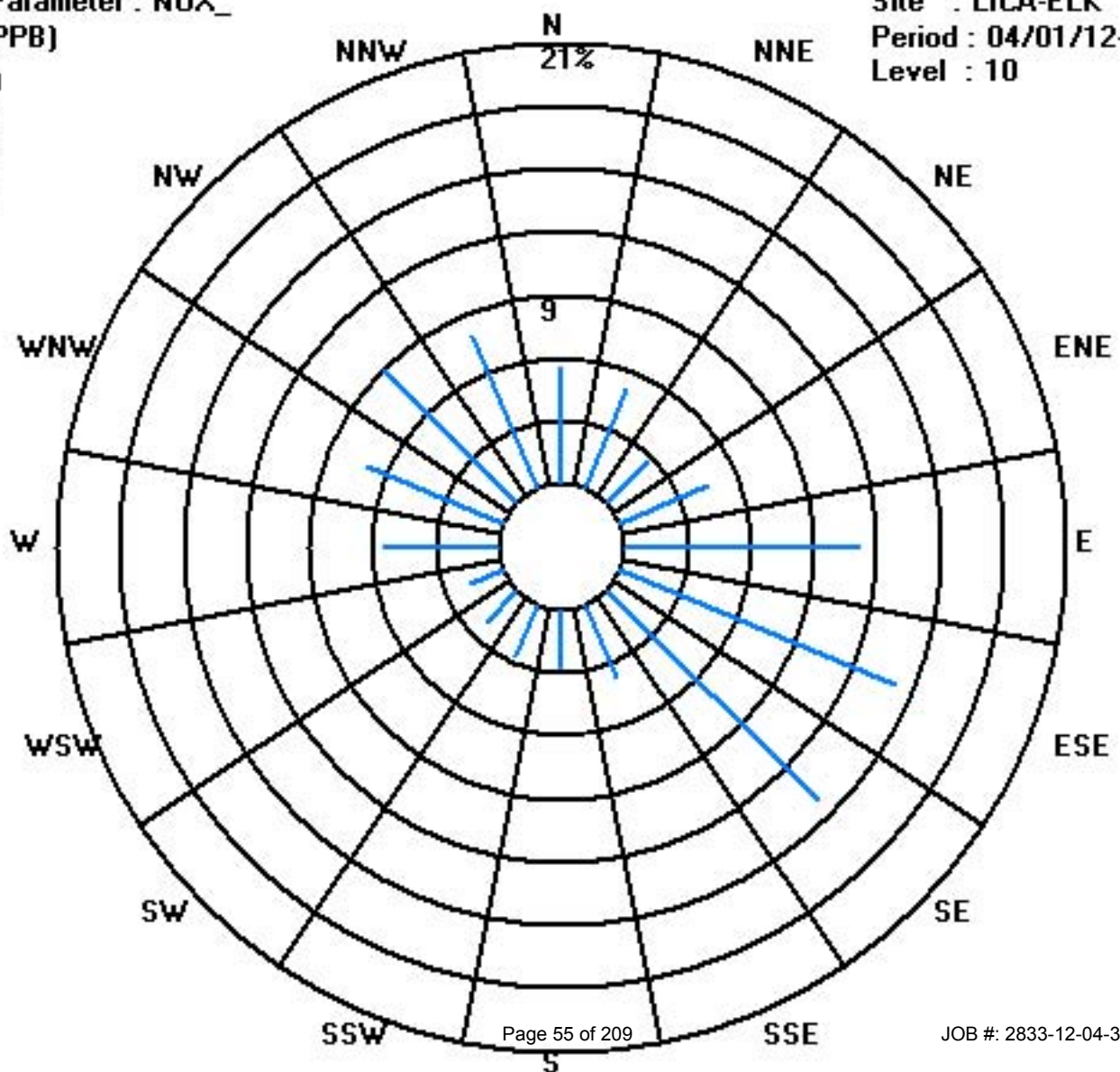
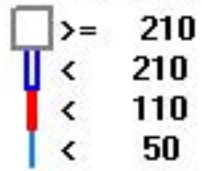
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	38	35	19	31	76	97	97	26	19	18	14	12	37	48	61	54	682
< 110																	
< 210																	
>= 210																	
Totals	38	35	19	31	76	97	97	26	19	18	14	12	37	48	61	54	

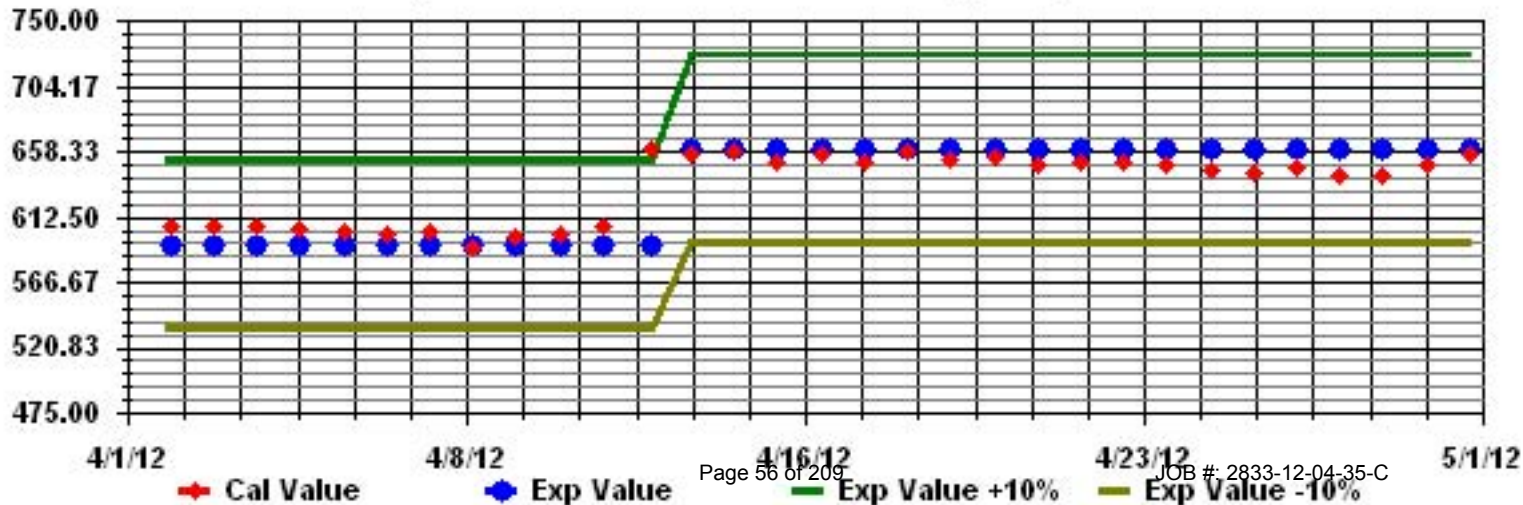
Calm : .00 %

Total # Operational Hours : 682

Class Limits (PPB)



Calibration Graph for Site: LICA35 Parameter: NOX_ Sequence: NO2 Phase: SPAN



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport
APRIL 2012
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 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	45	46	45	44	45	46	45	42	38	33	31	32	32	37	38	43	45	45	46	43	40	38	IZS	34	46	40.6	24	
2	33	28	26	26	26	24	28	27	29	31	36	42	45	46	47	48	48	48	44	33	32	IZS	29	29	48	35.0	24	
3	27	28	28	28	25	23	23	25	26	27	33	40	44	47	51	53	53	52	45	42	IZS	36	33	33	53	35.7	24	
4	31	29	26	24	20	14	12	24	40	42	44	46	46	45	46	47	48	47	IZS	46	45	44	43	48	48	37.2	24	
5	43	43	42	41	39	36	27	26	34	41	40	38	34	34	35	36	36	IZS	32	32	28	23	18	43	34.4	24		
6	24	19	15	22	22	24	15	26	32	36	39	41	43	45	44	44	44	IZS	43	42	36	32	27	28	45	32.3	24	
7	21	24	17	27	29	27	28	31	36	40	41	42	43	45	45	45	IZS	45	45	44	43	36	34	38	45	35.9	24	
8	40	37	33	31	23	28	33	37	39	39	38	40	41	43	43	IZS	45	44	43	43	36	35	38	35	45	37.6	24	
9	30	33	26	13	20	11	7	25	38	41	43	45	48	49	IZS	49	49	48	46	40	31	31	26	27	49	33.7	24	
10	25	25	19	17	14	6	16	30	36	39	43	47	48	IZS	50	51	51	49	47	42	40	44	41	33	51	35.3	24	
11	34	37	37	36	34	33	33	34	34	36	38	41	IZS	47	48	49	50	49	48	48	46	46	45	43	50	41.1	24	
12	41	40	39	39	38	38	C	C	C	C	C	41	40	41	41	43	46	51	49	51	51	51	47	51	47	51	43.4	24
13	42	40	39	37	38	36	37	39	39	38	37	IZS	34	33	31	29	26	25	22	21	19	18	17	16	42	31.0	24	
14	18	16	16	17	17	19	17	18	18	19	IZS	19	17	20	27	27	28	27	31	35	39	40	44	45	45	25.0	24	
15	46	49	50	50	51	50	50	49	49	IZS	50	51	52	53	54	54	54	53	53	49	42	43	37	38	54	49.0	24	
16	35	35	34	32	24	9	18	32	IZS	43	44	47	48	48	49	49	49	47	45	40	40	43	40	40	49	38.7	24	
17	37	34	34	40	47	46	45	IZS	41	45	46	49	53	52	54	55	56	57	56	52	36	28	25	25	57	44.0	24	
18	23	15	20	18	13	7	IZS	30	35	48	55	55	56	58	61	61	62	61	59	52	43	39	34	38	62	41.0	24	
19	36	34	32	28	19	IZS	27	28	30	29	40	49	50	50	50	50	52	51	52	45	39	41	43	41	52	39.8	24	
20	41	29	25	26	IZS	24	26	29	30	32	32	32	30	28	28	28	27	31	33	28	20	23	10	7	41	26.9	24	
21	16	16	21	IZS	24	26	27	33	38	40	41	42	44	45	45	46	47	50	51	47	49	41	41	31	51	37.4	24	
22	27	19	IZS	11	7	5	12	26	35	46	53	63	63	63	63	63	61	58	54	56	57	50	54	52	63	43.4	24	
23	45	IZS	40	39	38	36	38	43	46	45	48	51	53	55	56	55	56	54	51	49	47	45	44	42	56	46.8	24	
24	IZS	41	38	36	36	38	39	39	42	44	39	41	39	35	31	29	29	28	28	28	29	29	29	IZS	44	34.9	24	
25	32	32	31	30	28	27	27	27	27	28	30	30	30	31	29	29	29	29	28	29	30	32	IZS	33	33	29.4	24	
26	33	34	36	37	36	35	34	35	35	36	38	40	42	42	43	44	45	45	44	41	42	IZS	44	44	45	39.3	24	
27	42	41	41	41	38	36	34	34	34	33	32	33	33	33	31	31	27	26	22	IZS	21	20	20	42	31.9	24		
28	19	17	18	17	17	20	19	13	16	19	26	32	36	43	47	48	47	46	IZS	31	29	26	24	48	28.6	24		
29	21	18	14	10	12	12	11	16	17	21	24	29	32	36	39	37	39	IZS	31	36	33	23	23	39	24.8	24		
30	16	25	24	17	11	8	15	30	37	46	50	50	50	50	51	51	52	IZS	48	47	45	41	40	40	52	36.7	24	
HOURLY MAX	46	49	50	50	51	50	50	49	49	48	55	63	63	63	63	63	62	61	59	56	57	51	54	52				
HOURLY AVG	31.8	30.5	29.9	28.8	27.3	25.7	26.9	30.3	34.0	36.3	39.6	41.7	42.3	43.2	44.1	44.5	44.8	44.3	44.0	40.4	38.5	36.4	34.4	33.3				

STATUS FLAG CODES

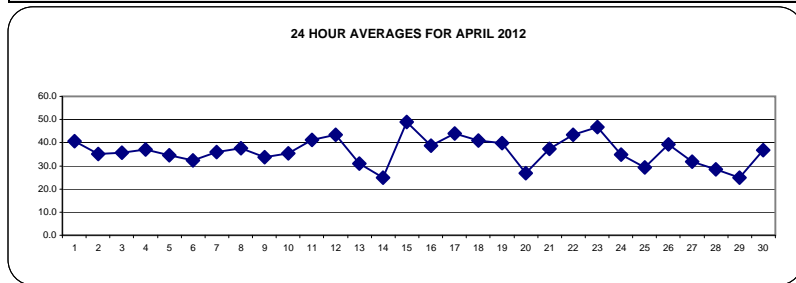
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT: ALBERTA ENVIRONMENT:

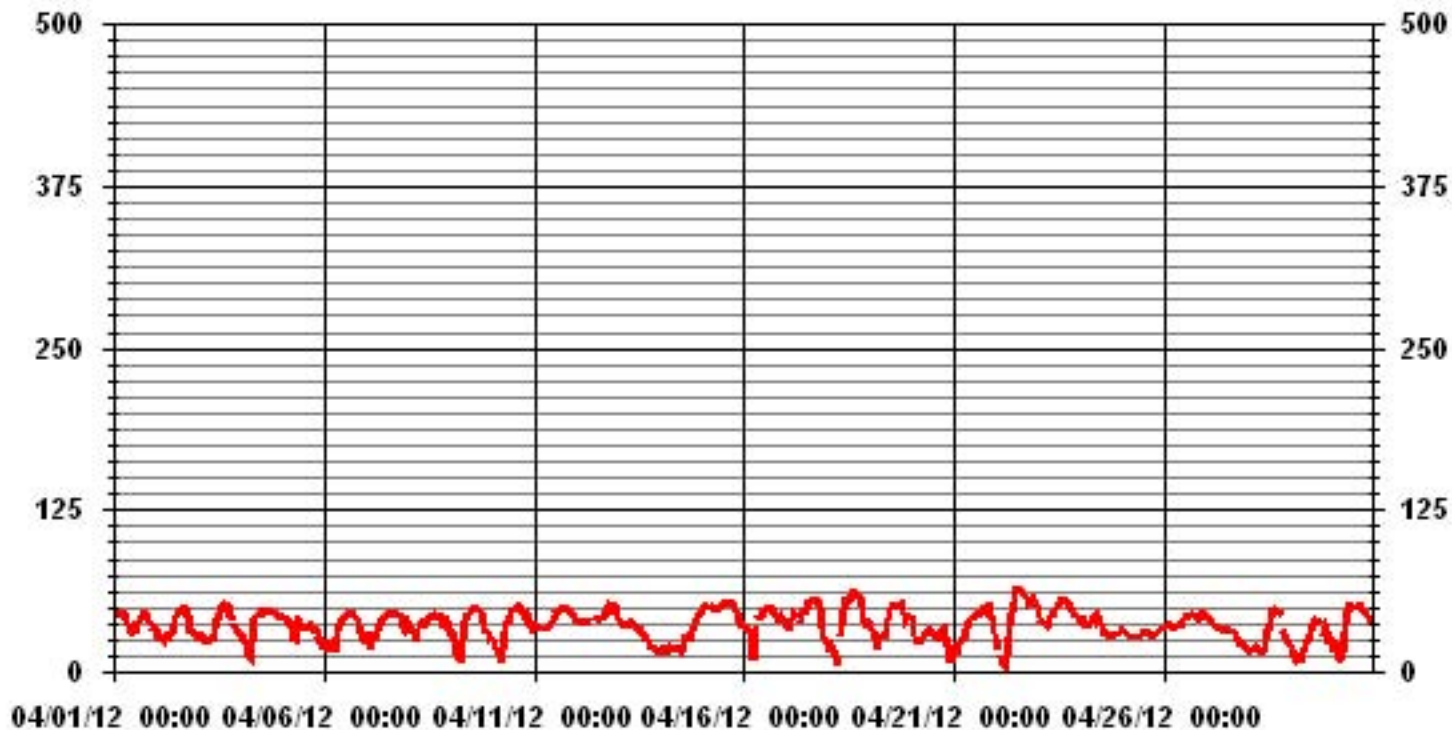
1-HR	82	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	685					
MAXIMUM 1-HR AVERAGE:	63	PPB	@ HOUR(S)	VAR	ON DAY(S)	22
MAXIMUM 24-HR AVERAGE:	49.0	PPB			ON DAY(S)	15
					VAR-VARIOUS	
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	11.54		MONTHLY AVERAGE	36.33	PPB	



01 Hour Averages



— LICA35 O3_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

APRIL 2012

OZONE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	47	48	47	45	46	47	47	45	41	36	32	33	35	39	43	44	46	47	47	45	44	40	IZS	36	48	42.6	24	
2	35	34	28	29	29	28	29	29	30	33	40	44	46	47	48	48	49	49	48	44	40	IZS	34	31	49	37.9	24	
3	31	30	30	29	28	26	25	26	27	29	36	42	46	48	53	55	54	54	49	44	IZS	39	35	35	55	37.9	24	
4	33	32	29	27	25	20	19	38	42	43	47	47	47	46	47	48	48	48	IZS	47	45	45	44	48	39.7	24		
5	44	44	43	42	41	39	33	29	39	43	42	40	36	35	35	35	37	39	IZS	35	34	32	29	27	44	37.1	24	
6	28	28	26	27	26	26	23	30	34	39	41	42	44	45	45	45	IZS	45	44	41	36	31	31	45	35.7	24		
7	32	28	27	31	32	32	31	34	38	41	43	43	45	46	46	46	IZS	47	46	45	45	41	40	41	47	39.1	24	
8	41	40	36	36	31	32	36	38	41	41	40	41	43	43	44	IZS	45	45	44	44	42	38	41	38	45	40.0	24	
9	34	37	36	20	25	24	10	36	41	42	44	47	49	50	IZS	49	49	49	49	44	39	37	32	33	50	38.1	24	
10	31	27	24	22	17	11	24	35	39	41	45	48	49	IZS	51	52	52	50	49	47	44	45	44	38	52	38.5	24	
11	37	38	38	38	35	34	35	35	35	37	40	43	IZS	48	49	50	51	51	49	50	49	48	46	45	51	42.7	24	
12	42	42	41	40	39	39	38	C	C	C	C	C	C	41	42	42	45	52	52	52	52	52	51	52	51	52	45.2	24
13	44	42	40	38	40	39	40	41	40	39	37	IZS	36	34	32	31	28	26	24	22	21	21	18	18	44	32.7	24	
14	20	20	18	19	21	21	20	21	20	20	IZS	20	20	21	30	28	29	29	33	39	40	44	45	46	46	46	27.1	24
15	47	51	52	51	51	51	50	50	50	IZS	51	52	53	54	54	55	55	54	54	54	46	47	40	39	55	50.5	24	
16	38	38	36	35	32	20	28	38	IZS	45	46	49	49	50	51	51	48	47	44	41	46	45	42	51	52	42.1	24	
17	41	35	35	47	49	47	46	IZS	43	47	48	51	56	55	56	56	57	57	57	56	44	38	37	31	57	47.3	24	
18	29	24	24	24	21	11	IZS	36	44	52	56	56	59	60	62	63	62	62	62	58	50	47	46	46	63	45.8	24	
19	38	37	37	33	32	IZS	33	30	31	32	46	53	51	51	51	52	53	53	53	50	47	46	45	46	53	43.5	24	
20	44	34	28	29	IZS	25	29	31	31	34	34	34	33	30	29	29	27	34	34	31	28	26	23	14	44	30.0	24	
21	20	22	29	IZS	27	28	30	36	39	41	43	44	45	46	46	48	48	54	56	51	54	49	49	39	56	41.0	24	
22	33	26	IZS	17	10	10	21	35	39	52	60	64	64	64	64	63	62	58	58	61	56	57	56	64	47.6	24		
23	51	IZS	43	42	40	40	43	45	47	48	50	53	54	56	57	56	58	56	52	50	48	46	46	45	58	49.0	24	
24	IZS	42	41	38	39	39	40	41	45	49	41	42	40	37	33	30	30	29	30	29	30	30	31	IZS	49	36.6	24	
25	33	33	32	31	29	28	28	28	28	28	30	30	31	31	31	31	30	30	29	31	32	33	IZS	34	34	30.5	24	
26	34	36	37	38	37	37	35	36	36	37	39	41	43	43	45	45	46	46	46	43	44	IZS	45	45	46	40.6	24	
27	44	42	43	42	40	38	36	36	36	35	33	35	35	35	33	32	32	29	27	25	IZS	23	22	21	44	33.7	24	
28	21	19	19	18	19	22	22	15	17	23	32	35	45	47	48	50	50	49	48	IZS	40	33	30	30	50	31.8	24	
29	27	22	19	13	16	16	16	18	19	23	26	32	35	39	42	40	40	N	IZS	36	44	44	28	29	44	28.4	23	
30	27	28	26	24	22	14	23	36	44	49	52	51	51	51	52	52	53	IZS	49	48	46	45	41	41	53	40.2	24	
HOURLY MAX	51	51	52	51	51	51	50	50	50	52	60	64	64	64	64	64	63	62	62	58	61	56	57	56				
HOURLY AVG	35.4	33.8	33.2	31.9	31.0	29.1	30.7	33.9	36.3	38.5	41.9	43.3	44.3	44.5	45.4	45.7	46.0	46.3	45.9	43.5	42.6	40.3	38.5	37.0				

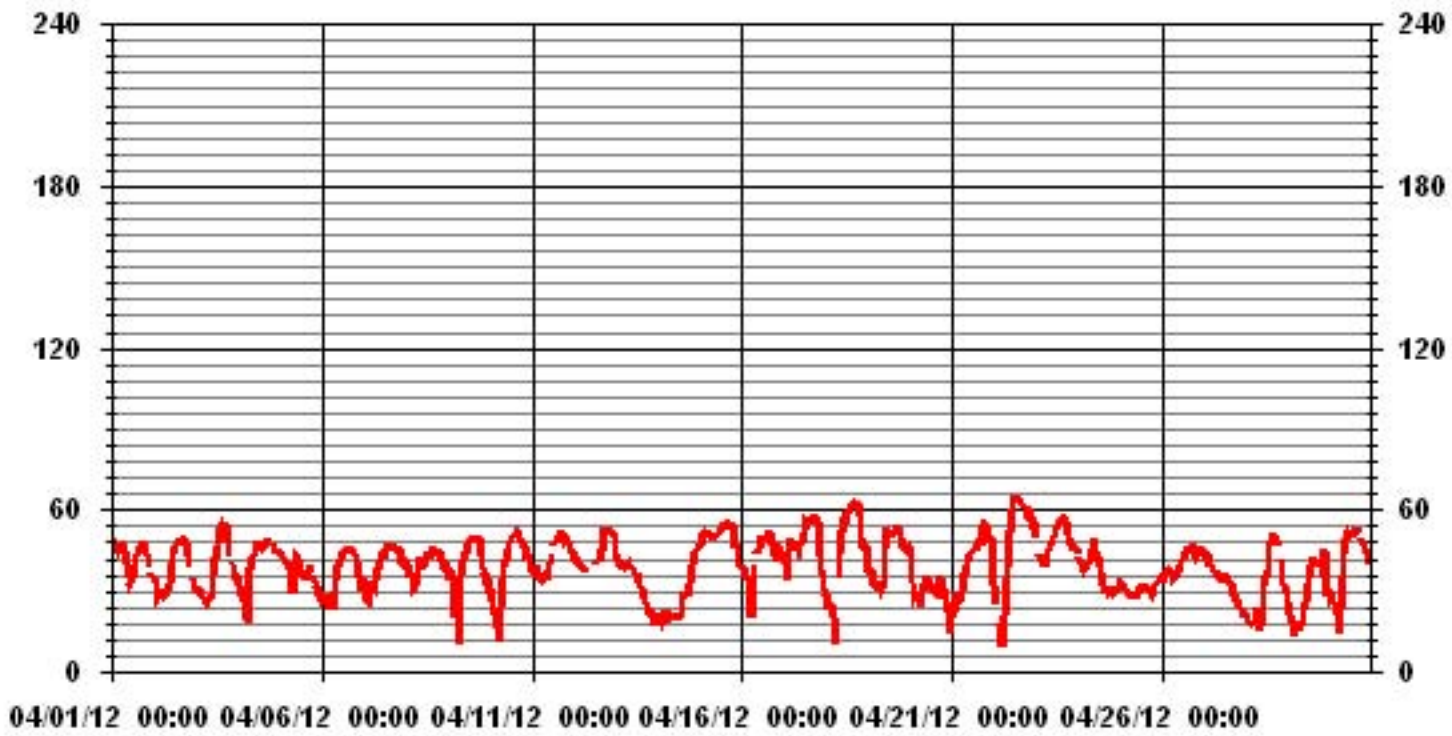
STATUS FLAG CODES

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:	683				
MAXIMUM INSTANTANEOUS VALUE:	64	PPB	@ HOUR(S)	VAR	ON DAY(S)
					22
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	719	HRS
MONTHLY CALIBRATION TIME:	6	HRS			
STANDARD DEVIATION:	10.74				

01 Hour Averages



— LICA35 O3MAX PPB

LICA-ELK
O3_ / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
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	5.10	4.52	2.04	3.50	10.21	12.84	12.70	3.21	1.75	2.33	1.60	1.45	5.10	6.56	8.02	7.00	88.02
< 110	.43	.58	.72	1.02	1.31	1.31	1.45	.58	1.02	.29	.43	.29	.29	.43	.87	.87	11.97
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.54	5.10	2.77	4.52	11.53	14.16	14.16	3.79	2.77	2.62	2.04	1.75	5.40	7.00	8.90	7.88	

Calm : .00 %

Total # Operational Hours : 685

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	35	31	14	24	70	88	87	22	12	16	11	10	35	45	55	48	603
< 110	3	4	5	7	9	9	10	4	7	2	3	2	2	3	6	6	82
< 210																	
>= 210																	
Totals	38	35	19	31	79	97	97	26	19	18	14	12	37	48	61	54	

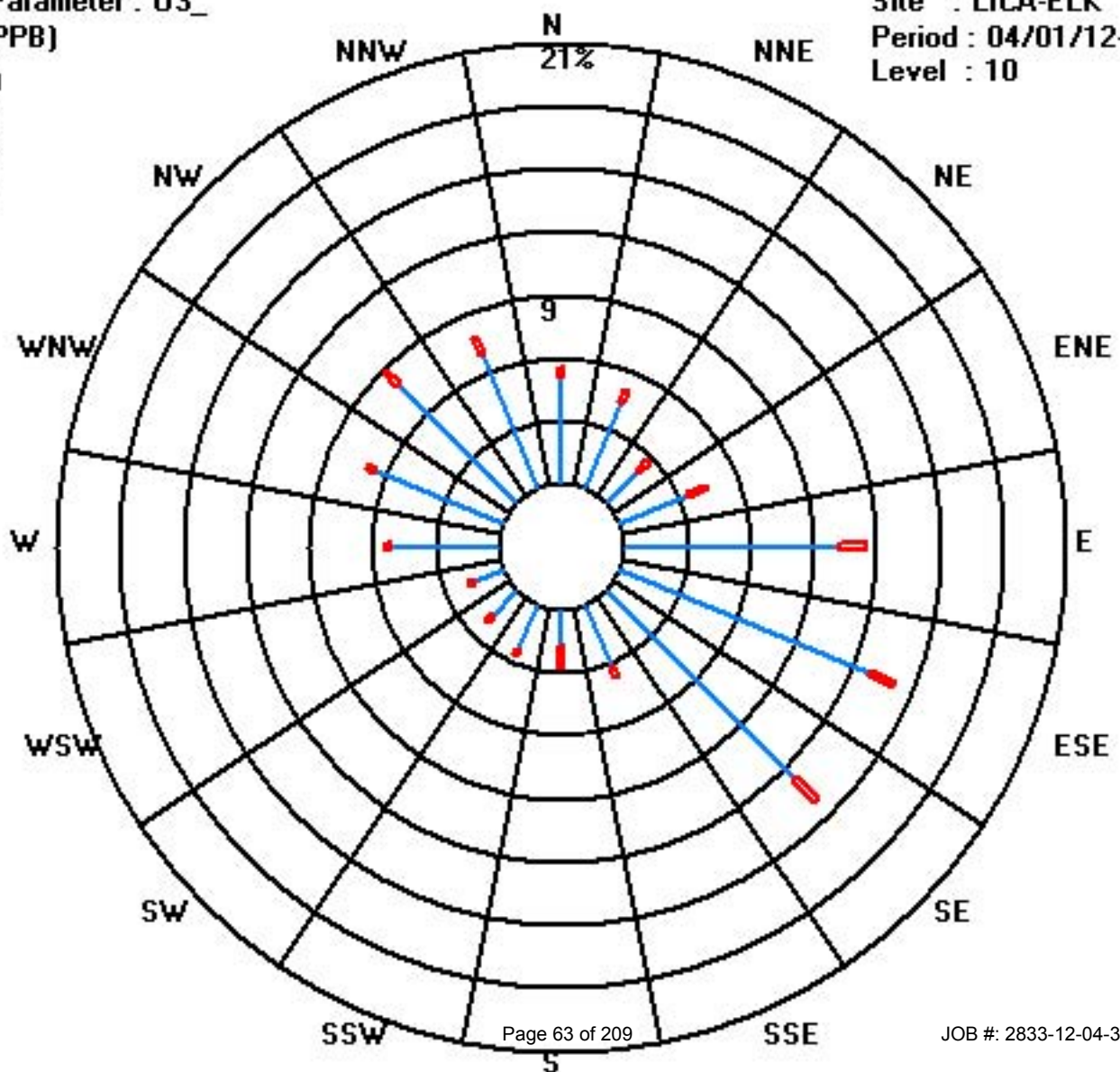
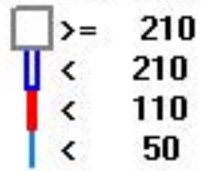
Calm : .00 %

Total # Operational Hours : 685

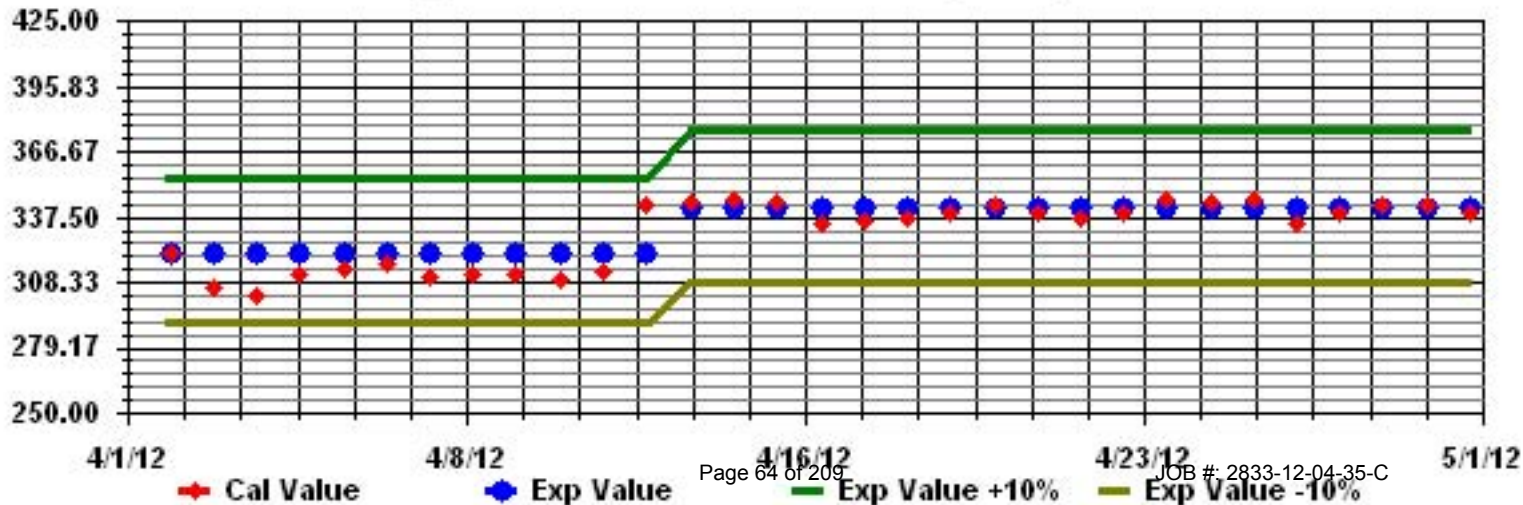
Class Limits (PPB)

Period : 04/01/12-04/30/12

Level : 10



Calibration Graph for Site: LICA35 Parameter: 03_ Sequence: 03 Phase: SPAN



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

APRIL 2012

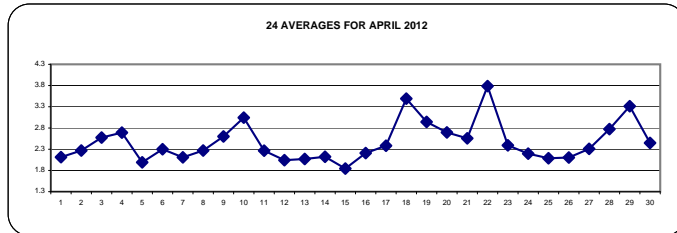
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	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		2.2	2.1	2.2	2.2	2	2	1.9	1.9	2	2.1	2.1	2.1	2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.1	IZS	2	2.3	2.1	24		
2		2	2.2	2.3	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.1	2	2	2	1.8	2	1.9	2	2.9	3	IZS	3.4	3	3.4	2.3	24		
3		3.1	3.1	3	3.2	3.1	3.1	3	3	3	2.5	2.2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.1	IZS	2.4	2.7	2.8	3.2	24		
4		2.9	2.9	3.4	3.4	5.2	4.6	4.7	3.6	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	IZS	1.9	1.9	1.9	1.8	5.2	2.7	24	
5		1.8	1.7	1.7	1.7	1.8	1.9	2.2	2.5	2.1	1.9	1.8	1.7	1.7	1.7	1.8	1.9	1.8	1.8	IZS	2.1	2	2.1	3.5	2.6	3.5	2.0	24	
6		2.5	2.8	3.2	2.4	2.4	2.8	2.8	2.7	2.4	2.3	2.2	2.1	2	2	2	2.1	2.2	IZS	1.9	1.9	2.2	1.9	2.1	2	3.2	2.3	24	
7		2.3	2.6	2.8	2	2.1	2.2	2	1.9	2	2	2	2	1.9	1.8	1.7	1.7	IZS	2	2	2.1	2.1	2.6	2.4	2.3	2.8	2.1	24	
8		2	2	2	2.3	2.7	2.6	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	IZS	1.8	1.8	1.9	1.8	3.9	3.3	1.7	2.2	3.9	2.3	24	
9		2.2	2.1	3	3.6	3.9	2.8	3.8	3	2.2	2.1	2	1.8	1.6	1.5	IZS	1.9	1.9	1.9	1.9	2.2	3	3.3	4	4.1	4.1	2.6	24	
10		3.8	3.9	4.3	4.9	5.2	5.1	4.3	3.6	2.8	2.8	2.4	2.1	2	IZS	2	1.9	2	2.1	2.2	2.4	2.7	2.3	2.4	2.8	5.2	3.0	24	
11		2.9	2.6	2.5	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.2	IZS	2	2.1	2.1	2.1	2.1	2	2.2	2.2	2.1	2.1	2.1	2.9	2.3	24	
12		2.2	2.3	2.3	2.2	2.3	2.2	2.1	C	C	C	C	C	C	2.1	2.1	2	1.8	1.8	1.9	1.9	1.9	1.9	1.9	2	2.3	2.0	24	
13		1.9	2	2	2	2	2.1	2	1.9	1.9	1.9	1.9	IZS	2	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.1	24	
14		2.3	2.5	2.4	2.1	2.3	2.2	2.2	2.3	2.2	2.2	IZS	2	2	2	2	1.9	1.9	2	2	2.1	2	2.1	2.1	2.1	2.5	2.1	24	
15		2.1	2.1	2.1	2.1	2	2	2	2.1	2.1	IZS	1.8	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.7	2.1	1.9	1.8	1.6	2.1	1.8	2.4	24	
16		1.7	2	2.1	2.3	2.4	2.8	3.6	2.3	IZS	2.1	2.1	2.1	2	1.9	1.9	2	2.1	2.1	2.1	2.4	2.3	2.2	2.2	2.1	3.6	2.2	24	
17		2.2	2.3	2.3	2.3	2.2	2.2	2.2	IZS	2.2	2.2	2.2	2.1	2	2	1.9	1.9	1.8	1.9	2	3.3	2.9	4.2	4.7	4.7	2.4	24		
18		4.5	4.8	5.1	5.2	5.6	5.9	IZS	5.3	4.5	2.8	2.2	2.1	2.2	2	1.9	2	2	1.9	2	2.3	3.9	4	4.3	3.8	5.9	3.5	24	
19		3.7	3.4	3.3	3.7	4	IZS	4.2	4.3	3.8	3.7	2.7	2.3	2.1	2.1	2.2	2	2.1	2.1	2.1	2.7	2.6	2.8	2.7	3.1	4.3	2.9	24	
20		2.7	3.2	3.1	2.9	IZS	2.8	2.8	3	2.5	2.4	2.2	2.3	2.3	2.2	2.2	2.2	2.4	2.4	2.4	3	2.9	2.6	4	3.5	4.0	2.7	24	
21		2.8	2.9	2.8	IZS	2.5	2.3	2.3	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.4	2.6	2.7	4.7	4.7	2.6	24	
22		4.3	5.3	IZS	8.7	7.5	8.2	7.5	5.3	4.6	3.5	2.6	2.1	2.1	2.1	2	2	2.1	2.5	2	2.3	3.1	2.9	2.4	8.7	3.8	24		
23		3.1	IZS	3.1	3.9	3.5	3.7	2.4	2.4	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2	1.8	1.9	2	3.9	2.4	24	
24		IZS	2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.1	IZS	2.3	2.2	24	
25		2.1	2.1	2.1	2	2.1	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	2.1	2.1	2.1	24	
26		2.1	2.2	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2	2	2	2.1	IZS	2.2	2.2	2.2	2.1	24		
27		2.3	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.4	2.3	2.3	2.2	2.3	2.5	2.7	IZS	2.5	2.3	2.4	2.7	2.3	24	
28		2.5	2.8	2.4	2.5	2.9	2.8	2.9	3.1	2.6	2.6	2.6	2.4	2.7	2.2	2.5	2.3	2.3	2.1	2.2	IZS	2.9	3.5	4.7	4.3	4.7	2.8	24	
29		3.4	3.8	4.8	4.7	4.4	4.4	4	3.7	3.7	3.5	3.2	2.7	2.6	2.6	2.5	2.4	2.4	2.3	IZS	2.7	2.7	2.9	3.5	3.3	4.8	3.3	24	
30		3.5	2.6	2.5	3.4	3	3	3.2	3	2.7	2.3	2.3	2.3	2.3	2.2	2.2	2.2	IZS	1.8	1.7	1.9	2.1	1.9	1.9	3.5	2.4	24		
	HOURLY MAX	4.5	5.3	5.1	8.7	7.5	8.2	7.5	5.3	4.6	3.7	3.2	2.7	2.7	2.6	2.5	2.4	2.4	2.4	2.5	3.0	3.9	4.0	4.7	4.7				
	HOURLY AVG	2.7	2.7	2.7	3.0	3.0	3.0	2.9	2.8	2.6	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.5	2.5	2.7	2.7				

STATUS FLAG CODES

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

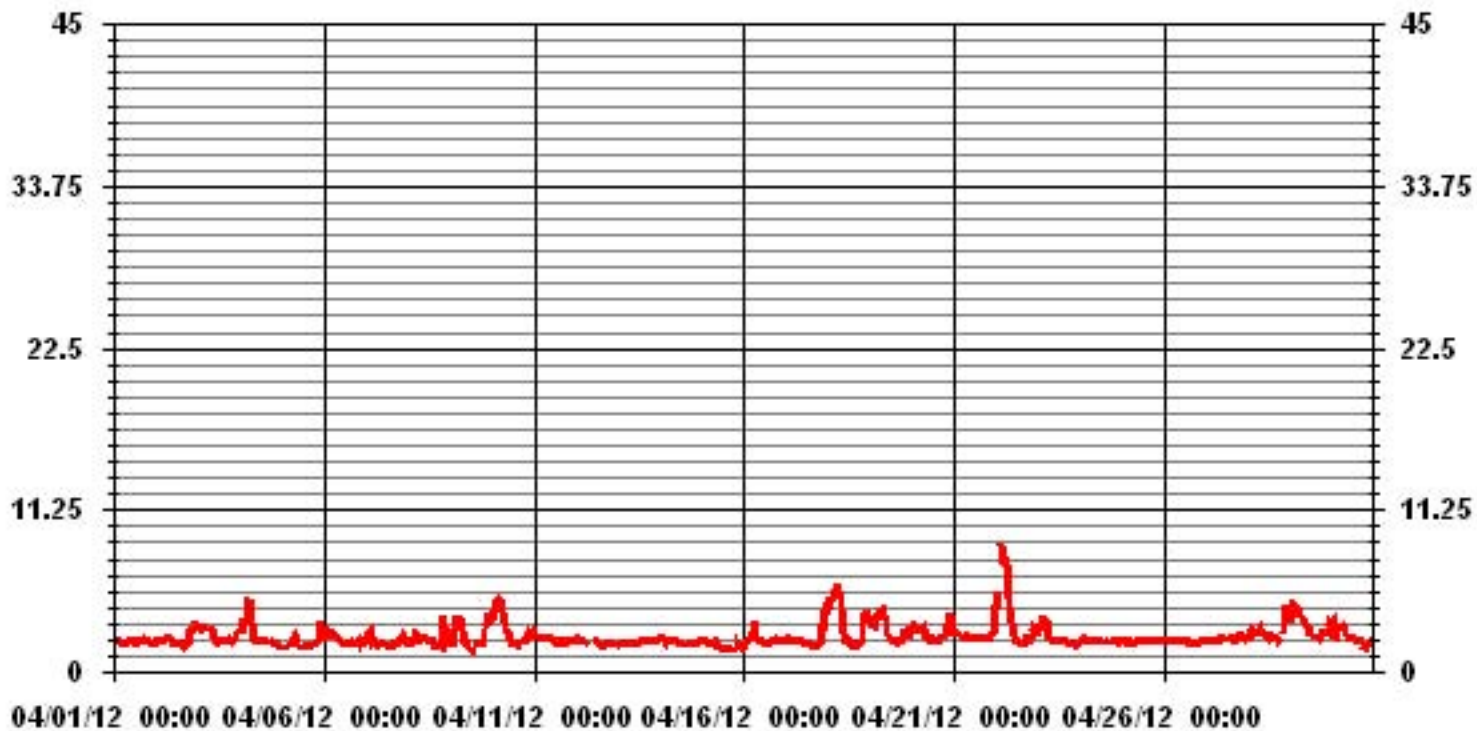
24 AVERAGES FOR APRIL 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	685
MAXIMUM 1-HR AVERAGE:	8.7 PPM @ HOUR(S) 3 ON DAY(S) 22
MAXIMUM 24-HR AVERAGE:	3.8 PPM ON DAY(S) 22
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.82
OPERATIONAL TIME:	720 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	2.47 PPM

01 Hour Averages



— LICA35 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

APRIL 2012

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 MAX.	24-HOUR AVG.	RDGS.	
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
1	2.4	2.3	2.3	2.3	2.1	2	2	2.1	2.2	2.8	2.4	2.2	2.6	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.3	2.3	IZS	2.1	2.8	2.3	24		
2	2.2	2.8	3.4	2.3	2.6	2.5	3	2.4	2.4	2.4	2.2	2.1	2	2.1	2.1	1.9	2.1	2.5	3.8	3.8	4.1	IZS	4.8	3.4	4.8	2.7	24		
3	4.1	3.4	4.1	3.9	4	3.5	3.3	3	4.2	3.3	2.4	2.1	2.2	2.5	2.6	2.5	2.3	2.2	3.7	3.6	IZS	2.8	3.4	4	4.2	3.2	24		
4	3.4	3.6	4.9	5.2	8.2	5.7	11.2	5.4	2.5	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	IZS	1.9	1.9	2	1.9	11.2	3.5	24			
5	1.9	1.8	1.8	1.9	2	2.4	3.2	3	3.3	2	1.8	1.7	1.8	1.8	1.9	2	1.9	1.9	IZS	2.3	2.2	2.2	11.1	2.9	11.1	2.6	24		
6	2.7	3.4	7.3	2.7	2.6	13	4.4	3.3	2.6	2.3	2.2	2.4	2.2	2.1	2.2	2.4	2.5	IZS	2.1	2	4.6	2.7	2.6	2.3	13	3.3	24		
7	3.5	3.2	3.7	2.6	3.2	4.1	3.7	1.9	2	2	2	2	2	2	1.9	1.9	IZS	2.5	2.1	2.2	3.5	4.2	5	5	5	2.9	24		
8	2.1	2.1	2.3	4.8	4.5	3.9	3.2	2.3	2.4	2.5	2.3	2.3	2.3	2.3	2.3	IZS	1.8	1.9	1.9	1.9	8.8	7	2.4	4.5	8.8	3.1	24		
9	4.6	3.1	15.5	7.3	13.4	3.4	4.9	4.6	2.6	2.2	2.3	1.9	1.7	1.6	IZS	2	2	2	2.2	2.9	3.9	4.4	4.7	7.4	15.5	4.4	24		
10	4.8	5.2	4.8	6.7	7.6	5.7	5.6	5.5	3.1	3	2.7	2.2	2.1	IZS	2.1	2	2.2	2.2	2.5	3.1	3.3	2.6	2.7	3.8	7.6	3.7	24		
11	3.6	2.8	2.6	2.4	2.4	2.4	2.7	2.4	2.6	2.6	2.5	2.4	IZS	2.2	2.2	2.2	2.3	2.6	2.1	2.5	2.4	2.4	2.5	2.3	3.6	2.5	24		
12	2.4	2.4	2.5	2.4	2.4	2.3	2.2	C	C	C	C	C	C	2.2	2.2	1.9	1.9	2.1	2	2	2	1.9	2	2.1	2.5	2.2	24		
13	2.1	2	2.1	2.1	2.3	2.4	2.2	2.3	2	2	2	2	IZS	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.5	2.3	2.9	2.9	2.2	24	
14	2.4	3.1	3	2.4	2.9	2.7	2.5	2.6	2.4	2.7	IZS	2.1	2.1	2	2	2	2	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	3.1	2.3	24	
15	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	IZS	2	1.8	1.7	1.7	1.6	1.7	1.7	1.7	1.8	1.9	3	2.2	2.1	1.7	3	2.0	24		
16	1.8	3	3	5.8	3.4	3.6	5.5	3	IZS	2.6	2.4	2.2	2.2	2	2	2.1	2.7	2.4	2.4	3.1	2.6	2.4	2.2	2.2	5.8	2.8	24		
17	2.3	2.4	2.4	2.4	2.3	2.3	IZS	2.3	2.3	2.3	2.2	2.1	2	2	1.9	1.9	1.9	2	2.5	5.4	4	5.6	6.3	6.3	2.7	24			
18	5	5.2	5.6	5.8	7	6.4	IZS	7.8	5.1	3.6	2.4	2.3	2.3	2.1	2	2.2	2.2	2	2.2	4.2	5.6	6.5	6.5	4.8	7.8	4.3	24		
19	4.7	4.1	3.9	4.8	4.5	IZS	5.7	4.9	4	4	3.3	2.8	2.2	2.2	2.2	2.2	2.3	2.7	2.5	3.1	2.9	5	3.2	5	5.7	3.6	24		
20	4.1	3.9	3.4	4.3	IZS	3	3	4	2.7	2.9	2.3	2.5	2.5	2.4	2.3	2.3	2.6	3.5	5.4	9.5	3.7	3	12.1	5.2	12.1	3.9	24		
21	3.5	3.7	4.6	IZS	3.1	2.4	2.4	2.8	2.9	3.1	2.7	2.7	2.6	2.5	2.5	2.4	2.4	2.4	2.9	3.1	2.7	3.9	5	24.9	24.9	4.0	24		
22	8	17.5	IZS	13.4	9.5	9.7	8.9	7.7	4.9	4.5	2.9	2.4	2.6	2.2	2.1	2.1	2.1	2.7	6.4	2.1	7.1	13.2	9.1	5.1	17.5	6.4	24		
23	9.3	IZS	7.2	17.6	16.9	18.1	4.9	2.5	2.4	2.4	2.6	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.2	1.9	1.9	2.3	18.1	4.9	24	
24	IZS	2.3	2.5	2.6	2.5	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.1	2.3	2.3	2.3	2.4	2.5	2.4	2.5	2.4	IZS	2.6	2.4	24	
25	2.2	2.3	2.3	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.5	IZS	2.2	2.5	2.2	24
26	2.3	2.5	2.2	2.2	2.2	2.2	2.2	2.2	3.1	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.2	IZS	2.3	2.5	3.1	2.3	24
27	2.5	2.3	2.3	2.3	2.5	2.4	2.4	2.2	3.4	2.6	2.8	2.6	2.7	2.8	2.4	2.5	2.3	2.4	2.7	2.8	IZS	2.8	2.5	2.5	3.4	2.6	24		
28	2.8	2.9	2.6	2.5	6.7	3.4	4.6	3.4	3.1	2.9	3.9	2.6	3.3	4.8	4.6	3.4	3.6	2.2	2.3	IZS	3.8	5.4	7.3	6.6	7.3	3.9	24		
29	4.3	5.1	8.7	7.5	5.3	5.5	4.6	4.4	4.1	3.9	3.4	2.9	2.9	2.7	3	2.8	2.9	2.6	IZS	3.6	5.4	4.5	5.6	4.2	8.7	4.3	24		
30	4.2	2.9	2.6	6.3	4.8	3.3	4.3	3.3	3.1	2.5	2.4	2.5	2.6	2.3	2.3	2.4	2.4	IZS	1.9	1.9	2.1	2.2	2	2	6.3	2.9	24		
HOURLY MAX	9	18	16	18	17	18	11	8	5	5	4	3	3	5	5	3	4	4	6	10	9	13	12	25					
HOURLY AVG	3.5	3.6	4.0	4.5	4.7	4.3	3.8	3.4	2.9	2.7	2.5	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.6	2.9	3.5	3.6	4.2	4.3					

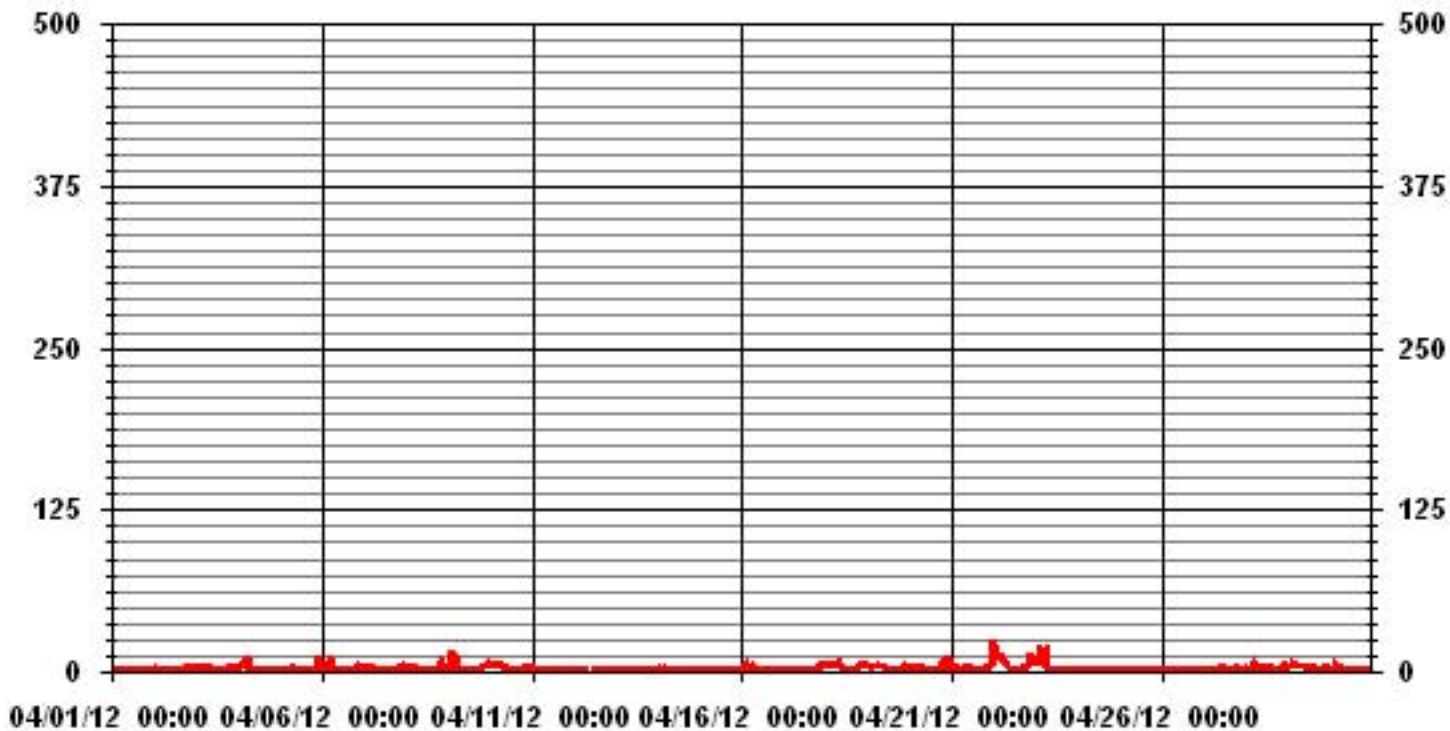
STATUS FLAG CODES

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:	684
MAXIMUM INSTANTANEOUS VALUE:	24.9 PPM @ HOUR(S) 23 ON DAY(S) 21
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	2.22
OPERATIONAL TIME:	720 HRS

01 Hour Averages



— LICA35 THCMAX PPM

LICA-ELK
 THC / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 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	5.25	5.10	2.77	4.08	10.94	8.17	10.65	2.77	2.48	2.48	1.89	1.60	5.10	6.56	6.86	7.15	83.94
< 10.0	.29	.00	.00	.43	.58	5.98	3.50	1.02	.29	.14	.14	.14	.29	.43	2.04	.72	16.05
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.54	5.10	2.77	4.52	11.53	14.16	14.16	3.79	2.77	2.62	2.04	1.75	5.40	7.00	8.90	7.88	

Calm : .00 %

Total # Operational Hours : 685

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	36	35	19	28	75	56	73	19	17	17	13	11	35	45	47	49	575
< 10.0	2			3	4	41	24	7	2	1	1	1	2	3	14	5	110
< 50.0																	
>= 50.0																	
Totals	38	35	19	31	79	97	97	26	19	18	14	12	37	48	61	54	

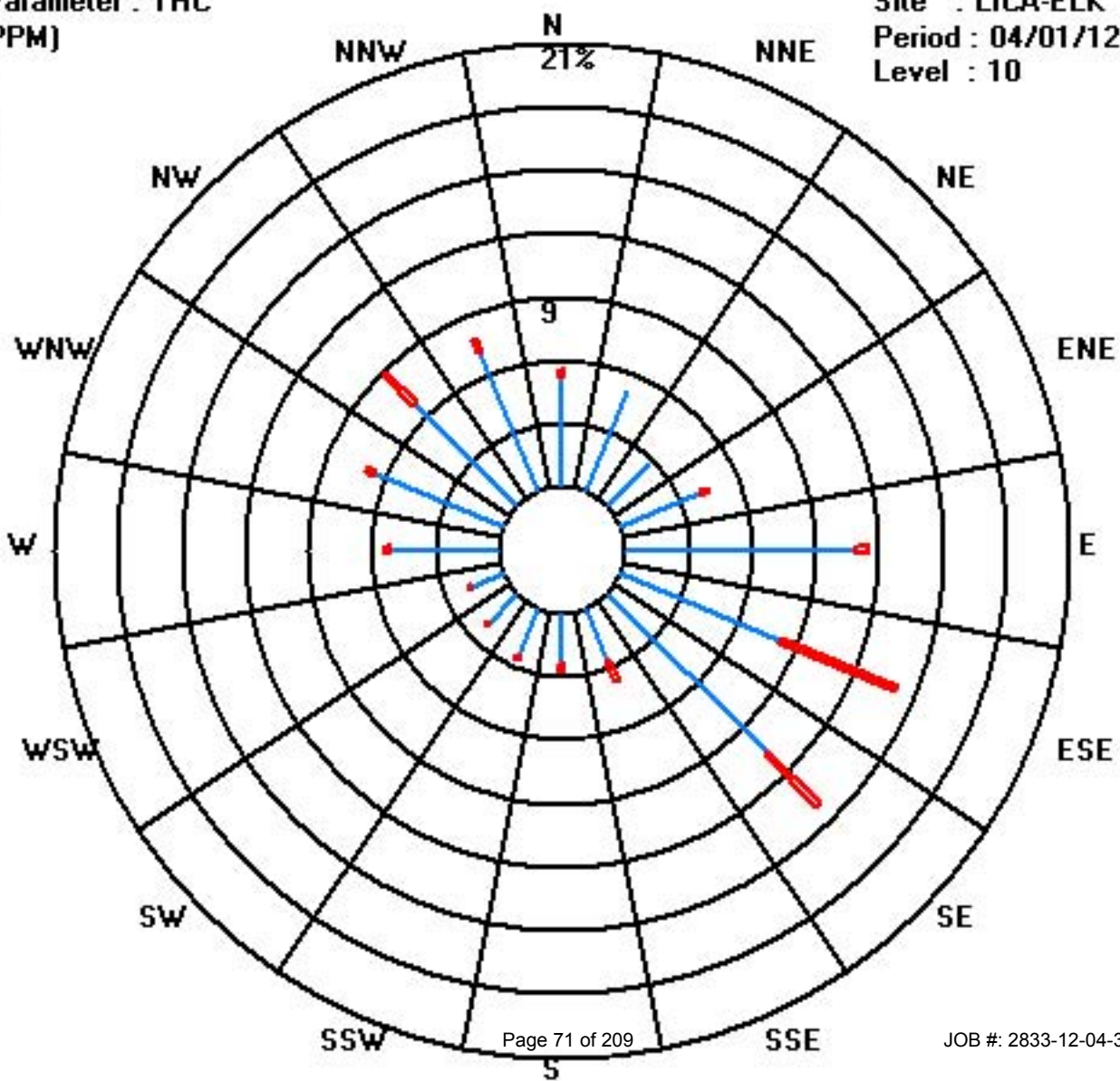
Calm : .00 %

Total # Operational Hours : 685

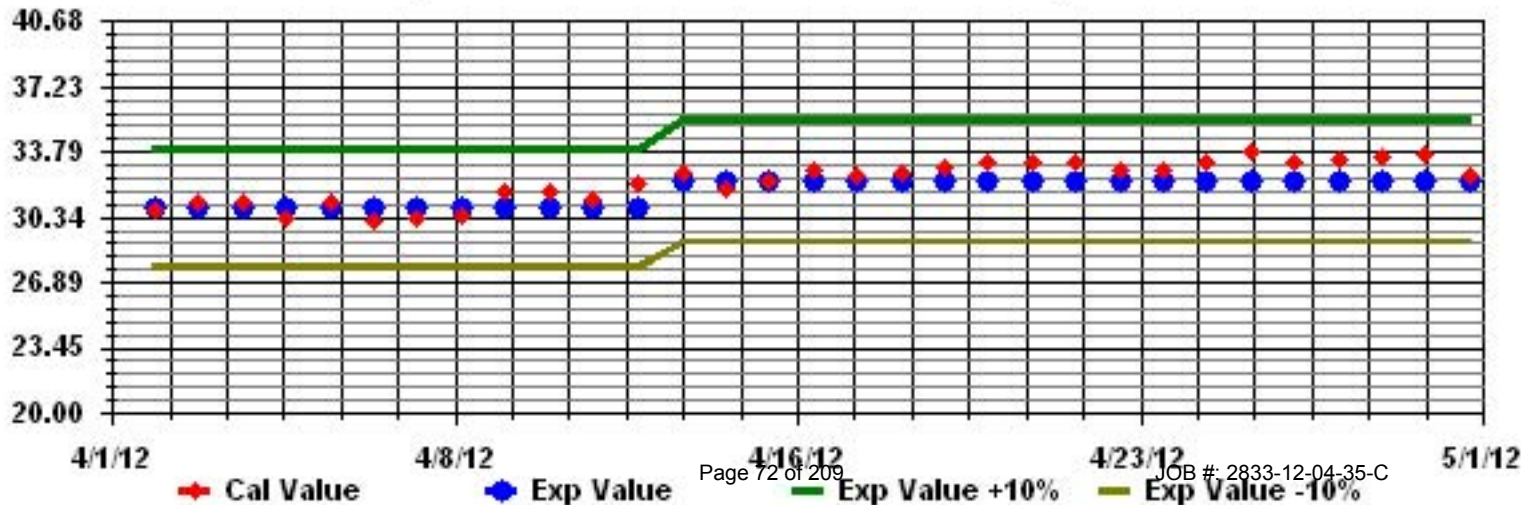
Class Limits (PPM)

Period : 04/01/12-04/30/12

Level : 10

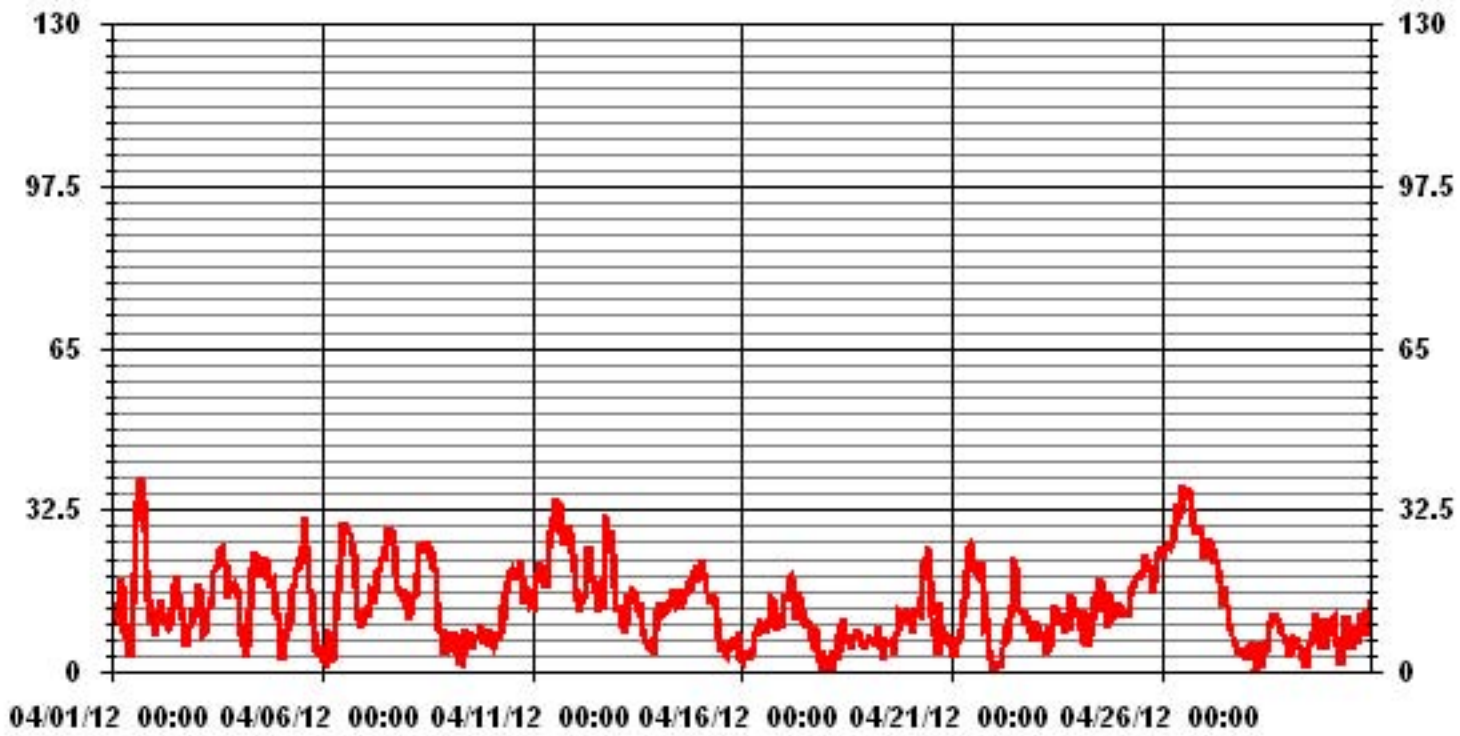


Calibration Graph for Site: LICA35 Parameter: THC Sequence: THC Phase: SPAll



Vector Wind Speed

01 Hour Averages



— LICA35 WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

APRIL 2012

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	20.1	15.1	19.2	26	27.1	34.7	35.1	17.6	17.5	23.9	12.6	15.7	23.9	34	53.1	51	59	66.3	56.7	44.3	37.3	23.7	22.3	17.5	66.3
	2	21.2	12.2	20.7	18.1	18.7	18.3	17.6	17.9	18.1	18.7	25	32.5	32.7	37.2	34	28	26.5	16.4	14.1	12	12	14.6	14.7	15.4	37.2
	3	17.7	25.6	25.5	23.6	17.5	12.2	18.8	19.8	22.7	23.5	33.4	35.7	38.1	42.3	42	44.4	38.9	41.1	24.6	26.9	27.7	24.4	22.9	21.4	44.4
	4	21.5	18.3	13.1	9	8.7	7.3	15.8	27.7	34.8	35	38.8	35.6	30.5	34.8	33.8	35.8	40.2	36.2	31.8	33.6	32.9	29.7	35.8	22.4	40.2
	5	23.9	20.5	24	20.6	15.6	18.2	16.4	33.4	33.1	32.8	42.2	40.6	39.3	43.8	48.9	47.6	38.3	30.9	33	20.1	14.5	9.9	7.6	12.2	48.9
	6	11.4	11.2	7.4	11.2	11.7	15.2	4.9	15	19	35.2	40	46.4	52.4	50.8	45.1	44.3	44	40.7	43.5	33.4	20	13.9	12.1	12.9	52.4
	7	16.4	16.1	16.1	19.4	24.4	24.3	21.3	23.7	33.1	33.5	39	39.5	41.9	48.2	49	49.1	47.4	41.2	31.5	26.6	24.8	25.1	19.8	23.7	49.1
	8	22.4	23.3	23.2	20.9	21.2	21	36.6	43.7	40.7	41.3	40.8	42.2	41.6	42.8	38.2	39.4	38.4	32.7	27.3	14.9	11.1	13.4	11.2	10.4	43.7
	9	8.1	6.5	9.3	10.4	9.8	7.9	3.9	9.9	7.7	14.8	22.1	26.8	25	21	18.8	20	17.9	15.9	14.9	12.2	8.6	8.6	8.5	7.6	26.8
	10	13.7	10.5	9	11.3	9.9	9.2	14.1	20.1	21.7	27.6	33.6	37.1	37.4	42.8	39	38	37.3	37.7	32.9	22.3	20.6	22.8	22.4	18.7	42.8
	11	24.9	23.2	31.2	29.2	30.6	31.2	30.9	28.7	25.6	31.3	37.1	44.2	47.5	49.5	55.3	50.7	49.6	47.7	39.8	44.3	43.2	45.8	44.5	36.4	55.3
	12	32.7	26.6	22.3	20	20.3	22.2	24	31.2	40.1	34.6	34.4	32.5	34.7	29.6	27.2	25.7	24.3	44.6	58.9	55.3	46.9	48.9	41.2	30.7	58.9
	13	22.6	20.6	23.2	20.9	18.4	16.1	24.7	32.3	27.2	27.2	27.9	29.4	25	25	23.4	17.2	15.8	11.8	10.6	10.4	9.5	9.3	10.1	14.7	32.3
	14	20.6	19.7	18	17.7	20.9	21.5	21.2	21	21.5	25.8	25	22.3	21.3	21.7	29.9	27	35.5	31	40.4	44.8	40.2	45.5	36.3	35.3	45.5
	15	33.5	40.3	36.7	38.3	31.5	30.6	24.3	23.2	24.5	22.8	19.3	21.8	18.8	16.2	16.2	12.1	12.7	11.9	14	10.4	12	13.3	14.4	9.8	40.3
	16	4.9	8	7.7	7.9	4.6	5.4	10.5	14.8	15.1	18.4	30.2	22.8	23.8	25.3	27.7	22.1	19.2	23	22	20	14.2	23.2	21.9	17.3	30.2
	17	26.1	24.1	25.5	37.8	35.4	35.3	21.8	29	27.1	25.8	23.8	23.1	25.7	25.9	24.6	22.5	23.1	15.8	15.7	9.3	5.8	4.4	12.1	5.8	37.8
	18	5.2	3.9	3.6	4	6.3	6	5.8	11.6	14.4	21.7	28	19.2	21.7	21.7	21.7	22.9	19.7	18.9	15	9.8	7.1	6.8	7.8	9	28
	19	12.1	12.2	12.2	10.2	8.2	12.1	17.7	9.2	9.4	10.1	16.2	18.1	19.7	19.6	17	14.2	21.4	16.6	21.4	17.7	15.3	17	17.7	25.1	25.1
	20	24.1	13.9	16.5	16.6	15.8	21.6	23.5	29.6	32.8	33.6	39.2	32.3	21.2	17.8	12	13	9.5	24.7	17.7	10.9	10	12.4	10	8	39.2
	21	9.3	7.5	14.5	16.6	17	16.7	20.4	23	34.6	35.7	39.3	43.4	42.5	38.9	38	42.3	39.2	35.8	27.1	15.2	12.5	10.3	8.4	5.2	43.4
	22	6.2	4.7	4.6	13.2	3.9	8.2	9.5	14.9	14.3	27.4	32.1	41.6	41	34.2	29.6	22.2	23.4	19.7	13	15.5	22.1	12.2	13.1	13.5	41.6
	23	13.6	14	10.4	9.8	11.8	9.3	12	16.8	14.6	16.4	22.9	24.5	21.2	24.7	21.9	21.9	18.9	19.1	19.3	18.7	30.3	25.2	23.7	24.4	30.3
	24	20.1	17	17	13	22.3	20.4	15.4	15.2	21.9	29.5	27.2	25.4	29.3	27.4	23.9	23.3	17.8	25.2	28.1	27.2	21.7	21.5	20.1	24.5	29.5
	25	23.4	22	21	22.3	21.8	22.7	25.9	27.1	31.3	29.3	31.3	29	32.3	33.4	35.1	35	34	32.8	24.9	33.8	29.6	34.3	35.8	39.8	39.8
	26	42.7	38.1	39.9	40.6	43.8	39.5	42.6	50.4	49.8	53.3	52.5	51.4	59.1	62.7	64.6	58.8	59.2	55.1	47.1	44.4	45	45.8	42.3	45.5	64.6
	27	41.2	40.5	39.9	47.4	40	40.5	35.9	42.1	34.6	36.4	19.2	23.5	33.7	23.7	15.6	15.3	14.1	10.5	9.2	9.4	5.8	8	6.3	4.8	47.4
	28	5.7	5.4	7.3	9.7	4.3	3.3	7.5	8.6	13.6	3.1	7.4	8.2	10.8	14.8	15.4	17.5	19	20.1	20.2	20.8	11.2	10.4	9.2	9.6	20.8
	29	7.7	5.6	8.6	9.4	10.4	10.2	11.7	8.6	8.7	10.3	7	13.2	12.2	18	23	19.5	17.3	18.5	13.7	10.4	27.5	10.6	14.2	14.2	27.5
	30	13.3	16.7	16.9	12.8	9.9	7.8	4.3	11.7	20.2	24.8	22.3	24.9	20.2	26.9	22.9	23	22.2	20.4	20.8	18.9	14.5	21	20.9	23	26.9
PEAK		42.7	40.5	39.9	47.4	43.8	40.5	42.6	50.4	49.8	53.3	52.5	51.4	59.1	62.7	64.6	58.8	59.2	66.3	58.9	55.3	46.9	48.9	44.5	45.5	

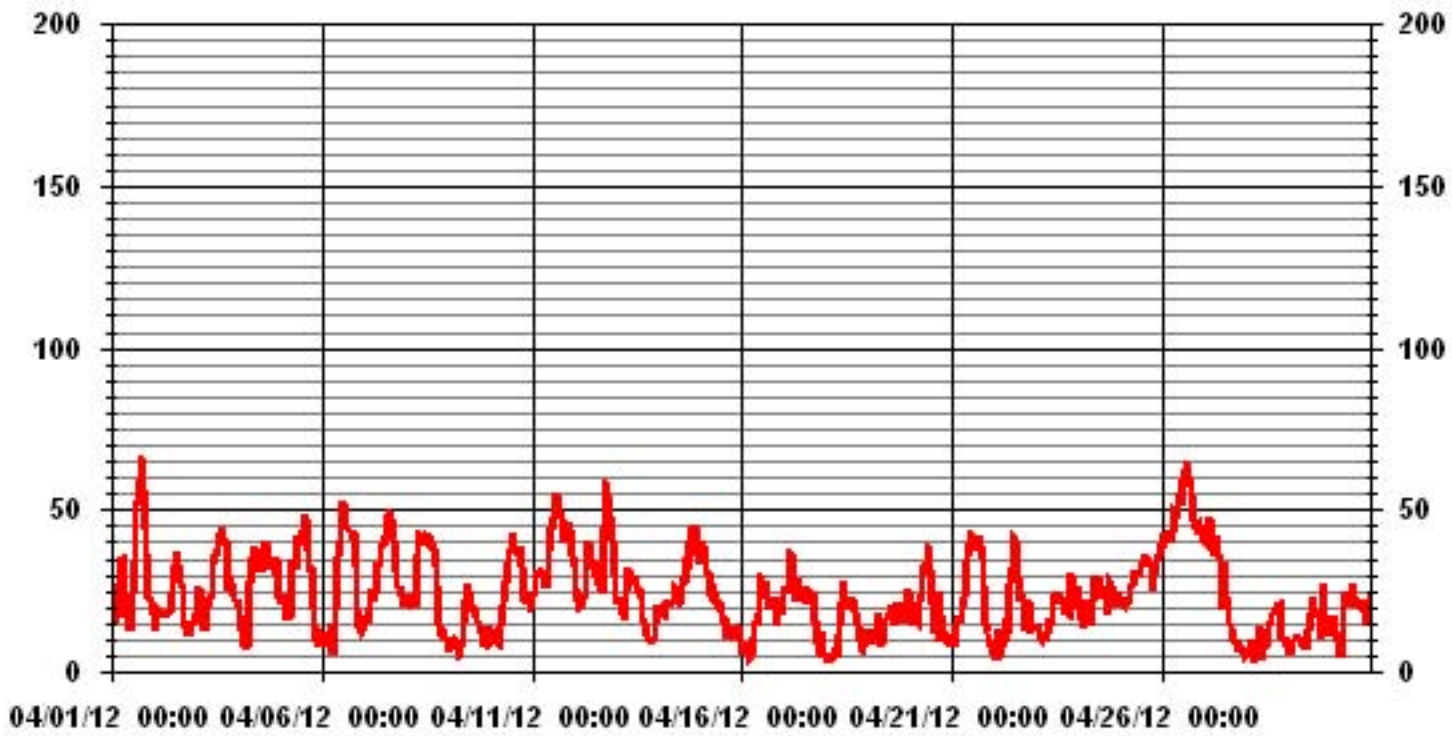
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	66.3	KPH	@ HOUR(S)	17
			ON DAY(S)	1

01 Hour Averages



— LICA35 WSMAX KPH

LICA-ELK
WSP / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

Logger Id : 35
Site Name : LICA-ELK
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	.83	.97	.83	1.11	.69	3.19	1.52	.97	.41	.83	.83	.41	1.52	.83	1.11	1.94	18.05
< 12.0	1.11	.69	1.11	2.50	4.72	4.58	2.36	1.80	1.25	1.52	.69	.69	3.05	1.66	2.22	2.36	32.36
< 20.0	2.63	2.63	.69	.97	5.55	1.80	5.83	.69	.13	.27	.00	.41	.97	2.36	2.50	1.25	28.75
< 29.0	.97	.97	.00	.00	.69	3.33	3.33	.41	.97	.00	.41	.13	.00	1.38	1.94	2.08	16.66
< 39.0	.00	.00	.00	.00	.00	1.66	.97	.00	.00	.00	.00	.00	.00	.41	1.11	.00	4.16
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.55	5.27	2.63	4.58	11.66	14.58	14.02	3.88	2.77	2.63	1.94	1.66	5.55	6.66	8.88	7.63	

Calm : .00 %

Total # Operational Hours : 720

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	6	7	6	8	5	23	11	7	3	6	6	3	11	6	8	14	130
< 12.0	8	5	8	18	34	33	17	13	9	11	5	5	22	12	16	17	233
< 20.0	19	19	5	7	40	13	42	5	1	2		3	7	17	18	9	207
< 29.0	7	7			5	24	24	3	7		3	1		10	14	15	120
< 39.0						12	7							3	8		30
>= 39.0																	
Totals	40	38	19	33	84	105	101	28	20	19	14	12	40	48	64	55	

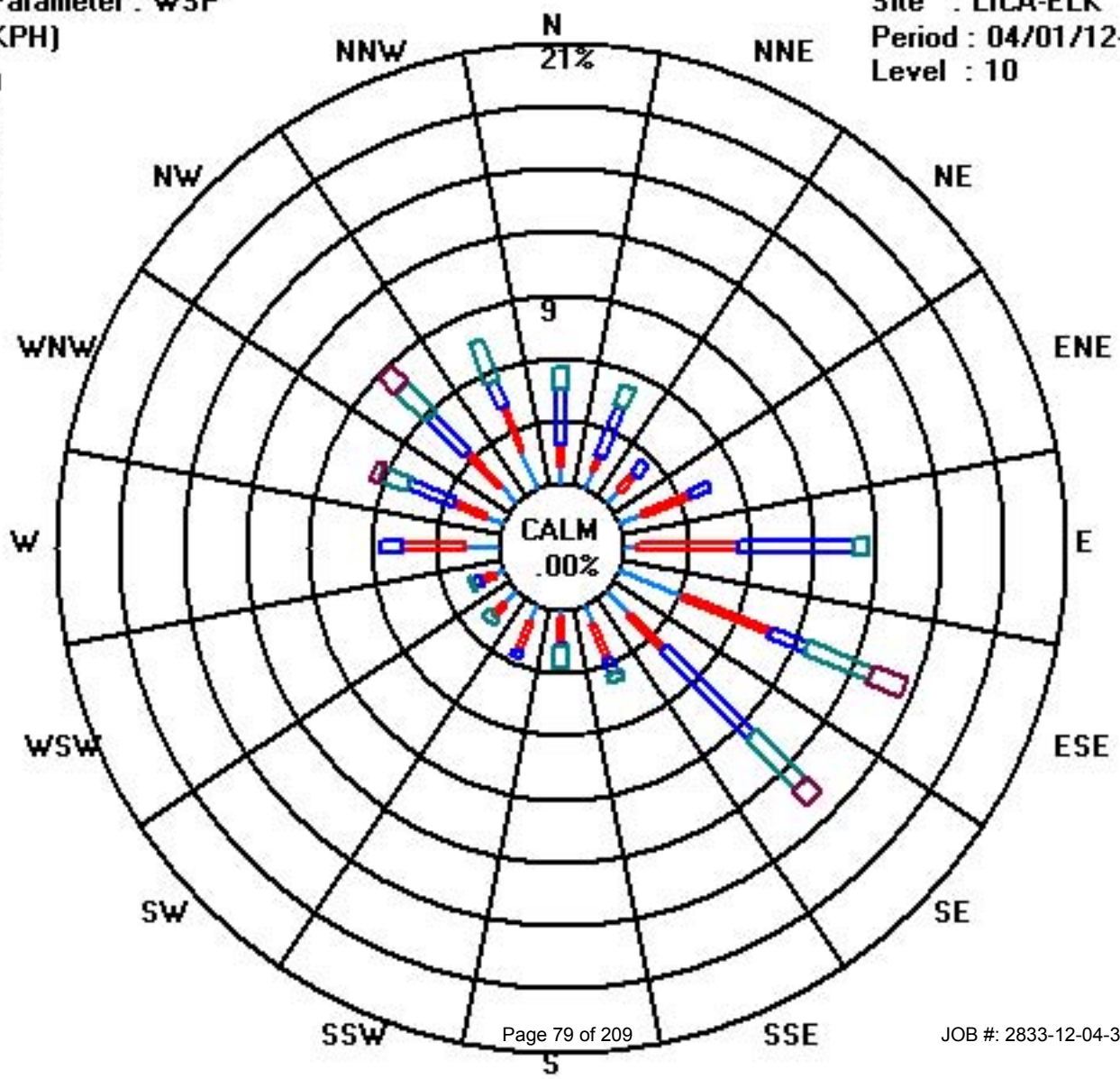
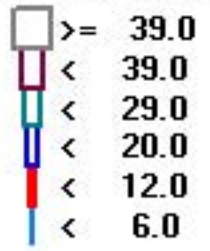
Calm : .00 %

Total # Operational Hours : 720

Class Limits (KPH)

Period : 04/01/12-04/30/12

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

APRIL 2012

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG	RDGS.
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	AVG.	QUADRANT	
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	94	82	72	76	79	84	94	100	92	99	199	337	324	325	317	314	314	314	313	301	295	282	268	261	329	NNW	24
2	255	299	292	281	261	259	260	270	265	250	256	264	278	296	289	262	292	255	199	155	151	151	141	133	258	WSW	24
3	123	134	137	149	124	107	115	124	131	133	142	157	170	177	180	184	173	167	147	135	137	128	135	139	148	SE	24
4	139	123	114	126	134	121	318	305	332	331	338	344	5	3	360	14	17	8	4	3	359	8	3	10	2	N	24
5	24	358	43	53	68	79	129	174	208	218	222	234	256	284	297	300	291	291	275	290	289	262	232	264	265	W	24
6	260	238	183	256	259	263	186	257	259	274	291	300	299	298	307	318	325	323	336	345	324	303	286	284	303	WNW	24
7	291	307	294	301	313	314	317	334	343	343	345	334	316	317	312	316	319	319	329	323	322	315	312	324	321	NW	24
8	331	1	345	317	303	304	321	335	341	349	335	340	339	341	352	354	358	1	356	9	337	329	344	334	341	NNW	24
9	305	325	315	312	326	303	7	68	122	333	334	13	22	6	83	104	83	92	96	101	119	119	131	118	46	NE	24
10	99	123	132	106	120	110	119	127	138	150	145	146	144	142	142	145	147	143	141	138	135	135	136	125	137	SE	24
11	126	127	132	130	127	127	132	129	134	124	130	130	133	135	129	131	130	127	127	127	125	131	127	124	129	SE	24
12	114	103	99	92	82	87	88	98	118	118	109	86	88	87	85	71	77	116	133	123	112	114	113	109	105	ESE	24
13	78	80	79	83	83	107	102	89	91	91	90	93	92	88	95	86	77	69	58	27	54	32	338	327	81	E	24
14	327	318	307	306	303	301	289	292	293	306	314	328	335	9	25	18	24	13	15	18	21	32	24	20	346	NNW	24
15	18	17	22	28	43	34	17	24	22	13	43	63	67	43	355	327	324	281	234	280	306	159	286	269	17	NNE	24
16	216	208	216	208	165	134	165	202	210	210	209	208	206	205	215	187	186	132	130	124	72	8	346	330	182	S	24
17	335	353	351	20	25	24	23	24	6	10	359	357	6	349	343	328	314	18	63	86	164	199	104	110	9	N	24
18	69	106	124	60	116	129	119	127	116	143	155	146	136	144	143	114	80	139	111	111	114	119	107	105	124	ESE	24
19	107	105	95	106	120	117	123	111	128	180	269	219	201	239	226	229	181	182	157	151	162	159	151	166	157	SSE	24
20	164	121	124	130	124	121	124	126	125	126	128	137	141	123	95	84	37	329	336	311	281	270	305	292	125	SE	24
21	276	280	266	274	286	268	271	289	314	307	311	305	307	310	302	297	291	295	294	281	262	254	346	306	296	WNW	24
22	3	192	104	140	88	134	120	118	111	129	146	181	190	197	255	279	294	306	320	334	324	317	340	334	225	SW	24
23	326	335	317	331	333	324	8	56	22	19	67	105	102	98	92	95	87	93	90	79	92	95	92	81	70	ENE	24
24	59	79	84	39	353	19	37	59	57	38	17	10	10	7	7	22	38	20	39	40	39	50	48	69	34	NE	24
25	71	74	91	89	84	87	95	98	93	96	96	102	96	97	108	101	98	96	95	107	111	110	117	123	100	E	24
26	120	124	121	117	119	117	117	119	120	117	108	118	116	115	115	113	116	110	117	132	122	117	120	124	118	ESE	24
27	120	121	120	123	124	129	125	127	131	120	99	107	112	107	93	94	84	77	75	69	23	341	335	347	114	ESE	24
28	346	344	341	333	308	301	283	259	279	232	291	266	224	206	199	189	176	178	160	149	127	117	107	107	182	S	24
29	103	113	136	136	148	126	122	122	118	119	154	8	119	168	196	145	161	185	184	152	223	283	285	279	162	SSE	24
30	298	278	275	319	304	255	335	89	99	59	62	62	80	39	75	105	65	87	81	67	62	84	85	87	63	ENE	24
HOURLY AVG	346	358	351	333	353	324	335	335	343	349	359	357	339	349	360	354	358	329	356	345	359	341	346	347			

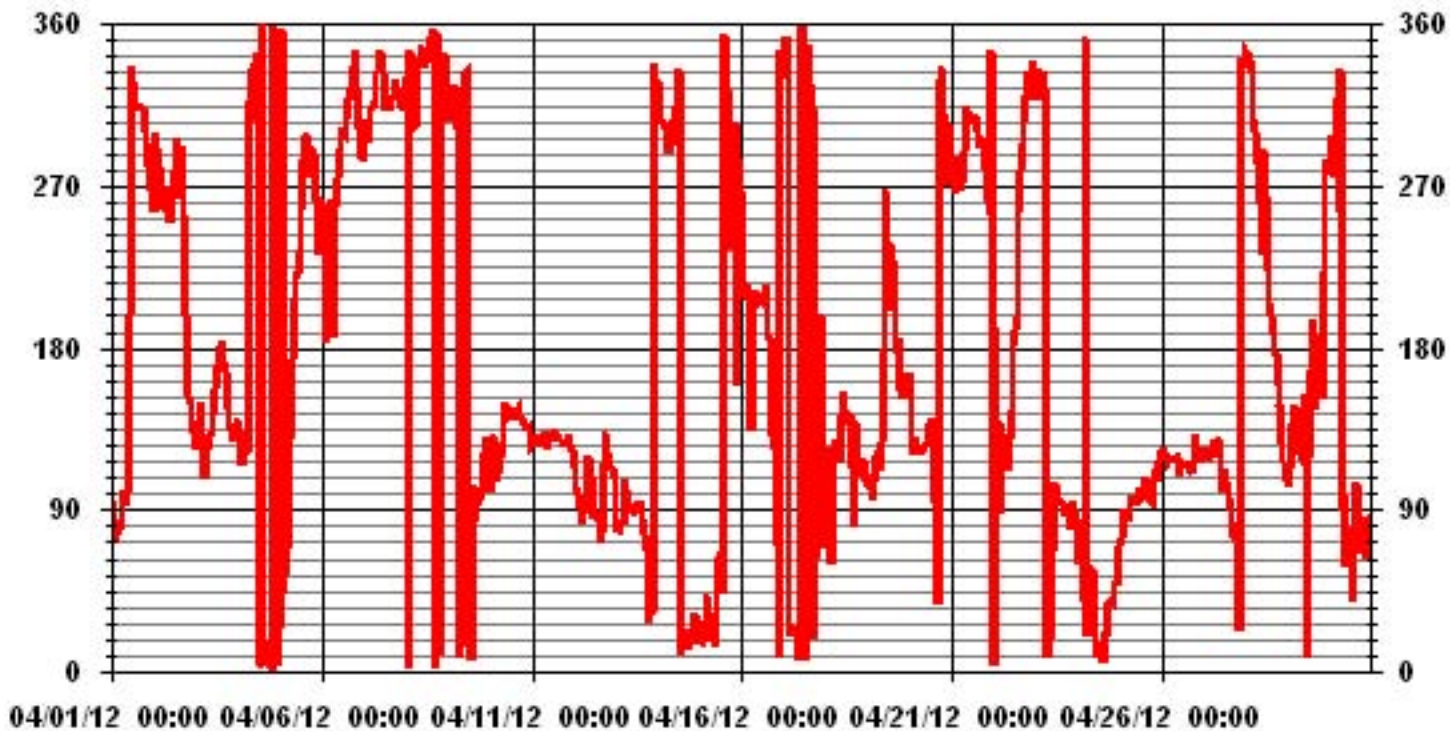
STATUS FLAG CODES

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

LAST CALIBRATION:	November 24, 2011
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	720 HRS
STANDARD DEVIATION	104.48	AMD OPERATION UPTIME	100.0 %
		MONTHLY AVERAGE	81 DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE - Elk Point Airport

APRIL 2012

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	10	9	8	9	11	11	11	11	28	13	28	28	10	8	7	7	7	8	8	7	7	10	11	10
2	11	13	9	9	4	7	9	13	16	16	17	17	17	16	19	23	24	30	13	4	5	5	3	4
3	4	4	4	7	14	9	7	9	10	9	11	15	16	16	16	13	14	13	8	5	6	5	4	3
4	6	8	7	17	7	23	32	12	10	9	10	12	15	13	12	12	11	11	12	13	13	12	17	19
5	29	72	54	29	33	10	6	12	13	14	15	13	14	13	10	12	12	13	13	9	8	9	10	12
6	29	21	35	4	8	21	17	16	16	16	15	15	11	13	10	14	11	9	11	8	5	5	9	9
7	6	3	6	5	5	4	4	9	10	12	12	13	14	11	12	15	10	10	8	4	4	4	4	4
8	6	10	10	8	5	3	7	9	12	14	11	15	11	13	18	15	15	14	11	7	8	9	26	11
9	10	8	7	6	8	6	28	29	50	63	32	49	39	43	44	37	33	25	8	8	5	9	6	10
10	8	18	14	14	4	5	6	10	14	14	16	19	19	14	14	16	14	11	8	4	5	5	5	5
11	7	8	7	7	7	7	8	8	10	10	10	9	10	11	10	10	9	8	7	7	7	7	7	7
12	7	7	7	9	8	8	9	10	10	12	14	14	14	13	14	12	16	10	8	9	8	8	8	9
13	9	9	9	9	13	15	19	11	10	11	12	12	12	12	9	12	14	13	11	14	10	19	7	7
14	7	6	7	6	6	7	7	7	7	8	8	11	12	11	13	12	12	12	10	12	10	12	10	11
15	11	11	10	11	12	13	12	13	14	13	19	29	48	51	59	32	53	20	16	10	10	40	9	17
16	26	13	10	8	9	10	15	15	20	20	21	32	28	26	27	20	15	8	7	7	18	12	9	6
17	10	10	10	10	10	11	14	11	12	14	16	29	40	29	35	35	38	52	11	10	13	25	15	11
18	11	15	12	62	12	8	13	12	22	23	29	45	40	52	68	42	32	32	9	4	5	3	3	6
19	38	15	24	19	10	11	12	14	15	34	36	37	35	31	50	50	25	26	12	6	8	9	7	11
20	17	13	5	5	5	6	7	7	7	7	7	10	13	10	15	17	36	10	13	8	7	6	8	9
21	10	26	35	18	14	13	12	10	10	10	10	13	15	16	18	18	14	11	8	8	5	19	30	40
22	23	41	8	46	39	8	7	10	14	22	25	17	18	21	19	15	12	10	4	5	10	6	8	8
23	4	8	6	8	8	17	16	14	22	33	22	15	21	22	27	16	23	11	12	20	10	9	10	14
24	10	10	9	20	10	27	24	17	18	19	15	13	11	12	12	12	17	15	11	12	13	13	12	12
25	11	12	10	11	11	10	10	9	11	11	11	12	11	10	10	9	9	9	9	7	7	7	8	9
26	9	8	8	8	8	8	8	8	8	9	10	9	10	10	8	9	9	8	8	7	7	7	7	8
27	7	7	8	8	7	8	8	7	8	8	8	8	8	9	9	11	11	9	8	7	7	6	5	7
28	6	14	7	7	6	6	6	14	28	15	16	11	12	11	10	9	12	13	13	9	4	5	4	4
29	6	5	4	4	11	6	10	12	45	25	61	49	23	34	22	11	14	16	14	37	13	19	18	12
30	6	9	8	10	18	9	19	32	16	21	29	43	39	39	44	26	48	19	12	10	14	9	9	9

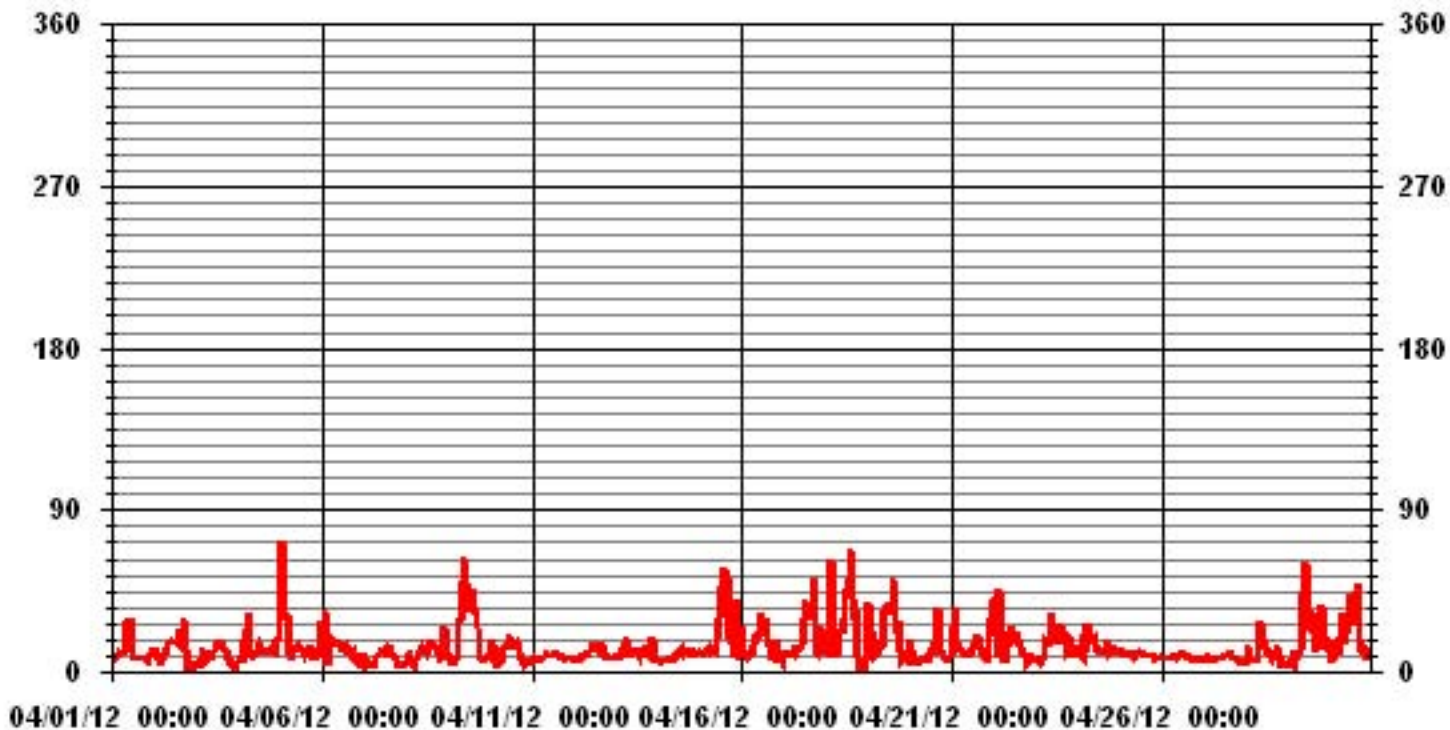
STATUS FLAG CODES

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

LAST CALIBRATION: November 24, 2011

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 720 HRS

01 Hour Averages

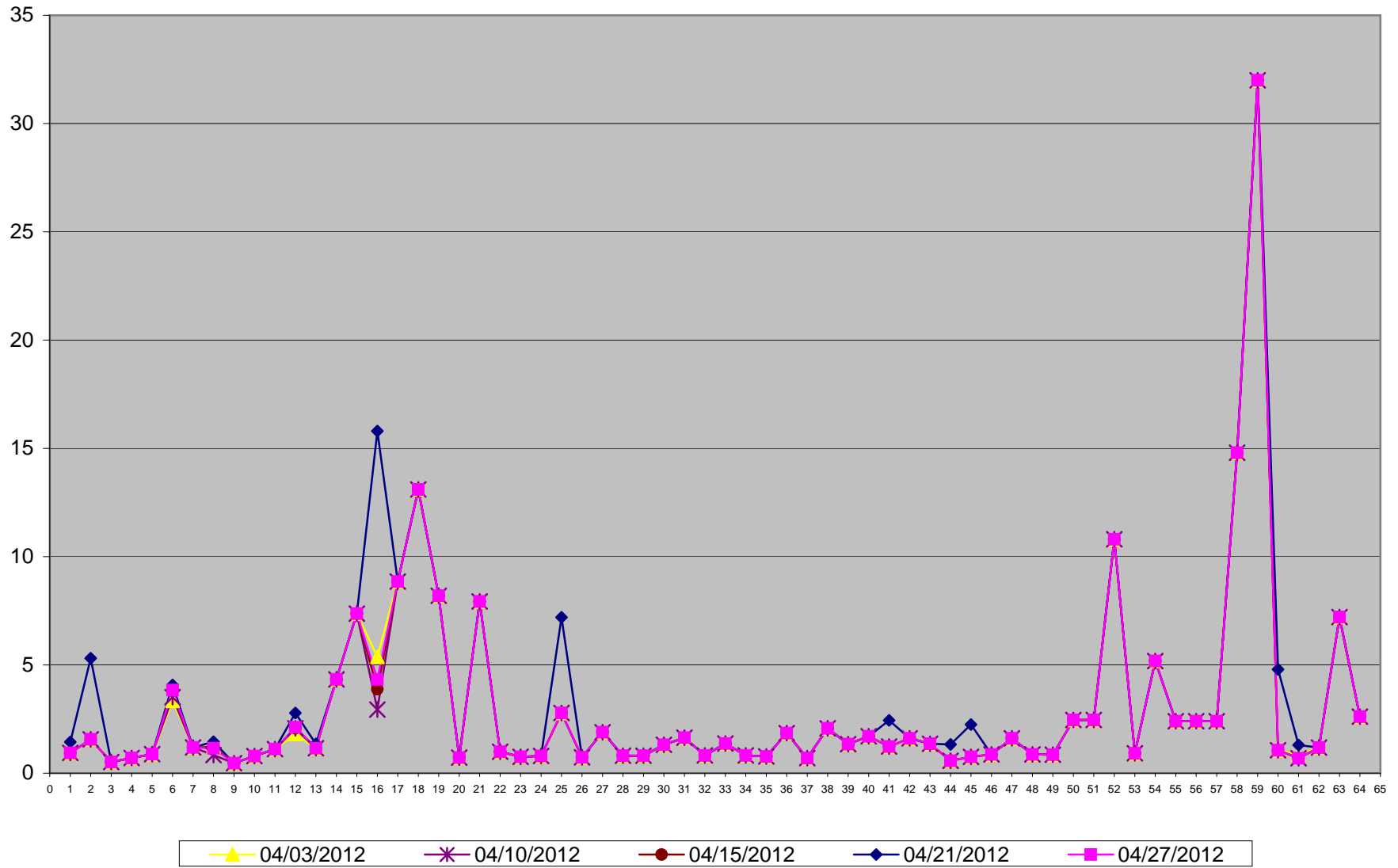


— LICA35 STDWDIR DEG

Volatile Organics

Volatile Organics in ug/m3

Site: LICA - Portable - Elk Point Airport



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

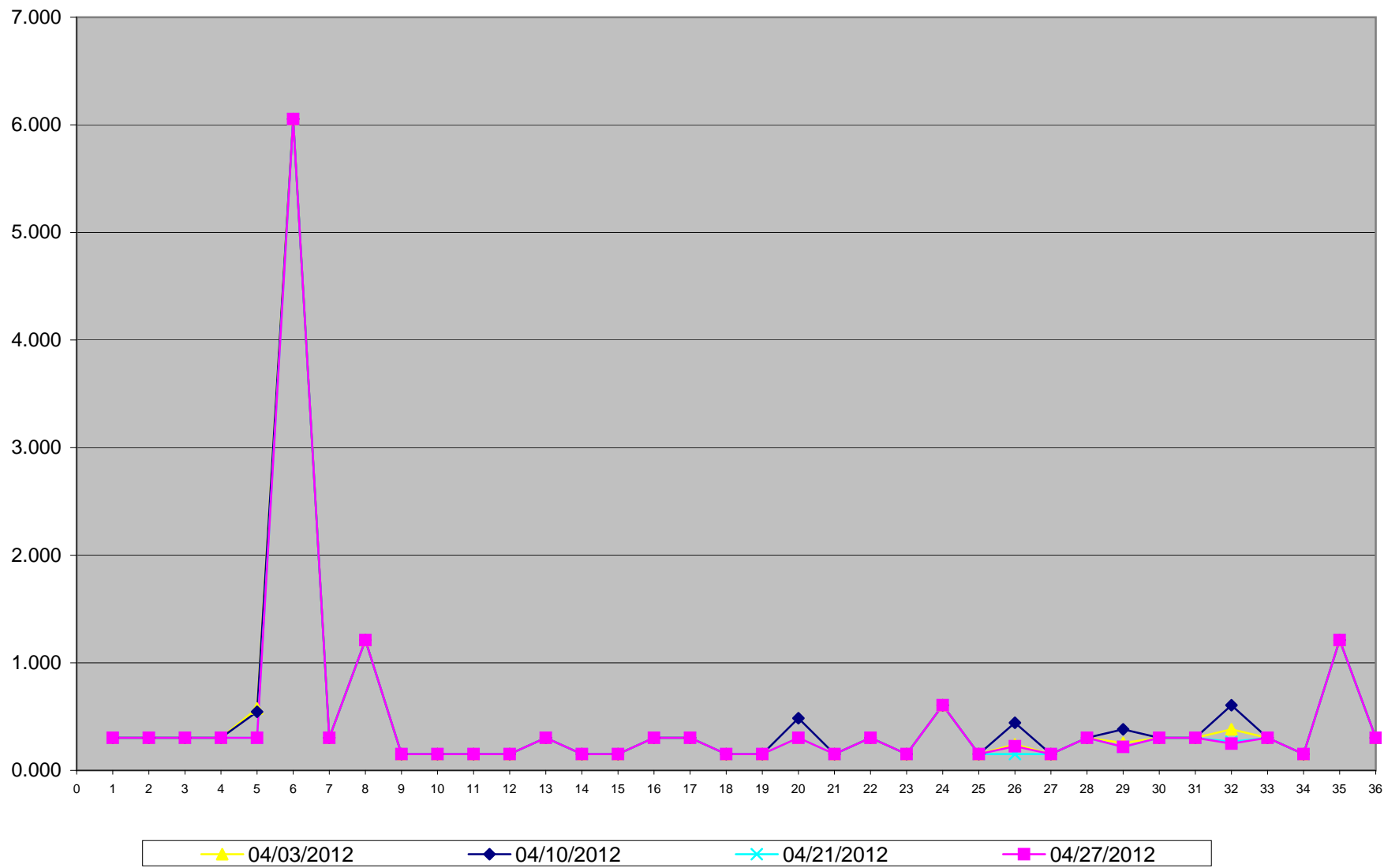
Polycyclic Aromatic Hydrocarbons

Polycyclic Aromatic Hydrocarbons (PAHs) Results for April 2012
LICA - Portable Site - Elk Point Airport
Unit: ng/m3

PAHs	04/03/2012	04/10/2012	04/21/2012	04/27/2012
Sample Volume (unit: m3)	330.34	330.33	330.34	330.4
1 1-Methylnaphthalene	0.303	0.303	0.303	0.303
2 1-Methylphenanthrene	0.303	0.303	0.303	0.303
3 2-Chloronaphthalene	0.303	0.303	0.303	0.303
4 2-Methylantracene	0.303	0.303	0.303	0.303
5 2-Methylnaphthalene	0.575	0.545	0.303	0.303
6 3-Methylcholanthrene	6.055	6.055	6.055	6.055
7 7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.303	0.303
8 9,10-Dimethylantracene	1.211	1.211	1.211	1.211
9 Acenaphthene	0.151	0.151	0.151	0.151
10 Acenaphthylene	0.151	0.151	0.151	0.151
11 Anthracene	0.151	0.151	0.151	0.151
12 Benzo(a)anthracene	0.151	0.151	0.151	0.151
13 Benzo(a)fluorene	0.303	0.303	0.303	0.303
14 Benzo(a)pyrene	0.151	0.151	0.151	0.151
15 Benzo(b)fluoranthene	0.151	0.151	0.151	0.151
16 Benzo(b)fluorene	0.303	0.303	0.303	0.303
17 Benzo(e)pyrene	0.303	0.303	0.303	0.303
18 Benzo(g,h,i)perylene	0.151	0.151	0.151	0.151
19 Benzo(k)fluoranthene	0.151	0.151	0.151	0.151
20 Biphenyl	0.303	0.484	0.303	0.303
21 Chrysene	0.151	0.151	0.151	0.151
22 Coronene	0.303	0.303	0.303	0.303
23 Dibenz(a,h)anthracene	0.151	0.151	0.151	0.151
24 Dibenzo(a,e)pyrene	0.605	0.605	0.605	0.605
25 Fluoranthene	0.151	0.151	0.151	0.151
26 Fluorene	0.242	0.442	0.151	0.224
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	0.151	0.151
28 m-Terphenyl	0.303	0.303	0.303	0.303
29 Naphthalene	0.254	0.381	0.218	0.218
30 o-Terphenyl	0.303	0.303	0.303	0.303
31 Perylene	0.303	0.303	0.303	0.303
32 Phenanthrene	0.381	0.605	0.266	0.248
33 p-Terphenyl	0.303	0.303	0.303	0.303
34 Pyrene	0.151	0.151	0.151	0.151
35 Quinoline	1.211	1.211	1.211	1.211
36 Tetralin	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 - Portable - Elk Point Airport



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	April 12, 2012	Previous Calibration	March 8, 2012
Company	Lakeland Community and Industry Association		
Plant / Location	Portable / Elk Poin Airport		
Start Time (MST)	7:30	End Time (MST)	12:10
Reason:	Monthly Calibration		
Barometric Pressure	27.57 inHg	Station Temperature	23 Deg C
Cal Gas	49.6 ppm	Gas Cyl. #	LL42502
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	December 29, 2013
		Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	467	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	627	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	627		

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0 - 1000 ppb				
Sample Flow / Box Temp	579 ccm	30.2 Deg C	577 ccm	32 Deg C	
HVPS / Lamp Setting	612	1830	612	1825	
PMT / RxCell Temp	8.1 Deg C	50 Deg C	8.1 Deg C	50 Deg C	
Converter / IZS Temp	NA Deg C	45 Deg C	NA Deg C	45.0 Deg C	
Offset / Slope	91.5	1.041	97.7	0.999	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4000	0	0	4	N/A
4000	0	0	1	N/A
3936	63.9	792	834	0.9501
3936	63.9	792	792	1.0000
3968	31.9	396	396	1.0000
3984	16.0	198	196	1.0122
4000	0	0	1	N/A
Sum of Least Squares				1.0007
New Correction Factor				1.0000

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	1.5	Auto Zero	1.5
Auto Span	377.0	Auto Span	368.0
Sample Lines Connected		Sample Lines Connected	YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9949
Current Correction Factor Before Span Adjust:	0.9501
Percent Change:	4.7%

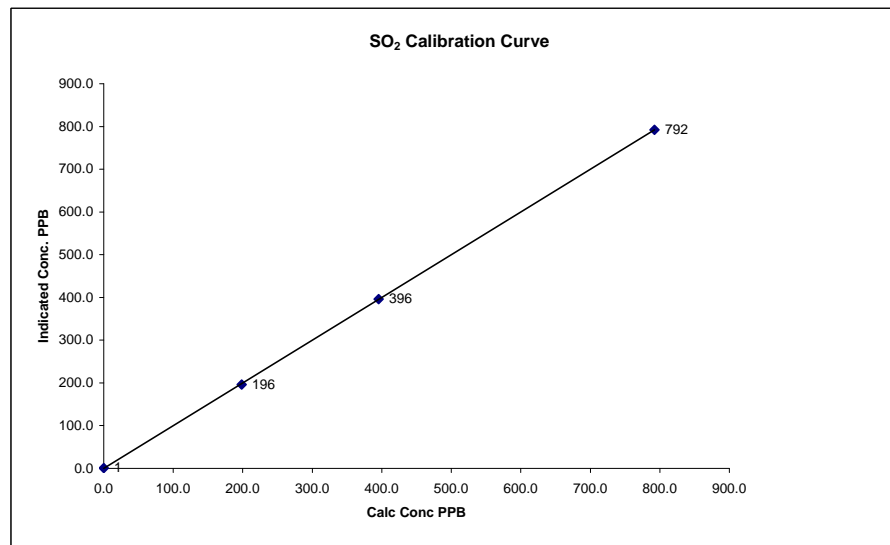
Notes: **N/A : Not applicable**
Will change UV lamp next trip.

Calibration Performed by: Limin Li / Jacob Roch

SO2 Calibration Curve

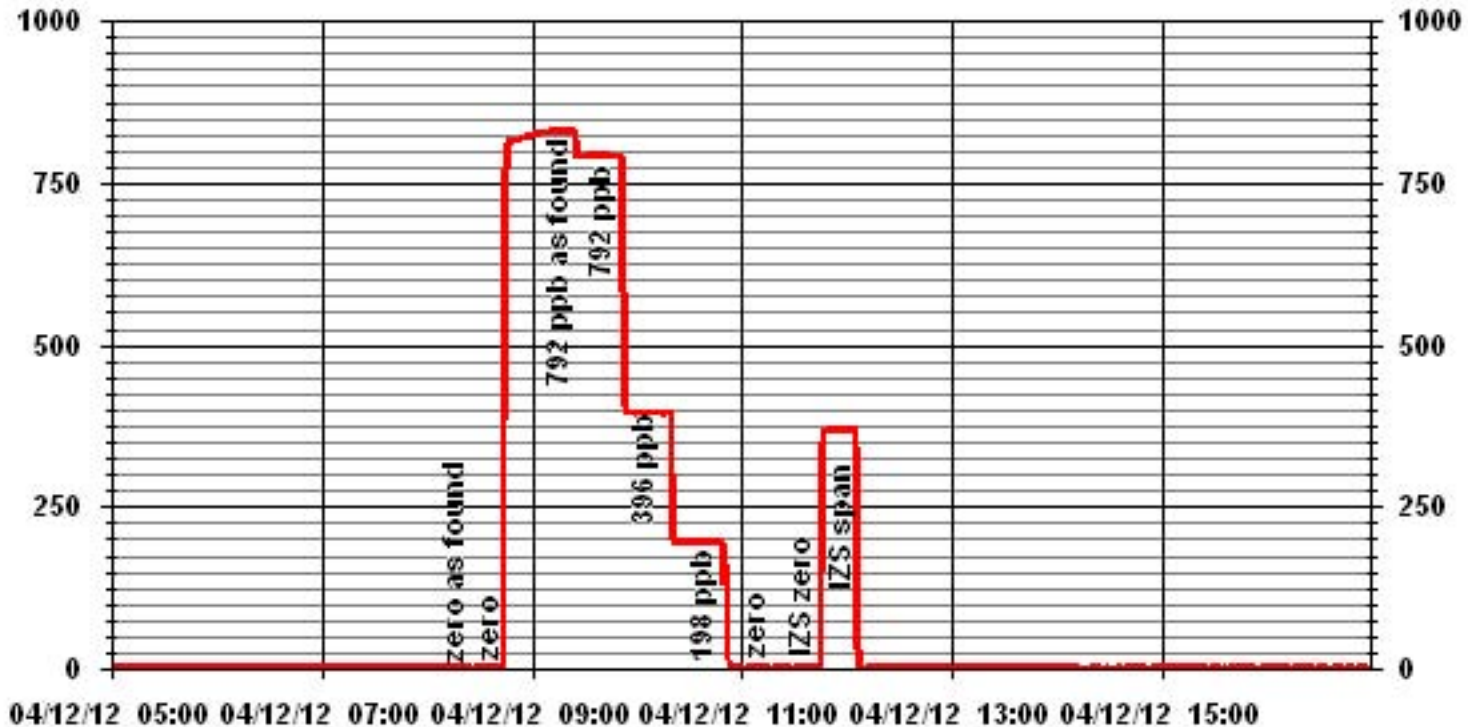
Calibration Date	April 12, 2012
Company	Lakeland Community and Industry Association
Plant / Location	Portable / Elk Poin Airport
Start Time (MST)	7:30
End Time (MST)	12:10

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	1	n/a		0.999981
198	196	1.0122		0.999594
396	396	0.9989		-0.196870
792	792	1.0005		



Notes:

01 Minute Averages



— LICA35 SO2_ PPB

Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	April 12, 2012	Previous Calibration	March 7, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Portable/ Elk Point Airport		
Start Time (MST)	10:42	End Time (MST)	14:30
Reason:	Monthly Calibration		
Barometric Pressure	27.57 inHg	Station Temperature	22 Deg C
Cal Gas	10 ppm	Gas Cyl. #	LL42531
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	December 27, 2012
		Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	API 101E	S/N :	509	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	830	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	A0717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	830		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 100	ppb	
Sample Flow / Box Temp	515 ccm	31.5 Deg C	511 ccm
HVPS / Lamp Setting	540	2084	540
PMT / RxCell Temp	7.9 Deg C	50 Deg C	7.9 Deg C
Converter / IZS Temp	313.8 Deg C	45 Deg C	314.6 Deg C
Offset / Slope	71.5	1.012	78.4
			1.01

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	4	NA
5000	0	0	0	1.0000
4960	40.0	80	83	0.9639
4960	40.0	80	80	1.0000
4980	20.0	40	40	1.0000
4988	12.0	24	24	1.0000
5000	0	0	0	NA
			Sum of Least Squares	1.0000
			New Correction Factor	1.0000

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	1.5		0.0
Auto Span	52.2		59.0
Sample Lines Connected			YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9639
Percent Change:	3.8%

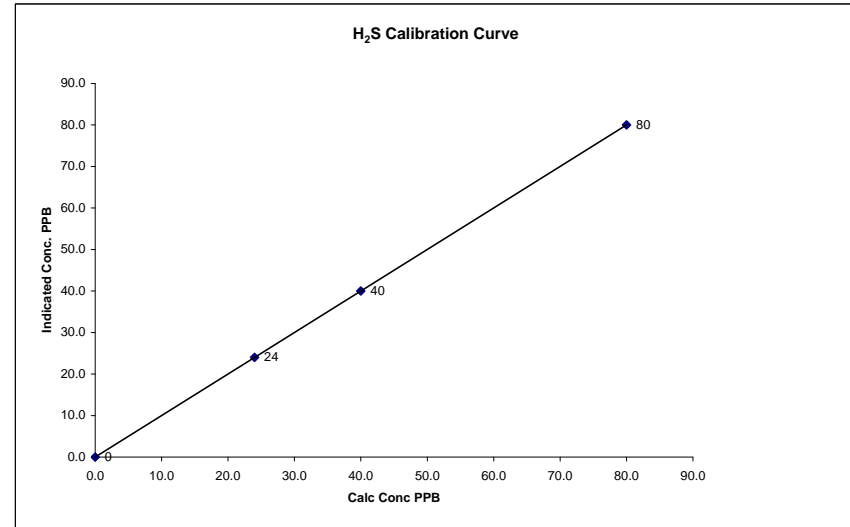
Notes: **NA : Not Applicable**

Calibration Performed by: Jacob Roch / Limin Li

H₂S Calibration Curve

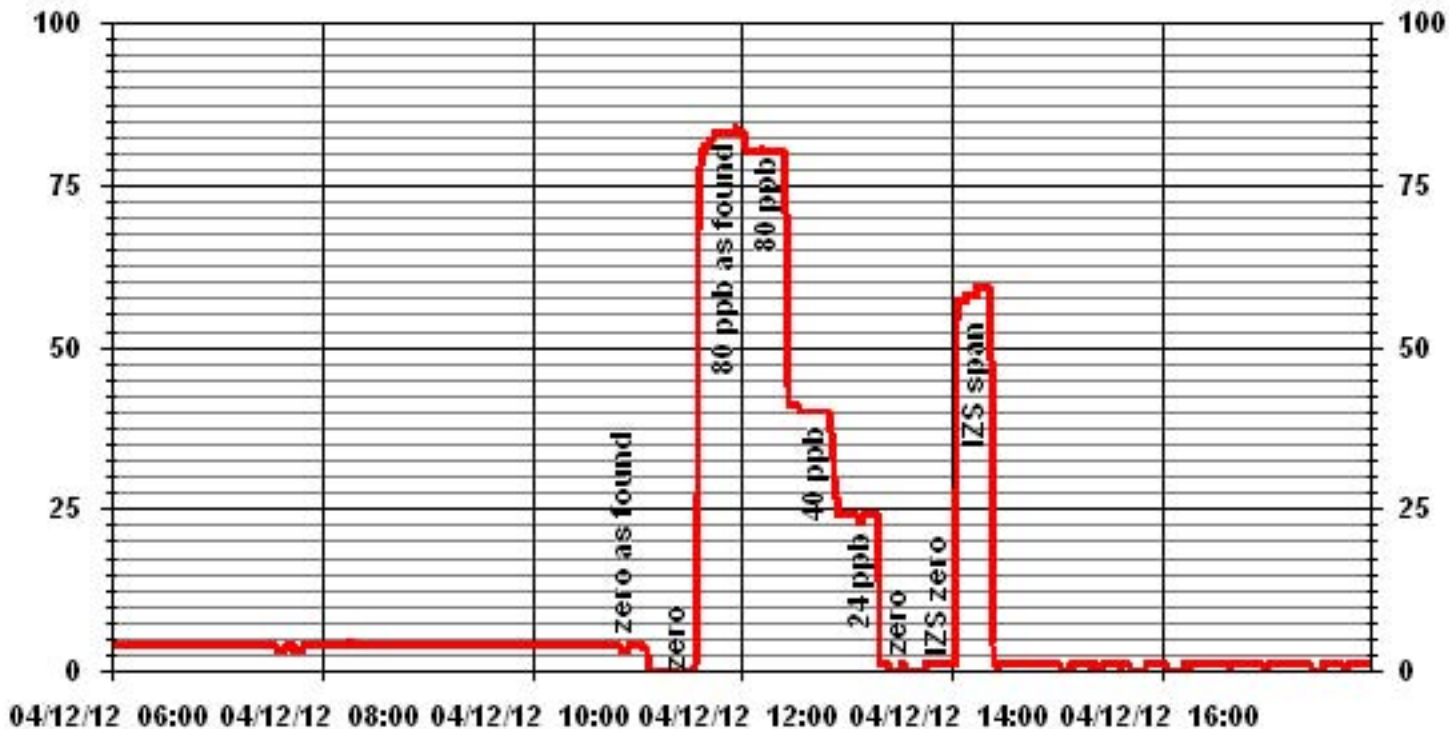
Calibration Date	April 12, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	Portable/ Elk Point Airport
Start Time (MST)	10:42
End Time (MST)	14:30

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0			1.000000
24	24	1.0000		1.000000
40	40	1.0000		1.000000
80	80	1.0000		0.000000



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	April 12, 2012	Previous Calibration:	March 7, 2012
Company:	Lakeland Industry and Community Association		
Plant / Location:	ELICA Portable Station / Elk Point Airport		
Start Time (MST):	7:50	End Time (MST):	12:10
Reason:	Monthly Calibration		
Barometric Pressure:	27.57 inHg	Station Temperature:	23 Deg C
Calibrator:	API 700	S/N:	830
Cal Gas Concentration:	CH4 980 PPM	C3H8 304 PPM	
	TOTAL CH4 1816.0 PPM	Gas Cyl. # LL84144	Cal Gas Expiry Date: December 3, 2013
DAS make & Model:	ESC 8832	S/N:	AO 717
Chart Recorder:	NA	S/N:	NA
Output Voltage Range:	0 - 1 VDC	Chart Speed:	NA mm/hr

Analyzer Information

Make / Model	Thermo 51C	S/N:	04366-09739	Method	Flame Ionization
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Analyzer Settings

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

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
3000	0.0	0.0	0.1	NA
3000	0.0	0.0	0.0	NA
3000	67.6	40.0	38.2	1.0476
3000	67.6	40.0	40.0	1.0000
3000	33.4	20.0	19.6	1.0202
3000	16.6	10.0	9.8	1.0197
3000	0.0	0.0	0.1	NA
New Correction Factor:				1.0000

Percent Change

Previous Calibration Correction Factor:	0.9930
Current Correction Factor Before Span Adjust:	1.0476
Percent Change:	-5.2%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.0	0.1
Auto Span	32.4	32.2
Sample Lines Connected		YES

Cylinder Pressures			
Span	1500 psi	Hydrogen	1000 psi
		Zero Air	35 psi

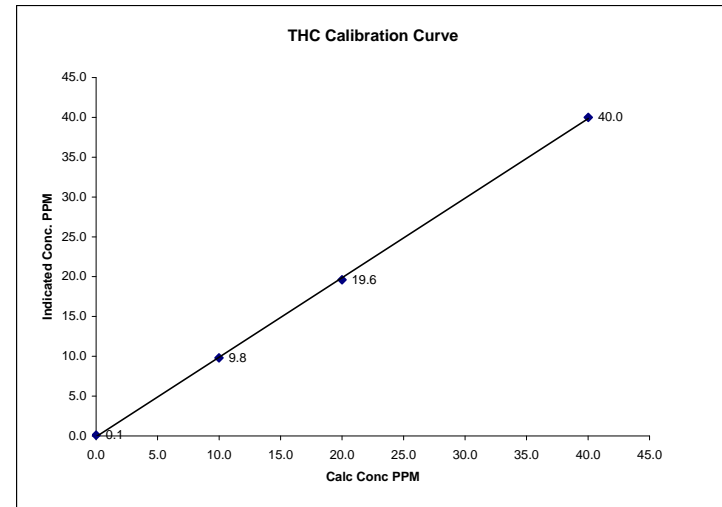
Notes: **NA : Not Applicable**

Calibration Performed by: Limin Li / Jacob Roch

THC Calibration Curve

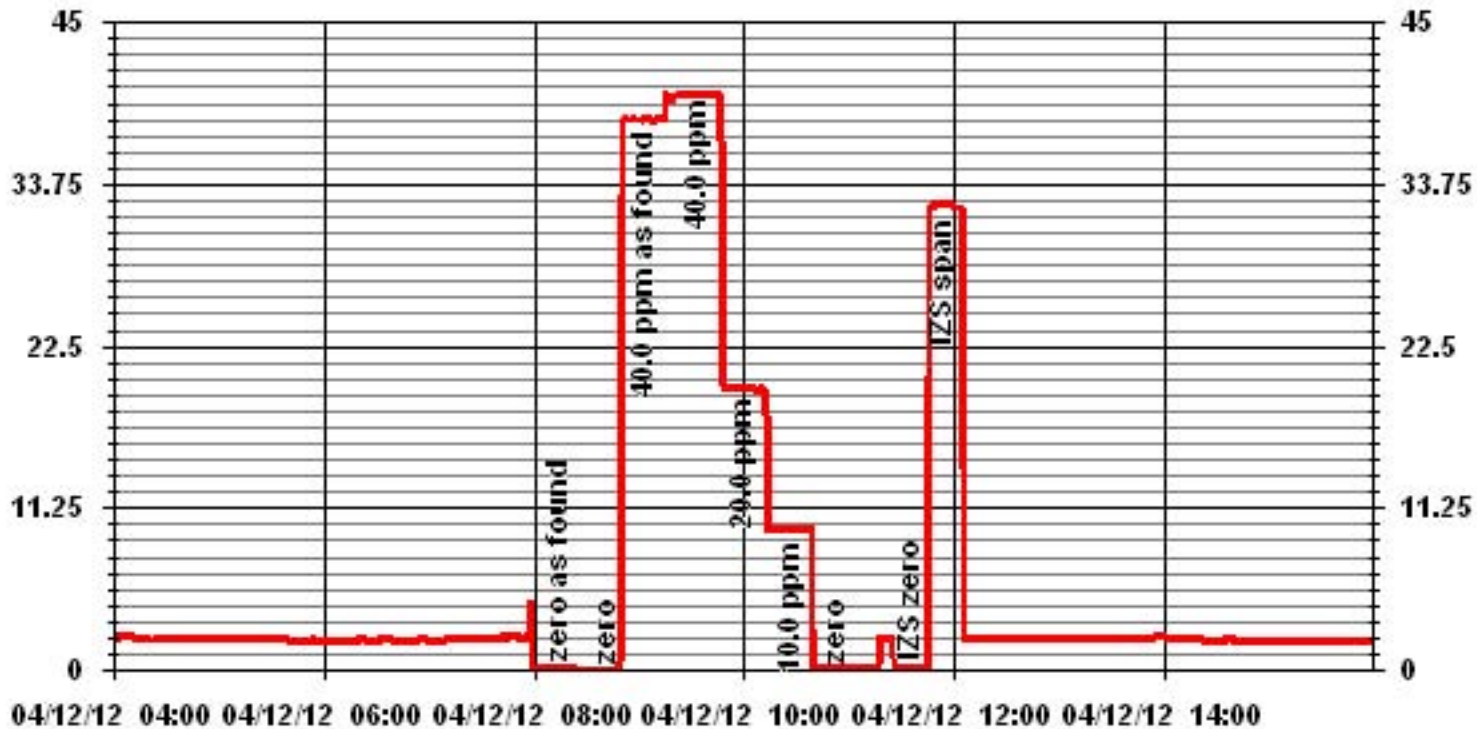
Calibration Date	April 12, 2012
Company	Lakeland Industry and Community Association
Plant / Location	ELICA Portable Station / Elk Point Airport
Start Time (MST)	7:50
End Time (MST)	12:10

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope (0.85 to 1.15)	Correlation Coefficient Intercept (±3% F.S.)
0.0	0.1	NA	0.999844	0.998050
10.0	9.8	1.0197		-0.09275
20.0	19.6	1.0202		
40.0	40.0	1.0005		



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	April 12, 2012		Previous Calibration		March 7, 2012	
Company	LICA		Plant/Location		Portable/Elk Point Airport	
Start Time (MST)	7:30		End Time (MST)		14:30	
Reason:	Monthly Calibration					
Barometric Pressure	27.57	inHg	Station Temperature	23	Deg C	MFCF
Cal Gas Concentration	NOx	50.1	ppm	NO	50.1	ppm
Cal Gas Cylinder #	LL42502					
DAS Output Voltage	0 - 1		Volts		Chart Rec. Output	NA

Equipment Information

Analyzer Make / Model:	TAPI 200E	S/N :	593	Method:	Chemiluminescent
Calibrator Make / Model:	API 700	S/N:	627		
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		NA
Flow Meter:	API 700	S/N :	627		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 1000			ppb			
Sample Flow/Conv. Temp	471	ccm	315.5	Deg C	481	ccm	315
Ozone Flow / Vacuum	78	ccm	4.8	"Hg-A	77	ccm	4.8
HVPS / A ZERO	646	Volts	6.6	MV	646	Volts	6.5
Rx/ Temp / PMT Temp	50.0	Deg C	6.7	Deg C	50.0	Deg C	6.8
Box Temp / IZS Temp	30.8	Deg C	45.3	Deg C	34.3	Deg C	45.1
Offset	0.7	NOx	0.4	NO	1.9	NOx	0.0
Slope	1.069	NOx	1.057	NO	1.162	NOx	1.155
NO2 COEF / Conv Efficiency	NA	NO2	0.996		NA	NO2	0.996

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4000	0.0	NA	0	0	NA	0	0	1	NA	NA
4000	0.0	NA	0	0	NA	-1	0	0	NA	NA
3936	63.9	NA	800	800	NA	734	733	1	1.0904	1.0919
3936	63.9	NA	800	800	NA	802	801	1	0.9980	0.9992
3968	31.9	NA	400	400	NA	400	401	-1	1.0000	0.9964
3984	16.0	NA	200	200	NA	198	198	0	1.0121	1.0121
4000	0.0	NA	0	0	NA	-1	1	-1	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
3936	63.9	NA	800	800	NA	807	806	0	NA	NA
No Adj Required										
3936	63.9	520	800	NA	511	804	295	509	1.0059	99.61%
3936	63.9	280	800	NA	278	806	528	278	1.0036	100.00%
3936	63.9	100	800	NA	95	805	711	94	1.0215	98.95%

Linearity	Sum of Least Squares	NOx= 0.999	NO= 0.999	NO2= 1.003
OK?	Correction Factors:	NOx= 0.9980	NO= 0.9992	NO2= 1.0059
		Average Converter Efficiency= 99.52%		

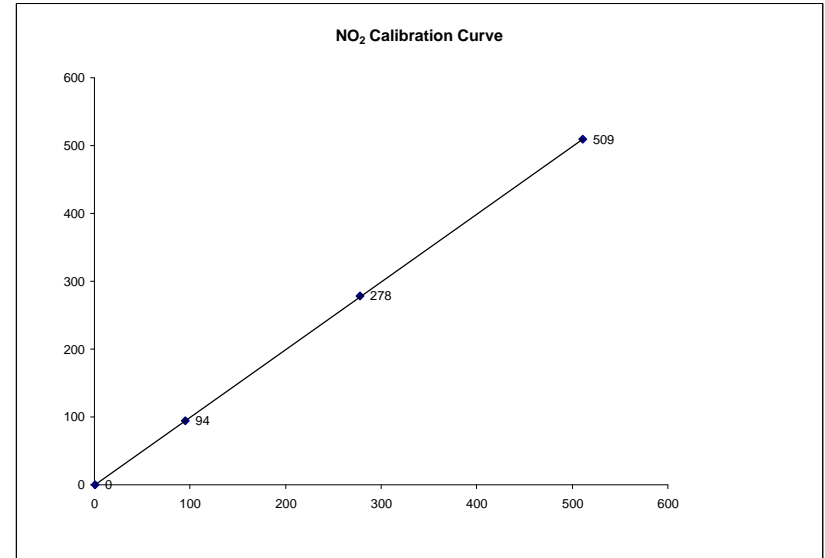
IZS Calibration Data

Before Calibration				After Calibration					
Auto Zero	0.7	NOx	-0.1	NO2	0	NOx	0		
Auto Span	593	NOx	577	NO2	660	NOx	648		
Sample Lines Connected				YES					
Percent Change from Previous Calibration				NOx	-8.3%	NO	-8.4%	NO2	0.0%
Notes	NA : Not Applicable								
Calibration Performed by: <u>Limin Li / Jacob Roch</u>									

NO2 Calibration Curve

Calibration Date	April 12, 2012	
Company	LICA	
Plant / Location	Portable/Elk Point Airport	
Start Time (MST)	7:30	End Time (MST) 14:30

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999989
1	0	N/A	Intercept	(0.85 to 1.15)	0.998463
95	94	1.0106		(± 3% F.S.)	-0.66001
278	278	1.0000			
511	509	1.0039			

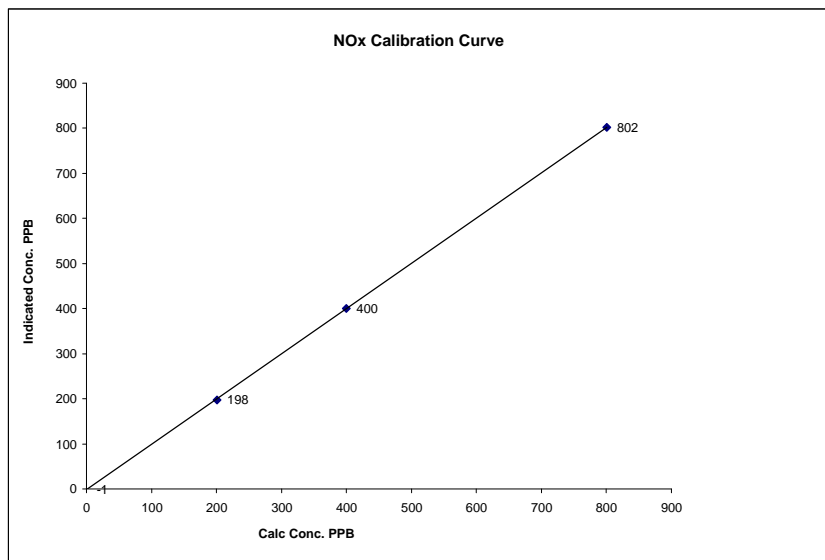


Notes:

NOx Calibration Curve

Calibration Date	April 12, 2012		
Company	LICA		
Plant / Location	Portable/Elk Point Airport		
Start Time (MST)	7:30	End Time (MST)	14:30

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999991
0	-1	N/A	Slope (0.85 to 1.15)	1.004187
200	198	1.0121	Intercept (± 3% F.S.)	-1.79719
400	400	0.9989		
800	802	0.9980		

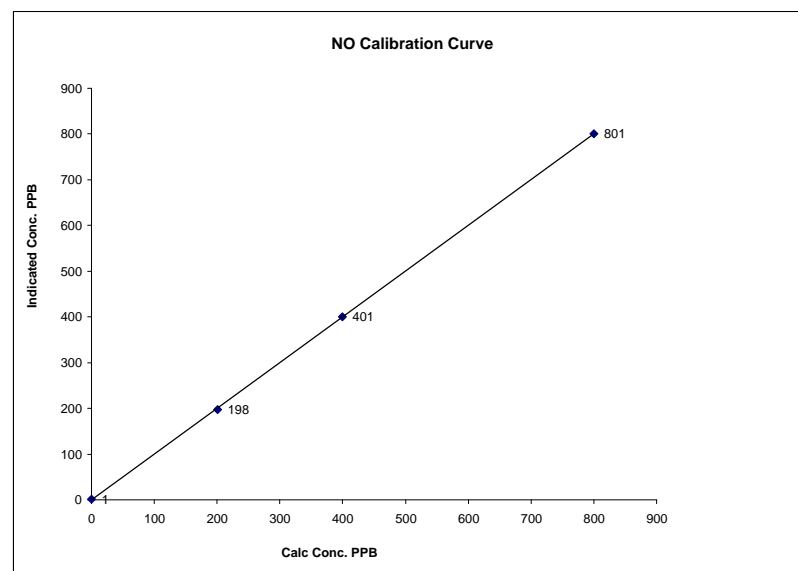


Notes:

NO Calibration Curve

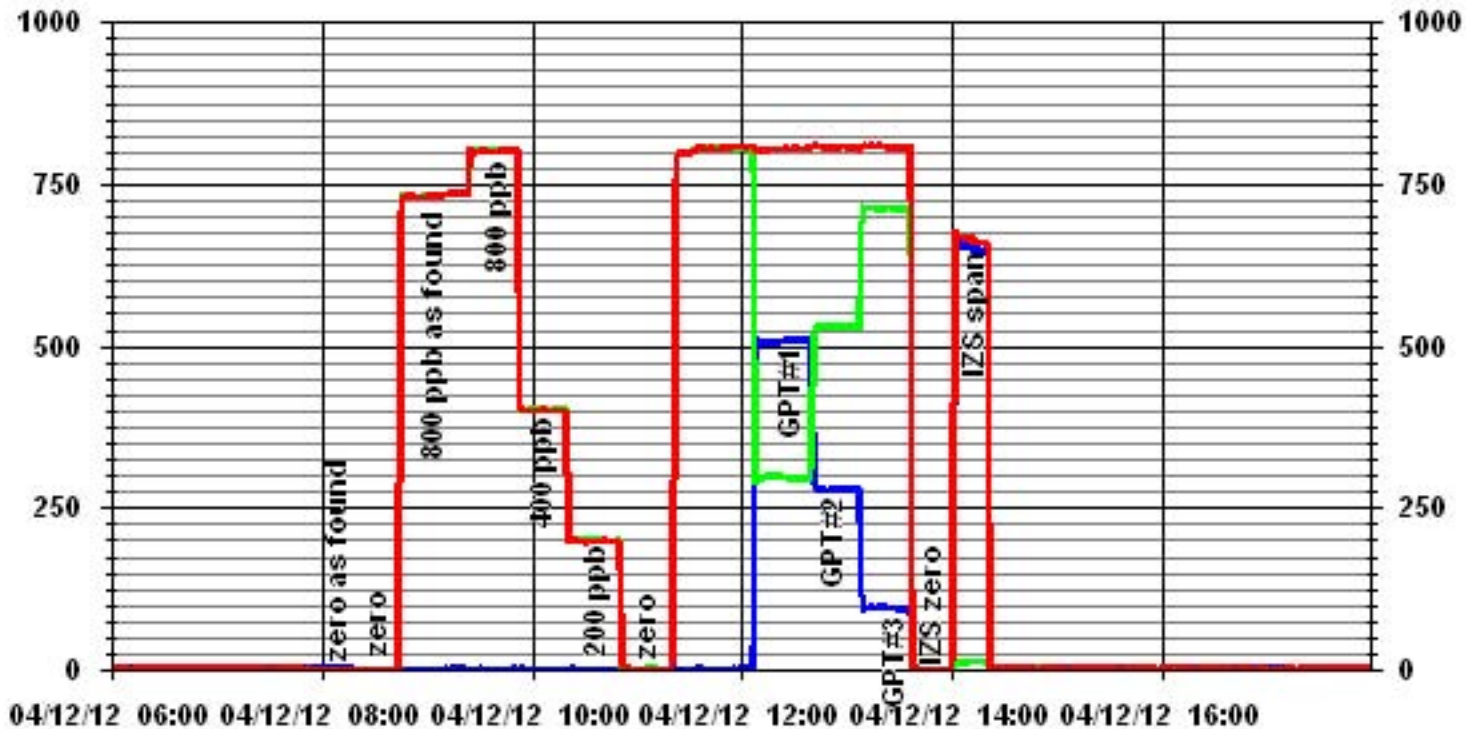
Calibration Date	April 12, 2012		
Company	LICA		
Plant / Location	Portable/Elk Point Airport		
Start Time (MST)	7:30	End Time (MST)	14:30

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999975
0	1	N/A	Slope (0.85 to 1.15)	1.004034
200	198	1.0121	Intercept (± 3% F.S.)	2.2500
400	401	0.9964		
800	801	0.9992		



Notes:

01 Minute Averages



— LICA35 NOX_ PPB

— LICA35 NO_ PPB

— LICA35 NO2_ PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	April 12, 2012		Previous Calibration	March 8, 2012	
Company	Lakeland Industry & Community Association				
Plant / Location	Portable / Elk Point Airport				
Start Time (MST)	7:50		End Time (MST)	12:10	
Reason:	Monthly Calibration				
Barometric Pressure	27.57	inHg	Station Temperature	23	Deg C
DAS Output Voltage	0 - 1		Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	1002240372	Method:	Photometric
Calibrator Make / Model:	EnviroNics 6100		5212	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO 717		

Analyzer Settings

	Before Calibration			After Calibration		
Concentration Range	0 - 500			ppb		
Cell A Flow / Cell B Flow	745	ccm	750	ccm	742	ccm
Pressure	675			mmHg	674	mmHg
Bench Lamp	54.1			Deg C	54.1	DegC
O3 Lamp / Box Temp	68.2	Deg C	29	Deg C	68.2	Deg C
Offset / Slope	0		0.974		0.5	1.059

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
5000	0	0	1	NA
5000	0	0	0	NA
5000	450	411	378	1.0873
5000	450	411	411	1.0000
5000	300	282	280	1.0071
5000	120	113	112	1.0089
5000	0	0	0	NA
Sum of Least Squares				1.0026
New Correction Factor				1.0000

	Before Calibration	After Calibration
Auto Zero	0.0	0.0
Auto Span	322.0	342.0
Sample Lines Connected		YES
Previous Calibration Correction Factor:		1.0027
Current Correctio Factor Before Span Adjust:		1.0000
Percent Change:		0.3%

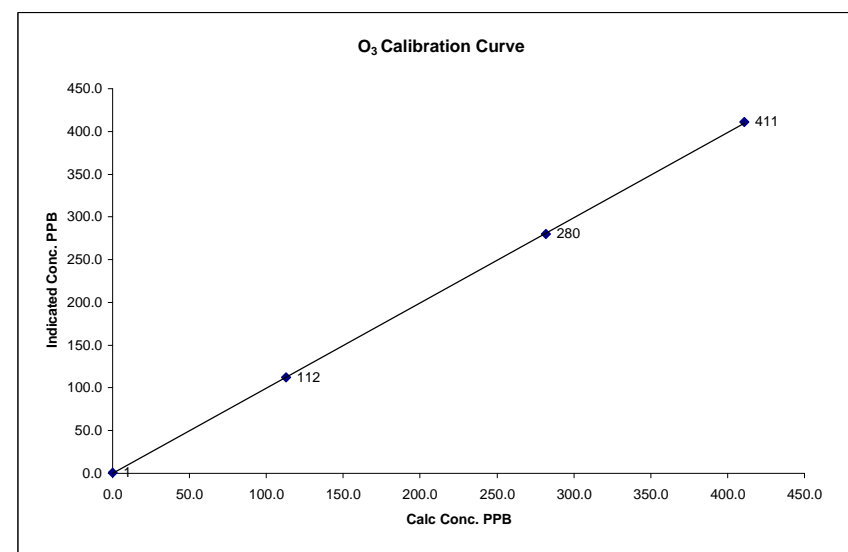
Note: NA : Not Applicable

Calibration Performed by: Limin Li / Jacob Roch

O₃ Calibration Curve

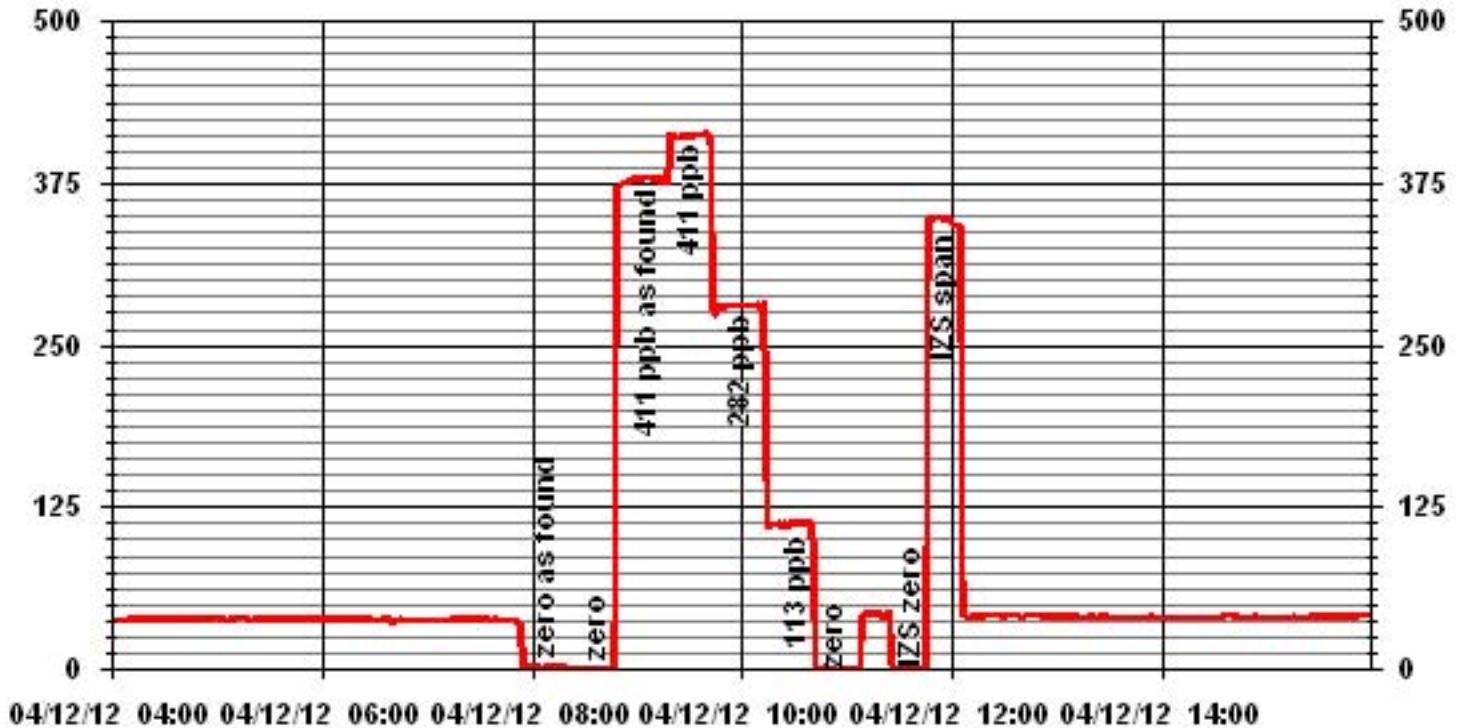
Calibration Date	April 12, 2012	
Company	Lakeland Industry & Community Association	
Plant / Location	Portable / Elk Point Airport	
Start Time (MST)	7:50	End Time (MST) 12:10

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	0.999957 0.997227 0.058788
0	1	n/a			
113	112	1.0089			
282	280	1.0071			
411	411	1.0000			



Notes:

01 Minute Averages



Volatile Organics Laboratory Analysis

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: Elk Point Airport Canister ID: 135
Station ID: Lica 35 (Portable) Canister Installation Date/Time: Mar 30, 12 @ 10:32 mst
Field Sample ID: LICA VOC/PORT/ Apr 03, 12 Canister Removal Date/Time: Apr 09, 12 @ 9:40 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
03-Apr-12	04/03/2012 0:00	04/04/2012 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1496	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	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 # 10961

Technician Signiture: Ting Xu_____

Your C.O.C. #: 10961

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

Report Date: 2012/04/13

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B250895****Received: 2012/04/12, 10:45**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/04/12	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/04/12	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Page 1 of 14

Maxxam Job #: B250895
 Report Date: 2012/04/13

RESULTS OF ANALYSES OF AIR

Maxxam ID		NB8059	NB8060	
Sampling Date		2012/04/03	2012/04/03	
COC Number		10961	10961	
	Units	LICAVOC\CLSVAPR 03,12 - 7859	LICAVOC\PORTVAPR 03,12 - 135	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2818164

QC Batch = Quality Control Batch

Maxxam Job #: B250895
 Report Date: 2012/04/13

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NB8059				
Sampling Date		2012/04/03				
COC Number		10961				
	Units	LICAVOC\CLSI\APR	RDL	ug/m3	DL (ug/m3)	QC Batch
		03,12 - 7859				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2818193
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2818193
Propene	ppbv	<0.30	0.30	<0.516	0.516	2818193
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2818193
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2818193
Dichlorodifluoromethane (FREON 12)	ppbv	0.68	0.20	3.38	0.989	2818193
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2818193
Chloromethane	ppbv	0.61	0.30	1.27	0.620	2818193
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2818193
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2818193
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2818193
Trichlorofluoromethane (FREON 11)	ppbv	0.31	0.20	1.74	1.12	2818193
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2818193
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2818193
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2818193
2-Propanone	ppbv	2.43	0.80	5.77	1.90	2818193
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2818193
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2818193
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2818193
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2818193
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2818193
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2818193
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2818193
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2818193
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2818193
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2818193
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2818193
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2818193
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2818193
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2818193
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2818193
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2818193
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B250895
 Report Date: 2012/04/13

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NB8059				
Sampling Date		2012/04/03				
COC Number		10961				
	Units	LICAVOC\CLSI\APR	RDL	ug/m3	DL (ug/m3)	QC Batch
		03,12 - 7859				

1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2818193
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2818193
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2818193
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2818193
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2818193
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2818193
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2818193
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2818193
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2818193
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2818193
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2818193
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2818193
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2818193
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2818193
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2818193
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2818193
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2818193
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2818193
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2818193
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2818193
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2818193
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2818193
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2818193
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2818193
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2818193
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2818193
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2818193
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2818193
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2818193
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2818193
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2818193
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2818193
Surrogate Recovery (%)						
Bromochloromethane	%	97		N/A	N/A	2818193

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

Maxxam Job #: B250895
 Report Date: 2012/04/13

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NB8059				
Sampling Date		2012/04/03				
COC Number		10961				
	Units	LICAVOC\CLSI\APR	RDL	ug/m3	DL (ug/m3)	QC Batch
		03,12 - 7859				

D5-Chlorobenzene	%	98		N/A	N/A	2818193
Difluorobenzene	%	99		N/A	N/A	2818193

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

Maxxam Job #: B250895
 Report Date: 2012/04/13

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NB8060				
Sampling Date		2012/04/03				
COC Number		10961				
	Units	LICAVOCIPORTVAPR 03,12 - 135	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatiles Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2818193
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2818193
Propene	ppbv	<0.30	0.30	<0.516	0.516	2818193
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2818193
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2818193
Dichlorodifluoromethane (FREON 12)	ppbv	0.68	0.20	3.34	0.989	2818193
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2818193
Chloromethane	ppbv	0.60	0.30	1.23	0.620	2818193
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2818193
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2818193
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2818193
Trichlorofluoromethane (FREON 11)	ppbv	0.32	0.20	1.81	1.12	2818193
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2818193
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2818193
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2818193
2-Propanone	ppbv	2.26	0.80	5.37	1.90	2818193
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2818193
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2818193
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2818193
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2818193
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2818193
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2818193
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2818193
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2818193
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2818193
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2818193
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2818193
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2818193
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2818193
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2818193
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2818193
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2818193

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B250895
 Report Date: 2012/04/13

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NB8060				
Sampling Date		2012/04/03				
COC Number		10961				
	Units	LICAVOCIPORTVAPR	RDL	ug/m3	DL (ug/m3)	QC Batch
		03,12 - 135				
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2818193
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2818193
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2818193
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2818193
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2818193
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2818193
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2818193
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2818193
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2818193
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2818193
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2818193
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2818193
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2818193
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2818193
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2818193
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2818193
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2818193
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2818193
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2818193
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2818193
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2818193
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2818193
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2818193
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2818193
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2818193
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2818193
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2818193
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2818193
Cyclohexane	ppbv	0.25	0.20	0.847	0.688	2818193
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2818193
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2818193
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2818193
Surrogate Recovery (%)						
Bromochloromethane	%	94		N/A	N/A	2818193
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B250895
 Report Date: 2012/04/13

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NB8060				
Sampling Date		2012/04/03				
COC Number		10961				
	Units	LICAVOC PORT APR	RDL	ug/m3	DL (ug/m3)	QC Batch
		03,12 - 135				

D5-Chlorobenzene	%	94		N/A	N/A	2818193
Difluorobenzene	%	95		N/A	N/A	2818193

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

Maxxam Job #: B250895
 Report Date: 2012/04/13

Test Summary

Maxxam ID NB8059
Sample ID LICAVOC\CLS\APR 03,12 - 7859
Matrix AIR

Collected 2012/04/03
Shipped
Received 2012/04/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2818164	N/A	2012/04/12	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2818193	N/A	2012/04/12	YAO LIANG SUN

Maxxam ID NB8060
Sample ID LICAVOC\PORT\APR 03,12 - 135
Matrix AIR

Collected 2012/04/03
Shipped
Received 2012/04/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2818164	N/A	2012/04/12	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2818193	N/A	2012/04/12	YAO LIANG SUN

Maxxam Job #: B250895
Report Date: 2012/04/13

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB250895

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2818193 LSY	Spiked Blank	Bromochloromethane	2012/04/12		106	%	60 - 140
		D5-Chlorobenzene	2012/04/12		114	%	60 - 140
		Difluorobenzene	2012/04/12		111	%	60 - 140
		2,2,4-Trimethylpentane	2012/04/12		95	%	70 - 130
		Carbon Disulfide	2012/04/12		99	%	70 - 130
		Propene	2012/04/12		92	%	70 - 130
		Vinyl Acetate	2012/04/12		100	%	70 - 130
		Vinyl Bromide	2012/04/12		103	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/04/12		93	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/04/12		110	%	70 - 130
		Chloromethane	2012/04/12		98	%	70 - 130
		Vinyl Chloride	2012/04/12		101	%	70 - 130
		Chloroethane	2012/04/12		97	%	70 - 130
		1,3-Butadiene	2012/04/12		81	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/04/12		95	%	70 - 130
		Trichlorotrifluoroethane	2012/04/12		98	%	70 - 130
		Ethanol (ethyl alcohol)	2012/04/12		74	%	70 - 130
		2-propanol	2012/04/12		96	%	70 - 130
		2-Propanone	2012/04/12		99	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/04/12		90	%	70 - 130
		Methyl Isobutyl Ketone	2012/04/12		92	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/04/12		94	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/04/12		101	%	70 - 130
		Ethyl Acetate	2012/04/12		96	%	70 - 130
		1,1-Dichloroethylene	2012/04/12		98	%	70 - 130
		cis-1,2-Dichloroethylene	2012/04/12		98	%	70 - 130
		trans-1,2-Dichloroethylene	2012/04/12		97	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/04/12		83	%	70 - 130
		Chloroform	2012/04/12		94	%	70 - 130
		Carbon Tetrachloride	2012/04/12		92	%	70 - 130
		1,1-Dichloroethane	2012/04/12		95	%	70 - 130
		1,2-Dichloroethane	2012/04/12		96	%	70 - 130
		Ethylene Dibromide	2012/04/12		98	%	70 - 130
		1,1,1-Trichloroethane	2012/04/12		92	%	70 - 130
		1,1,2-Trichloroethane	2012/04/12		96	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/04/12		89	%	70 - 130
		cis-1,3-Dichloropropene	2012/04/12		96	%	70 - 130
		trans-1,3-Dichloropropene	2012/04/12		100	%	70 - 130
		1,2-Dichloropropane	2012/04/12		93	%	70 - 130
		Bromomethane	2012/04/12		102	%	70 - 130
		Bromoform	2012/04/12		101	%	70 - 130
		Bromodichloromethane	2012/04/12		95	%	70 - 130
		Dibromochloromethane	2012/04/12		100	%	70 - 130
		Heptane	2012/04/12		92	%	70 - 130
		Trichloroethylene	2012/04/12		97	%	70 - 130
		Tetrachloroethylene	2012/04/12		101	%	70 - 130
		Benzene	2012/04/12		96	%	70 - 130
		Toluene	2012/04/12		96	%	70 - 130
		Ethylbenzene	2012/04/12		99	%	70 - 130
		p+m-Xylene	2012/04/12		96	%	70 - 130
		o-Xylene	2012/04/12		97	%	70 - 130
		Styrene	2012/04/12		87	%	70 - 130
		1,3,5-Trimethylbenzene	2012/04/12		92	%	70 - 130
		1,2,4-Trimethylbenzene	2012/04/12		90	%	70 - 130
		4-ethyltoluene	2012/04/12		96	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB250895

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2818193 LSY	Spiked Blank	Chlorobenzene	2012/04/12		99	%	70 - 130
		Benzyl chloride	2012/04/12		84	%	70 - 130
		1,3-Dichlorobenzene	2012/04/12		92	%	70 - 130
		1,4-Dichlorobenzene	2012/04/12		91	%	70 - 130
		1,2-Dichlorobenzene	2012/04/12		85	%	70 - 130
		1,2,4-Trichlorobenzene	2012/04/12		93	%	70 - 130
		Hexachlorobutadiene	2012/04/12		90	%	70 - 130
		Hexane	2012/04/12		101	%	70 - 130
		Cyclohexane	2012/04/12		96	%	70 - 130
		Tetrahydrofuran	2012/04/12		96	%	70 - 130
		1,4-Dioxane	2012/04/12		93	%	70 - 130
		Xylene (Total)	2012/04/12		97	%	70 - 130
	Method Blank	Bromochloromethane	2012/04/12		98	%	60 - 140
		D5-Chlorobenzene	2012/04/12		98	%	60 - 140
		Difluorobenzene	2012/04/12		99	%	60 - 140
		2,2,4-Trimethylpentane	2012/04/12	<0.20		ppbv	
		Carbon Disulfide	2012/04/12	<0.50		ppbv	
		Propene	2012/04/12	<0.30		ppbv	
		Vinyl Acetate	2012/04/12	<0.20		ppbv	
		Vinyl Bromide	2012/04/12	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/04/12	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/04/12	<0.17		ppbv	
		Chloromethane	2012/04/12	<0.30		ppbv	
		Vinyl Chloride	2012/04/12	<0.18		ppbv	
		Chloroethane	2012/04/12	<0.30		ppbv	
		1,3-Butadiene	2012/04/12	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/04/12	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/04/12	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/04/12	<2.3		ppbv	
		2-propanol	2012/04/12	<3.0		ppbv	
		2-Propanone	2012/04/12	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/04/12	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/04/12	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/04/12	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/04/12	<0.20		ppbv	
		Ethyl Acetate	2012/04/12	<2.2		ppbv	
		1,1-Dichloroethylene	2012/04/12	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/04/12	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/04/12	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/04/12	<0.80		ppbv	
		Chloroform	2012/04/12	<0.15		ppbv	
		Carbon Tetrachloride	2012/04/12	<0.30		ppbv	
		1,1-Dichloroethane	2012/04/12	<0.20		ppbv	
		1,2-Dichloroethane	2012/04/12	<0.20		ppbv	
		Ethylene Dibromide	2012/04/12	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/04/12	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/04/12	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/04/12	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/04/12	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/04/12	<0.17		ppbv	
		1,2-Dichloropropane	2012/04/12	<0.40		ppbv	
		Bromomethane	2012/04/12	<0.18		ppbv	
		Bromoform	2012/04/12	<0.20		ppbv	
		Bromodichloromethane	2012/04/12	<0.20		ppbv	
		Dibromochloromethane	2012/04/12	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB250895

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2818193 LSY	Method Blank	Heptane	2012/04/12	<0.30		ppbv	
		Trichloroethylene	2012/04/12	<0.30		ppbv	
		Tetrachloroethylene	2012/04/12	<0.20		ppbv	
		Benzene	2012/04/12	<0.18		ppbv	
		Toluene	2012/04/12	<0.20		ppbv	
		Ethylbenzene	2012/04/12	<0.20		ppbv	
		p+m-Xylene	2012/04/12	<0.37		ppbv	
		o-Xylene	2012/04/12	<0.20		ppbv	
		Styrene	2012/04/12	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/04/12	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/04/12	<0.50		ppbv	
		4-ethyltoluene	2012/04/12	<2.2		ppbv	
		Chlorobenzene	2012/04/12	<0.20		ppbv	
		Benzyl chloride	2012/04/12	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/04/12	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/04/12	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/04/12	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/04/12	<2.0		ppbv	
		Hexachlorobutadiene	2012/04/12	<3.0		ppbv	
		Hexane	2012/04/12	<0.30		ppbv	
		Cyclohexane	2012/04/12	<0.20		ppbv	
		Tetrahydrofuran	2012/04/12	<0.40		ppbv	
		1,4-Dioxane	2012/04/12	<2.0		ppbv	
		Xylene (Total)	2012/04/12	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2012/04/12	0.5		%	25
		Carbon Disulfide	2012/04/12	NC		%	25
		Propene	2012/04/12	NC		%	25
		Vinyl Acetate	2012/04/12	NC		%	25
		Vinyl Bromide	2012/04/12	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2012/04/12	NC		%	25
		1,2-Dichlorotetrafluoroethane	2012/04/12	NC		%	25
		Chloromethane	2012/04/12	NC		%	25
		Vinyl Chloride	2012/04/12	NC		%	25
		Chloroethane	2012/04/12	NC		%	25
		1,3-Butadiene	2012/04/12	NC		%	25
		Trichlorofluoromethane (FREON 11)	2012/04/12	4.4		%	25
		Trichlorotrifluoroethane	2012/04/12	NC		%	25
		Ethanol (ethyl alcohol)	2012/04/12	NC		%	25
		2-propanol	2012/04/12	NC		%	25
		2-Propanone	2012/04/12	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2012/04/12	NC		%	25
		Methyl Isobutyl Ketone	2012/04/12	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2012/04/12	NC		%	25
		Methyl t-butyl ether (MTBE)	2012/04/12	NC		%	25
		Ethyl Acetate	2012/04/12	NC		%	25
		1,1-Dichloroethylene	2012/04/12	NC		%	25
		cis-1,2-Dichloroethylene	2012/04/12	NC		%	25
		trans-1,2-Dichloroethylene	2012/04/12	NC		%	25
		Methylene Chloride(Dichloromethane)	2012/04/12	NC		%	25
		Chloroform	2012/04/12	NC		%	25
		Carbon Tetrachloride	2012/04/12	NC		%	25
		1,1-Dichloroethane	2012/04/12	NC		%	25
		1,2-Dichloroethane	2012/04/12	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB250895

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2818193 LSY	RPD - Sample/Sample Dup	Ethylene Dibromide	2012/04/12	NC		%	25
		1,1,1-Trichloroethane	2012/04/12	NC		%	25
		1,1,2-Trichloroethane	2012/04/12	NC		%	25
		1,1,2,2-Tetrachloroethane	2012/04/12	NC		%	25
		cis-1,3-Dichloropropene	2012/04/12	NC		%	25
		trans-1,3-Dichloropropene	2012/04/12	NC		%	25
		1,2-Dichloropropane	2012/04/12	NC		%	25
		Bromomethane	2012/04/12	NC		%	25
		Bromoform	2012/04/12	NC		%	25
		Bromodichloromethane	2012/04/12	NC		%	25
		Dibromochloromethane	2012/04/12	NC		%	25
		Heptane	2012/04/12	0.9		%	25
		Trichloroethylene	2012/04/12	NC		%	25
		Tetrachloroethylene	2012/04/12	NC		%	25
		Benzene	2012/04/12	NC		%	25
		Toluene	2012/04/12	2.4		%	25
		Ethylbenzene	2012/04/12	0.5		%	25
		p+m-Xylene	2012/04/12	3.0		%	25
		o-Xylene	2012/04/12	2.4		%	25
		Styrene	2012/04/12	NC		%	25
		1,3,5-Trimethylbenzene	2012/04/12	3.4		%	25
		1,2,4-Trimethylbenzene	2012/04/12	3.3		%	25
		4-ethyltoluene	2012/04/12	2.2		%	25
		Chlorobenzene	2012/04/12	NC		%	25
		Benzyl chloride	2012/04/12	NC		%	25
		1,3-Dichlorobenzene	2012/04/12	NC		%	25
		1,4-Dichlorobenzene	2012/04/12	NC		%	25
		1,2-Dichlorobenzene	2012/04/12	NC		%	25
		1,2,4-Trichlorobenzene	2012/04/12	NC		%	25
		Hexachlorobutadiene	2012/04/12	NC		%	25
		Hexane	2012/04/12	NC		%	25
		Cyclohexane	2012/04/12	2.7		%	25
		Tetrahydrofuran	2012/04/12	NC		%	25
		1,4-Dioxane	2012/04/12	NC		%	25
		Xylene (Total)	2012/04/12	2.9		%	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: Elk Point Airport Canister ID: 279
Station ID: Lica 35 (Portable) Canister Installation Date/Time: Apr 09, 12 @ 9:50 mst
Field Sample ID: LICA VOC/PORT/ Apr 10, 12 Canister Removal Date/Time: Apr 12, 12 @ 12:00 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
10-Apr-12	04/10/2012 0:00	04/11/2012 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1496	25

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

Technician Signiture: Ting Xu / Jacob Roch

Your C.O.C. #: 08591

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

Report Date: 2012/04/24

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B254100****Received: 2012/04/18, 09:55**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/04/19	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/04/19	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Page 1 of 14

Maxxam Job #: B254100
 Report Date: 2012/04/24

RESULTS OF ANALYSES OF AIR

Maxxam ID		ND3323	ND3324	
Sampling Date		2012/04/10	2012/04/10	
COC Number		08591	08591	
	Units	LICA VOC\CLSIAPRIL 10,12	LICA VOC\PORTAPRIL 10,12	QC Batch

Volatile Organics				
Pressure on Receipt	psig	21	22	2825340

QC Batch = Quality Control Batch

Maxxam Job #: B254100
 Report Date: 2012/04/24

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		ND3323				
Sampling Date		2012/04/10				
COC Number		08591				
	Units	LICA VOC\CLS\APRIL 10,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2827212
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2827212
Propene	ppbv	<0.30	0.30	<0.516	0.516	2827212
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2827212
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2827212
Dichlorodifluoromethane (FREON 12)	ppbv	0.71	0.20	3.49	0.989	2827212
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2827212
Chloromethane	ppbv	0.39	0.30	0.800	0.620	2827212
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2827212
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2827212
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2827212
Trichlorofluoromethane (FREON 11)	ppbv	0.38	0.20	2.14	1.12	2827212
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2827212
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2827212
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2827212
2-Propanone	ppbv	1.68	0.80	3.98	1.90	2827212
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2827212
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2827212
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2827212
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2827212
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2827212
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2827212
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2827212
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2827212
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2827212
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2827212
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2827212
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2827212
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2827212
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2827212
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2827212

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B254100
 Report Date: 2012/04/24

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		ND3323				
Sampling Date		2012/04/10				
COC Number		08591				
	Units	LICA VOC\CLS\APRIL 10,12	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2827212
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2827212
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2827212
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2827212
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2827212
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2827212
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2827212
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2827212
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2827212
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2827212
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2827212
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2827212
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2827212
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2827212
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2827212
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2827212
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2827212
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2827212
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2827212
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2827212
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2827212
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2827212
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2827212
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2827212
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2827212
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2827212
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2827212
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2827212
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2827212
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2827212
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2827212
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2827212
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2827212
QC Batch = Quality Control Batch						

Maxxam Job #: B254100
 Report Date: 2012/04/24

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		ND3323				
Sampling Date		2012/04/10				
COC Number		08591				
	Units	LICA VOC\CLSIAPRIL 10,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	70		N/A	N/A	2827212
D5-Chlorobenzene	%	66		N/A	N/A	2827212
Difluorobenzene	%	73		N/A	N/A	2827212

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

Maxxam Job #: B254100
 Report Date: 2012/04/24

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		ND3324				
Sampling Date		2012/04/10				
COC Number		08591				
	Units	LICA VOC\PORT\APRIL 10,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2827212
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2827212
Propene	ppbv	<0.30	0.30	<0.516	0.516	2827212
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2827212
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2827212
Dichlorodifluoromethane (FREON 12)	ppbv	0.71	0.20	3.51	0.989	2827212
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2827212
Chloromethane	ppbv	0.40	0.30	0.835	0.620	2827212
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2827212
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2827212
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2827212
Trichlorofluoromethane (FREON 11)	ppbv	0.37	0.20	2.07	1.12	2827212
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2827212
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2827212
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2827212
2-Propanone	ppbv	1.24	0.80	2.94	1.90	2827212
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2827212
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2827212
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2827212
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2827212
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2827212
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2827212
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2827212
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2827212
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2827212
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2827212
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2827212
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2827212
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2827212
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2827212
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2827212

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B254100
 Report Date: 2012/04/24

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		ND3324				
Sampling Date		2012/04/10				
COC Number		08591				
	Units	LICA VOC\PORT\APRIL 10,12	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2827212
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2827212
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2827212
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2827212
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2827212
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2827212
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2827212
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2827212
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2827212
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2827212
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2827212
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2827212
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2827212
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2827212
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2827212
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2827212
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2827212
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2827212
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2827212
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2827212
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2827212
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2827212
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2827212
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2827212
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2827212
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2827212
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2827212
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2827212
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2827212
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2827212
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2827212
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2827212
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2827212
QC Batch = Quality Control Batch						

Maxxam Job #: B254100
 Report Date: 2012/04/24

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		ND3324				
Sampling Date		2012/04/10				
COC Number		08591				
	Units	LICA VOC\PORT\APRIL 10,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	70		N/A	N/A	2827212
D5-Chlorobenzene	%	68		N/A	N/A	2827212
Difluorobenzene	%	74		N/A	N/A	2827212

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

Maxxam Job #: B254100
 Report Date: 2012/04/24

Test Summary

Maxxam ID ND3323
Sample ID LICA VOC\CLS\APRIL 10,12
Matrix AIR

Collected 2012/04/10
Shipped
Received 2012/04/18

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2825340	N/A	2012/04/19	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2827212	N/A	2012/04/19	SPOMENKA SMILJANIC

Maxxam ID ND3324
Sample ID LICA VOC\PORT\APRIL 10,12
Matrix AIR

Collected 2012/04/10
Shipped
Received 2012/04/18

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2825340	N/A	2012/04/19	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2827212	N/A	2012/04/19	SPOMENKA SMILJANIC

Maxxam Job #: B254100
Report Date: 2012/04/24

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB254100

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2827212 S_S	Spiked Blank	Bromochloromethane	2012/04/19		122	%	60 - 140
		D5-Chlorobenzene	2012/04/19		128	%	60 - 140
		Difluorobenzene	2012/04/19		129	%	60 - 140
		2,2,4-Trimethylpentane	2012/04/19		73	%	70 - 130
		Carbon Disulfide	2012/04/19		79	%	70 - 130
		Propene	2012/04/19		66 (1)	%	70 - 130
		Vinyl Acetate	2012/04/19		83	%	70 - 130
		Vinyl Bromide	2012/04/19		84	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/04/19		97	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/04/19		107	%	70 - 130
		Chloromethane	2012/04/19		91	%	70 - 130
		Vinyl Chloride	2012/04/19		85	%	70 - 130
		Chloroethane	2012/04/19		84	%	70 - 130
		1,3-Butadiene	2012/04/19		82	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/04/19		101	%	70 - 130
		Trichlorotrifluoroethane	2012/04/19		83	%	70 - 130
		Ethanol (ethyl alcohol)	2012/04/19		73	%	70 - 130
		2-propanol	2012/04/19		76	%	70 - 130
		2-Propanone	2012/04/19		95	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/04/19		73	%	70 - 130
		Methyl Isobutyl Ketone	2012/04/19		81	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/04/19		84	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/04/19		89	%	70 - 130
		Ethyl Acetate	2012/04/19		79	%	70 - 130
		1,1-Dichloroethylene	2012/04/19		86	%	70 - 130
		cis-1,2-Dichloroethylene	2012/04/19		84	%	70 - 130
		trans-1,2-Dichloroethylene	2012/04/19		82	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/04/19		75	%	70 - 130
		Chloroform	2012/04/19		87	%	70 - 130
		Carbon Tetrachloride	2012/04/19		96	%	70 - 130
		1,1-Dichloroethane	2012/04/19		83	%	70 - 130
		1,2-Dichloroethane	2012/04/19		97	%	70 - 130
		Ethylene Dibromide	2012/04/19		85	%	70 - 130
		1,1,1-Trichloroethane	2012/04/19		96	%	70 - 130
		1,1,2-Trichloroethane	2012/04/19		80	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/04/19		78	%	70 - 130
		cis-1,3-Dichloropropene	2012/04/19		91	%	70 - 130
		trans-1,3-Dichloropropene	2012/04/19		99	%	70 - 130
		1,2-Dichloropropane	2012/04/19		76	%	70 - 130
		Bromomethane	2012/04/19		86	%	70 - 130
		Bromoform	2012/04/19		99	%	70 - 130
		Bromodichloromethane	2012/04/19		99	%	70 - 130
		Dibromochloromethane	2012/04/19		99	%	70 - 130
		Heptane	2012/04/19		77	%	70 - 130
		Trichloroethylene	2012/04/19		75	%	70 - 130
		Tetrachloroethylene	2012/04/19		81	%	70 - 130
		Benzene	2012/04/19		78	%	70 - 130
		Toluene	2012/04/19		81	%	70 - 130
		Ethylbenzene	2012/04/19		82	%	70 - 130
		p+m-Xylene	2012/04/19		83	%	70 - 130
		o-Xylene	2012/04/19		84	%	70 - 130
		Styrene	2012/04/19		65 (1)	%	70 - 130
		1,3,5-Trimethylbenzene	2012/04/19		84	%	70 - 130
		1,2,4-Trimethylbenzene	2012/04/19		82	%	70 - 130
		4-ethyltoluene	2012/04/19		88	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB254100

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2827212 S_S	Spiked Blank	Chlorobenzene	2012/04/19		73	%	70 - 130
		Benzyl chloride	2012/04/19		102	%	70 - 130
		1,3-Dichlorobenzene	2012/04/19		77	%	70 - 130
		1,4-Dichlorobenzene	2012/04/19		78	%	70 - 130
		1,2-Dichlorobenzene	2012/04/19		75	%	70 - 130
		1,2,4-Trichlorobenzene	2012/04/19		82	%	70 - 130
		Hexachlorobutadiene	2012/04/19		85	%	70 - 130
		Hexane	2012/04/19		81	%	70 - 130
		Cyclohexane	2012/04/19		75	%	70 - 130
		Tetrahydrofuran	2012/04/19		74	%	70 - 130
		1,4-Dioxane	2012/04/19		81	%	70 - 130
		Xylene (Total)	2012/04/19		84	%	70 - 130
	Method Blank	Bromochloromethane	2012/04/19		90	%	60 - 140
		D5-Chlorobenzene	2012/04/19		83	%	60 - 140
		Difluorobenzene	2012/04/19		95	%	60 - 140
		2,2,4-Trimethylpentane	2012/04/19	<0.20		ppbv	
		Carbon Disulfide	2012/04/19	<0.50		ppbv	
		Propene	2012/04/19	<0.30		ppbv	
		Vinyl Acetate	2012/04/19	<0.20		ppbv	
		Vinyl Bromide	2012/04/19	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/04/19	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/04/19	<0.17		ppbv	
		Chloromethane	2012/04/19	<0.30		ppbv	
		Vinyl Chloride	2012/04/19	<0.18		ppbv	
		Chloroethane	2012/04/19	<0.30		ppbv	
		1,3-Butadiene	2012/04/19	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/04/19	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/04/19	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/04/19	<2.3		ppbv	
		2-propanol	2012/04/19	<3.0		ppbv	
		2-Propanone	2012/04/19	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/04/19	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/04/19	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/04/19	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/04/19	<0.20		ppbv	
		Ethyl Acetate	2012/04/19	<2.2		ppbv	
		1,1-Dichloroethylene	2012/04/19	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/04/19	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/04/19	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/04/19	<0.80		ppbv	
		Chloroform	2012/04/19	<0.15		ppbv	
		Carbon Tetrachloride	2012/04/19	<0.30		ppbv	
		1,1-Dichloroethane	2012/04/19	<0.20		ppbv	
		1,2-Dichloroethane	2012/04/19	<0.20		ppbv	
		Ethylene Dibromide	2012/04/19	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/04/19	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/04/19	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/04/19	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/04/19	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/04/19	<0.17		ppbv	
		1,2-Dichloropropane	2012/04/19	<0.40		ppbv	
		Bromomethane	2012/04/19	<0.18		ppbv	
		Bromoform	2012/04/19	<0.20		ppbv	
		Bromodichloromethane	2012/04/19	<0.20		ppbv	
		Dibromochloromethane	2012/04/19	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB254100

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2827212 S_S	Method Blank	Heptane	2012/04/19	<0.30		ppbv	
		Trichloroethylene	2012/04/19	<0.30		ppbv	
		Tetrachloroethylene	2012/04/19	<0.20		ppbv	
		Benzene	2012/04/19	<0.18		ppbv	
		Toluene	2012/04/19	<0.20		ppbv	
		Ethylbenzene	2012/04/19	<0.20		ppbv	
		p+m-Xylene	2012/04/19	<0.37		ppbv	
		o-Xylene	2012/04/19	<0.20		ppbv	
		Styrene	2012/04/19	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/04/19	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/04/19	<0.50		ppbv	
		4-ethyltoluene	2012/04/19	<2.2		ppbv	
		Chlorobenzene	2012/04/19	<0.20		ppbv	
		Benzyl chloride	2012/04/19	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/04/19	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/04/19	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/04/19	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/04/19	<2.0		ppbv	
		Hexachlorobutadiene	2012/04/19	<3.0		ppbv	
		Hexane	2012/04/19	<0.30		ppbv	
		Cyclohexane	2012/04/19	<0.20		ppbv	
		Tetrahydrofuran	2012/04/19	<0.40		ppbv	
		1,4-Dioxane	2012/04/19	<2.0		ppbv	
		Xylene (Total)	2012/04/19	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2012/04/19	NC		%	25
		Carbon Disulfide	2012/04/19	NC		%	25
		Propene	2012/04/19	NC		%	25
		Vinyl Acetate	2012/04/19	NC		%	25
		Vinyl Bromide	2012/04/19	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2012/04/19	NC		%	25
		1,2-Dichlorotetrafluoroethane	2012/04/19	NC		%	25
		Chloromethane	2012/04/19	NC		%	25
		Vinyl Chloride	2012/04/19	NC		%	25
		Chloroethane	2012/04/19	NC		%	25
		1,3-Butadiene	2012/04/19	NC		%	25
		Trichlorofluoromethane (FREON 11)	2012/04/19	NC		%	25
		Trichlorotrifluoroethane	2012/04/19	NC		%	25
		Ethanol (ethyl alcohol)	2012/04/19	NC		%	25
		2-propanol	2012/04/19	NC		%	25
		2-Propanone	2012/04/19	4.0		%	25
		Methyl Ethyl Ketone (2-Butanone)	2012/04/19	NC		%	25
		Methyl Isobutyl Ketone	2012/04/19	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2012/04/19	NC		%	25
		Methyl t-butyl ether (MTBE)	2012/04/19	NC		%	25
		Ethyl Acetate	2012/04/19	NC		%	25
		1,1-Dichloroethylene	2012/04/19	NC		%	25
		cis-1,2-Dichloroethylene	2012/04/19	NC		%	25
		trans-1,2-Dichloroethylene	2012/04/19	NC		%	25
		Methylene Chloride(Dichloromethane)	2012/04/19	NC		%	25
		Chloroform	2012/04/19	NC		%	25
		Carbon Tetrachloride	2012/04/19	NC		%	25
		1,1-Dichloroethane	2012/04/19	NC		%	25
		1,2-Dichloroethane	2012/04/19	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB254100

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2827212 S_S	RPD - Sample/Sample Dup	Ethylene Dibromide	2012/04/19	NC		%	25
		1,1,1-Trichloroethane	2012/04/19	NC		%	25
		1,1,2-Trichloroethane	2012/04/19	NC		%	25
		1,1,2,2-Tetrachloroethane	2012/04/19	NC		%	25
		cis-1,3-Dichloropropene	2012/04/19	NC		%	25
		trans-1,3-Dichloropropene	2012/04/19	NC		%	25
		1,2-Dichloropropane	2012/04/19	NC		%	25
		Bromomethane	2012/04/19	NC		%	25
		Bromoform	2012/04/19	NC		%	25
		Bromodichloromethane	2012/04/19	NC		%	25
		Dibromochloromethane	2012/04/19	NC		%	25
		Heptane	2012/04/19	NC		%	25
		Trichloroethylene	2012/04/19	NC		%	25
		Tetrachloroethylene	2012/04/19	NC		%	25
		Benzene	2012/04/19	NC		%	25
		Toluene	2012/04/19	NC		%	25
		Ethylbenzene	2012/04/19	NC		%	25
		p+m-Xylene	2012/04/19	NC		%	25
		o-Xylene	2012/04/19	NC		%	25
		Styrene	2012/04/19	NC		%	25
		1,3,5-Trimethylbenzene	2012/04/19	NC		%	25
		1,2,4-Trimethylbenzene	2012/04/19	NC		%	25
		4-ethyltoluene	2012/04/19	NC		%	25
		Chlorobenzene	2012/04/19	NC		%	25
		Benzyl chloride	2012/04/19	NC		%	25
		1,3-Dichlorobenzene	2012/04/19	NC		%	25
		1,4-Dichlorobenzene	2012/04/19	NC		%	25
		1,2-Dichlorobenzene	2012/04/19	NC		%	25
		1,2,4-Trichlorobenzene	2012/04/19	NC		%	25
		Hexachlorobutadiene	2012/04/19	NC		%	25
		Hexane	2012/04/19	NC		%	25
		Cyclohexane	2012/04/19	NC		%	25
		Tetrahydrofuran	2012/04/19	NC		%	25
		1,4-Dioxane	2012/04/19	NC		%	25
		Xylene (Total)	2012/04/19	NC		%	25

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

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: Elk Point Airport Canister ID: 7856
Station ID: Lica 35 (Portable) Canister Installation Date/Time: Apr 12, 12 @ 12:10 mst
Field Sample ID: LICA VOC/PORT/ Apr 10, 12 Canister Removal Date/Time: Apr 19, 12 @ 17:09 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
10-Apr-12	04/10/2012 0:00	04/11/2012 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1496	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	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 # 10740

Technician Signiture: Jacob Roch / Ting Xu



Your C.O.C. #: 10740

Attention: Michael Bisaga

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

Report Date: 2012/05/04

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B257935

Received: 2012/04/25, 10:30

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/04/26	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/02	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 #: B257935
 Report Date: 2012/05/04

RESULTS OF ANALYSES OF AIR

Maxxam ID		NF3079	NF3080	
Sampling Date		2012/04/15	2012/04/15	
COC Number		10740	10740	
	Units	LICA VOC/CLS/ APRIL 15,12 - 275	LICA VOC/ PORT/ APRIL 15,12 - 7856	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2837795
QC Batch = Quality Control Batch				

Maxxam Job #: B257935
 Report Date: 2012/05/04

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NF3079			NF3080				
Sampling Date		2012/04/15			2012/04/15				
COC Number		10740			10740				
	Units	LICA VOC/CLS/ APRIL 15,12 - 275	ug/m3	DL (ug/m3)	LICA VOC/ PORT/ APRIL 15,12 - 7856	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	2839167
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2839167
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2839167
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2839167
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2839167
Dichlorodifluoromethane (FREON 12)	ppbv	0.81	3.99	0.989	0.79	0.20	3.91	0.989	2839167
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2839167
Chloromethane	ppbv	0.62	1.27	0.620	0.59	0.30	1.21	0.620	2839167
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2839167
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2839167
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2839167
Trichlorofluoromethane (FREON 11)	ppbv	0.37	2.09	1.12	0.37	0.20	2.08	1.12	2839167
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2839167
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2839167
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2839167
2-Propanone	ppbv	1.74	4.12	1.90	1.63	0.80	3.88	1.90	2839167
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2839167
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2839167
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2839167
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2839167
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2839167
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2839167
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2839167
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2839167
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2839167
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2839167
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2839167
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2839167
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2839167
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2839167

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B257935
 Report Date: 2012/05/04

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NF3079			NF3080				
Sampling Date		2012/04/15			2012/04/15				
COC Number		10740			10740				
	Units	LICA VOC/CLS/ APRIL 15,12 - 275	ug/m3	DL (ug/m3)	LICA VOC/ PORT/ APRIL 15,12 - 7856	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	2839167
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2839167
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2839167
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2839167
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2839167
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2839167
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2839167
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2839167
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2839167
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2839167
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2839167
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2839167
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2839167
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2839167
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2839167
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2839167
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2839167
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2839167
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2839167
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2839167
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2839167
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2839167
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2839167
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2839167
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2839167
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2839167
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2839167
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2839167
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2839167
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2839167
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2839167
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2839167

QC Batch = Quality Control Batch

Maxxam Job #: B257935
 Report Date: 2012/05/04

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NF3079			NF3080				
Sampling Date		2012/04/15			2012/04/15				
COC Number		10740			10740				
	Units	LICA VOC/CLS/ APRIL 15,12 - 275	ug/m3	DL (ug/m3)	LICA VOC/ PORT/ APRIL 15,12 - 7856	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	2839167
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2839167
Surrogate Recovery (%)									
Bromochloromethane	%	93	N/A	N/A	93		N/A	N/A	2839167
D5-Chlorobenzene	%	95	N/A	N/A	94		N/A	N/A	2839167
Difluorobenzene	%	97	N/A	N/A	95		N/A	N/A	2839167
N/A = Not Applicable QC Batch = Quality Control Batch									

Maxxam Job #: B257935
 Report Date: 2012/05/04

Test Summary

Maxxam ID NF3079
Sample ID LICA VOC/CLS/ APRIL 15,12 - 275
Matrix AIR

Collected 2012/04/15
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2837795	N/A	2012/04/26	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2839167	N/A	2012/05/02	YAO LIANG SUN

Maxxam ID NF3080
Sample ID LICA VOC/ PORT/ APRIL 15,12 - 7856
Matrix AIR

Collected 2012/04/15
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2837795	N/A	2012/04/26	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2839167	N/A	2012/05/02	YAO LIANG SUN

Maxxam Job #: B257935
Report Date: 2012/05/04

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB257935

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2839167 LSY	Spiked Blank	Bromochloromethane	2012/05/02		102	%	60 - 140
		D5-Chlorobenzene	2012/05/02		105	%	60 - 140
		Difluorobenzene	2012/05/02		105	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/02		101	%	70 - 130
		Carbon Disulfide	2012/05/02		103	%	70 - 130
		Propene	2012/05/02		89	%	70 - 130
		Vinyl Acetate	2012/05/02		91	%	70 - 130
		Vinyl Bromide	2012/05/02		116	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/02		102	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/02		121	%	70 - 130
		Chloromethane	2012/05/02		98	%	70 - 130
		Vinyl Chloride	2012/05/02		99	%	70 - 130
		Chloroethane	2012/05/02		101	%	70 - 130
		1,3-Butadiene	2012/05/02		97	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/02		112	%	70 - 130
		Trichlorotrifluoroethane	2012/05/02		108	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/02		72	%	70 - 130
		2-propanol	2012/05/02		90	%	70 - 130
		2-Propanone	2012/05/02		86	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/02		85	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/02		90	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/02		90	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/02		103	%	70 - 130
		Ethyl Acetate	2012/05/02		93	%	70 - 130
		1,1-Dichloroethylene	2012/05/02		98	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/02		98	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/02		100	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/02		84	%	70 - 130
		Chloroform	2012/05/02		105	%	70 - 130
		Carbon Tetrachloride	2012/05/02		116	%	70 - 130
		1,1-Dichloroethane	2012/05/02		96	%	70 - 130
		1,2-Dichloroethane	2012/05/02		103	%	70 - 130
		Ethylene Dibromide	2012/05/02		114	%	70 - 130
		1,1,1-Trichloroethane	2012/05/02		110	%	70 - 130
		1,1,2-Trichloroethane	2012/05/02		110	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/02		103	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/02		104	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/02		106	%	70 - 130
		1,2-Dichloropropane	2012/05/02		98	%	70 - 130
		Bromomethane	2012/05/02		108	%	70 - 130
		Bromoform	2012/05/02		127	%	70 - 130
		Bromodichloromethane	2012/05/02		116	%	70 - 130
		Dibromochloromethane	2012/05/02		124	%	70 - 130
		Heptane	2012/05/02		92	%	70 - 130
		Trichloroethylene	2012/05/02		111	%	70 - 130
		Tetrachloroethylene	2012/05/02		117	%	70 - 130
		Benzene	2012/05/02		103	%	70 - 130
		Toluene	2012/05/02		108	%	70 - 130
		Ethylbenzene	2012/05/02		109	%	70 - 130
		p+m-Xylene	2012/05/02		107	%	70 - 130
		o-Xylene	2012/05/02		109	%	70 - 130
		Styrene	2012/05/02		98	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/02		103	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/02		101	%	70 - 130
		4-ethyltoluene	2012/05/02		111	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB257935

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2839167 LSY	Spiked Blank	Chlorobenzene	2012/05/02		111	%	70 - 130
		Benzyl chloride	2012/05/02		103	%	70 - 130
		1,3-Dichlorobenzene	2012/05/02		108	%	70 - 130
		1,4-Dichlorobenzene	2012/05/02		110	%	70 - 130
		1,2-Dichlorobenzene	2012/05/02		101	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/02		119	%	70 - 130
		Hexachlorobutadiene	2012/05/02		106	%	70 - 130
		Hexane	2012/05/02		96	%	70 - 130
		Cyclohexane	2012/05/02		97	%	70 - 130
		Tetrahydrofuran	2012/05/02		90	%	70 - 130
		1,4-Dioxane	2012/05/02		101	%	70 - 130
		Xylene (Total)	2012/05/02		108	%	70 - 130
	Method Blank	Bromochloromethane	2012/05/02		99	%	60 - 140
		D5-Chlorobenzene	2012/05/02		101	%	60 - 140
		Difluorobenzene	2012/05/02		102	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/02	<0.20		ppbv	
		Carbon Disulfide	2012/05/02	<0.50		ppbv	
		Propene	2012/05/02	<0.30		ppbv	
		Vinyl Acetate	2012/05/02	<0.20		ppbv	
		Vinyl Bromide	2012/05/02	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/02	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/02	<0.17		ppbv	
		Chloromethane	2012/05/02	<0.30		ppbv	
		Vinyl Chloride	2012/05/02	<0.18		ppbv	
		Chloroethane	2012/05/02	<0.30		ppbv	
		1,3-Butadiene	2012/05/02	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/02	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/02	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/02	<2.3		ppbv	
		2-propanol	2012/05/02	<3.0		ppbv	
		2-Propanone	2012/05/02	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/02	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/02	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/02	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/02	<0.20		ppbv	
		Ethyl Acetate	2012/05/02	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/02	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/02	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/02	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/02	<0.80		ppbv	
		Chloroform	2012/05/02	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/02	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/02	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/02	<0.20		ppbv	
		Ethylene Dibromide	2012/05/02	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/02	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/02	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/02	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/02	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/02	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/02	<0.40		ppbv	
		Bromomethane	2012/05/02	<0.18		ppbv	
		Bromoform	2012/05/02	<0.20		ppbv	
		Bromodichloromethane	2012/05/02	<0.20		ppbv	
		Dibromochloromethane	2012/05/02	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB257935

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2839167 LSY	Method Blank	Heptane	2012/05/02	<0.30		ppbv	
		Trichloroethylene	2012/05/02	<0.30		ppbv	
		Tetrachloroethylene	2012/05/02	<0.20		ppbv	
		Benzene	2012/05/02	<0.18		ppbv	
		Toluene	2012/05/02	<0.20		ppbv	
		Ethylbenzene	2012/05/02	<0.20		ppbv	
		p+m-Xylene	2012/05/02	<0.37		ppbv	
		o-Xylene	2012/05/02	<0.20		ppbv	
		Styrene	2012/05/02	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/02	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/02	<0.50		ppbv	
		4-ethyltoluene	2012/05/02	<2.2		ppbv	
		Chlorobenzene	2012/05/02	<0.20		ppbv	
		Benzyl chloride	2012/05/02	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/02	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/02	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/02	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/02	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/02	<3.0		ppbv	
		Hexane	2012/05/02	<0.30		ppbv	
		Cyclohexane	2012/05/02	<0.20		ppbv	
		Tetrahydrofuran	2012/05/02	<0.40		ppbv	
		1,4-Dioxane	2012/05/02	<2.0		ppbv	
		Xylene (Total)	2012/05/02	<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: Elk Point Airport Canister ID: 7807
Station ID: Lica 35 (Portable) Canister Installation Date/Time: Apr 19, 12 @ 17:14 mst
Field Sample ID: LICA VOC/PORT/ Apr 21, 12 Canister Removal Date/Time: Apr 26, 12 @ 15:56 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
21-Apr-12	04/21/2012 0:00	04/22/2012 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1496	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	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 # 10739

Technician Signiture: Ting Xu_____

Your C.O.C. #: 10739

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

Report Date: 2012/05/10

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B262020****Received: 2012/05/02, 10:00**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/05/08	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/08	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Page 1 of 10

Maxxam Job #: B262020
 Report Date: 2012/05/10

RESULTS OF ANALYSES OF AIR

Maxxam ID		NH5347	NH5348	
Sampling Date		2012/04/21	2012/04/21	
COC Number		10739	10739	
	Units	LICA VOC\CLSIAPR 21,12 - 7800	LICA VOC\PORTAPR 21,12 - 7807	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	21	2844935

QC Batch = Quality Control Batch

Maxxam Job #: B262020
 Report Date: 2012/05/10

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH5347			NH5348				
Sampling Date		2012/04/21			2012/04/21				
COC Number		10739			10739				
	Units	LICA VOC\CLS\APR 21,12 - 7800	ug/m3	DL (ug/m3)	LICA VOC\PORT\APR 21,12 - 7807	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	0.31	0.20	1.44	0.934	2845477
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	1.70	0.50	5.31	1.56	2845477
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2845477
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2845477
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2845477
Dichlorodifluoromethane (FREON 12)	ppbv	0.86	4.24	0.989	0.82	0.20	4.07	0.989	2845477
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2845477
Chloromethane	ppbv	0.71	1.47	0.620	0.70	0.30	1.45	0.620	2845477
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2845477
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2845477
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2845477
Trichlorofluoromethane (FREON 11)	ppbv	0.40	2.27	1.12	0.50	0.20	2.78	1.12	2845477
Trichlorotrifluoroethane	ppbv	0.16	1.24	1.15	0.18	0.15	1.35	1.15	2845477
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2845477
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2845477
2-Propanone	ppbv	2.74	6.50	1.90	6.65	0.80	15.8	1.90	2845477
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2845477
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2845477
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2845477
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2845477
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2845477
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2845477
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2845477
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2845477
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	2.07	0.80	7.20	2.78	2845477
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2845477
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2845477
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2845477
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2845477
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2845477
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2845477

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B262020
 Report Date: 2012/05/10

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH5347			NH5348				
Sampling Date		2012/04/21			2012/04/21				
COC Number		10739			10739				
	Units	LICA VOC\CLS\APR 21,12 - 7800	ug/m3	DL (ug/m3)	LICA VOC\PORT\APR 21,12 - 7807	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2845477
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2845477
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2845477
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2845477
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2845477
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2845477
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2845477
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2845477
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2845477
Heptane	ppbv	<0.30	<1.23	1.23	0.60	0.30	2.44	1.23	2845477
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2845477
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2845477
Benzene	ppbv	0.23	0.719	0.575	0.42	0.18	1.33	0.575	2845477
Toluene	ppbv	0.31	1.18	0.753	0.60	0.20	2.25	0.753	2845477
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2845477
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2845477
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2845477
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2845477
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2845477
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2845477
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2845477
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2845477
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2845477
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2845477
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2845477
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2845477
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2845477
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2845477
Hexane	ppbv	0.31	1.08	1.06	1.36	0.30	4.79	1.06	2845477
Cyclohexane	ppbv	0.22	0.766	0.688	0.38	0.20	1.30	0.688	2845477
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2845477
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2845477
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2845477
QC Batch = Quality Control Batch									

Maxxam Job #: B262020
 Report Date: 2012/05/10

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH5347			NH5348				
Sampling Date		2012/04/21			2012/04/21				
COC Number		10739			10739				
	Units	LICA VOC\CLS\APR 21,12 - 7800	ug/m3	DL (ug/m3)	LICA VOC\PORT\APR 21,12 - 7807	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	85	N/A	N/A	85		N/A	N/A	2845477
D5-Chlorobenzene	%	87	N/A	N/A	84		N/A	N/A	2845477
Difluorobenzene	%	85	N/A	N/A	85		N/A	N/A	2845477

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

Maxxam Job #: B262020
 Report Date: 2012/05/10

Test Summary

Maxxam ID NH5347
Sample ID LICA VOC\CLSVAPR 21,12 - 7800
Matrix AIR

Collected 2012/04/21
Shipped
Received 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2844935	N/A	2012/05/08	JIE WU
Volatile Organics in Air (TO-15)	GC/MS	2845477	N/A	2012/05/08	JIE WU

Maxxam ID NH5348
Sample ID LICA VOC\PORTVAPR 21,12 - 7807
Matrix AIR

Collected 2012/04/21
Shipped
Received 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2844935	N/A	2012/05/08	JIE WU
Volatile Organics in Air (TO-15)	GC/MS	2845477	N/A	2012/05/08	JIE WU

Maxxam Job #: B262020
Report Date: 2012/05/10

GENERAL COMMENTS

Sample NH5347-01: TO15:
In continuing calibration std., response deviation for methyl-t-butyl ether exceeds 40% acceptance limit. None detected in sample.

Sample NH5348-01: TO15:
In continuing calibration std., response deviation for methyl-t-butyl ether exceeds 40% acceptance limit. None detected in sample.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB262020

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2845477 JIW	Spiked Blank	Bromochloromethane	2012/05/08		100	%	60 - 140
		D5-Chlorobenzene	2012/05/08		100	%	60 - 140
		Difluorobenzene	2012/05/08		98	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/08		102	%	70 - 130
		Carbon Disulfide	2012/05/08		110	%	70 - 130
		Propene	2012/05/08		86	%	70 - 130
		Vinyl Acetate	2012/05/08		92	%	70 - 130
		Vinyl Bromide	2012/05/08		117	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/08		99	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/08		112	%	70 - 130
		Chloromethane	2012/05/08		97	%	70 - 130
		Vinyl Chloride	2012/05/08		104	%	70 - 130
		Chloroethane	2012/05/08		100	%	70 - 130
		1,3-Butadiene	2012/05/08		108	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/08		96	%	70 - 130
		Trichlorotrifluoroethane	2012/05/08		102	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/08		81	%	70 - 130
		2-propanol	2012/05/08		98	%	70 - 130
		2-Propanone	2012/05/08		96	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/08		109	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/08		87	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/08		86	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/08		68 (1)	%	70 - 130
		Ethyl Acetate	2012/05/08		94	%	70 - 130
		1,1-Dichloroethylene	2012/05/08		107	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/08		101	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/08		80	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/08		90	%	70 - 130
		Chloroform	2012/05/08		101	%	70 - 130
		Carbon Tetrachloride	2012/05/08		111	%	70 - 130
		1,1-Dichloroethane	2012/05/08		90	%	70 - 130
		1,2-Dichloroethane	2012/05/08		99	%	70 - 130
		Ethylene Dibromide	2012/05/08		110	%	70 - 130
		1,1,1-Trichloroethane	2012/05/08		107	%	70 - 130
		1,1,2-Trichloroethane	2012/05/08		107	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/08		101	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/08		111	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/08		117	%	70 - 130
		1,2-Dichloropropane	2012/05/08		101	%	70 - 130
		Bromomethane	2012/05/08		104	%	70 - 130
		Bromoform	2012/05/08		115	%	70 - 130
		Bromodichloromethane	2012/05/08		103	%	70 - 130
		Dibromochloromethane	2012/05/08		109	%	70 - 130
		Heptane	2012/05/08		84	%	70 - 130
		Trichloroethylene	2012/05/08		115	%	70 - 130
		Tetrachloroethylene	2012/05/08		120	%	70 - 130
		Benzene	2012/05/08		107	%	70 - 130
		Toluene	2012/05/08		109	%	70 - 130
		Ethylbenzene	2012/05/08		107	%	70 - 130
		p+m-Xylene	2012/05/08		104	%	70 - 130
		o-Xylene	2012/05/08		103	%	70 - 130
		Styrene	2012/05/08		94	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/08		105	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/08		108	%	70 - 130
		4-ethyltoluene	2012/05/08		101	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB262020

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2845477 JIW	Spiked Blank	Chlorobenzene	2012/05/08		110	%	70 - 130
		Benzyl chloride	2012/05/08		129	%	70 - 130
		1,3-Dichlorobenzene	2012/05/08		120	%	70 - 130
		1,4-Dichlorobenzene	2012/05/08		118	%	70 - 130
		1,2-Dichlorobenzene	2012/05/08		119	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/08		136 (1)	%	70 - 130
		Hexachlorobutadiene	2012/05/08		124	%	70 - 130
		Hexane	2012/05/08		95	%	70 - 130
		Cyclohexane	2012/05/08		107	%	70 - 130
		Tetrahydrofuran	2012/05/08		106	%	70 - 130
		1,4-Dioxane	2012/05/08		98	%	70 - 130
		Xylene (Total)	2012/05/08		104	%	70 - 130
	Method Blank	Bromochloromethane	2012/05/08		98	%	60 - 140
		D5-Chlorobenzene	2012/05/08		93	%	60 - 140
		Difluorobenzene	2012/05/08		97	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/08	<0.20		ppbv	
		Carbon Disulfide	2012/05/08	<0.50		ppbv	
		Propene	2012/05/08	<0.30		ppbv	
		Vinyl Acetate	2012/05/08	<0.20		ppbv	
		Vinyl Bromide	2012/05/08	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/08	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/08	<0.17		ppbv	
		Chloromethane	2012/05/08	<0.30		ppbv	
		Vinyl Chloride	2012/05/08	<0.18		ppbv	
		Chloroethane	2012/05/08	<0.30		ppbv	
		1,3-Butadiene	2012/05/08	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/08	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/08	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/08	<2.3		ppbv	
		2-propanol	2012/05/08	<3.0		ppbv	
		2-Propanone	2012/05/08	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/08	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/08	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/08	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/08	<0.20		ppbv	
		Ethyl Acetate	2012/05/08	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/08	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/08	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/08	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/08	<0.80		ppbv	
		Chloroform	2012/05/08	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/08	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/08	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/08	<0.20		ppbv	
		Ethylene Dibromide	2012/05/08	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/08	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/08	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/08	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/08	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/08	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/08	<0.40		ppbv	
		Bromomethane	2012/05/08	<0.18		ppbv	
		Bromoform	2012/05/08	<0.20		ppbv	
		Bromodichloromethane	2012/05/08	<0.20		ppbv	
		Dibromochloromethane	2012/05/08	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB262020

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2845477	JIW	Method Blank					
		Heptane	2012/05/08	<0.30		ppbv	
		Trichloroethylene	2012/05/08	<0.30		ppbv	
		Tetrachloroethylene	2012/05/08	<0.20		ppbv	
		Benzene	2012/05/08	<0.18		ppbv	
		Toluene	2012/05/08	<0.20		ppbv	
		Ethylbenzene	2012/05/08	<0.20		ppbv	
		p+m-Xylene	2012/05/08	<0.37		ppbv	
		o-Xylene	2012/05/08	<0.20		ppbv	
		Styrene	2012/05/08	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/08	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/08	<0.50		ppbv	
		4-ethyltoluene	2012/05/08	<2.2		ppbv	
		Chlorobenzene	2012/05/08	<0.20		ppbv	
		Benzyl chloride	2012/05/08	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/08	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/08	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/08	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/08	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/08	<3.0		ppbv	
		Hexane	2012/05/08	<0.30		ppbv	
		Cyclohexane	2012/05/08	<0.20		ppbv	
		Tetrahydrofuran	2012/05/08	<0.40		ppbv	
		1,4-Dioxane	2012/05/08	<2.0		ppbv	
		Xylene (Total)	2012/05/08	<0.60		ppbv	

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
 Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
 (1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: Elk Point Airport Canister ID: 316
Station ID: Lica 35 (Portable) Canister Installation Date/Time: Apr 26, 12 @ 16:03 mst
Field Sample ID: LICA VOC/PORT/ Apr 27, 12 Canister Removal Date/Time: Apr 30, 12 @ 11:45 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
27-Apr-12	04/27/2012 0:00	04/28/2012 0:00	24.0000

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	1496	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-29	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 #10642

Technician Signiture: Ting Xu_____

Your C.O.C. #: 10642

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

Report Date: 2012/05/11

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B262743****Received: 2012/05/03, 09:25**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/05/09	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/09	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

=====

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

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Total cover pages: 1

Page 1 of 13

Maxxam Job #: B262743
 Report Date: 2012/05/11

RESULTS OF ANALYSES OF AIR

Maxxam ID		NH8998	NH8999	
Sampling Date		2012/04/27 00:00	2012/04/27 00:00	
COC Number		10642	10642	
	Units	LICA VOC\CLS\APRIL 27,2012 - 322	LICA VOC\PORT\APRIL 27,2012 - 316	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2844798
QC Batch = Quality Control Batch				

Maxxam Job #: B262743
 Report Date: 2012/05/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH8998				
Sampling Date		2012/04/27 00:00				
COC Number		10642				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOCCLSAPRIL				
		27,2012 - 322				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2844961
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2844961
Propene	ppbv	<0.30	0.30	<0.516	0.516	2844961
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2844961
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2844961
Dichlorodifluoromethane (FREON 12)	ppbv	0.77	0.20	3.82	0.989	2844961
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2844961
Chloromethane	ppbv	0.60	0.30	1.24	0.620	2844961
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2844961
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2844961
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2844961
Trichlorofluoromethane (FREON 11)	ppbv	0.38	0.20	2.13	1.12	2844961
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2844961
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2844961
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2844961
2-Propanone	ppbv	1.85	0.80	4.39	1.90	2844961
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2844961
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2844961
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2844961
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2844961
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2844961
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2844961
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2844961
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2844961
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2844961
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2844961
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2844961
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2844961
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2844961
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2844961
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B262743
 Report Date: 2012/05/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH8998				
Sampling Date		2012/04/27 00:00				
COC Number		10642				
	Units	LICA VOCCLSAPRIL 27,2012 - 322	RDL	ug/m3	DL (ug/m3)	QC Batch

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2844961
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2844961
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2844961
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2844961
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2844961
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2844961
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2844961
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2844961
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2844961
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2844961
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2844961
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2844961
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2844961
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2844961
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2844961
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2844961
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2844961
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2844961
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2844961
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2844961
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2844961
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2844961
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2844961
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2844961
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2844961
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2844961
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2844961
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2844961
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2844961
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2844961
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2844961
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2844961
QC Batch = Quality Control Batch						

Maxxam Job #: B262743
 Report Date: 2012/05/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH8998				
Sampling Date		2012/04/27 00:00				
COC Number		10642				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\CLS\APRIL				
		27,2012 - 322				
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2844961
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2844961
Surrogate Recovery (%)						
Bromochloromethane	%	104		N/A	N/A	2844961
D5-Chlorobenzene	%	106		N/A	N/A	2844961
Difluorobenzene	%	105		N/A	N/A	2844961
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B262743
 Report Date: 2012/05/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH8999				
Sampling Date		2012/04/27 00:00				
COC Number		10642				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/APRIL				
		27,2012 - 316				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2844961
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2844961
Propene	ppbv	<0.30	0.30	<0.516	0.516	2844961
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2844961
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2844961
Dichlorodifluoromethane (FREON 12)	ppbv	0.78	0.20	3.84	0.989	2844961
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2844961
Chloromethane	ppbv	0.56	0.30	1.15	0.620	2844961
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2844961
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2844961
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2844961
Trichlorofluoromethane (FREON 11)	ppbv	0.38	0.20	2.12	1.12	2844961
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2844961
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2844961
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2844961
2-Propanone	ppbv	1.82	0.80	4.33	1.90	2844961
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2844961
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2844961
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2844961
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2844961
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2844961
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2844961
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2844961
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2844961
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2844961
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2844961
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2844961
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2844961
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2844961
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2844961

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B262743
 Report Date: 2012/05/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH8999				
Sampling Date		2012/04/27 00:00				
COC Number		10642				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/APRIL				
		27,2012 - 316				

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2844961
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2844961
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2844961
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2844961
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2844961
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2844961
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2844961
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2844961
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2844961
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2844961
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2844961
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2844961
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2844961
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2844961
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2844961
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2844961
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2844961
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2844961
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2844961
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2844961
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2844961
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2844961
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2844961
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2844961
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2844961
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2844961
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2844961
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2844961
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2844961
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2844961
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2844961
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2844961

QC Batch = Quality Control Batch

Maxxam Job #: B262743
 Report Date: 2012/05/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH8999				
Sampling Date		2012/04/27 00:00				
COC Number		10642				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/APRIL				
		27,2012 - 316				
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2844961
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2844961
Surrogate Recovery (%)						
Bromochloromethane	%	96		N/A	N/A	2844961
D5-Chlorobenzene	%	97		N/A	N/A	2844961
Difluorobenzene	%	97		N/A	N/A	2844961
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B262743
 Report Date: 2012/05/11

Test Summary

Maxxam ID NH8998
Sample ID LICA VOC\CLS\APRIL 27,2012 - 322
Matrix AIR

Collected 2012/04/27
Shipped
Received 2012/05/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2844798	N/A	2012/05/09	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2844961	N/A	2012/05/09	YAO LIANG SUN

Maxxam ID NH8999
Sample ID LICA VOC\PORT\APRIL 27,2012 - 316
Matrix AIR

Collected 2012/04/27
Shipped
Received 2012/05/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2844798	N/A	2012/05/09	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2844961	N/A	2012/05/09	YAO LIANG SUN

Maxxam Job #: B262743
Report Date: 2012/05/11

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB262743

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2844961 LSY	Spiked Blank	Bromochloromethane	2012/05/09		107	%	60 - 140
		D5-Chlorobenzene	2012/05/09		113	%	60 - 140
		Difluorobenzene	2012/05/09		110	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/09		91	%	70 - 130
		Carbon Disulfide	2012/05/09		94	%	70 - 130
		Propene	2012/05/09		78	%	70 - 130
		Vinyl Acetate	2012/05/09		80	%	70 - 130
		Vinyl Bromide	2012/05/09		112	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/09		99	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/09		111	%	70 - 130
		Chloromethane	2012/05/09		89	%	70 - 130
		Vinyl Chloride	2012/05/09		90	%	70 - 130
		Chloroethane	2012/05/09		93	%	70 - 130
		1,3-Butadiene	2012/05/09		88	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/09		107	%	70 - 130
		Trichlorotrifluoroethane	2012/05/09		101	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/09		65 (1)	%	70 - 130
		2-propanol	2012/05/09		81	%	70 - 130
		2-Propanone	2012/05/09		80	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/09		76	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/09		81	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/09		80	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/09		95	%	70 - 130
		Ethyl Acetate	2012/05/09		82	%	70 - 130
		1,1-Dichloroethylene	2012/05/09		90	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/09		89	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/09		91	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/09		76	%	70 - 130
		Chloroform	2012/05/09		98	%	70 - 130
		Carbon Tetrachloride	2012/05/09		111	%	70 - 130
		1,1-Dichloroethane	2012/05/09		88	%	70 - 130
		1,2-Dichloroethane	2012/05/09		97	%	70 - 130
		Ethylene Dibromide	2012/05/09		107	%	70 - 130
		1,1,1-Trichloroethane	2012/05/09		105	%	70 - 130
		1,1,2-Trichloroethane	2012/05/09		102	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/09		94	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/09		96	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/09		98	%	70 - 130
		1,2-Dichloropropane	2012/05/09		88	%	70 - 130
		Bromomethane	2012/05/09		102	%	70 - 130
		Bromoform	2012/05/09		121	%	70 - 130
		Bromodichloromethane	2012/05/09		109	%	70 - 130
		Dibromochloromethane	2012/05/09		117	%	70 - 130
		Heptane	2012/05/09		81	%	70 - 130
		Trichloroethylene	2012/05/09		105	%	70 - 130
		Tetrachloroethylene	2012/05/09		112	%	70 - 130
		Benzene	2012/05/09		95	%	70 - 130
		Toluene	2012/05/09		100	%	70 - 130
		Ethylbenzene	2012/05/09		100	%	70 - 130
		p+m-Xylene	2012/05/09		99	%	70 - 130
		o-Xylene	2012/05/09		101	%	70 - 130
		Styrene	2012/05/09		86	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/09		95	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/09		93	%	70 - 130
		4-ethyltoluene	2012/05/09		103	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB262743

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2844961 LSY	Spiked Blank	Chlorobenzene	2012/05/09		103	%	70 - 130
		Benzyl chloride	2012/05/09		93	%	70 - 130
		1,3-Dichlorobenzene	2012/05/09		102	%	70 - 130
		1,4-Dichlorobenzene	2012/05/09		102	%	70 - 130
		1,2-Dichlorobenzene	2012/05/09		95	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/09		114	%	70 - 130
		Hexachlorobutadiene	2012/05/09		107	%	70 - 130
		Hexane	2012/05/09		86	%	70 - 130
		Cyclohexane	2012/05/09		87	%	70 - 130
		Tetrahydrofuran	2012/05/09		80	%	70 - 130
		1,4-Dioxane	2012/05/09		93	%	70 - 130
		Xylene (Total)	2012/05/09		100	%	70 - 130
	Method Blank	Bromochloromethane	2012/05/09		97	%	60 - 140
		D5-Chlorobenzene	2012/05/09		98	%	60 - 140
		Difluorobenzene	2012/05/09		98	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/09	<0.20		ppbv	
		Carbon Disulfide	2012/05/09	<0.50		ppbv	
		Propene	2012/05/09	<0.30		ppbv	
		Vinyl Acetate	2012/05/09	<0.20		ppbv	
		Vinyl Bromide	2012/05/09	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/09	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/09	<0.17		ppbv	
		Chloromethane	2012/05/09	<0.30		ppbv	
		Vinyl Chloride	2012/05/09	<0.18		ppbv	
		Chloroethane	2012/05/09	<0.30		ppbv	
		1,3-Butadiene	2012/05/09	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/09	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/09	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/09	<2.3		ppbv	
		2-propanol	2012/05/09	<3.0		ppbv	
		2-Propanone	2012/05/09	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/09	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/09	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/09	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/09	<0.20		ppbv	
		Ethyl Acetate	2012/05/09	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/09	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/09	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/09	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/09	<0.80		ppbv	
		Chloroform	2012/05/09	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/09	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/09	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/09	<0.20		ppbv	
		Ethylene Dibromide	2012/05/09	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/09	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/09	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/09	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/09	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/09	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/09	<0.40		ppbv	
		Bromomethane	2012/05/09	<0.18		ppbv	
		Bromoform	2012/05/09	<0.20		ppbv	
		Bromodichloromethane	2012/05/09	<0.20		ppbv	
		Dibromochloromethane	2012/05/09	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB262743

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2844961 LSY	Method Blank	Heptane	2012/05/09	<0.30		ppbv	
		Trichloroethylene	2012/05/09	<0.30		ppbv	
		Tetrachloroethylene	2012/05/09	<0.20		ppbv	
		Benzene	2012/05/09	<0.18		ppbv	
		Toluene	2012/05/09	<0.20		ppbv	
		Ethylbenzene	2012/05/09	<0.20		ppbv	
		p+m-Xylene	2012/05/09	<0.37		ppbv	
		o-Xylene	2012/05/09	<0.20		ppbv	
		Styrene	2012/05/09	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/09	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/09	<0.50		ppbv	
		4-ethyltoluene	2012/05/09	<2.2		ppbv	
		Chlorobenzene	2012/05/09	<0.20		ppbv	
		Benzyl chloride	2012/05/09	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/09	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/09	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/09	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/09	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/09	<3.0		ppbv	
		Hexane	2012/05/09	<0.30		ppbv	
		Cyclohexane	2012/05/09	<0.20		ppbv	
		Tetrahydrofuran	2012/05/09	<0.40		ppbv	
		1,4-Dioxane	2012/05/09	<2.0		ppbv	
		Xylene (Total)	2012/05/09	<0.60		ppbv	

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

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

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

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

Polycyclic Aromatic Hydrocarbons Laboratory Analysis

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Elk Point Airport
Station ID: Lica 35 (Portable)
Field Sample ID: LICA PUF/PORT/Apr 03, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Mar 30, 2012 @ 10:48 mst
Removal Date/Time: Apr 09, 2012 @ 9:52 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
03-Apr-12	04/03/2012 0:00	04/04/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
29-Mar-12	09-Apr-12	10-Apr-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
704	229	7.2	330.34

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

Comments: COC# 10962

GB234610 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Apr 03 , 12

Technician Signiture: Ting Xu

Your C.O.C. #: 10962

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

Report Date: 2012/04/18

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B250878****Received: 2012/04/12, 09:51**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/04/14	2012/04/16	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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Total cover pages: 1

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Maxxam Job #: B250878
 Report Date: 2012/04/18

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

Maxxam ID		NB7950	NB7951		
Sampling Date		2012/04/03	2012/04/03		
COC Number		10962	10962		
	Units	LICA PUFF+QFF/CLS/APR 03,12	LICA PUFF+QFF/PORT/APR 03,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2819295
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2819295
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2819295
2-Methylantracene	ug	<0.10	<0.10	0.10	2819295
2-Methylnaphthalene	ug	<0.10	0.19	0.10	2819295
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2819295
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2819295
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2819295
Acenaphthene	ug	<0.050	<0.050	0.050	2819295
Acenaphthylene	ug	<0.050	<0.050	0.050	2819295
Anthracene	ug	<0.050	<0.050	0.050	2819295
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2819295
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2819295
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2819295
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2819295
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2819295
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2819295
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2819295
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2819295
Biphenyl	ug	<0.10	<0.10	0.10	2819295
Chrysene	ug	<0.050	<0.050	0.050	2819295
Coronene	ug	<0.10	<0.10	0.10	2819295
Dibenzo(a,h)anthracene	ug	<0.050	<0.050	0.050	2819295
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2819295
Fluoranthene	ug	<0.050	<0.050	0.050	2819295
Fluorene	ug	0.064	0.080	0.050	2819295
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2819295
m-Terphenyl	ug	<0.10	<0.10	0.10	2819295
Naphthalene	ug	0.096	0.084	0.072	2819295
o-Terphenyl	ug	<0.10	<0.10	0.10	2819295
Perylene	ug	<0.10	<0.10	0.10	2819295

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B250878
 Report Date: 2012/04/18

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

Maxxam ID		NB7950	NB7951		
Sampling Date		2012/04/03	2012/04/03		
COC Number		10962	10962		
	Units	LICA PUFF+QFF/CLS/APR 03,12	LICA PUFF+QFF/PORT/APR 03,12	RDL	QC Batch

Phenanthrene	ug	0.182	0.126	0.050	2819295
p-Terphenyl	ug	<0.10	<0.10	0.10	2819295
Pyrene	ug	<0.050	<0.050	0.050	2819295
Quinoline	ug	<0.40	<0.40	0.40	2819295
Tetralin	ug	<0.10	<0.10	0.10	2819295
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	74	76		2819295
D10-Fluoranthene	%	100	108		2819295
D10-Fluorene (FS)	%	21 (1)	19 (1)		2819295
D10-Phenanthrene	%	92	98		2819295
D12-Benzo(a)anthracene	%	100	102		2819295
D12-Benzo(a)pyrene	%	94	96		2819295
D12-Benzo(b)fluoranthene	%	96	98		2819295
D12-Benzo(ghi)perylene	%	100	100		2819295
D12-Benzo(k)fluoranthene	%	86	86		2819295
D12-Chrysene	%	84	84		2819295
D12-Indeno(1,2,3-cd)pyrene	%	98	102		2819295
D12-Perylene	%	92	92		2819295
D14-Dibenzo(a,h)anthracene	%	100	106		2819295
D14-Terphenyl (FS)	%	97	106		2819295
D8-Acenaphthylene	%	80	86		2819295
D8-Naphthalene	%	68	74		2819295

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 #: B250878
Report Date: 2012/04/18

Test Summary

Maxxam ID NB7950
Sample ID LICA PUFF+QFF/CLS/APR 03,12
Matrix PUF AND FILTER

Collected 2012/04/03
Shipped
Received 2012/04/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2819295	2012/04/14	2012/04/16	WENDY ZHAO

Maxxam ID NB7951
Sample ID LICA PUFF+QFF/PORT/APR 03,12
Matrix PUF AND FILTER

Collected 2012/04/03
Shipped
Received 2012/04/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2819295	2012/04/14	2012/04/16	WENDY ZHAO

Maxxam Job #: B250878
Report Date: 2012/04/18

GENERAL COMMENTS

PAHMS-F

Sample received past the holding time .

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

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

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

Sample NB7950-01: PAHMS-F

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

Sample NB7951-01: PAHMS-F

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

Internal Std area response criteria was high in Sample. Rerun with similar results. Original run reported.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB250878

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2819295 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/04/16		80	%	50 - 150
		D10-Fluoranthene	2012/04/16		94	%	50 - 150
		D10-Phenanthrene	2012/04/16		88	%	50 - 150
		D12-Benzo(a)anthracene	2012/04/16		98	%	50 - 150
		D12-Benzo(a)pyrene	2012/04/16		96	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/04/16		96	%	50 - 150
		D12-Benzo(ghi)perylene	2012/04/16		98	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/04/16		88	%	50 - 150
		D12-Chrysene	2012/04/16		86	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/04/16		98	%	50 - 150
		D12-Perylene	2012/04/16		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/04/16		100	%	50 - 150
		RPD	Acenaphthylene	2012/04/16		84	%
	D8-Naphthalene		2012/04/16		80	%	50 - 150
	Acenaphthene		2012/04/16		81	%	60 - 130
	Acenaphthene		2012/04/16	0.6		%	50
	Acenaphthylene		2012/04/16		80	%	60 - 130
	Acenaphthylene		2012/04/16	1.6		%	50
	Anthracene		2012/04/16		84	%	60 - 130
	Anthracene		2012/04/16	0.6		%	50
	Benzo(a)anthracene		2012/04/16		92	%	60 - 130
	Benzo(a)anthracene		2012/04/16	1.1		%	50
	Benzo(a)pyrene		2012/04/16		76	%	60 - 130
	Benzo(a)pyrene		2012/04/16	2.9		%	50
	Benzo(b)fluoranthene		2012/04/16		86	%	60 - 130
	Benzo(b)fluoranthene		2012/04/16	1.2		%	50
	Benzo(g,h,i)perylene		2012/04/16		89	%	60 - 130
	Benzo(g,h,i)perylene		2012/04/16	1.7		%	50
	Spiked Blank		Benzo(k)fluoranthene	2012/04/16		94	%
		Benzo(k)fluoranthene	2012/04/16	0.5		%	50
		Chrysene	2012/04/16		80	%	60 - 130
		Chrysene	2012/04/16	0.9		%	50
		Dibenz(a,h)anthracene	2012/04/16		95	%	60 - 130
		Dibenz(a,h)anthracene	2012/04/16	2.8		%	50
		Fluoranthene	2012/04/16		92	%	60 - 130
		Fluoranthene	2012/04/16	0.5		%	50
		Fluorene	2012/04/16		82	%	60 - 130
		Fluorene	2012/04/16	0		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/04/16		90	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2012/04/16	2.2		%	50
Naphthalene		2012/04/16		82	%	60 - 130	
Naphthalene		2012/04/16	0.3		%	50	
Phenanthrene		2012/04/16		84	%	60 - 130	
Phenanthrene		2012/04/16	1.2		%	50	
Pyrene		2012/04/16		82	%	60 - 130	
Pyrene		2012/04/16	0.9		%	50	
Method Blank		D10-2-Methylnaphthalene	2012/04/16		80	%	50 - 150
		D10-Fluoranthene	2012/04/16		98	%	50 - 150
	D10-Phenanthrene	2012/04/16		88	%	50 - 150	
	D12-Benzo(a)anthracene	2012/04/16		98	%	50 - 150	
	D12-Benzo(a)pyrene	2012/04/16		96	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/04/16		94	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/04/16		98	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/04/16		88	%	50 - 150	
	D12-Chrysene	2012/04/16		84	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB250878

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2819295 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/04/16		98	%	50 - 150
		D12-Perylene	2012/04/16		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/04/16		98	%	50 - 150
		D8-Acenaphthylene	2012/04/16		84	%	50 - 150
		D8-Naphthalene	2012/04/16		78	%	50 - 150
		1-Methylnaphthalene	2012/04/16	<0.10		ug	
		1-Methylphenanthrene	2012/04/16	<0.10		ug	
		2-Chloronaphthalene	2012/04/16	<0.10		ug	
		2-Methylanthracene	2012/04/16	<0.10		ug	
		2-Methylnaphthalene	2012/04/16	<0.10		ug	
		3-Methylcholanthrene	2012/04/16	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/04/16	<0.10		ug	
		9,10-Dimethylanthracene	2012/04/16	<0.40		ug	
		Acenaphthene	2012/04/16	<0.050		ug	
		Acenaphthylene	2012/04/16	<0.050		ug	
		Anthracene	2012/04/16	<0.050		ug	
		Benzo(a)anthracene	2012/04/16	<0.050		ug	
		Benzo(a)fluorene	2012/04/16	<0.10		ug	
		Benzo(a)pyrene	2012/04/16	<0.050		ug	
		Benzo(b)fluoranthene	2012/04/16	<0.050		ug	
		Benzo(b)fluorene	2012/04/16	<0.10		ug	
		Benzo(e)pyrene	2012/04/16	<0.10		ug	
		Benzo(g,h,i)perylene	2012/04/16	<0.050		ug	
		Benzo(k)fluoranthene	2012/04/16	<0.050		ug	
		Biphenyl	2012/04/16	<0.10		ug	
		Chrysene	2012/04/16	<0.050		ug	
		Coronene	2012/04/16	<0.10		ug	
		Dibenz(a,h)anthracene	2012/04/16	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/04/16	<0.20		ug	
		Fluoranthene	2012/04/16	<0.050		ug	
		Fluorene	2012/04/16	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/04/16	<0.050		ug	
		m-Terphenyl	2012/04/16	<0.10		ug	
		Naphthalene	2012/04/16	<0.072		ug	
		o-Terphenyl	2012/04/16	<0.10		ug	
		Perylene	2012/04/16	<0.10		ug	
		Phenanthrene	2012/04/16	<0.050		ug	
		p-Terphenyl	2012/04/16	<0.10		ug	
		Pyrene	2012/04/16	<0.050		ug	
		Quinoline	2012/04/16	<0.40		ug	
		Tetralin	2012/04/16	<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: Elk Point Airport
 Station ID: Lica 35 (Portable)
 Field Sample ID: LICA PUF/PORT/Apr 10, 12

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: Apr 09, 2012 @ 10:05 mst
 Removal Date/Time: Apr 12, 2012 @ 12:30 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
10-Apr-12	04/10/2012 0:00	04/11/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
07-Apr-12	13-Apr-12	16-Apr-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
714	229	0.7	330.33

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

Comments: COC#
GB234611 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Apr 10 , 12

Technician Signiture: Ting Xu / Jacob Roch

Your C.O.C. #: 08592

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

Report Date: 2012/04/25

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B254433****Received: 2012/04/18, 09:55**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/04/19	2012/04/24	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 #: B254433
 Report Date: 2012/04/25

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

Maxxam ID		ND4478	ND4479		
Sampling Date		2012/04/10	2012/04/10		
COC Number		08592	08592		
	Units	LICA PUFF+QFF/CLS/APRIL 10,12	LICA PUFF+QFF/PORT/APRIL 10,12	RDL	QC Batch

Semivolatiles Organics					
1-Methylnaphthalene	ug	0.11	<0.10	0.10	2823690
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2823690
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2823690
2-Methylantracene	ug	<0.10	<0.10	0.10	2823690
2-Methylnaphthalene	ug	0.19	0.18	0.10	2823690
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2823690
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2823690
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2823690
Acenaphthene	ug	<0.050	<0.050	0.050	2823690
Acenaphthylene	ug	<0.050	<0.050	0.050	2823690
Anthracene	ug	<0.050	<0.050	0.050	2823690
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2823690
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2823690
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2823690
Benzo(b)fluoranthene	ug	0.050	<0.050	0.050	2823690
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2823690
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2823690
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2823690
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2823690
Biphenyl	ug	0.20	0.16	0.10	2823690
Chrysene	ug	<0.050	<0.050	0.050	2823690
Coronene	ug	<0.10	<0.10	0.10	2823690
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2823690
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2823690
Fluoranthene	ug	0.080	<0.050	0.050	2823690
Fluorene	ug	0.114	0.146	0.050	2823690
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2823690
m-Terphenyl	ug	<0.10	<0.10	0.10	2823690
Naphthalene	ug	0.258	0.126	0.072	2823690
o-Terphenyl	ug	<0.10	<0.10	0.10	2823690
Perylene	ug	<0.10	<0.10	0.10	2823690

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B254433
 Report Date: 2012/04/25

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

Maxxam ID		ND4478	ND4479		
Sampling Date		2012/04/10	2012/04/10		
COC Number		08592	08592		
	Units	LICA PUFF+QFF/CLS/APRIL 10,12	LICA PUFF+QFF/PORT/APRIL 10,12	RDL	QC Batch

Phenanthrene	ug	0.310	0.200	0.050	2823690
p-Terphenyl	ug	<0.10	<0.10	0.10	2823690
Pyrene	ug	<0.050	<0.050	0.050	2823690
Quinoline	ug	<0.40	<0.40	0.40	2823690
Tetralin	ug	<0.10	<0.10	0.10	2823690
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	64	62		2823690
D10-Fluoranthene	%	100	98		2823690
D10-Fluorene (FS)	%	30 (1)	29 (1)		2823690
D10-Phenanthrene	%	92	90		2823690
D12-Benzo(a)anthracene	%	108	114		2823690
D12-Benzo(a)pyrene	%	100	100		2823690
D12-Benzo(b)fluoranthene	%	96	100		2823690
D12-Benzo(ghi)perylene	%	104	108		2823690
D12-Benzo(k)fluoranthene	%	88	84		2823690
D12-Chrysene	%	86	90		2823690
D12-Indeno(1,2,3-cd)pyrene	%	108	110		2823690
D12-Perylene	%	96	94		2823690
D14-Dibenzo(a,h)anthracene	%	110	114		2823690
D14-Terphenyl (FS)	%	99	99		2823690
D8-Acenaphthylene	%	76	72		2823690
D8-Naphthalene	%	62	60		2823690

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 #: B254433
 Report Date: 2012/04/25

Test Summary

Maxxam ID ND4478
Sample ID LICA PUFF+QFF/CLS/APRIL 10,12
Matrix PUF AND FILTER

Collected 2012/04/10
Shipped
Received 2012/04/18

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2823690	2012/04/19	2012/04/24	WENDY ZHAO

Maxxam ID ND4479
Sample ID LICA PUFF+QFF/PORT/APRIL 10,12
Matrix PUF AND FILTER

Collected 2012/04/10
Shipped
Received 2012/04/18

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2823690	2012/04/19	2012/04/24	WENDY ZHAO

Maxxam Job #: B254433
Report Date: 2012/04/25

GENERAL COMMENTS

PAHMS-F

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

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

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

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

Samples received holding time past according to the tracking sheet

Sample ND4478-01: PAHMS-F

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

Sample ND4479-01: PAHMS-F

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

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB254433

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2823690 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/04/24		84	%	50 - 150	
		D10-Fluoranthene	2012/04/24		104	%	50 - 150	
		D10-Phenanthrene	2012/04/24		100	%	50 - 150	
		D12-Benzo(a)anthracene	2012/04/24		108	%	50 - 150	
		D12-Benzo(a)pyrene	2012/04/24		104	%	50 - 150	
		D12-Benzo(b)fluoranthene	2012/04/24		98	%	50 - 150	
		D12-Benzo(ghi)perylene	2012/04/24		110	%	50 - 150	
		D12-Benzo(k)fluoranthene	2012/04/24		88	%	50 - 150	
		D12-Chrysene	2012/04/24		90	%	50 - 150	
		D12-Indeno(1,2,3-cd)pyrene	2012/04/24		114	%	50 - 150	
		D12-Perylene	2012/04/24		102	%	50 - 150	
		D14-Dibenzo(a,h)anthracene	2012/04/24		116	%	50 - 150	
		D8-Acenaphthylene	2012/04/24		94	%	50 - 150	
		D8-Naphthalene	2012/04/24		80	%	50 - 150	
		RPD	Acenaphthene	2012/04/24		1.8	%	50
	Spiked Blank	Acenaphthylene	2012/04/24			90	%	60 - 130
	RPD	Acenaphthylene	2012/04/24		5.1	%	50	
	Spiked Blank	Anthracene	2012/04/24			98	%	60 - 130
	RPD	Anthracene	2012/04/24		1.8	%	50	
	Spiked Blank	Benzo(a)anthracene	2012/04/24			100	%	60 - 130
	RPD	Benzo(a)anthracene	2012/04/24		1.5	%	50	
	Spiked Blank	Benzo(a)pyrene	2012/04/24			83	%	60 - 130
	RPD	Benzo(a)pyrene	2012/04/24		0.9	%	50	
	Spiked Blank	Benzo(b)fluoranthene	2012/04/24			90	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/04/24		1.4	%	50	
	Spiked Blank	Benzo(g,h,i)perylene	2012/04/24			99	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/04/24		7.6	%	50	
	Spiked Blank	Benzo(k)fluoranthene	2012/04/24			93	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/04/24		1.4	%	50	
	Spiked Blank	Chrysene	2012/04/24			82	%	60 - 130
	RPD	Chrysene	2012/04/24		3.1	%	50	
	Spiked Blank	Dibenz(a,h)anthracene	2012/04/24			110	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/04/24		8.3	%	50	
	Spiked Blank	Fluoranthene	2012/04/24			102	%	60 - 130
	RPD	Fluoranthene	2012/04/24		2.5	%	50	
	Spiked Blank	Fluorene	2012/04/24			90	%	60 - 130
	RPD	Fluorene	2012/04/24		3.1	%	50	
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/04/24			104	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/04/24		6.7	%	50	
	Spiked Blank	Naphthalene	2012/04/24			83	%	60 - 130
	RPD	Naphthalene	2012/04/24		9.9	%	50	
	Spiked Blank	Phenanthrene	2012/04/24			94	%	60 - 130
	RPD	Phenanthrene	2012/04/24		2.4	%	50	
	Spiked Blank	Pyrene	2012/04/24			90	%	60 - 130
	RPD	Pyrene	2012/04/24		2.0	%	50	
Method Blank	D10-2-Methylnaphthalene	2012/04/24			78	%	50 - 150	
	D10-Fluoranthene	2012/04/24			102	%	50 - 150	
	D10-Phenanthrene	2012/04/24			100	%	50 - 150	
	D12-Benzo(a)anthracene	2012/04/24			106	%	50 - 150	
	D12-Benzo(a)pyrene	2012/04/24			104	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/04/24			100	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/04/24			106	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/04/24			88	%	50 - 150	
	D12-Chrysene	2012/04/24			86	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB254433

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2823690 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/04/24		114	%	50 - 150
		D12-Perylene	2012/04/24		100	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/04/24		114	%	50 - 150
		D8-Acenaphthylene	2012/04/24		90	%	50 - 150
		D8-Naphthalene	2012/04/24		74	%	50 - 150
		1-Methylnaphthalene	2012/04/24	<0.10		ug	
		1-Methylphenanthrene	2012/04/24	<0.10		ug	
		2-Chloronaphthalene	2012/04/24	<0.10		ug	
		2-Methylanthracene	2012/04/24	<0.10		ug	
		2-Methylnaphthalene	2012/04/24	<0.10		ug	
		3-Methylcholanthrene	2012/04/24	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/04/24	<0.10		ug	
		9,10-Dimethylanthracene	2012/04/24	<0.40		ug	
		Acenaphthene	2012/04/24	<0.050		ug	
		Acenaphthylene	2012/04/24	<0.050		ug	
		Anthracene	2012/04/24	<0.050		ug	
		Benzo(a)anthracene	2012/04/24	<0.050		ug	
		Benzo(a)fluorene	2012/04/24	<0.10		ug	
		Benzo(a)pyrene	2012/04/24	<0.050		ug	
		Benzo(b)fluoranthene	2012/04/24	<0.050		ug	
		Benzo(b)fluorene	2012/04/24	<0.10		ug	
		Benzo(e)pyrene	2012/04/24	<0.10		ug	
		Benzo(g,h,i)perylene	2012/04/24	<0.050		ug	
		Benzo(k)fluoranthene	2012/04/24	<0.050		ug	
		Biphenyl	2012/04/24	<0.10		ug	
		Chrysene	2012/04/24	<0.050		ug	
		Coronene	2012/04/24	<0.10		ug	
		Dibenz(a,h)anthracene	2012/04/24	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/04/24	<0.20		ug	
		Fluoranthene	2012/04/24	<0.050		ug	
		Fluorene	2012/04/24	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/04/24	<0.050		ug	
		m-Terphenyl	2012/04/24	<0.10		ug	
		Naphthalene	2012/04/24	<0.072		ug	
		o-Terphenyl	2012/04/24	<0.10		ug	
		Perylene	2012/04/24	<0.10		ug	
		Phenanthrene	2012/04/24	<0.050		ug	
		p-Terphenyl	2012/04/24	<0.10		ug	
		Pyrene	2012/04/24	<0.050		ug	
		Quinoline	2012/04/24	<0.40		ug	
		Tetralin	2012/04/24	<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: Elk Point Airport
Station ID: Lica 35 (Portable)
Field Sample ID: LICA PUF/PORT/Apr 21, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Apr 19, 2012 @ 17:25 mst
Removal Date/Time: Apr 26, 2012 @ 16:08 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
21-Apr-12	04/21/2012 0:00	04/22/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
18-Apr-12	30-Apr-12	25-Apr-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
710	229	6.5	330.34

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

Comments: COC# 10844

GB234629 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Apr 21 , 12

Technician Signiture: Ting Xu

Your C.O.C. #: 10844

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

Report Date: 2012/05/08

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B262218****Received: 2012/05/02, 09:30**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/05/02	2012/05/03	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B262218
 Report Date: 2012/05/08

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

Maxxam ID		NH6742	NH6743		
Sampling Date		2012/04/21	2012/04/21		
COC Number		10844	10844		
	Units	LICA PUFF+QFF/CLS/APR 21,2012	LICA PUFF+QFF/PORT/APR 21,2012	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.23	<0.10	0.10	2836933
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2836933
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2836933
2-Methylantracene	ug	<0.10	<0.10	0.10	2836933
2-Methylnaphthalene	ug	0.44	<0.10	0.10	2836933
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2836933
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2836933
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2836933
Acenaphthene	ug	0.090	<0.050	0.050	2836933
Acenaphthylene	ug	<0.050	<0.050	0.050	2836933
Anthracene	ug	<0.050	<0.050	0.050	2836933
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2836933
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2836933
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2836933
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2836933
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2836933
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2836933
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2836933
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2836933
Biphenyl	ug	<0.10	<0.10	0.10	2836933
Chrysene	ug	<0.050	<0.050	0.050	2836933
Coronene	ug	<0.10	<0.10	0.10	2836933
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2836933
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2836933
Fluoranthene	ug	<0.050	<0.050	0.050	2836933
Fluorene	ug	0.148	<0.050	0.050	2836933
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2836933
m-Terphenyl	ug	<0.10	<0.10	0.10	2836933
Naphthalene	ug	0.380	<0.072	0.072	2836933
o-Terphenyl	ug	<0.10	<0.10	0.10	2836933
Perylene	ug	<0.10	<0.10	0.10	2836933

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B262218
 Report Date: 2012/05/08

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

Maxxam ID		NH6742	NH6743		
Sampling Date		2012/04/21	2012/04/21		
COC Number		10844	10844		
	Units	LICA PUFF+QFF/CLS/APR 21,2012	LICA PUFF+QFF/PORT/APR 21,2012	RDL	QC Batch

Phenanthrene	ug	0.266	0.088	0.050	2836933
p-Terphenyl	ug	<0.10	<0.10	0.10	2836933
Pyrene	ug	<0.050	<0.050	0.050	2836933
Quinoline	ug	<0.40	<0.40	0.40	2836933
Tetralin	ug	<0.10	<0.10	0.10	2836933
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	40 (1)	56		2836933
D10-Fluoranthene	%	98	98		2836933
D10-Fluorene (FS)	%	11 (1)	28 (1)		2836933
D10-Phenanthrene	%	90	94		2836933
D12-Benzo(a)anthracene	%	102	102		2836933
D12-Benzo(a)pyrene	%	98	98		2836933
D12-Benzo(b)fluoranthene	%	98	100		2836933
D12-Benzo(ghi)perylene	%	104	102		2836933
D12-Benzo(k)fluoranthene	%	86	84		2836933
D12-Chrysene	%	86	86		2836933
D12-Indeno(1,2,3-cd)pyrene	%	108	106		2836933
D12-Perylene	%	94	94		2836933
D14-Dibenzo(a,h)anthracene	%	110	108		2836933
D14-Terphenyl (FS)	%	94	95		2836933
D8-Acenaphthylene	%	60	74		2836933
D8-Naphthalene	%	32 (1)	48 (1)		2836933

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 #: B262218
Report Date: 2012/05/08

Test Summary

Maxxam ID NH6742
Sample ID LICA PUFF+QFF/CLS/APR 21,2012
Matrix PUF AND FILTER

Collected 2012/04/21
Shipped
Received 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2836933	2012/05/02	2012/05/03	WENDY ZHAO

Maxxam ID NH6743
Sample ID LICA PUFF+QFF/PORT/APR 21,2012
Matrix PUF AND FILTER

Collected 2012/04/21
Shipped
Received 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2836933	2012/05/02	2012/05/03	WENDY ZHAO

Maxxam Job #: B262218
Report Date: 2012/05/08

GENERAL COMMENTS

PAHMS-F

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

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

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

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

Sample received past holding time

Sample NH6742-01: PAHMS-F

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

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

Sample NH6743-01: PAHMS-F

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

Low recovery of surrogate D8-Naphthalene in sample.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB262218

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2836933 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/05/03		82	%	50 - 150
		D10-Fluoranthene	2012/05/03		88	%	50 - 150
		D10-Phenanthrene	2012/05/03		86	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/03		98	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/03		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/03		98	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/03		98	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/03		86	%	50 - 150
		D12-Chrysene	2012/05/03		86	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/05/03		102	%	50 - 150
		D12-Perylene	2012/05/03		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/03		102	%	50 - 150
		RPD	D8-Acenaphthylene	2012/05/03		84	%
	D8-Naphthalene		2012/05/03		84	%	50 - 150
	Spiked Blank	Acenaphthene	2012/05/03		80	%	60 - 130
		Acenaphthene	2012/05/03	2.2		%	50
	RPD	Acenaphthylene	2012/05/03		82	%	60 - 130
		Acenaphthylene	2012/05/03	3.0		%	50
	Spiked Blank	Anthracene	2012/05/03		82	%	60 - 130
		Anthracene	2012/05/03	6.2		%	50
	RPD	Benzo(a)anthracene	2012/05/03		96	%	60 - 130
		Benzo(a)anthracene	2012/05/03	0.5		%	50
	Spiked Blank	Benzo(a)pyrene	2012/05/03		77	%	60 - 130
		Benzo(a)pyrene	2012/05/03	3.2		%	50
	RPD	Benzo(b)fluoranthene	2012/05/03		83	%	60 - 130
		Benzo(b)fluoranthene	2012/05/03	3.5		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/05/03		89	%	60 - 130
		Benzo(g,h,i)perylene	2012/05/03	3.0		%	50
	RPD	Benzo(k)fluoranthene	2012/05/03		94	%	60 - 130
		Benzo(k)fluoranthene	2012/05/03	0.3		%	50
	Spiked Blank	Chrysene	2012/05/03		81	%	60 - 130
		Chrysene	2012/05/03	1.6		%	50
	RPD	Dibenz(a,h)anthracene	2012/05/03		98	%	60 - 130
		Dibenz(a,h)anthracene	2012/05/03	5.2		%	50
	Spiked Blank	Fluoranthene	2012/05/03		86	%	60 - 130
		Fluoranthene	2012/05/03	8.1		%	50
	RPD	Fluorene	2012/05/03		81	%	60 - 130
		Fluorene	2012/05/03	3.6		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/05/03		93	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2012/05/03	4.7		%	50
RPD	Naphthalene	2012/05/03		84	%	60 - 130	
	Naphthalene	2012/05/03	2.7		%	50	
Spiked Blank	Phenanthrene	2012/05/03		81	%	60 - 130	
	Phenanthrene	2012/05/03	5.7		%	50	
RPD	Pyrene	2012/05/03		76	%	60 - 130	
	Pyrene	2012/05/03	7.6		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/05/03		76	%	50 - 150	
	D10-Fluoranthene	2012/05/03		96	%	50 - 150	
	D10-Phenanthrene	2012/05/03		88	%	50 - 150	
	D12-Benzo(a)anthracene	2012/05/03		100	%	50 - 150	
	D12-Benzo(a)pyrene	2012/05/03		98	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/05/03		96	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/05/03		102	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/05/03		88	%	50 - 150	
	D12-Chrysene	2012/05/03		88	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB262218

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2836933 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/05/03		106	%	50 - 150
		D12-Perylene	2012/05/03		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/03		106	%	50 - 150
		D8-Acenaphthylene	2012/05/03		84	%	50 - 150
		D8-Naphthalene	2012/05/03		76	%	50 - 150
		1-Methylnaphthalene	2012/05/03	<0.10		ug	
		1-Methylphenanthrene	2012/05/03	<0.10		ug	
		2-Chloronaphthalene	2012/05/03	<0.10		ug	
		2-Methylanthracene	2012/05/03	<0.10		ug	
		2-Methylnaphthalene	2012/05/03	<0.10		ug	
		3-Methylcholanthrene	2012/05/03	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/05/03	<0.10		ug	
		9,10-Dimethylanthracene	2012/05/03	<0.40		ug	
		Acenaphthene	2012/05/03	<0.050		ug	
		Acenaphthylene	2012/05/03	<0.050		ug	
		Anthracene	2012/05/03	<0.050		ug	
		Benzo(a)anthracene	2012/05/03	<0.050		ug	
		Benzo(a)fluorene	2012/05/03	<0.10		ug	
		Benzo(a)pyrene	2012/05/03	<0.050		ug	
		Benzo(b)fluoranthene	2012/05/03	<0.050		ug	
		Benzo(b)fluorene	2012/05/03	<0.10		ug	
		Benzo(e)pyrene	2012/05/03	<0.10		ug	
		Benzo(g,h,i)perylene	2012/05/03	<0.050		ug	
		Benzo(k)fluoranthene	2012/05/03	<0.050		ug	
		Biphenyl	2012/05/03	<0.10		ug	
		Chrysene	2012/05/03	<0.050		ug	
		Coronene	2012/05/03	<0.10		ug	
		Dibenz(a,h)anthracene	2012/05/03	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/05/03	<0.20		ug	
		Fluoranthene	2012/05/03	<0.050		ug	
		Fluorene	2012/05/03	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/05/03	<0.050		ug	
		m-Terphenyl	2012/05/03	<0.10		ug	
		Naphthalene	2012/05/03	<0.072		ug	
		o-Terphenyl	2012/05/03	<0.10		ug	
		Perylene	2012/05/03	<0.10		ug	
		Phenanthrene	2012/05/03	<0.050		ug	
		p-Terphenyl	2012/05/03	<0.10		ug	
		Pyrene	2012/05/03	<0.050		ug	
		Quinoline	2012/05/03	<0.40		ug	
		Tetralin	2012/05/03	<0.10		ug	

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Elk Point Airport
Station ID: Lica 35 (Portable)
Field Sample ID: LICA PUF/PORT/Apr 27, 12

Puf+ s/n: 100-1015
Motor s/n: 1139
Installation Date/Time: Apr 26, 2012 @ 16:23 mst
Removal Date/Time: Apr 30, 2012 @ 12:16 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
27-Apr-12	04/27/2012 0:00	04/28/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
25-Apr-12	01-May-12	07-May-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
706	229	1.3	330.40

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# 10643

GB234632 Puff #2

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/Apr 27 , 12

Technician Signiture: Ting Xu

Your C.O.C. #: 10643

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

Report Date: 2012/05/11

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B263042****Received: 2012/05/03, 09:05**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/05/04	2012/05/07	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

Maxxam Analytics Inc. is a NELAC accredited laboratory. Certificate # CANA001. Use of the NELAC logo however does not insure that Maxxam is accredited for all of the methods indicated. This certificate shall not be reproduced except in full, without the written approval of Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 1

Page 1 of 7

Maxxam Job #: B263042
 Report Date: 2012/05/11

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

Maxxam ID		NI0775	NI0776		
Sampling Date		2012/04/27 00:00	2012/04/27 00:00		
COC Number		10643	10643		
	Units	LICA PUFF+QFF/CLS/APR 27, 2012	LICA PUFF+QFF/PORT/APR 27,2012	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2838951
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2838951
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2838951
2-Methylantracene	ug	<0.10	<0.10	0.10	2838951
2-Methylnaphthalene	ug	0.15	<0.10	0.10	2838951
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2838951
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2838951
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2838951
Acenaphthene	ug	<0.050	<0.050	0.050	2838951
Acenaphthylene	ug	0.088	<0.050	0.050	2838951
Anthracene	ug	<0.050	<0.050	0.050	2838951
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2838951
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2838951
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2838951
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2838951
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2838951
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2838951
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2838951
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2838951
Biphenyl	ug	<0.10	<0.10	0.10	2838951
Chrysene	ug	<0.050	<0.050	0.050	2838951
Coronene	ug	<0.10	<0.10	0.10	2838951
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2838951
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2838951
Fluoranthene	ug	0.088	<0.050	0.050	2838951
Fluorene	ug	0.116	0.074	0.050	2838951
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2838951
m-Terphenyl	ug	<0.10	<0.10	0.10	2838951
Naphthalene	ug	0.136	<0.072	0.072	2838951
o-Terphenyl	ug	<0.10	<0.10	0.10	2838951

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B263042
 Report Date: 2012/05/11

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

Maxxam ID		NI0775	NI0776		
Sampling Date		2012/04/27 00:00	2012/04/27 00:00		
COC Number		10643	10643		
	Units	LICA PUFF+QFF/CLS/APR 27, 2012	LICA PUFF+QFF/PORT/APR 27,2012	RDL	QC Batch

Perylene	ug	<0.10	<0.10	0.10	2838951
Phenanthrene	ug	0.348	0.082	0.050	2838951
p-Terphenyl	ug	<0.10	<0.10	0.10	2838951
Pyrene	ug	0.070	<0.050	0.050	2838951
Quinoline	ug	<0.40	<0.40	0.40	2838951
Tetralin	ug	<0.10	<0.10	0.10	2838951
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	60	76		2838951
D10-Fluoranthene	%	94	94		2838951
D10-Fluorene (FS)	%	18 (1)	16 (1)		2838951
D10-Phenanthrene	%	82	88		2838951
D12-Benzo(a)anthracene	%	100	98		2838951
D12-Benzo(a)pyrene	%	94	94		2838951
D12-Benzo(b)fluoranthene	%	100	94		2838951
D12-Benzo(ghi)perylene	%	100	102		2838951
D12-Benzo(k)fluoranthene	%	86	90		2838951
D12-Chrysene	%	86	88		2838951
D12-Indeno(1,2,3-cd)pyrene	%	104	104		2838951
D12-Perylene	%	90	92		2838951
D14-Dibenzo(a,h)anthracene	%	106	106		2838951
D14-Terphenyl (FS)	%	92	93		2838951
D8-Acenaphthylene	%	64	82		2838951
D8-Naphthalene	%	58	76		2838951

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 #: B263042
Report Date: 2012/05/11

Test Summary

Maxxam ID NI0775
Sample ID LICA PUFF+QFF/CLS/APR 27, 2012
Matrix PUF AND FILTER

Collected 2012/04/27
Shipped
Received 2012/05/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2838951	2012/05/04	2012/05/07	WENDY ZHAO

Maxxam ID NI0776
Sample ID LICA PUFF+QFF/PORT/APR 27,2012
Matrix PUF AND FILTER

Collected 2012/04/27
Shipped
Received 2012/05/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2838951	2012/05/04	2012/05/07	WENDY ZHAO

Maxxam Job #: B263042
Report Date: 2012/05/11

GENERAL COMMENTS

PAHMS-F

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

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

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

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

Sample NI0775-01: PAHMS-F

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

Sample NI0776-01: PAHMS-F

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

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB263042

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2838951 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/05/07		78	%	50 - 150
		D10-Fluoranthene	2012/05/07		84	%	50 - 150
		D10-Phenanthrene	2012/05/07		78	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/07		94	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/07		92	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/07		96	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/07		98	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/07		86	%	50 - 150
		D12-Chrysene	2012/05/07		90	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/05/07		100	%	50 - 150
		D12-Perylene	2012/05/07		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/07		102	%	50 - 150
		RPD	D8-Acenaphthylene	2012/05/07		78	%
	D8-Naphthalene		2012/05/07		78	%	50 - 150
	Acenaphthene		2012/05/07		75	%	60 - 130
	Acenaphthene		2012/05/07	6.5		%	50
	Acenaphthylene		2012/05/07		77	%	60 - 130
	Acenaphthylene		2012/05/07	7.1		%	50
	Anthracene		2012/05/07		73	%	60 - 130
	Anthracene		2012/05/07	4.1		%	50
	Benzo(a)anthracene		2012/05/07		94	%	60 - 130
	Benzo(a)anthracene		2012/05/07	2.9		%	50
	Benzo(a)pyrene		2012/05/07		78	%	60 - 130
	Benzo(a)pyrene		2012/05/07	8.0		%	50
	Benzo(b)fluoranthene		2012/05/07		93	%	60 - 130
	Benzo(b)fluoranthene		2012/05/07	1.6		%	50
	Benzo(g,h,i)perylene		2012/05/07		92	%	60 - 130
	Benzo(g,h,i)perylene		2012/05/07	6.6		%	50
	Benzo(k)fluoranthene		2012/05/07		91	%	60 - 130
	Benzo(k)fluoranthene	2012/05/07	10.2		%	50	
	Spiked Blank	Chrysene	2012/05/07		86	%	60 - 130
		Chrysene	2012/05/07	0.6		%	50
		Dibenz(a,h)anthracene	2012/05/07		100	%	60 - 130
		Dibenz(a,h)anthracene	2012/05/07	8.8		%	50
		Fluoranthene	2012/05/07		84	%	60 - 130
		Fluoranthene	2012/05/07	9.1		%	50
		Fluorene	2012/05/07		77	%	60 - 130
		Fluorene	2012/05/07	4.3		%	50
		Indeno(1,2,3-cd)pyrene	2012/05/07		94	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2012/05/07	8.6		%	50
Naphthalene		2012/05/07		80	%	60 - 130	
Naphthalene		2012/05/07	13.3		%	50	
Phenanthrene		2012/05/07		76	%	60 - 130	
Phenanthrene		2012/05/07	1.3		%	50	
RPD		Pyrene	2012/05/07		74	%	60 - 130
		Pyrene	2012/05/07	10.3		%	50
	D10-2-Methylnaphthalene	2012/05/07		72	%	50 - 150	
	D10-Fluoranthene	2012/05/07		88	%	50 - 150	
	D10-Phenanthrene	2012/05/07		80	%	50 - 150	
	D12-Benzo(a)anthracene	2012/05/07		94	%	50 - 150	
	D12-Benzo(a)pyrene	2012/05/07		94	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/05/07		94	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/05/07		102	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/05/07		90	%	50 - 150	
D12-Chrysene	2012/05/07		88	%	50 - 150		

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB263042

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2838951 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/05/07		106	%	50 - 150
		D12-Perylene	2012/05/07		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/07		106	%	50 - 150
		D8-Acenaphthylene	2012/05/07		76	%	50 - 150
		D8-Naphthalene	2012/05/07		74	%	50 - 150
		1-Methylnaphthalene	2012/05/07	<0.10		ug	
		1-Methylphenanthrene	2012/05/07	<0.10		ug	
		2-Chloronaphthalene	2012/05/07	<0.10		ug	
		2-Methylanthracene	2012/05/07	<0.10		ug	
		2-Methylnaphthalene	2012/05/07	<0.10		ug	
		3-Methylcholanthrene	2012/05/07	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/05/07	<0.10		ug	
		9,10-Dimethylanthracene	2012/05/07	<0.40		ug	
		Acenaphthene	2012/05/07	<0.050		ug	
		Acenaphthylene	2012/05/07	<0.050		ug	
		Anthracene	2012/05/07	<0.050		ug	
		Benzo(a)anthracene	2012/05/07	<0.050		ug	
		Benzo(a)fluorene	2012/05/07	<0.10		ug	
		Benzo(a)pyrene	2012/05/07	<0.050		ug	
		Benzo(b)fluoranthene	2012/05/07	<0.050		ug	
		Benzo(b)fluorene	2012/05/07	<0.10		ug	
		Benzo(e)pyrene	2012/05/07	<0.10		ug	
		Benzo(g,h,i)perylene	2012/05/07	<0.050		ug	
		Benzo(k)fluoranthene	2012/05/07	<0.050		ug	
		Biphenyl	2012/05/07	<0.10		ug	
		Chrysene	2012/05/07	<0.050		ug	
		Coronene	2012/05/07	<0.10		ug	
		Dibenz(a,h)anthracene	2012/05/07	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/05/07	<0.20		ug	
		Fluoranthene	2012/05/07	<0.050		ug	
		Fluorene	2012/05/07	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/05/07	<0.050		ug	
		m-Terphenyl	2012/05/07	<0.10		ug	
		Naphthalene	2012/05/07	<0.072		ug	
		o-Terphenyl	2012/05/07	<0.10		ug	
		Perylene	2012/05/07	<0.10		ug	
		Phenanthrene	2012/05/07	<0.050		ug	
		p-Terphenyl	2012/05/07	<0.10		ug	
		Pyrene	2012/05/07	<0.050		ug	
		Quinoline	2012/05/07	<0.40		ug	
		Tetralin	2012/05/07	<0.10		ug	

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

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

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

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

Lakeland Industry & Community Association

St. Lina Monitoring Site
Ambient Air Monitoring
Data Report
For
April 2012

Prepared By:



May 24, 2012

Lakeland Industry & Community Association

St. Lina

Ambient Air Monitoring

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Introduction

The following Ambient Air Monitoring report was prepared for:

Mr. Mike Bisaga

Lakeland Industry & Community Association

Box 8237

5107W – 50 Street

Bonnyville, Alberta

T9N 2J5

Monitoring Location: St. Lina

Data Period: April 2012

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Craig Snider

Calibration Procedure

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

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

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

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

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

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

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

MONTHLY CONTINUOUS DATA SUMMARY

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – ST. LINA

Continuous Ambient Monitoring – April 2012

LICA ST. LINA SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)
						OBJECTIVES				EXCEEDENCES		MONTHLY AVERAGE	
PARAMETER	1-HR	24-HR	1-HR	24-HR	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY		
SO2 (PPB)	172	48	0	0	0.03	1	VAR	VAR	VAR	VAR	0.3	VAR	100.0
H2S (PPB)	10	3	0	0	0.12	1	VAR	VAR	VAR	VAR	0.9	12	100.0
THC (PPM)	-	-	-	-	2.14	2.8	10, 19	VAR	VAR	VAR	2.4	19	98.9
OZONE (PPB)	82	-	0	-	37.3	58	22	13, 14	11.1, 9.5	164(SSE), 158(SSE)	52.5	22	100.0
NOx (PPB)	-	-	-	-	1.25	7	1	1	15.6	48(NE)	2.2	1, 19	100.0
NO (PPB)	-	-	-	-	0.26	2	VAR	VAR	VAR	VAR	1.0	5, 28	100.0
NO2 (PPB)	159	-	0	-	0.92	6	1	1	15.6	48(E)	2.0	1	100.0
PM2.5 (ug/m3)	-	30	-	0	4.24	36.1	12	3	5.8	10(N)	12.7	12	99.3
TEMPERATURE (DEGREE C)	-	-	-	-	3.54	18.7	22	14	9.5	158(SSE)	12.1	22	100.0
BP (MILLIBAR)	-	-	-	-	928	944	8, 9	VAR	VAR	VAR	941.8	9	100.0
RH (%)	-	-	-	-	58.25	91	13, 14	VAR	VAR	VAR	87.8	27	100.0
PRECIPITATION (MM)	-	-	-	-	0.08	3.6	27	23	11.5	261(W)	25.8	27	100.0
VECTOR WS (KPH)	-	-	-	-	9.89	25.6	1	16	-	308(NW)	12.2	8	100.0
VECTOR WD (DEGREES)	-	-	-	-	351(N)	-	-	-	-	-	-	-	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

The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started on April 20th. Maximum hourly readings recorded at hour 11 on April 15 and at hour 15 on April 20th were invalidated due to power outages. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started on April 19th. Maximum hourly readings recorded at hour 11 on April 15 and at hour 15 on April 20th were invalidated due to power outages. Data was corrected using daily zero information.

Total HydroCarbon (PPM)

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

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

Both the H₂ gas cylinder and CH₄ gas cylinder were changed on April 2nd. The analyzer flamed out at hour 11 on May 15th due to a power outage. It was relit at hour 19. 8 hours of data were invalidated. The inlet filter was changed before the monthly calibration was started on April 19th. Maximum hourly readings recorded at hour 11 on April 15 and at hour 15 on April 20th were invalidated due to power outages. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – St. Lina

Ozone (PPB)

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

The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started on April 20th. Maximum hourly readings recorded at hour 11 on April 15 and at hour 15 on April 20th were invalidated due to power outages. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

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

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

The analyzer was working well throughout the month. The inlet filter was changed before the monthly calibration was started on April 19th. Some daily span results went below –10% of limited range because the expected span value was set too high after the monthly calibration in March. Maximum hourly readings recorded at hour 11 on April 15 and at hour 15 on April 20th were invalidated due to power outages. Data was corrected using daily zero information.

Particulate Matter 2.5 (UG/M3)

Analyzer make / model –Thermo Scientific Series 1405F, S/N: 1405A207691003

The Teom unit was working well throughout the month. A routine Teom audit was performed on April 19th. 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. 5 hours of data were invalidated as the data were below –3 ug/m3.

General Monthly Summary

AQM STATION – LICA – St. Lina

Temperature (Degree C)

Analyzer make / model – Met One 060

No operational issues were observed during the month.

Barometric Pressure (Millibar)

Analyzer make / model - Met One 092

No operational issues were observed during the month.

Relative Humidity (%)

Analyzer make / model - Met One 083

No operational issues were observed during the month.

Precipitation (MM)

Analyzer make / model - Met One 387

No operational issues were observed during the 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.

The wind system was working well throughout the month. 3 hourly maximum data for wind speed were invalid because the readings went above the full scale.

General Monthly Summary

AQM STATION – LICA – St. Lina

Datalogger

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

Software make/version - ESC v 5.51a

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

Trailer

No issue was observed this month.

The manifold was cleaned on April 20th.

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. Twenty-eight AQI values for recorded in April 2012 were within the Fair range: 26 values were due to ozone and 2 were due to PM2.5. Others were within the Good range. The highest hourly concentration of Ozone was 58 ppb and an AQI value of 32, on April 22nd, hour of 13 and 14. The highest concentration of PM2.5 was 36.1ug/m3 and an AQI value of 29, on April 12th, hour of 3.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

APRIL 2012

AIR QUALITY INDEX (AQI)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY		
HOUR START	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		20	18	19	19	19	-	20	22	-	21	21	20	20	21	22	23	23	24	22	22	21	20	19	19	24		
1		O3	O3	O3	O3	O3	NA	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3		
2		18	18	18	17	17	16	16	-	16	17	19	20	20	21	22	23	23	23	23	23	23	23	21	21	20	23	
3		O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
4		21	20	19	18	17	16	-	16	16	16	17	17	17	18	22	24	27	28	28	26	24	23	21	21	21	28	
5		O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
6		20	20	19	18	-	-	-	19	20	21	22	22	23	24	24	23	24	24	24	23	23	23	22	22	22	24	
7		O3	O3	O3	O3	NA	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
8		22	23	23	23	-	21	20	20	20	19	16	15	14	14	14	15	15	16	16	16	16	15	15	15	14	23	
9		O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
10		14	13	13	-	13	14	15	16	17	19	19	20	21	21	21	21	21	21	21	21	21	20	20	19	21		
11		O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
12		19	18	-	16	16	16	16	16	17	17	19	-	21	-	21	21	22	22	23	22	22	21	21	20	20	23	
13		O3	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
14		20	-	19	18	18	17	18	18	18	18	18	19	20	21	21	21	21	21	21	21	21	21	20	20	21	21	
15		O3	NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
16		-	20	18	18	17	17	17	17	18	20	21	21	22	23	23	23	23	23	23	23	22	22	22	22	-	23	
17		NA	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	
18		20	18	17	16	15	15	15	15	19	21	22	23	23	24	24	24	24	24	24	24	23	22	21	-	21	24	
19		O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
20		21	21	20	20	18	17	16	17	17	17	18	20	21	22	23	24	24	24	24	24	24	23	22	21	-	21	24
21		O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	
22		21	20	22	23	19	19	18	18	18	18	19	19	19	20	19	18	18	18	19	19	-	21	22	22	22	29	
23		O3	O3	PM2	PM2	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	PM2	O3	O3	PM2	
24		21	19	18	16	16	17	17	16	17	16	16	16	16	15	14	14	13	12	12	-	10	9	10	9	21		
25		O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	PM2	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	
26		9	9	9	10	9	9	9	8	7	7	7	8	10	12	12	13	14	16	-	18	18	20	20	20	20		
27		O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	NA	O3	O3	O3	O3	O3	O3	
28		21	22	21	21	20	20	21	21	21	22	23	22	23	23	23	22	22	-	21	20	19	19	19	19	23		
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	O3	
30		17	17	17	16	15	13	13	13	15	16	19	20	21	22	22	22	22	-	22	21	20	18	18	17	17	22	
PEAK		O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	O3	

STATUS FLAG CODES	NA - NOT APPLICABLE
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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	%	
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	
FAIR (26-50)	26	3.6%	32	13,14	22	2	0.3%	29	3	12	0	0.0%	-	-	-	28	3.9%	
GOOD (1-25)	641	89.0%	-	-	-	4	0.6%	-	-	-	0	0.0%	-	-	-	645	89.6%	
OVERALL	669	92.6%	-	-	-	4	0.8%	-	-	-	0	0.0%	-	-	-	673	93.5%	
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47	6.5%	

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

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

STATUS FLAG CODES

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

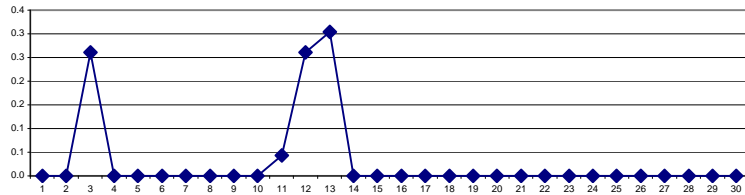
OBJECTIVE LIMIT:

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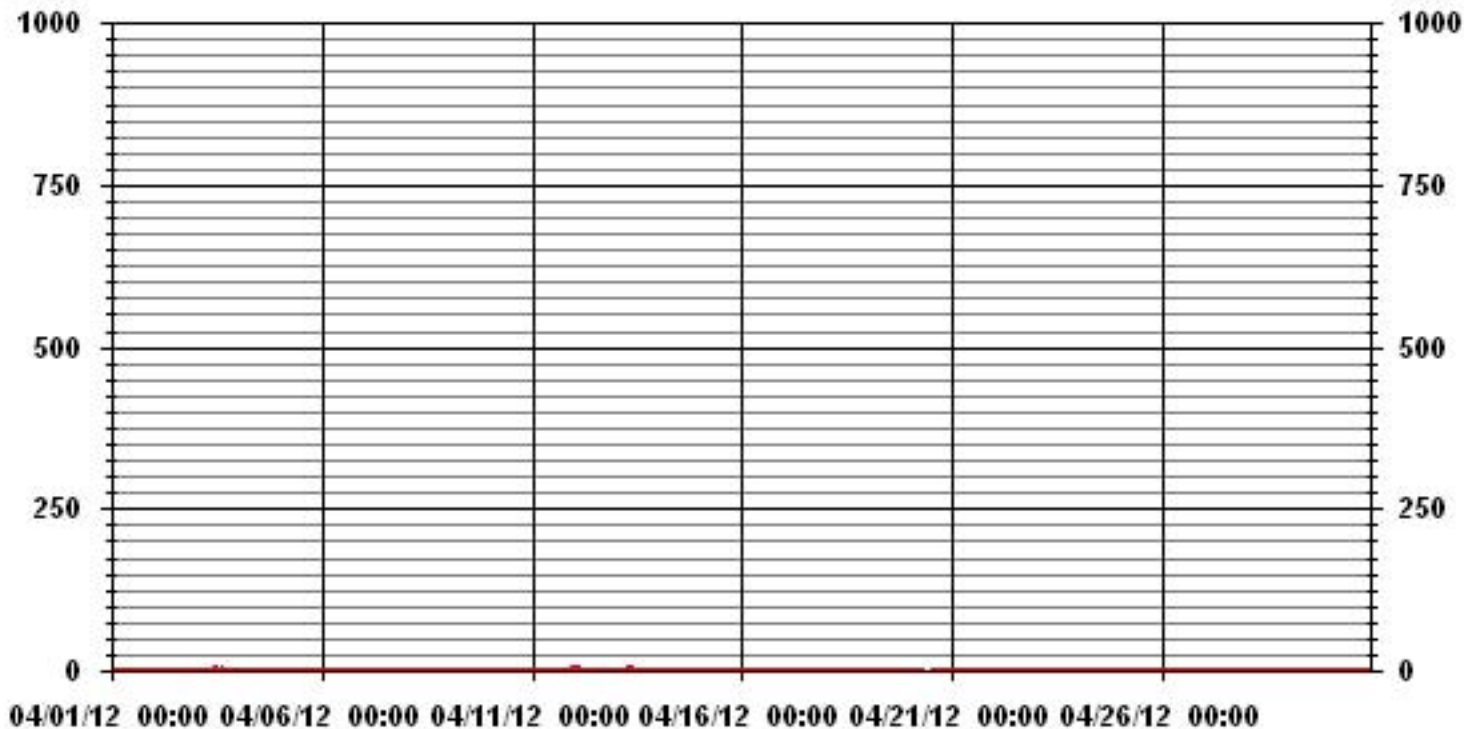
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	20					
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.3	PPB			ON DAY(S)	VAR
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.17		MONTHLY AVERAGE:	0.03	PPB	

24 HOUR AVERAGES FOR APRIL 2012



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

APRIL 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppt

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

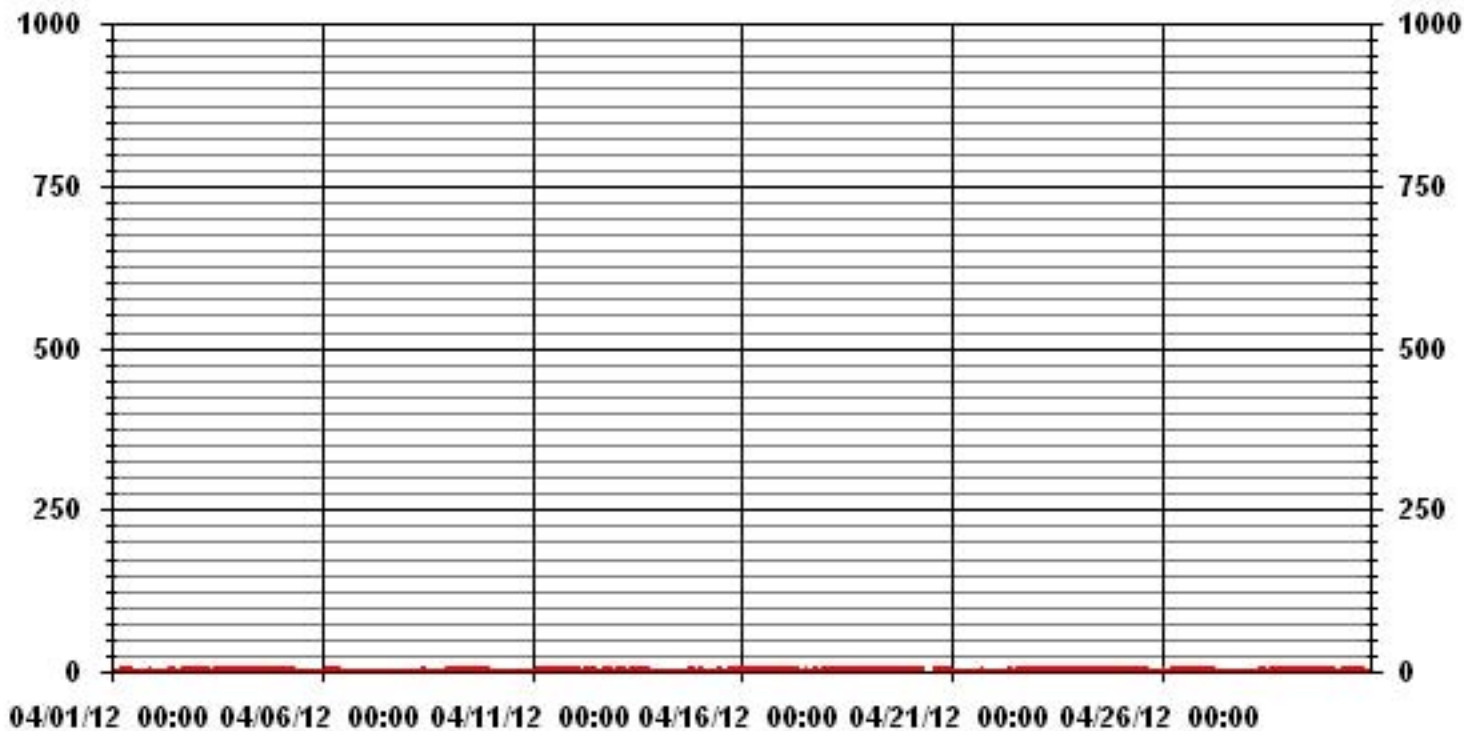
STATUS FLAG CODES

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:	458					
MAXIMUM INSTANTANEOUS VALUE:	4	PPB	@ HOUR(S)	22	ON DAY(S)	1
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.53					

01 Hour Averages



— LICA31 SO2MAX PPB

LICA31
 SO2_ / WDR Joint Frequency Distribution (Percent)

April 2012

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	6.13	7.59	6.56	7.00	4.81	4.67	5.54	8.02	7.59	5.83	4.37	5.54	4.67	6.27	7.15	8.17	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	6.13	7.59	6.56	7.00	4.81	4.67	5.54	8.02	7.59	5.83	4.37	5.54	4.67	6.27	7.15	8.17	

Calm : .00 %

Total # Operational Hours : 685

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	42	52	45	48	33	32	38	55	52	40	30	38	32	43	49	56	685
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	42	52	45	48	33	32	38	55	52	40	30	38	32	43	49	56	

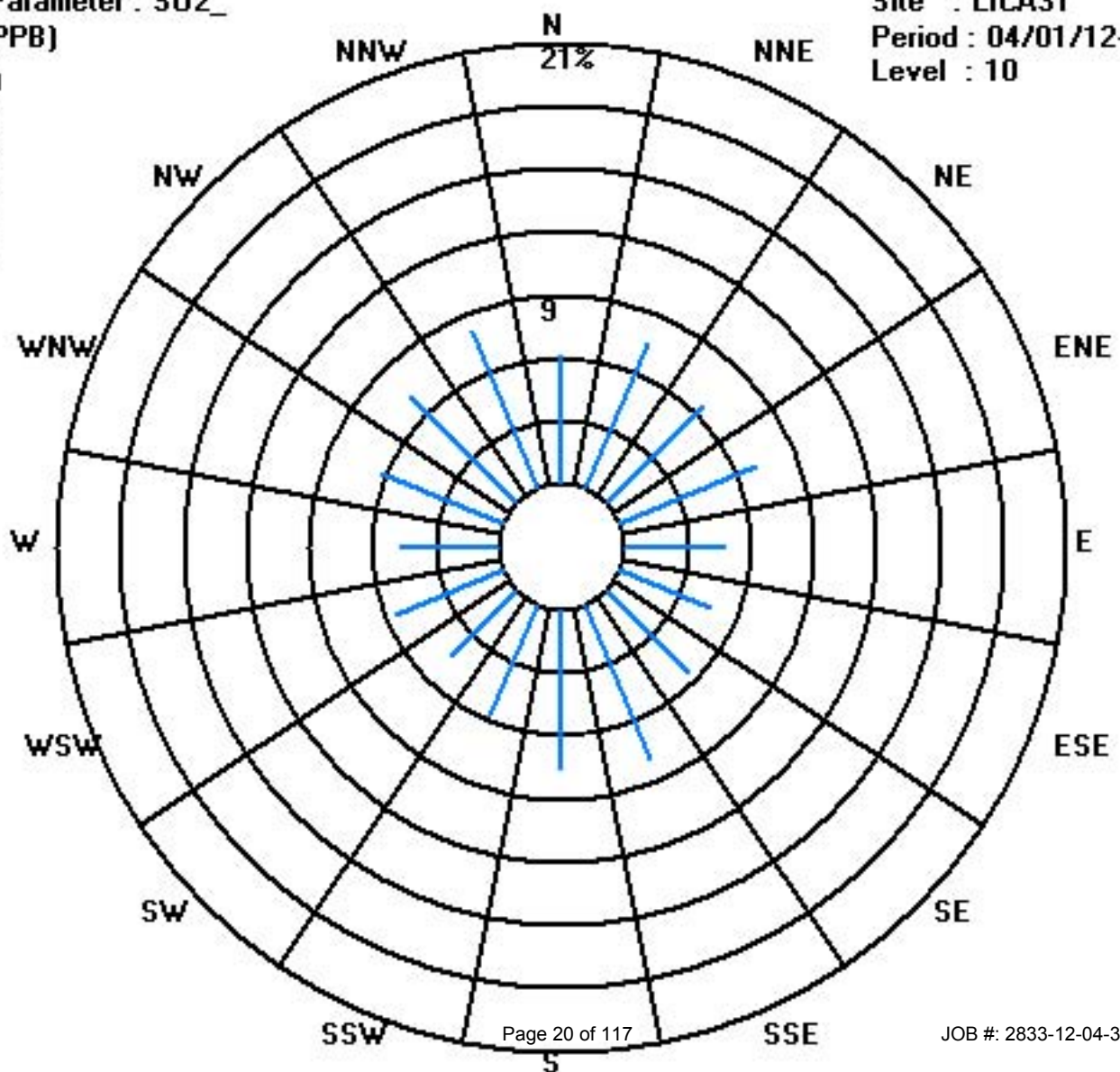
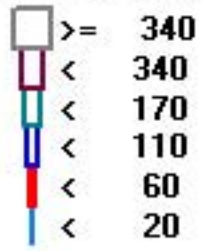
Calm : .00 %

Total # Operational Hours : 685

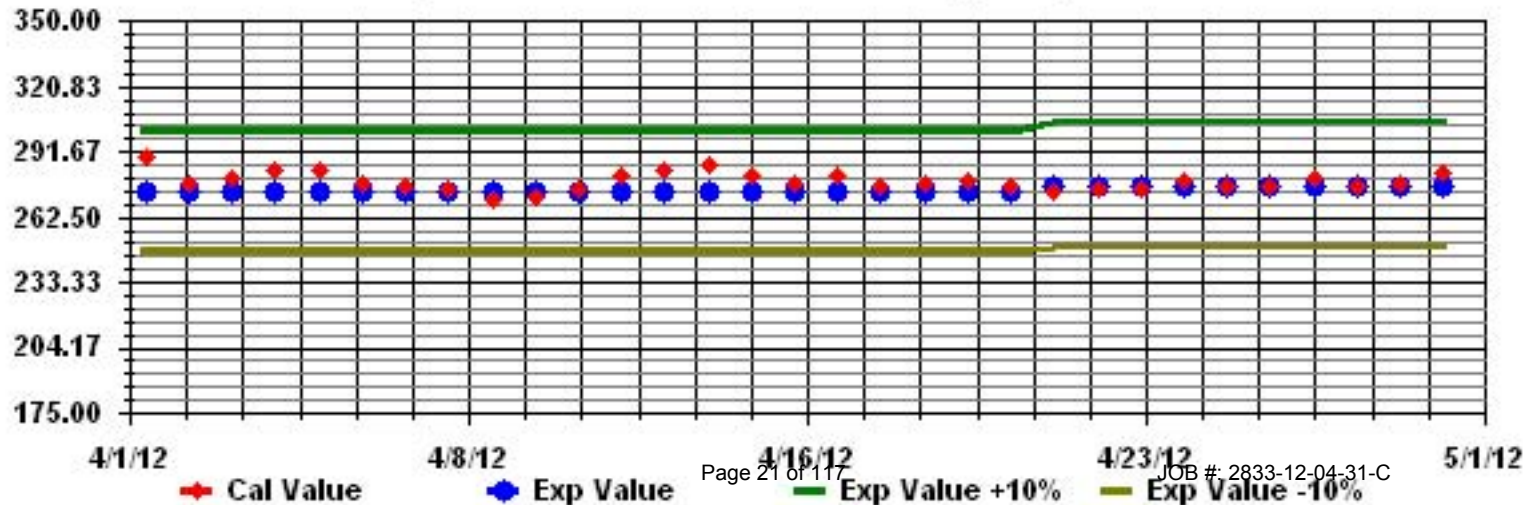
Class Limits (PPB)

Period : 04/01/12-04/30/12

Level : 10



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

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

STATUS FLAG CODES

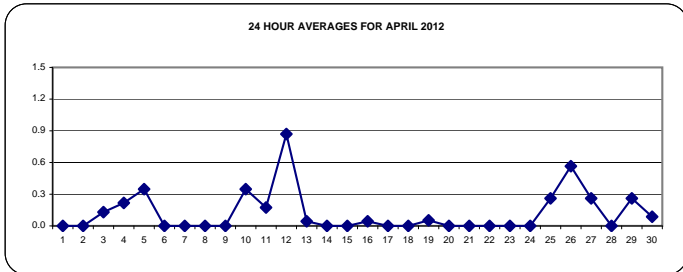
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

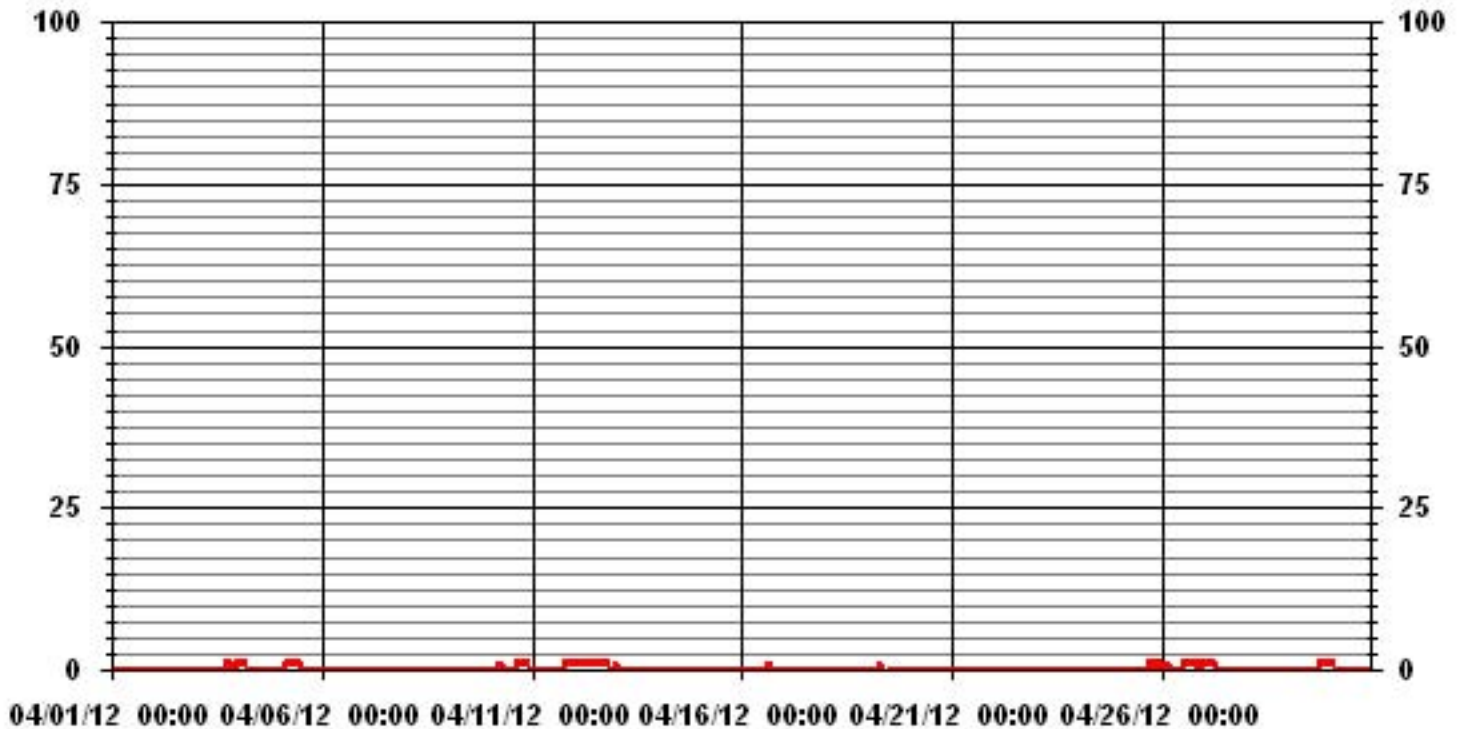
ALBERTA ENVIRONMENT:	1-HR	10	PPB	24-HR	3	PPB
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MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	84					
MAXIMUM 1-HR AVERAGE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 24-HR AVERAGE:	0.9	PPB			ON DAY(S)	12
				VAR-VARIOUS		
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	5	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.33		MONTHLY AVERAGE:	0.12	PPB	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -ST. LINA

APRIL 2012

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

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

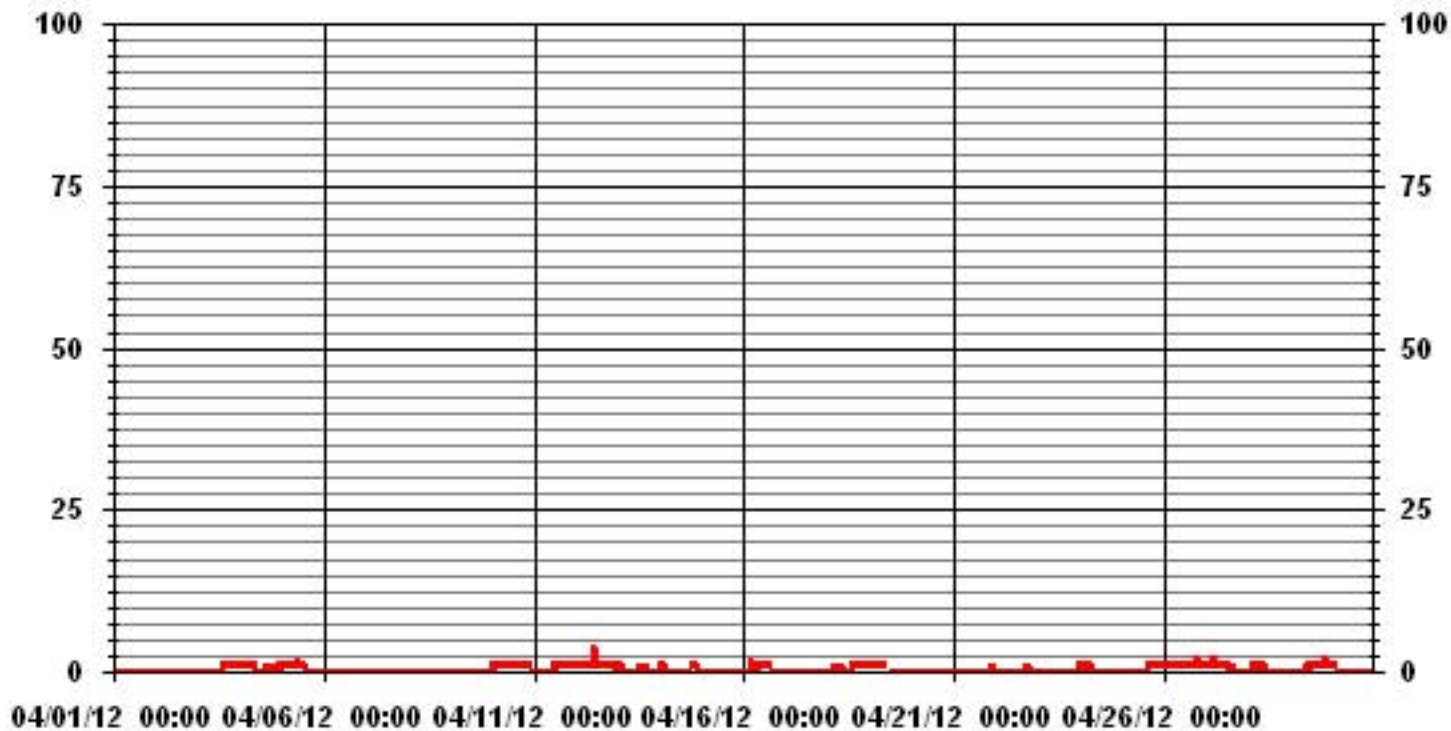
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	198
MAXIMUM INSTANTANEOUS VALUE:	4 PPB @ HOUR(S) 10 ON DAY(S) 12
IZS CALIBRATION TIME:	30 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.50
OPERATIONAL TIME:	717 HRS

01 Hour Averages



LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

April 2012

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	6.13	7.59	6.56	7.00	4.81	4.96	5.10	8.02	7.73	5.83	4.52	5.54	4.67	6.13	7.15	8.17	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	6.13	7.59	6.56	7.00	4.81	4.96	5.10	8.02	7.73	5.83	4.52	5.54	4.67	6.13	7.15	8.17	

Calm : .00 %

Total # Operational Hours : 685

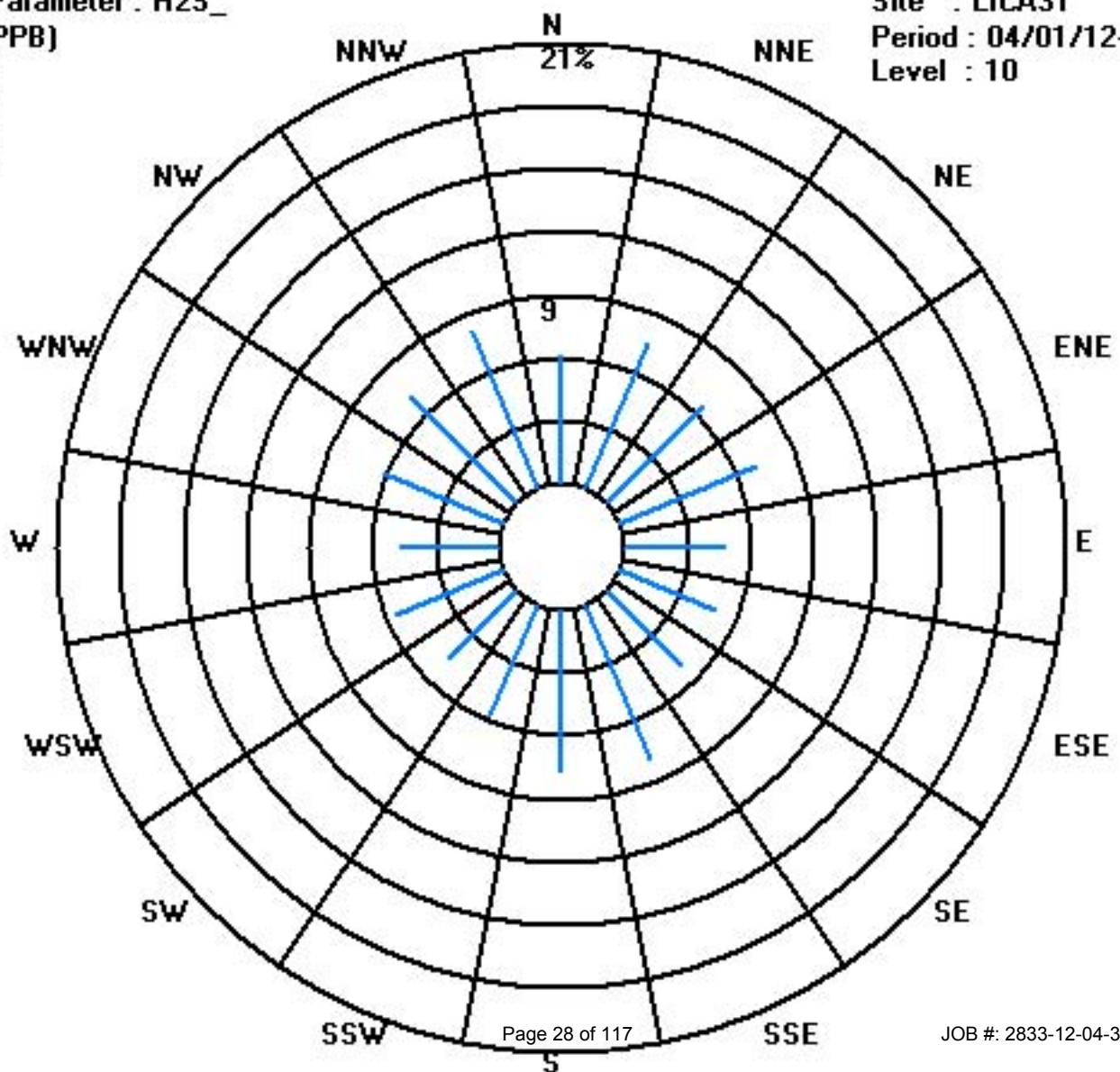
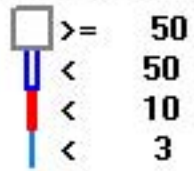
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	42	52	45	48	33	34	35	55	53	40	31	38	32	42	49	56	685
< 10																	
< 50																	
>= 50																	
Totals	42	52	45	48	33	34	35	55	53	40	31	38	32	42	49	56	

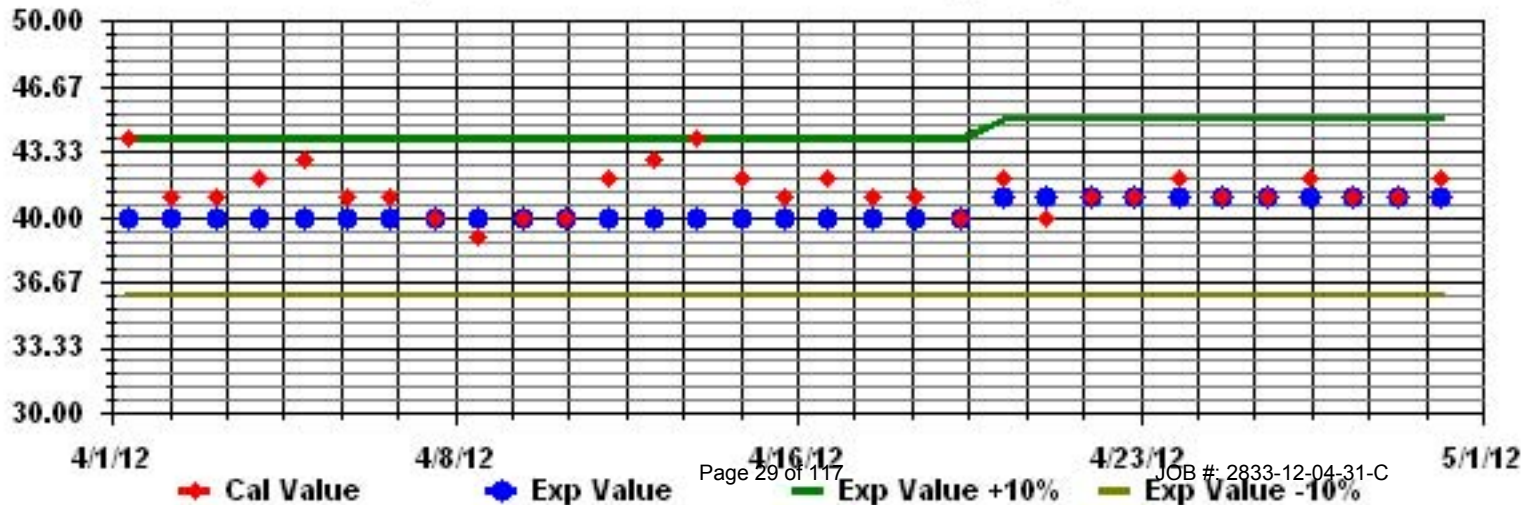
Calm : .00 %

Total # Operational Hours : 685

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

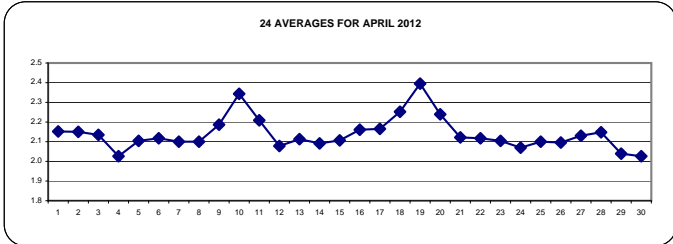
APRIL 2012

TOTAL HYDROCARBONS hourly averages in ppm

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

STATUS FLAG CODES

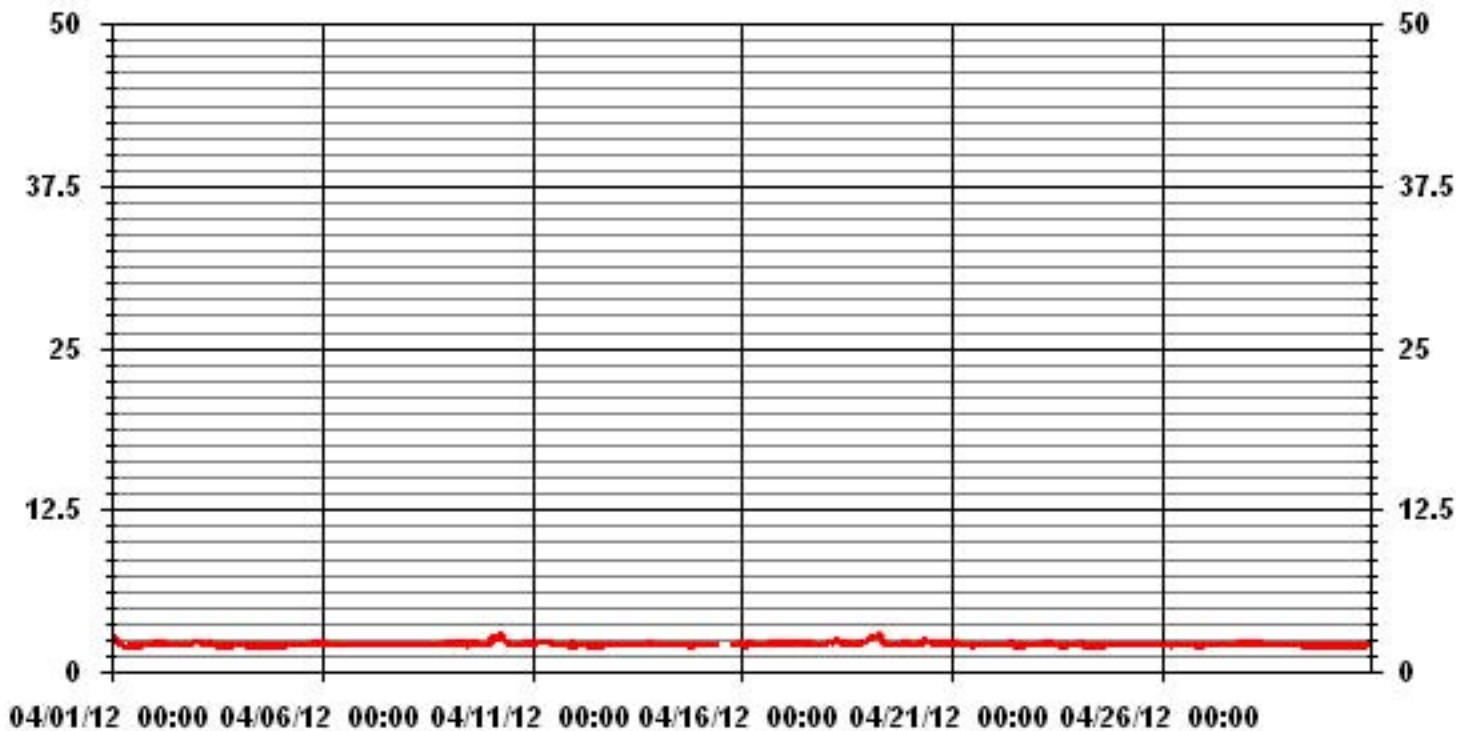
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	677					
MAXIMUM 1-HR AVERAGE:	2.8	PPM	@ HOUR(S)	VAR	ON DAY(S)	10, 19
MAXIMUM 24-HR AVERAGE:	2.4	PPM			ON DAY(S)	19
					VAR- VARIOUS	
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	712	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	98.9	%	
STANDARD DEVIATION:	0.12		MONTHLY AVERAGE:	2.14	PPM	

01 Hour Averages



— LICA31 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppr

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

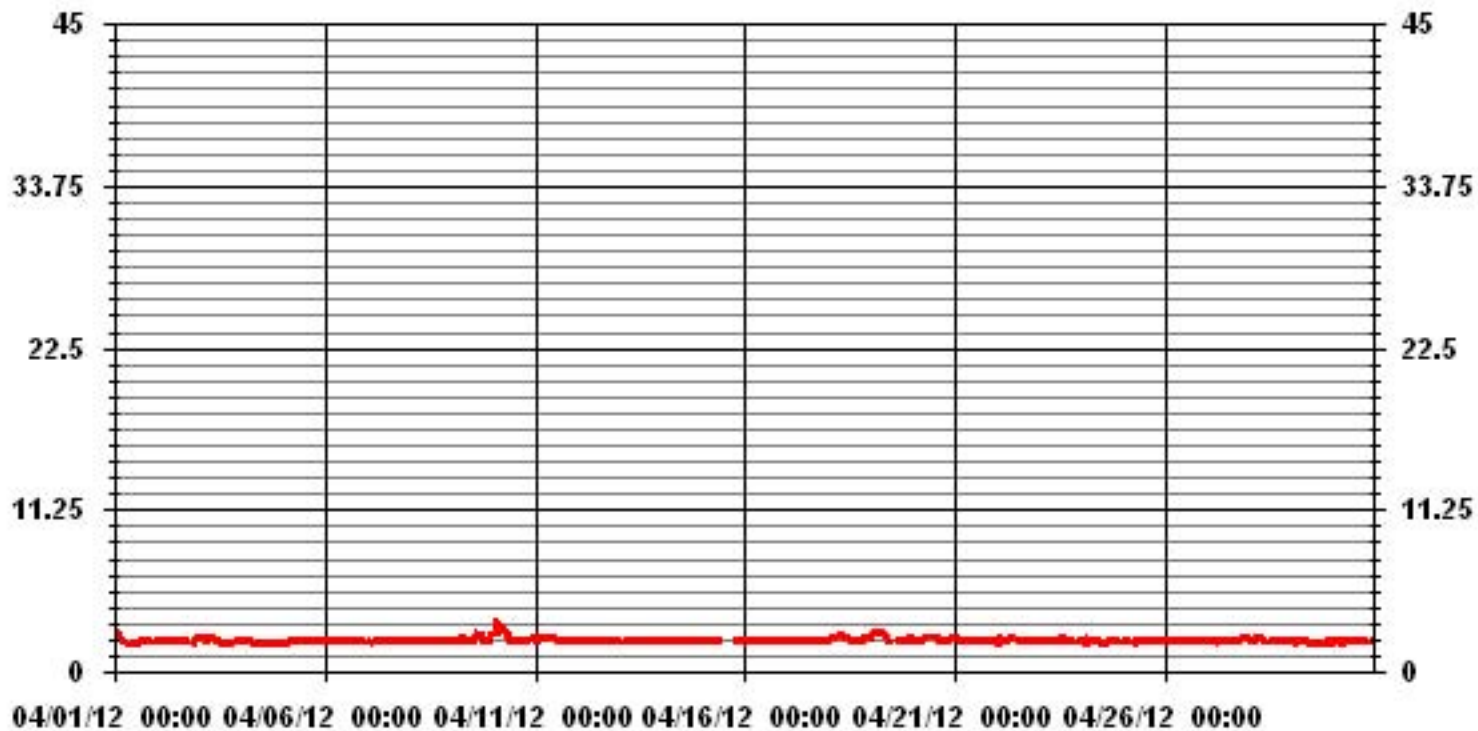
STATUS FLAG CODES

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:	672					
MAXIMUM INSTANTANEOUS VALUE:	3.6	PPM	@ HOUR(S)	2	ON DAY(S)	10
IZS CALIBRATION TIME:	29	HRS	OPERATIONAL TIME:	710 HRS		
MONTHLY CALIBRATION TIME:	9 HRS					
STANDARD DEVIATION:	0.16					

01 Hour Averages



— LICA31 THCMAX PPM

LICA31
 THC / WDR Joint Frequency Distribution (Percent)

April 2012

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	5.76	7.68	6.64	7.09	4.87	4.87	5.61	7.97	7.53	5.90	4.57	5.61	4.57	6.20	6.94	8.12	100.00
< 10.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	5.76	7.68	6.64	7.09	4.87	4.87	5.61	7.97	7.53	5.90	4.57	5.61	4.57	6.20	6.94	8.12	

Calm : .00 %

Total # Operational Hours : 677

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	39	52	45	48	33	33	38	54	51	40	31	38	31	42	47	55	677
< 10.0																	
< 50.0																	
>= 50.0																	
Totals	39	52	45	48	33	33	38	54	51	40	31	38	31	42	47	55	

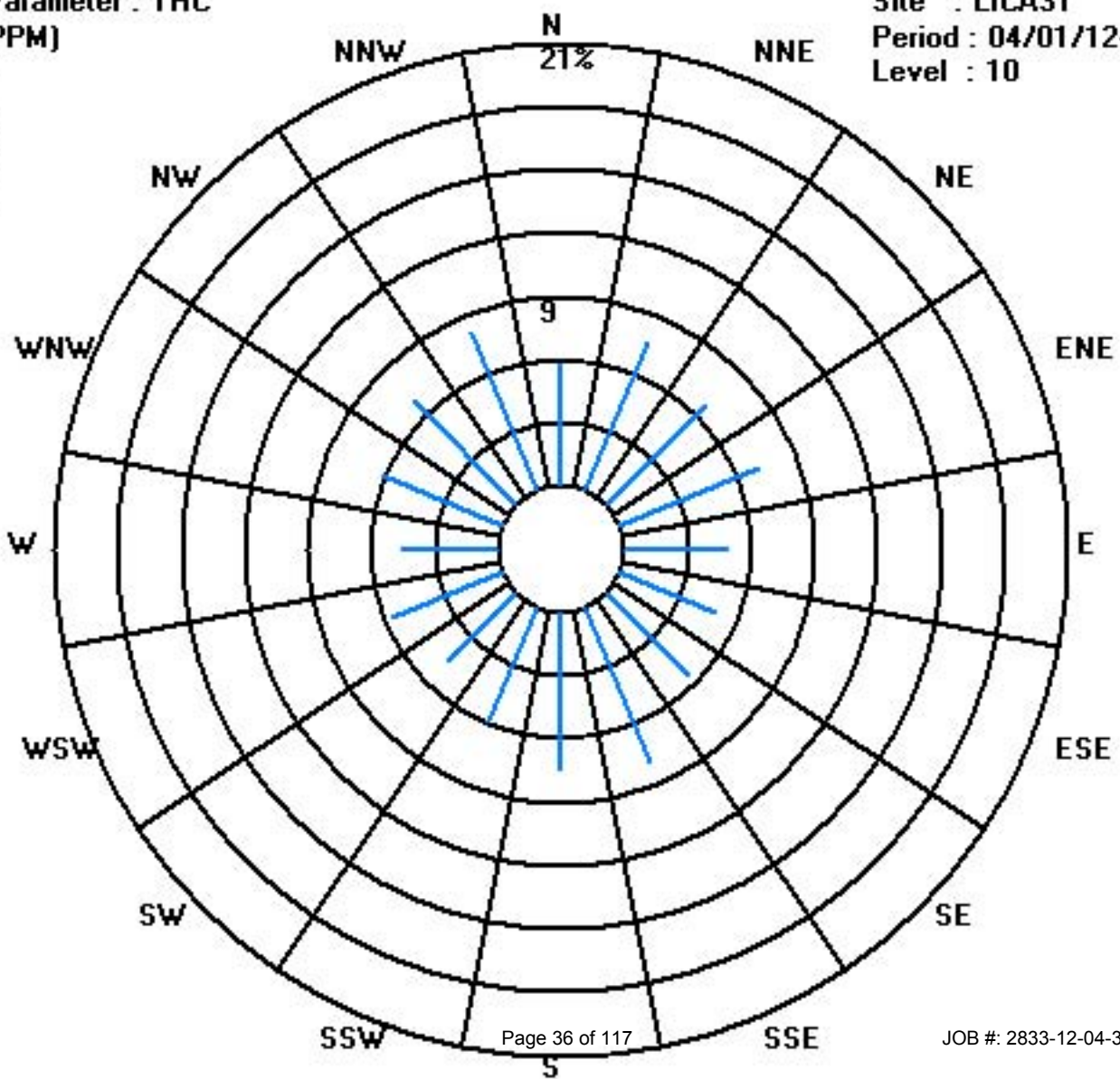
Calm : .00 %

Total # Operational Hours : 677

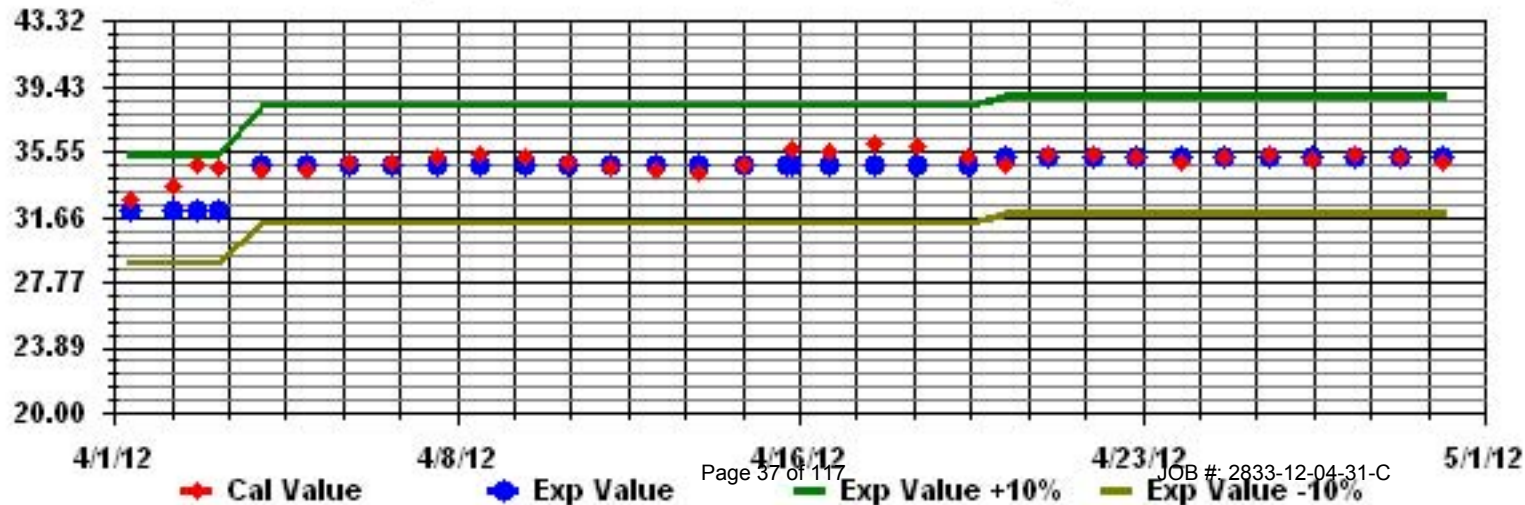
Class Limits (PPM)

Period : 04/01/12-04/30/12

Level : 10



Calibration Graph for Site: LICA31 Parameter: THC Sequence: THC Phase: SPAll



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

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 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	39	36	37	38	38	40	40	43	IZS	42	41	40	40	41	44	45	46	47	44	43	41	39	38	37	47	40.8	24	
2	36	35	35	34	34	32	32	IZS	31	34	37	40	40	42	44	45	45	46	46	45	42	42	42	40	46	39.1	24	
3	41	39	37	35	33	31	IZS	31	31	31	33	33	36	43	47	52	54	53	51	48	46	42	42	41	54	40.4	24	
4	40	39	37	36	35	IZS	37	39	41	43	44	45	47	47	46	48	47	47	46	45	44	43	43	43	48	42.7	24	
5	44	45	45	45	IZS	42	40	39	39	37	31	30	28	27	28	29	29	31	32	31	30	29	30	28	45	34.3	24	
6	27	26	26	IZS	26	28	30	31	33	37	37	39	41	41	41	41	42	42	41	40	39	39	38	38	42	35.8	24	
7	37	35	IZS	32	31	31	32	33	34	37	39	41	42	42	42	43	44	45	44	44	44	42	41	40	40	45	38.7	24
8	40	IZS	37	36	35	34	35	36	36	36	36	37	40	41	42	42	42	42	42	41	40	40	41	41	42	38.8	24	
9	IZS	39	36	36	34	34	33	33	35	39	41	41	42	44	45	46	46	45	45	43	44	43	43	IZS	46	40.3	24	
10	39	36	34	31	30	29	29	30	37	41	44	45	46	47	48	48	48	48	47	45	44	42	IZS	41	48	40.4	24	
11	41	41	40	39	36	34	32	33	34	34	36	39	41	44	46	47	48	48	47	46	46	IZS	43	42	48	40.7	24	
12	41	40	38	37	38	37	36	36	36	36	37	38	38	39	38	36	36	36	37	37	IZS	42	43	43	43	38.0	24	
13	41	37	35	32	32	33	33	31	33	32	32	31	31	30	28	27	26	24	23	IZS	19	18	19	18	41	28.9	24	
14	18	18	18	19	18	17	17	15	14	13	13	15	20	24	24	26	28	32	IZS	35	36	39	39	40	40	23.4	24	
15	42	43	42	41	40	40	42	42	42	44	45	44	45	45	45	44	43	IZS	42	40	38	37	37	37	45	41.7	24	
16	34	33	33	32	30	26	25	26	30	32	37	40	42	43	43	IZS	43	43	41	40	36	36	34	33	43	35.3	24	
17	34	36	37	37	36	35	37	39	39	39	41	43	47	48	48	IZS	48	47	47	47	47	49	48	48	49	42.5	24	
18	47	45	44	41	41	42	38	41	42	47	48	48	49	50	IZS	52	52	52	51	50	49	49	49	49	52	46.8	24	
19	45	41	37	34	33	31	29	28	27	28	34	37	39	IZS	42	44	45	45	45	43	42	41	41	40	45	37.9	24	
20	38	37	35	33	30	28	29	30	C	C	C	C	IZS	27	28	28	30	30	30	30	29	28	26	27	38	30.2	24	
21	28	25	26	25	26	29	31	33	37	39	39	IZS	40	40	41	41	43	46	48	49	51	51	51	51	51	38.7	24	
22	51	45	48	50	50	51	51	48	47	50	IZS	52	55	58	58	57	56	56	56	56	55	55	53	49	58	52.5	24	
23	48	48	49	48	45	40	39	39	38	IZS	43	44	46	48	49	49	48	46	44	43	42	40	40	38	49	44.1	24	
24	37	35	33	36	37	36	34	31	IZS	28	27	28	30	31	31	28	27	25	23	22	22	25	29	30	37	29.8	24	
25	29	29	29	28	28	27	25	IZS	25	24	25	25	27	28	29	29	29	28	27	26	26	26	26	27	29	27.0	24	
26	27	30	32	32	32	32	IZS	31	32	32	34	36	36	38	40	40	40	40	39	38	37	40	41	40	41	35.6	24	
27	39	38	37	35	35	IZS	32	30	26	25	25	25	27	27	25	24	24	24	23	22	22	21	22	23	39	27.4	24	
28	22	21	22	21	IZS	20	17	16	18	20	24	34	35	40	42	41	40	41	41	40	39	38	38	37	42	30.7	24	
29	35	34	33	IZS	29	26	25	24	25	35	39	41	39	38	36	38	41	41	39	39	39	37	35	34	41	34.9	24	
30	34	33	IZS	33	36	30	28	36	41	42	42	42	44	46	45	46	47	46	46	43	42	43	40	35	47	40.0	24	
HOURLY MAX	51	48	49	50	50	51	51	48	47	50	48	52	55	58	58	57	56	56	56	56	55	55	53	51				
HOURLY AVG	37.0	35.8	35.4	34.9	33.9	32.7	32.4	33.0	33.4	34.9	35.9	37.6	39.1	40.0	40.2	40.7	41.2	41.2	40.9	40.4	38.9	38.4	38.3	37.6				

STATUS FLAG CODES

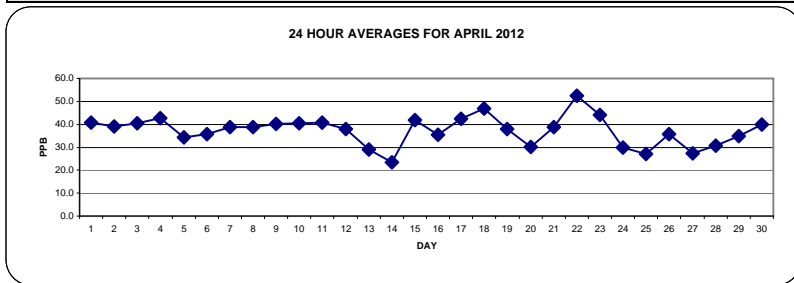
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

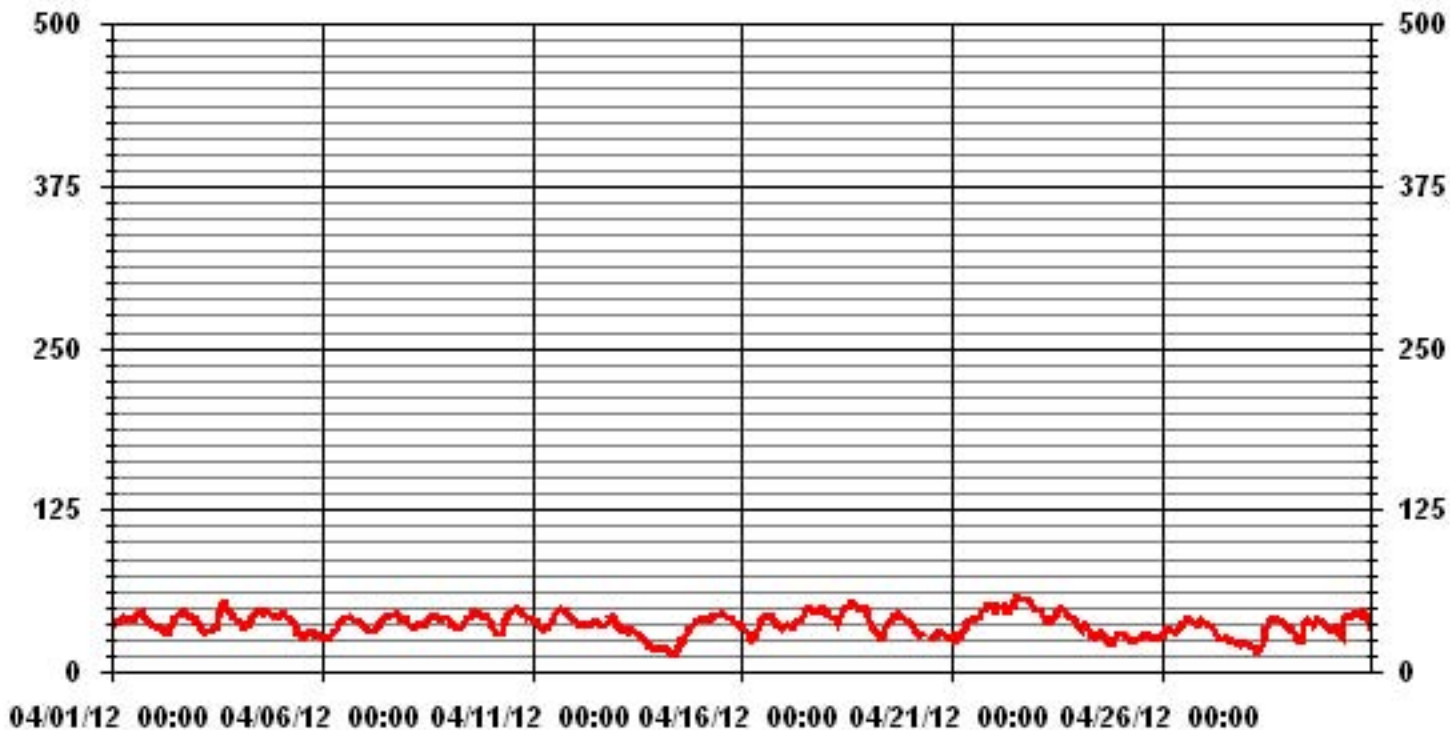
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	685					
MAXIMUM 1-HR AVERAGE:	58	PPB	@ HOUR(S)	13, 14	ON DAY(S)	22
MAXIMUM 24-HR AVERAGE:	52.5	PPB			ON DAY(S)	22
					VAR-VARIOUS	
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	8.25		MONTHLY AVERAGE	37.3	PPB	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

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	41	38	40	40	39	41	42	44	IZS	42	42	41	41	43	45	46	47	47	45	44	42	40	39	39	47	42.1	24	
2	36	36	36	34	34	33	32	IZS	33	36	39	41	41	43	45	46	46	46	47	46	43	43	42	41	47	40.0	24	
3	41	40	38	36	34	32	IZS	32	31	32	35	34	40	46	48	53	54	54	52	49	47	43	43	42	54	41.6	24	
4	41	40	38	36	36	IZS	38	40	41	44	46	47	47	47	48	48	48	46	46	45	44	43	43	43	48	43.5	24	
5	45	45	45	45	IZS	43	41	39	40	40	34	31	29	27	29	30	30	34	33	32	31	30	31	30	45	35.4	24	
6	29	27	27	IZS	27	29	32	32	35	38	38	40	42	42	42	42	43	43	42	41	39	39	39	38	43	36.8	24	
7	38	35	IZS	32	32	32	33	34	35	39	40	42	43	43	43	44	45	45	45	45	43	42	41	41	45	39.7	24	
8	40	IZS	38	37	36	35	37	37	37	38	37	39	41	41	43	43	42	42	42	41	40	40	41	41	43	39.5	24	
9	IZS	41	37	36	35	34	34	34	38	41	41	42	43	45	45	46	46	46	45	44	44	43	43	IZS	46	41.0	24	
10	40	37	35	32	31	30	29	32	39	43	45	45	47	48	48	49	49	48	48	46	45	42	IZS	42	49	41.3	24	
11	41	41	41	39	37	35	33	33	34	35	37	40	43	45	47	48	49	48	47	46	46	IZS	44	43	49	41.4	24	
12	42	41	40	38	39	38	37	37	36	37	37	38	39	39	39	37	37	36	37	40	IZS	44	44	44	44	39.0	24	
13	43	38	37	33	33	34	34	31	34	33	33	32	31	31	29	28	27	25	24	IZS	21	19	19	18	43	29.9	24	
14	18	19	19	19	19	18	17	16	15	13	13	17	23	25	26	28	30	33	IZS	36	38	40	40	41	41	24.5	24	
15	43	44	42	42	41	42	43	43	43	46	47	P	46	46	45	45	44	IZS	43	42	39	38	38	38	47	42.7	23	
16	36	34	34	33	31	27	25	27	31	36	41	42	43	43	44	43	IZS	44	41	41	38	38	34	33	44	36.5	24	
17	35	38	38	37	38	37	38	40	40	43	45	49	49	50	IZS	48	48	48	48	48	52	49	48	52	49	48	43.7	24
18	48	46	45	42	42	43	40	41	46	48	48	49	50	51	IZS	52	52	52	52	51	51	50	50	50	52	47.8	24	
19	48	42	39	35	33	32	30	29	27	30	38	39	40	IZS	44	45	45	46	45	44	42	41	41	41	48	39.0	24	
20	39	38	36	34	32	29	30	31	C	C	C	C	C	C	28	P	31	32	31	31	31	28	28	30	39	31.7	23	
21	30	27	26	26	27	30	32	36	39	39	IZS	41	41	41	41	44	48	49	50	51	51	51	52	52	52	39.6	24	
22	53	48	49	51	51	53	53	50	50	51	IZS	53	56	59	59	58	56	57	57	57	56	55	55	50	59	53.8	24	
23	49	49	49	48	47	42	40	40	39	IZS	45	45	47	49	49	49	49	47	45	43	42	41	40	39	49	44.9	24	
24	38	36	35	38	38	37	35	32	IZS	29	28	29	32	33	33	30	28	26	25	23	23	28	31	30	38	31.2	24	
25	30	30	30	29	29	28	26	IZS	25	25	25	26	28	29	29	30	29	29	27	27	27	26	26	28	30	27.7	24	
26	28	32	32	33	32	32	IZS	32	33	33	35	37	39	39	40	40	41	41	40	40	39	41	41	41	41	36.6	24	
27	39	39	38	36	36	IZS	33	32	27	26	26	26	28	28	26	25	25	26	24	23	23	22	23	25	39	28.5	24	
28	23	22	22	22	IZS	21	115	17	19	22	32	37	40	42	44	43	41	42	42	41	40	39	38	38	115	36.6	24	
29	36	35	34	IZS	29	27	26	25	29	40	41	41	40	39	38	39	43	42	40	41	40	38	36	35	43	36.3	24	
30	35	34	IZS	35	37	33	30	40	42	43	42	43	45	46	46	47	47	47	47	44	43	43	42	37	47	41.2	24	
HOURLY MAX	53	49	49	51	51	53	115	50	50	51	48	53	56	59	59	58	56	57	57	57	56	55	55	52				
HOURLY AVG	38.1	37.0	36.4	35.6	34.8	33.8	37.0	34.1	34.7	36.4	37.4	38.6	40.5	41.4	41.1	42.0	41.9	42.1	41.7	41.4	39.9	39.3	39.0	38.6				

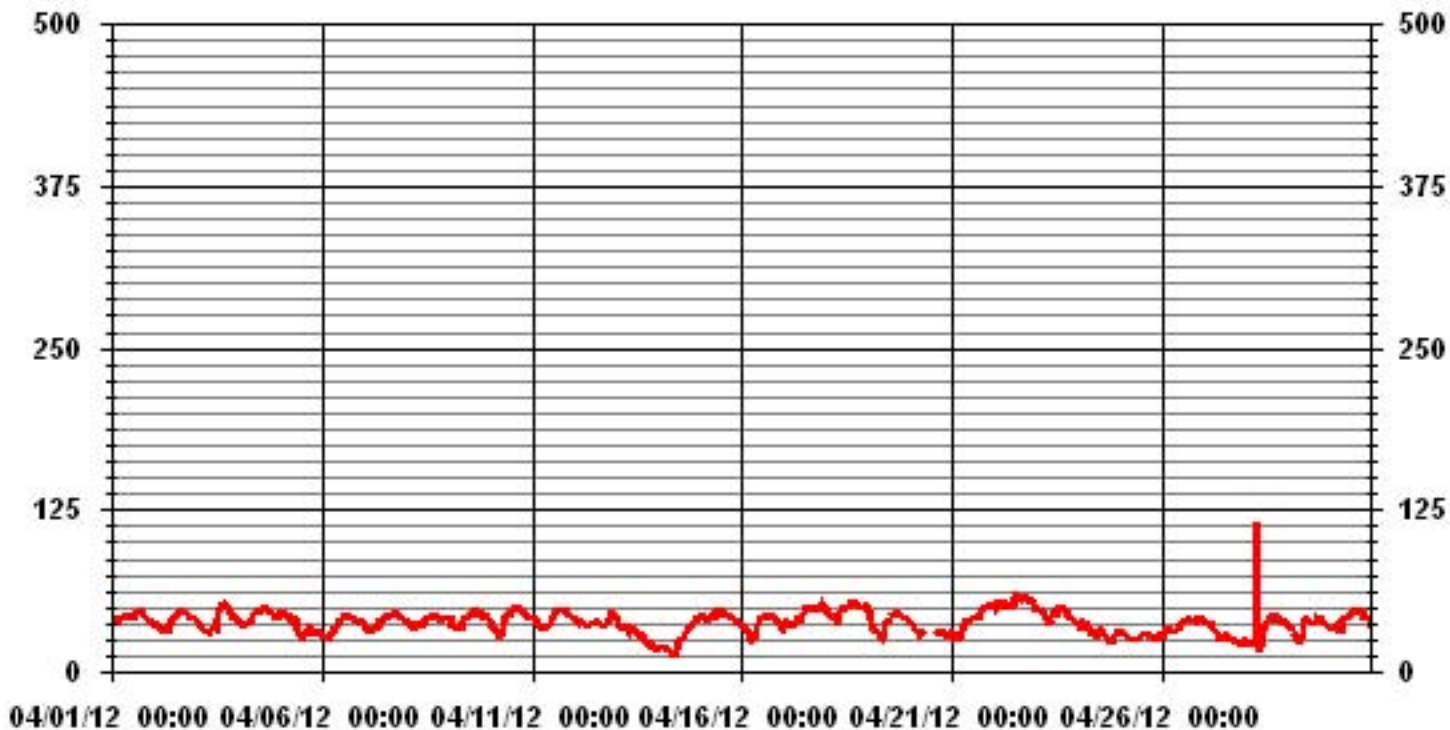
STATUS FLAG CODES

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:	682					
MAXIMUM INSTANTANEOUS VALUE:	115	PPB	@ HOUR(S)	6	ON DAY(S)	28
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	8.66					

01 Hour Averages



— LICA31 O3MAX PPB

LICA31
 O3_ / WDR Joint Frequency Distribution (Percent)

April 2012

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	5.98	7.44	6.42	6.42	4.37	3.79	5.10	7.59	6.71	5.69	4.23	5.40	4.67	6.27	7.00	8.17	95.32
< 110	.14	.14	.14	.58	.43	.87	.43	.43	.87	.14	.14	.14	.00	.00	.14	.00	4.67
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	6.13	7.59	6.56	7.00	4.81	4.67	5.54	8.02	7.59	5.83	4.37	5.54	4.67	6.27	7.15	8.17	

Calm : .00 %

Total # Operational Hours : 685

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	41	51	44	44	30	26	35	52	46	39	29	37	32	43	48	56	653
< 110	1	1	1	4	3	6	3	3	6	1	1	1			1		32
< 210																	
>= 210																	
Totals	42	52	45	48	33	32	38	55	52	40	30	38	32	43	49	56	

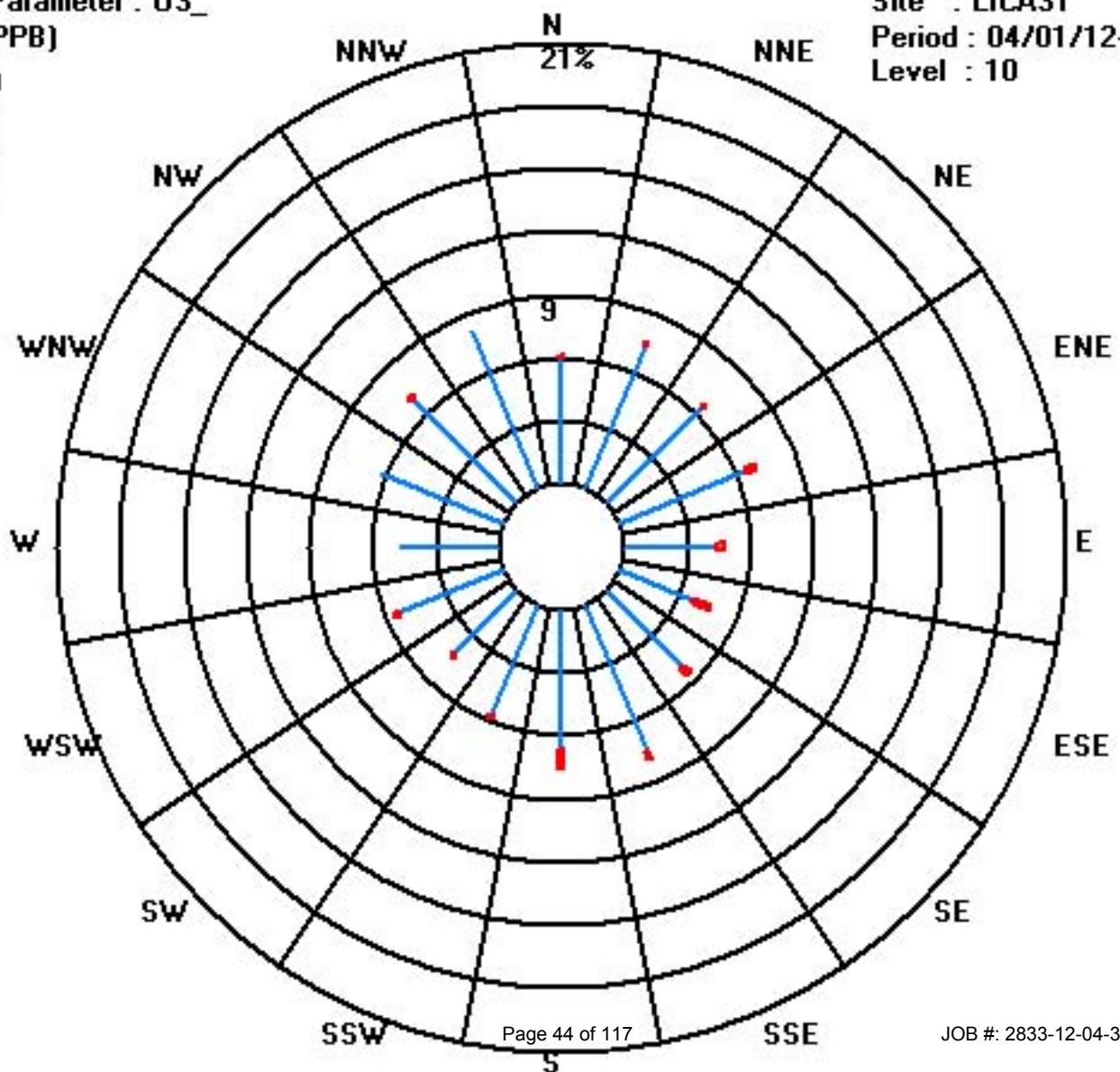
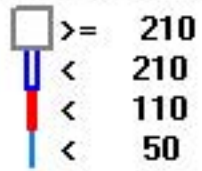
Calm : .00 %

Total # Operational Hours : 685

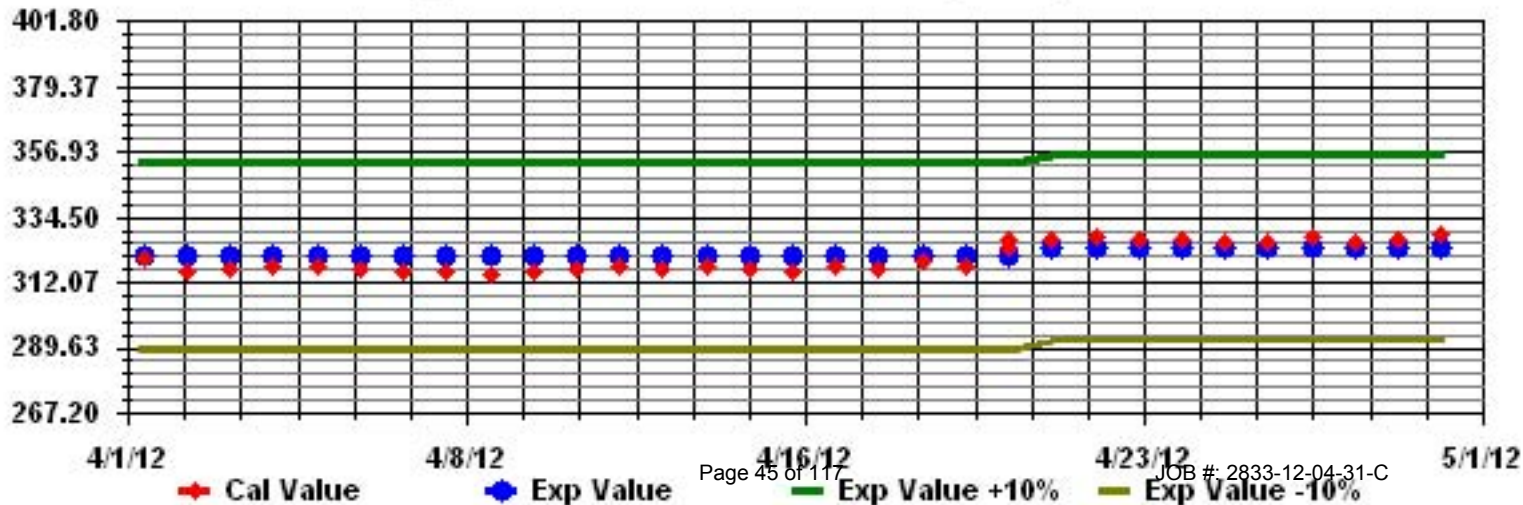
Class Limits (PPB)

Period : 04/01/12-04/30/12

Level : 10



Calibration Graph for Site: LICA31 Parameter: 03_ Sequence: 03 Phase: SPAN



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION. - ST. LINA

APRIL 2012

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	4	6	5	4	4	3	3	2	IZS	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	6	2.0	24
	2	1	1	1	1	1	1	1	1	IZS	2	1	2	2	2	1	1	1	1	1	1	1	2	1	1	2	2	1.3	24
	3	1	2	1	2	2	1	IZS	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	1.4	24	
	4	1	1	1	1	2	IZS	2	1	1	1	1	1	0	1	1	0	0	0	0	1	0	0	0	0	2	0.7	24	
	5	0	0	0	1	IZS	0	1	2	2	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	2	0.8	24	
	6	1	1	2	IZS	1	1	1	2	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	2	0.7	24	
	7	1	1	IZS	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0.4	24	
	8	0	IZS	0	0	1	1	0	0	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0.3	24	
	9	IZS	1	1	2	2	2	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	IZS	3	1.3	24
	10	1	2	2	2	2	2	3	3	2	1	1	0	0	0	0	0	1	1	1	1	1	1	1	IZS	1	3	1.2	24
	11	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	IZS	1	2	1.5	24
	12	2	2	2	3	2	2	2	2	2	1	1	1	1	1	2	2	2	2	2	2	2	IZS	1	0	3	1.6	24	
	13	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	0	1	0.2	24
	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	0	1	0.0	24
	15	1	0	1	0	0	0	0	0	1	1	0	0	0	1	0	0	1	IZS	0	0	1	1	0	0	1	0.3	24	
	16	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	IZS	0	1	1	1	1	1	1	2	1.0	24
	17	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	IZS	0	0	1	0	1	0	0	0	1	0.3	24	
	18	1	1	1	2	2	2	2	2	2	2	1	1	1	1	IZS	0	1	1	1	1	1	1	2	2	1	2	1.3	24
	19	2	2	2	2	2	2	3	3	3	C	C	C	C	C	C	C	C	1	1	1	1	1	2	1	3	1.8	24	
	20	1	1	1	1	1	1	1	2	2	2	2	2	2	IZS	1	2	2	1	2	1	2	2	2	2	2	2	1.6	24
	21	1	2	2	1	1	1	1	1	1	1	0	IZS	0	0	0	0	0	0	0	0	1	1	1	1	1	2	0.7	24
	22	1	0	1	1	1	1	1	1	1	2	IZS	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1.0	24
	23	1	1	1	1	1	2	2	2	2	IZS	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24
	24	1	1	2	1	1	1	1	2	IZS	2	1	2	1	1	1	1	1	2	2	2	2	2	1	1	1	2	1.3	24
	25	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
	26	0	0	0	1	1	1	IZS	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0.3	24	
	27	1	1	1	1	1	1	IZS	0	1	1	1	1	1	1	1	2	1	2	1	2	2	2	2	2	2	2	1.2	24
	28	1	1	1	1	IZS	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
	29	1	1	1	IZS	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0.5	24
	30	0	1	IZS	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	0.6	24
HOURLY MAX		4	6	5	4	4	3	3	3	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2		
HOURLY AVG		1.0	1.1	1.2	1.1	1.2	1.1	1.3	1.5	1.3	1.0	0.8	0.8	0.7	0.6	0.6	0.5	0.6	0.7	0.7	0.8	1.0	0.8	0.9	0.9				

STATUS FLAG CODES

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

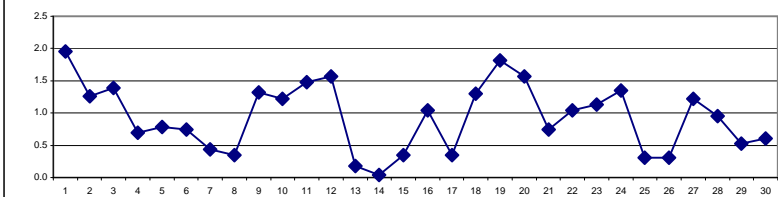
OBJECTIVE LIMIT:

ALBERTA ENVIRONMENT: 1-HR 159 PPB

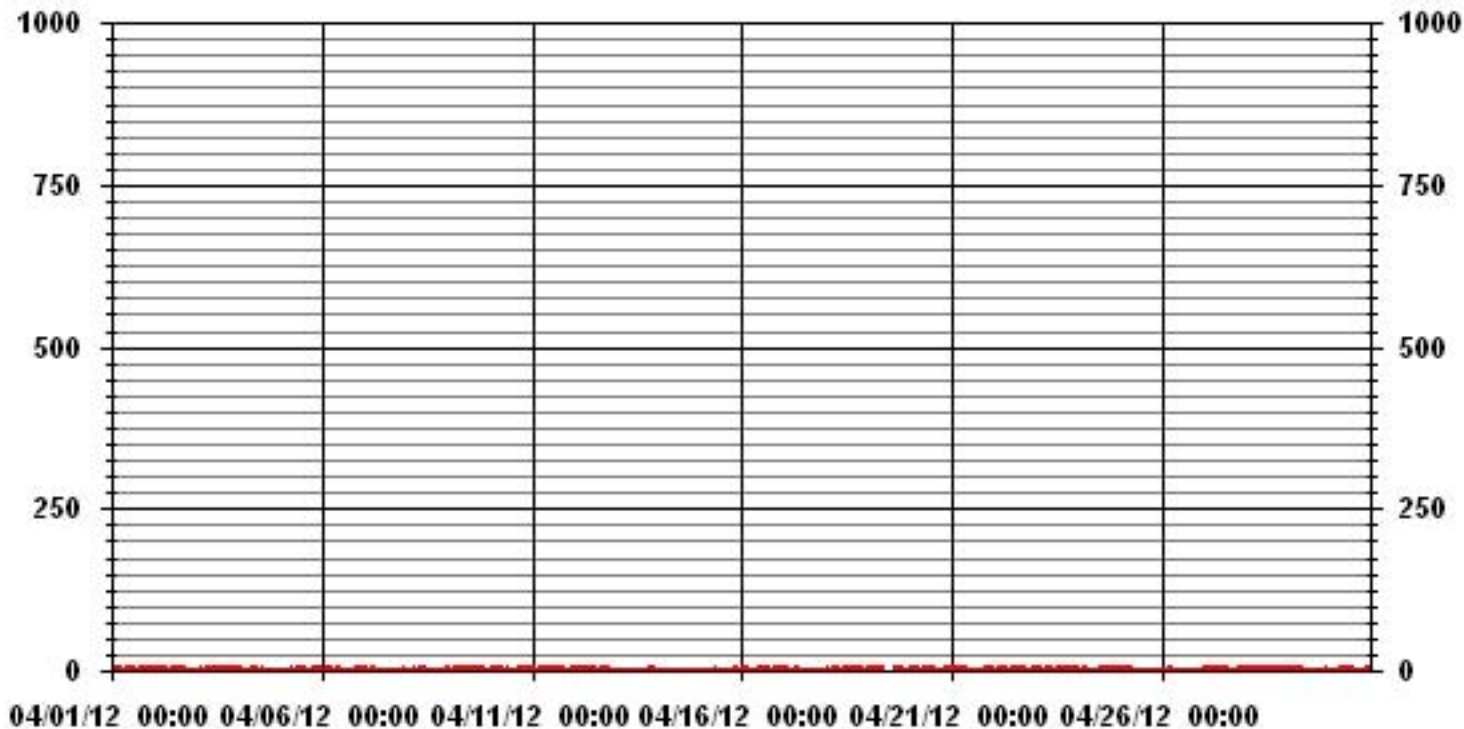
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	484					
MAXIMUM 1-HR AVERAGE:	6	PPB	@ HOUR(S)	1	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	2.0	PPB			ON DAY(S)	1
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.78		MONTHLY AVERAGE:	0.92	PPB	

24 HOUR AVERAGES FOR APRIL 2012



01 Hour Averages



— LICA31 NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

NITROGEN DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	6	8	8	5	5	4	4	3	IZS	1	2	2	2	1	1	1	2	1	1	2	2	2	2	2	2	8	2.9	24
2	2	2	2	2	2	2	3	IZS	3	2	3	2	3	2	1	1	1	2	2	2	3	2	2	2	3	2.1	24	
3	2	2	2	2	2	2	IZS	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	3	2.3	24	
4	2	2	2	2	2	IZS	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.5	24	
5	1	1	1	1	IZS	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2	2	2	1	2	2	1.5	24
6	2	2	3	IZS	2	2	2	3	2	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	3	1.5	24	
7	2	2	IZS	1	2	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2	24	
8	1	IZS	1	1	1	2	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.2	24	
9	IZS	2	2	2	3	3	4	4	4	3	2	1	1	1	1	1	2	2	2	2	2	2	2	1	IZS	4	2.1	24
10	2	2	3	3	3	3	4	4	3	2	1	1	1	1	1	1	1	1	1	1	1	2	2	IZS	2	4	2.0	24
11	2	2	2	2	3	3	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	IZS	2	3	2.2	24
12	2	2	4	3	3	3	3	2	2	2	3	2	2	2	2	2	2	3	3	3	IZS	1	1	1	4	2.3	24	
13	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	2	2	1	2	1.2	24
14	1	1	1	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	IZS	1	1	1	1	1	1	0.6	24
15	1	1	1	1	1	1	1	1	1	1	1	P	1	1	1	1	2	IZS	1	1	1	1	1	1	2	1.0	23	
16	2	2	1	2	2	3	2	2	2	2	2	2	2	1	2	2	IZS	1	2	2	2	2	2	2	3	1.9	24	
17	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	IZS	1	1	3	1	3	1	1	1	3	1.3	24	
18	1	2	2	2	2	2	3	3	3	2	2	2	2	2	IZS	1	2	1	2	2	2	3	3	2	3	2.1	24	
19	2	3	3	3	3	3	3	4	4	C	C	C	C	C	C	C	C	C	1	1	2	2	2	2	2	4	2.5	24
20	2	2	2	2	2	2	2	3	2	3	2	M	IZS	2	2	P	2	2	2	2	3	3	3	3	3	2.3	22	
21	2	3	2	2	2	2	2	2	1	1	1	IZS	1	1	1	1	1	1	1	1	2	2	2	2	3	1.6	24	
22	1	1	2	2	2	5	2	3	2	3	IZS	2	2	1	1	2	1	1	2	2	6	2	2	2	6	2.1	24	
23	2	2	2	1	2	3	3	3	3	IZS	1	1	1	2	2	2	1	1	2	2	2	2	2	2	3	1.9	24	
24	2	2	4	3	2	1	2	3	IZS	3	2	3	2	2	1	2	2	3	3	2	2	2	2	2	4	2.3	24	
25	1	2	1	1	1	1	2	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
26	1	1	1	1	1	1	IZS	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	24	
27	1	1	1	1	1	IZS	1	1	2	2	2	2	2	2	2	2	3	2	2	2	3	3	3	3	3	1.9	24	
28	2	2	2	2	IZS	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2	1	2	2	2	2	1.7	24	
29	2	2	2	IZS	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	3	1	1	2	3	1.6	24	
30	1	1	IZS	1	1	2	2	2	2	1	1	2	2	1	2	1	1	1	1	1	1	1	2	2	2	2	1.4	24
HOURLY MAX	6	8	8	5	5	5	4	4	4	3	3	3	3	2	2	2	3	3	3	3	3	6	3	3	3			
HOURLY AVG	1.8	2.0	2.1	1.8	1.9	2.1	2.1	2.4	2.1	1.8	1.6	1.6	1.5	1.3	1.3	1.3	1.4	1.3	1.6	1.7	1.9	1.7	1.7	1.7				

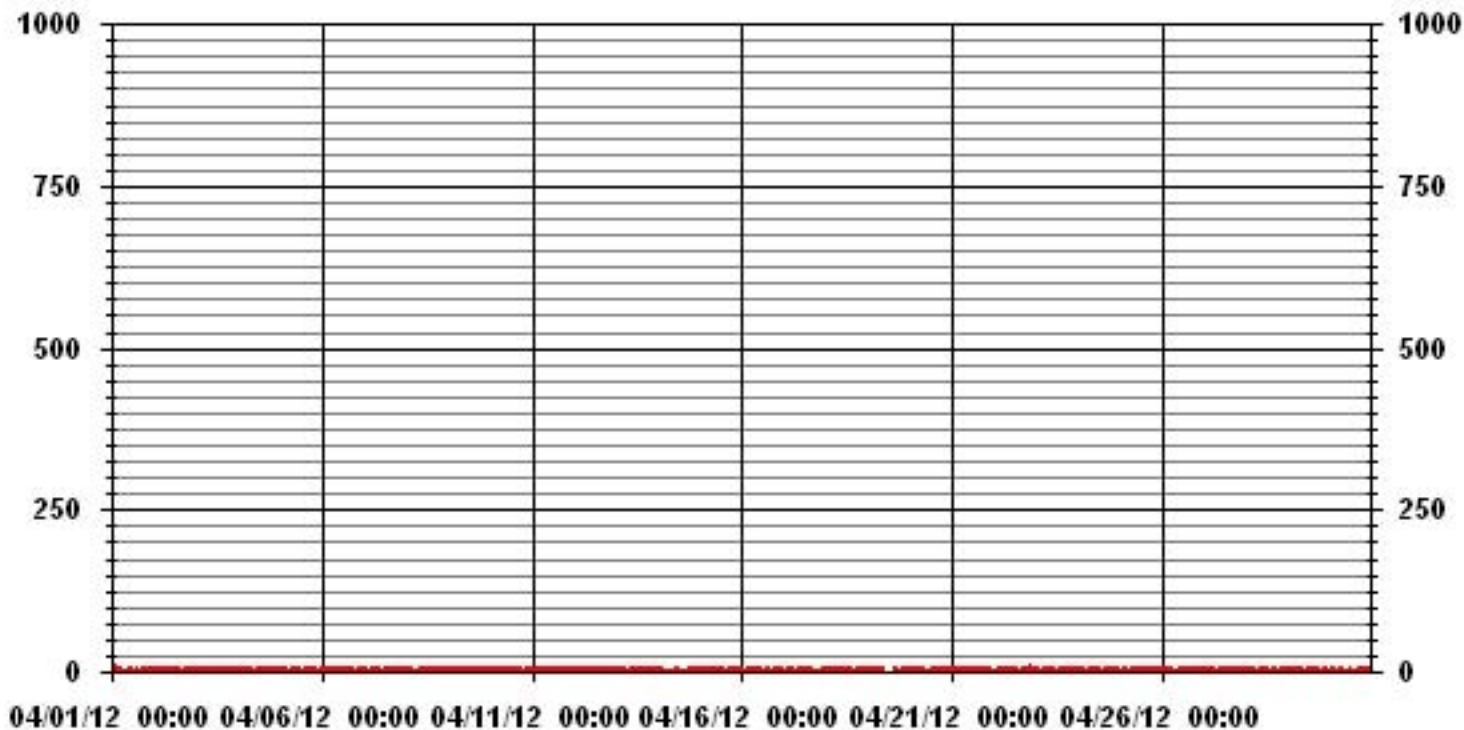
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	669					
MAXIMUM INSTANTANEOUS VALUE:	8	PPB	@ HOUR(S)	1, 2	ON DAY(S)	1
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	717	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	0.88					

01 Hour Averages



LICA31
 NO2_ / WDR Joint Frequency Distribution (Percent)

April 2012

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	6.15	7.62	6.59	7.03	4.83	4.98	5.13	7.91	7.47	5.86	4.54	5.57	4.69	6.15	7.18	8.21	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	6.15	7.62	6.59	7.03	4.83	4.98	5.13	7.91	7.47	5.86	4.54	5.57	4.69	6.15	7.18	8.21	

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	42	52	45	48	33	34	35	54	51	40	31	38	32	42	49	56	682
< 110																	
< 210																	
>= 210																	
Totals	42	52	45	48	33	34	35	54	51	40	31	38	32	42	49	56	

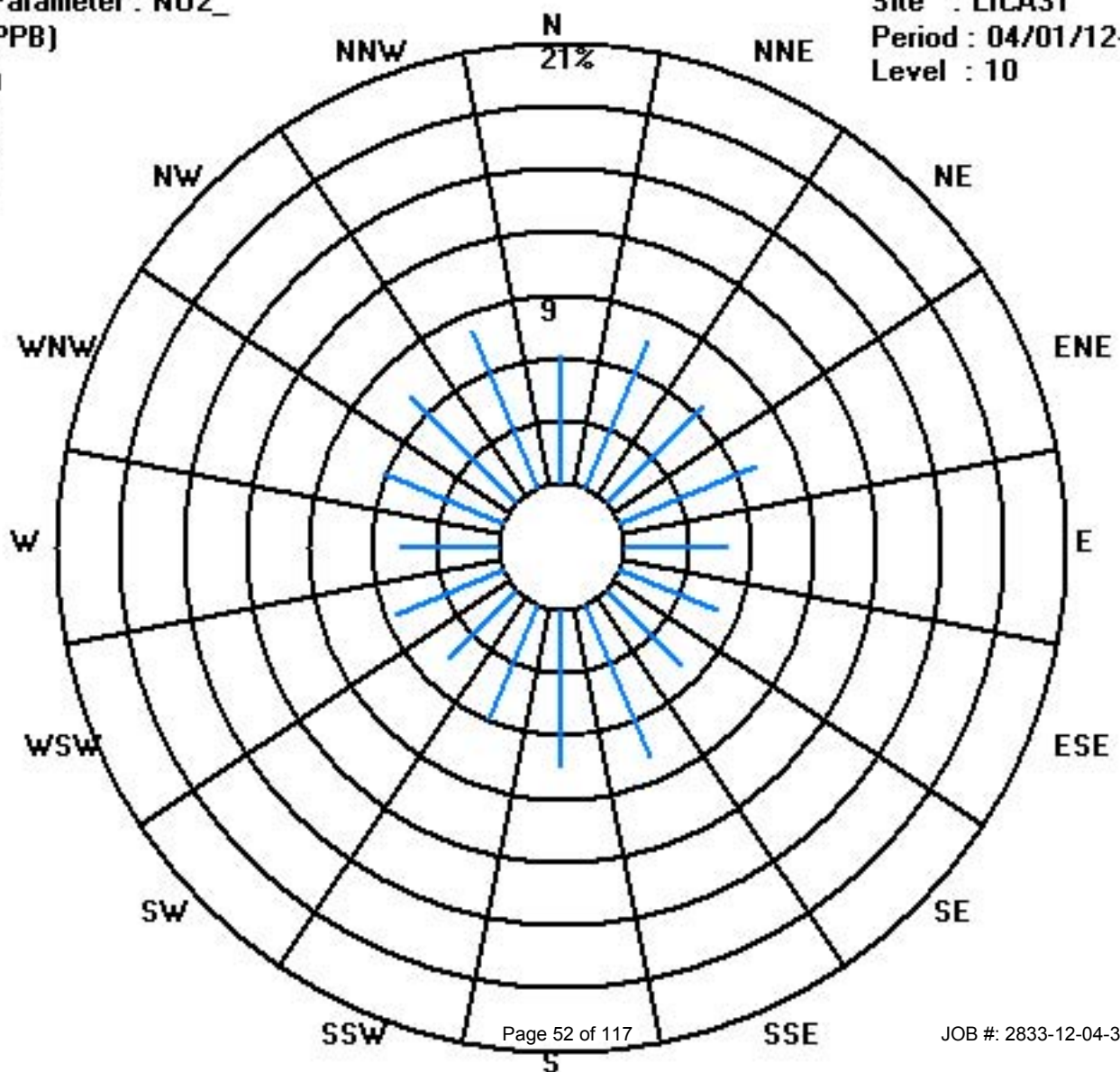
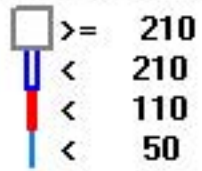
Calm : .00 %

Total # Operational Hours : 682

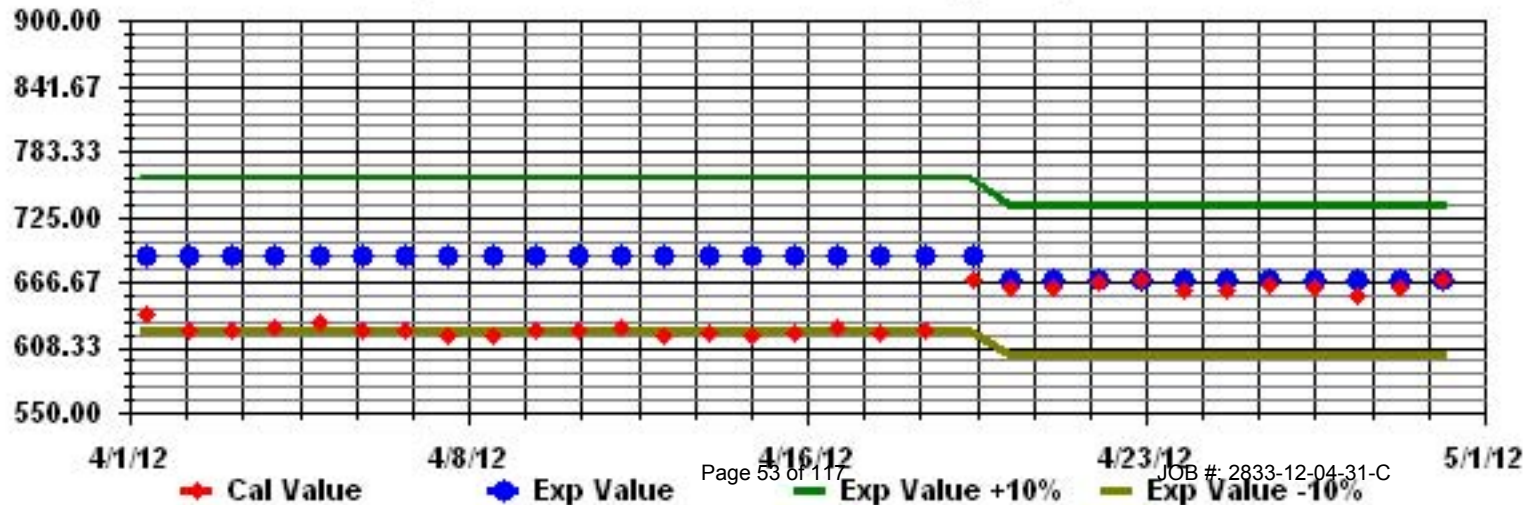
Class Limits (PPB)

Period : 04/01/12-04/30/12

Level : 10



Calibration Graph for Site: LICA31 Parameter: NO2_ Sequence: NO2 Phase: SPAN



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

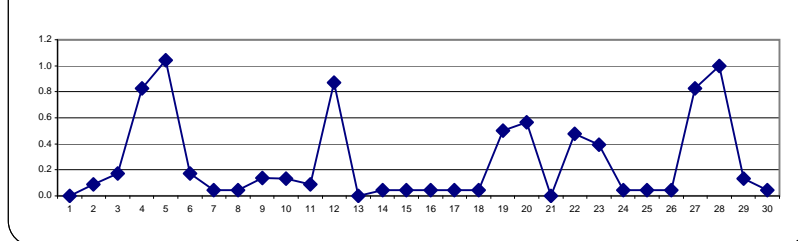
NITRIC OXIDE hourly averages in ppb

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

STATUS FLAG CODES

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

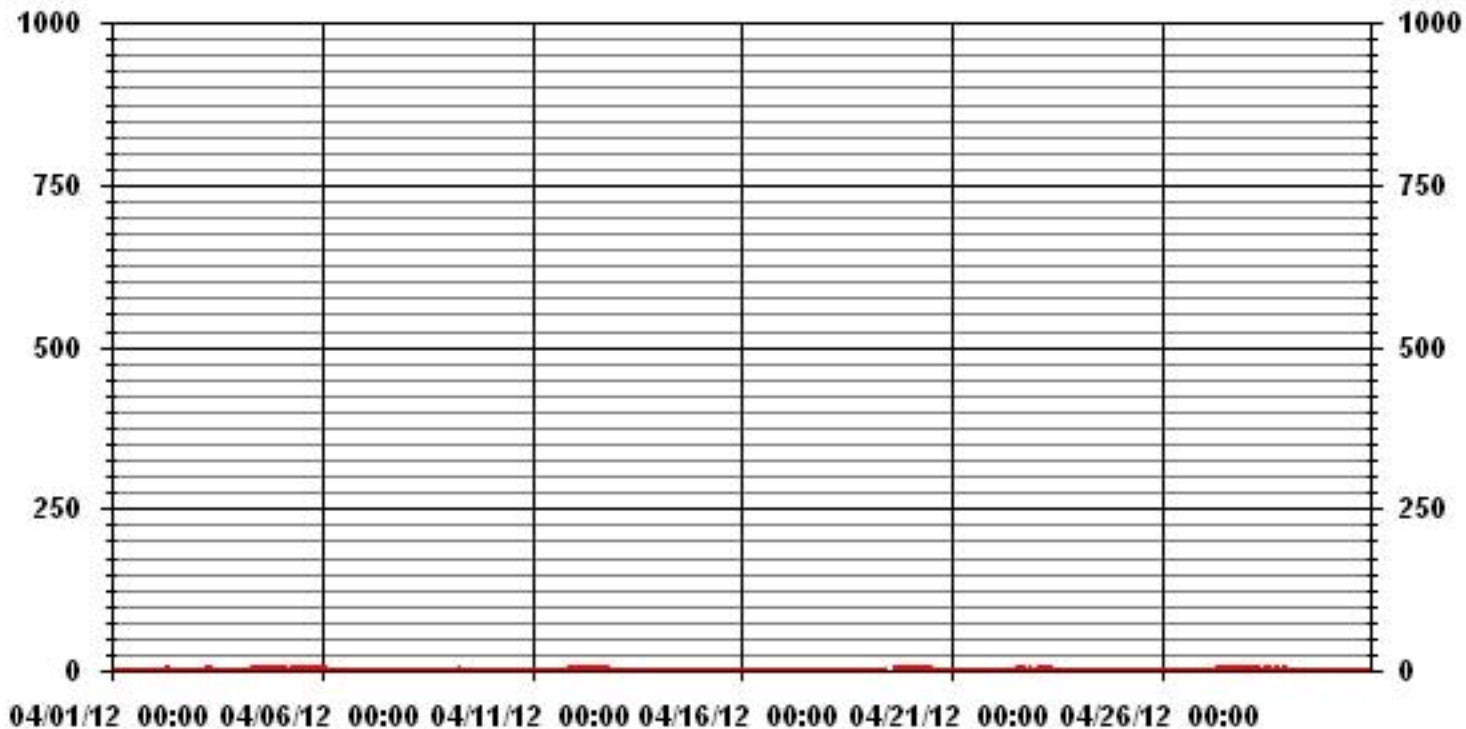
24 HOUR AVERAGES FOR APRIL 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	172				
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	1.0	PPB			ON DAY(S)
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	720	HRS
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.46		MONTHLY AVERAGE:	0.26	PPB

01 Hour Averages



— LICA31 NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

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

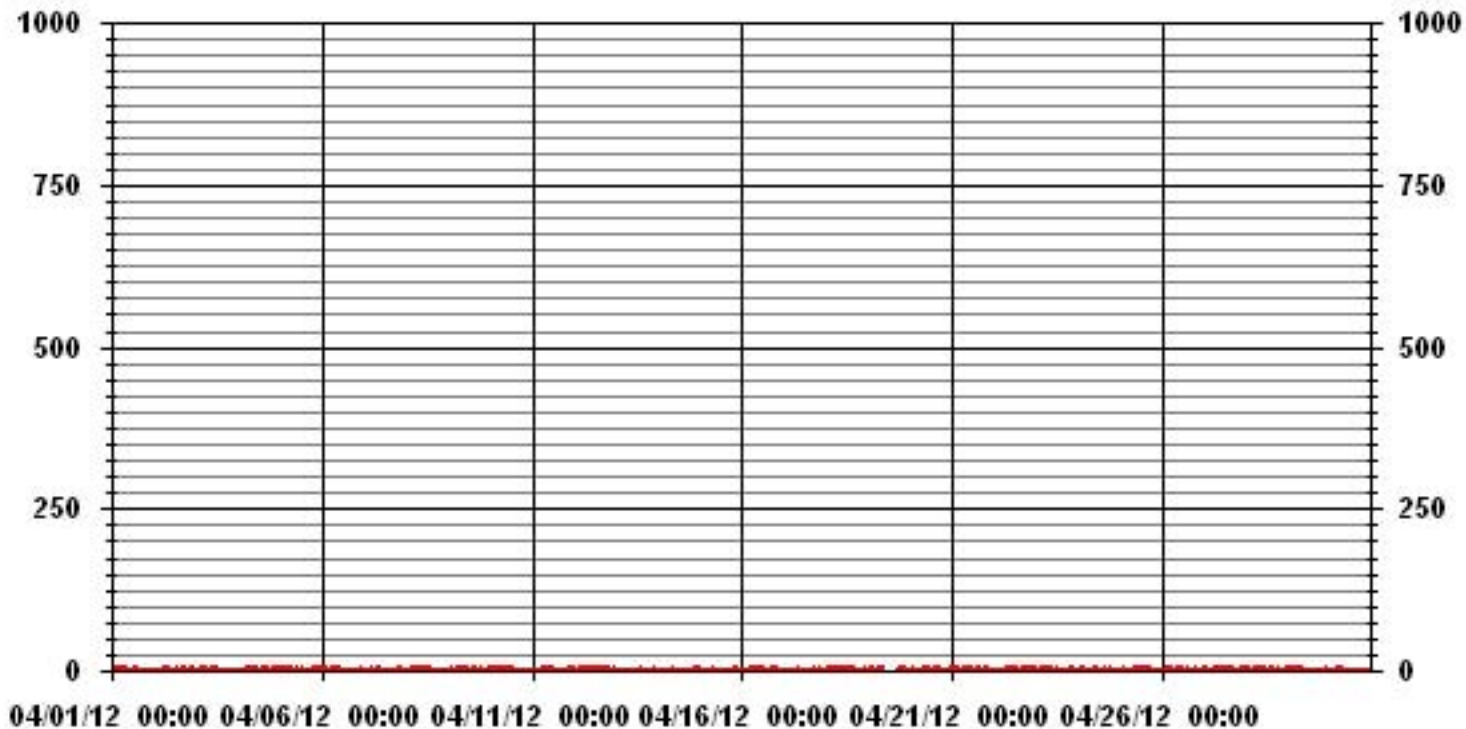
STATUS FLAG CODES

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:	450					
MAXIMUM INSTANTANEOUS VALUE:	4	PPB	@ HOUR(S)	11, 5	ON DAY(S)	22, 28
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	717	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	0.74					

01 Hour Averages



LICA31
 NO_ / WDR Joint Frequency Distribution (Percent)

April 2012

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	6.15	7.62	6.59	7.03	4.83	4.98	5.13	7.91	7.47	5.86	4.54	5.57	4.69	6.15	7.18	8.21	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	6.15	7.62	6.59	7.03	4.83	4.98	5.13	7.91	7.47	5.86	4.54	5.57	4.69	6.15	7.18	8.21	

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	42	52	45	48	33	34	35	54	51	40	31	38	32	42	49	56	682
< 110																	
< 210																	
>= 210																	
Totals	42	52	45	48	33	34	35	54	51	40	31	38	32	42	49	56	

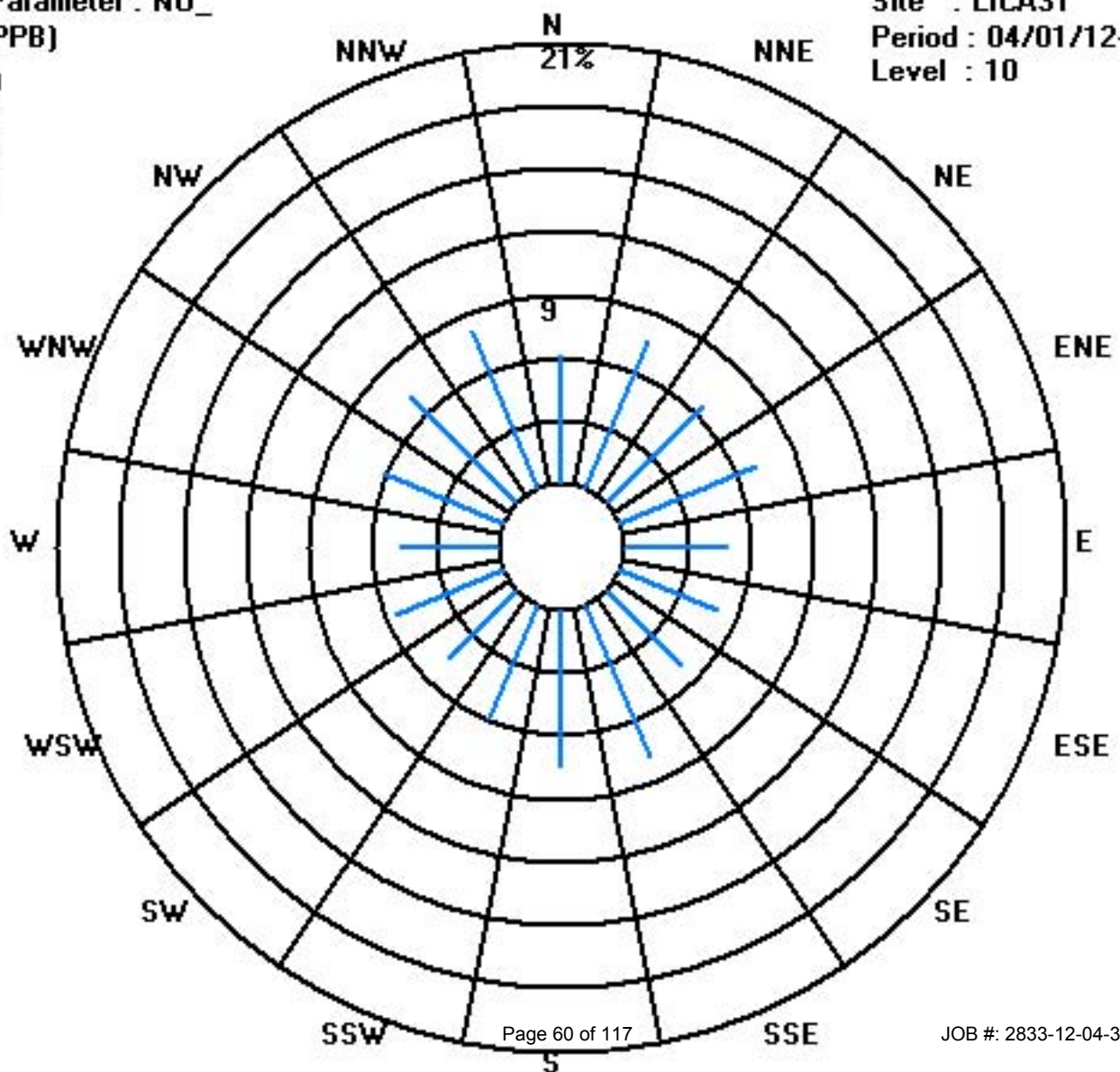
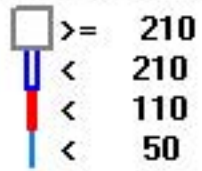
Calm : .00 %

Total # Operational Hours : 682

Class Limits (PPB)

Period : 04/01/12-04/30/12

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

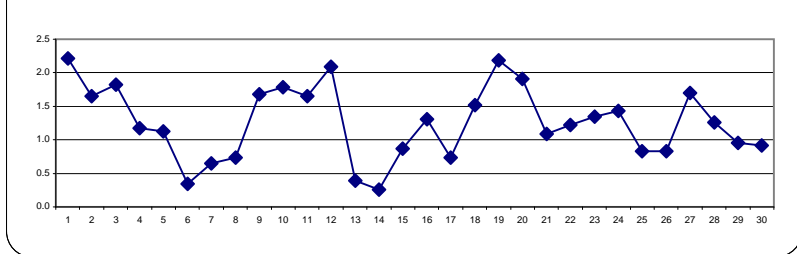
OXIDES OF NITROGEN hourly averages in ppb

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	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																									MAX.	AVG.	RDGS.	
1	5	7	6	4	5	3	3	2	IZS	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	2.2	24
2	2	1	1	1	1	1	2	IZS	3	2	2	2	3	2	1	1	1	1	1	1	2	2	2	2	2	3	1.7	24
3	2	2	2	2	2	2	IZS	3	3	3	3	3	2	2	1	1	1	1	1	1	1	1	2	1	3	1.8	24	
4	1	1	1	2	2	IZS	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	3	1.2	24	
5	1	1	0	1	IZS	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
6	1	2	2	IZS	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
7	0	0	IZS	1	1	1	1	1	1	1	1	0	0	0	1	0	1	0	1	0	1	1	1	1	1	0.7	24	
8	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	0	0	0	1	0.7	24	
9	IZS	2	2	2	2	3	3	4	3	2	1	1	1	1	1	1	1	1	1	2	1	1	1	IZS	4	1.7	24	
10	2	2	3	2	3	3	4	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	IZS	2	4	1.8	24
11	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	1	1	2	IZS	2	2	2	1.7	24	
12	2	2	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	IZS	1	1	3	2.1	24	
13	1	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	IZS	2	2	1	0	2	0.4	24	
14	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	IZS	1	1	1	1	1	1	0.3	24	
15	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1	IZS	1	1	1	1	1	1	1	0.9	24	
16	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	1	IZS	2	1	1	2	1	1	1	2	1.3	24	
17	1	1	1	0	1	1	1	1	1	1	0	1	0	0	0	IZS	1	1	1	1	1	1	1	1	0	1	0.7	24
18	1	1	2	2	2	2	2	2	2	2	1	1	1	1	IZS	1	1	1	1	1	2	2	2	2	2	1.5	24	
19	2	2	2	3	2	3	3	4	4	C	C	C	C	C	C	C	C	1	1	1	1	2	2	2	2	4	2.2	24
20	2	1	1	1	1	2	2	2	2	2	2	2	IZS	3	2	2	2	2	2	2	2	2	3	2	3	1.9	24	
21	2	2	2	2	2	1	1	1	1	1	1	IZS	1	1	0	1	1	0	0	1	1	1	1	1	2	1.1	24	
22	1	0	1	1	1	2	1	2	2	2	IZS	2	1	1	1	1	1	1	1	1	2	1	1	1	2	1.2	24	
23	1	1	1	1	1	3	3	2	2	IZS	2	1	1	1	1	1	1	1	1	1	1	2	1	1	3	1.3	24	
24	1	1	2	1	1	1	1	2	IZS	3	2	2	1	1	1	1	1	2	2	2	2	1	1	1	3	1.4	24	
25	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	0.8	24	
26	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	0	1	0	0	0	1	1	1	1	1	1	0.8	24	
27	1	1	1	1	1	IZS	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.7	24
28	2	1	1	1	IZS	2	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.3	24	
29	1	1	1	IZS	2	2	2	2	2	1	1	1	0	0	1	0	0	0	0	1	0	0	2	2	2	1.0	24	
30	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	0.9	24	
HOURLY MAX	5	7	6	4	5	3	4	4	4	3	3	3	3	3	2	2	2	2	2	2	2	2	3	2				
HOURLY AVG	1.3	1.3	1.4	1.4	1.5	1.6	1.7	1.8	1.7	1.5	1.2	1.2	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.2	1.1	1.2	1.1			

STATUS FLAG CODES

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

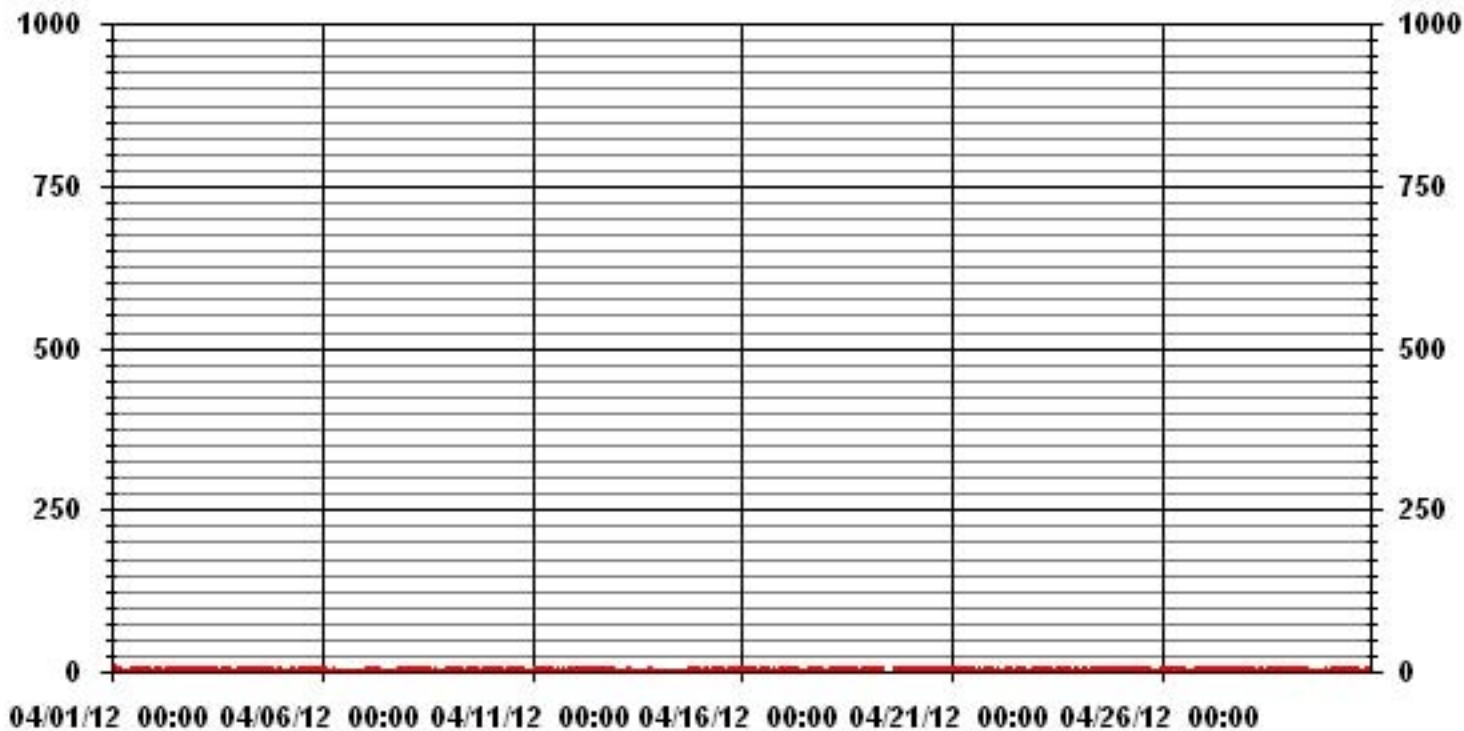
24 HOUR AVERAGES FOR APRIL 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	585		
MAXIMUM 1-HR AVERAGE:	7	PPB @ HOUR(S)	1 ON DAY(S)
MAXIMUM 24-HR AVERAGE:	2.2	PPB	1,19 ON DAY(S)
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME: 720 HRS
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME: 100.0 %
STANDARD DEVIATION	0.85		MONTHLY AVERAGE: 1.25 PPB

01 Hour Averages



— LICA31 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	6	9	8	6	6	4	4	3	IZS	3	2	2	2	2	2	2	2	1	1	2	2	1	2	2	9	3.2	24	
2	2	2	2	2	2	2	3	IZS	5	3	4	4	3	3	2	1	2	2	2	2	3	3	2	3	5	2.6	24	
3	2	2	2	2	3	2	IZS	4	4	4	4	3	4	2	2	2	2	2	2	2	2	2	2	2	4	2.5	24	
4	2	2	2	3	3	IZS	4	2	2	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	4	1.6	24	
5	1	1	1	1	IZS	2	2	3	3	3	2	2	2	2	2	1	2	1	2	2	2	2	2	2	3	1.9	24	
6	2	3	3	IZS	3	1	1	2	2	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	3	1.0	24	
7	1	1	IZS	3	2	2	1	2	2	1	1	1	1	1	1	1	1	1	2	1	2	1	2	2	3	1.4	24	
8	1	IZS	2	1	2	2	1	1	2	2	2	2	1	1	2	1	1	1	1	1	1	1	1	1	2	1.3	24	
9	IZS	3	3	3	3	4	5	5	5	3	2	2	2	2	2	1	2	2	2	2	2	2	1	1	IZS	5	2.6	24
10	3	3	3	3	4	4	5	5	4	2	2	1	2	1	1	1	1	1	2	2	2	2	2	IZS	4	5	2.5	24
11	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	3	IZS	3	3	3	2.5	24	
12	3	3	4	4	3	3	3	3	3	2	2	2	2	2	2	3	2	3	3	3	IZS	3	1	1	4	2.6	24	
13	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	IZS	3	2	2	1	3	1.2	24	
14	1	1	1	1	1	1	1	1	1	1	1	3	2	1	1	0	0	1	IZS	3	2	2	2	1	3	1.3	24	
15	1	1	1	1	1	1	1	1	2	1	1	P	2	2	1	1	2	IZS	2	1	1	2	1	1	2	1.3	23	
16	2	2	2	2	2	3	2	3	3	2	2	2	3	2	2	2	IZS	3	2	2	3	2	2	2	3	2.3	24	
17	2	1	1	1	1	1	1	2	2	1	1	2	1	1	1	IZS	2	2	4	1	4	2	1	1	4	1.6	24	
18	1	2	2	3	3	3	3	3	3	2	2	2	3	2	IZS	2	2	2	1	2	3	3	3	2	3	2.3	24	
19	2	3	3	3	3	3	4	5	5	C	C	C	C	C	C	C	C	2	1	2	2	3	2	2	5	2.8	24	
20	2	2	2	2	2	2	2	3	3	3	3	M	IZS	4	3	P	2	3	2	3	3	3	6	3	6	2.8	22	
21	3	3	3	2	2	2	2	2	2	2	2	IZS	2	1	2	2	2	2	1	2	2	2	2	3	2	0	2.0	24
22	1	1	2	2	2	5	2	3	3	3	IZS	3	2	2	2	2	2	2	2	2	7	2	1	2	7	2.4	24	
23	2	2	2	1	2	3	4	3	3	IZS	3	2	2	2	2	2	2	2	2	2	2	2	2	2	4	2.2	24	
24	2	2	4	3	2	2	2	3	IZS	5	2	3	2	2	2	2	2	3	3	3	3	3	2	2	2	5	2.5	24
25	1	1	2	1	2	1	2	IZS	3	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	3	1.3	24	
26	2	1	1	1	2	2	IZS	2	2	2	2	1	1	1	2	1	1	1	1	1	2	1	1	2	2	1.4	24	
27	2	1	2	1	2	IZS	3	2	2	3	2	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3	2.4	24
28	2	2	2	2	IZS	3	2	4	3	3	3	2	2	2	2	2	2	2	1	1	1	2	2	1	4	2.1	24	
29	2	2	2	IZS	3	2	2	3	3	2	1	1	1	1	2	1	1	1	1	4	1	1	3	3	4	1.9	24	
30	2	1	IZS	3	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	3	2	2	3	1.8	24	
HOURLY MAX	6	9	8	6	6	5	5	5	5	5	4	4	4	4	3	3	3	3	4	4	7	3	6	4				
HOURLY AVG	1.9	2.1	2.3	2.1	2.4	2.4	2.4	2.8	2.8	2.2	2.0	2.0	1.9	1.7	1.7	1.5	1.6	1.7	1.7	1.9	2.2	1.9	1.9	1.9				

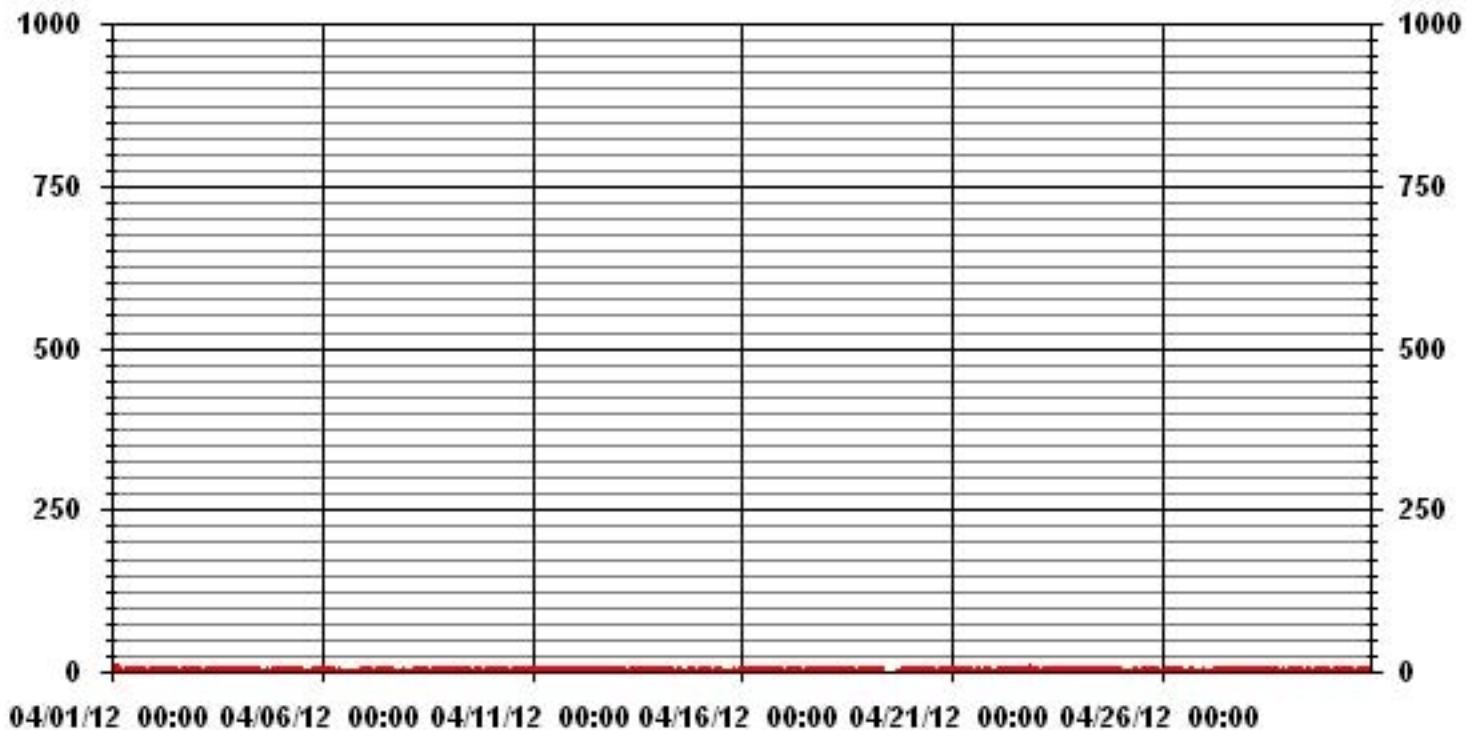
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	667				
MAXIMUM INSTANTANEOUS VALUE:	9	PPB	@ HOUR(S)	1	ON DAY(S) 1
IZS CALIBRATION TIME:	30	HRS	OPERATIONAL TIME:	717 HRS	
MONTHLY CALIBRATION TIME:	8 HRS				
STANDARD DEVIATION:	1.04				

01 Hour Averages



— LICA31 NOXMAX PPB

LICA31
 NOX_ / WDR Joint Frequency Distribution (Percent)

April 2012

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	6.15	7.62	6.59	7.03	4.83	4.98	5.13	7.91	7.47	5.86	4.54	5.57	4.69	6.15	7.18	8.21	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	6.15	7.62	6.59	7.03	4.83	4.98	5.13	7.91	7.47	5.86	4.54	5.57	4.69	6.15	7.18	8.21	

Calm : .00 %

Total # Operational Hours : 682

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	42	52	45	48	33	34	35	54	51	40	31	38	32	42	49	56	682
< 110																	
< 210																	
>= 210																	
Totals	42	52	45	48	33	34	35	54	51	40	31	38	32	42	49	56	

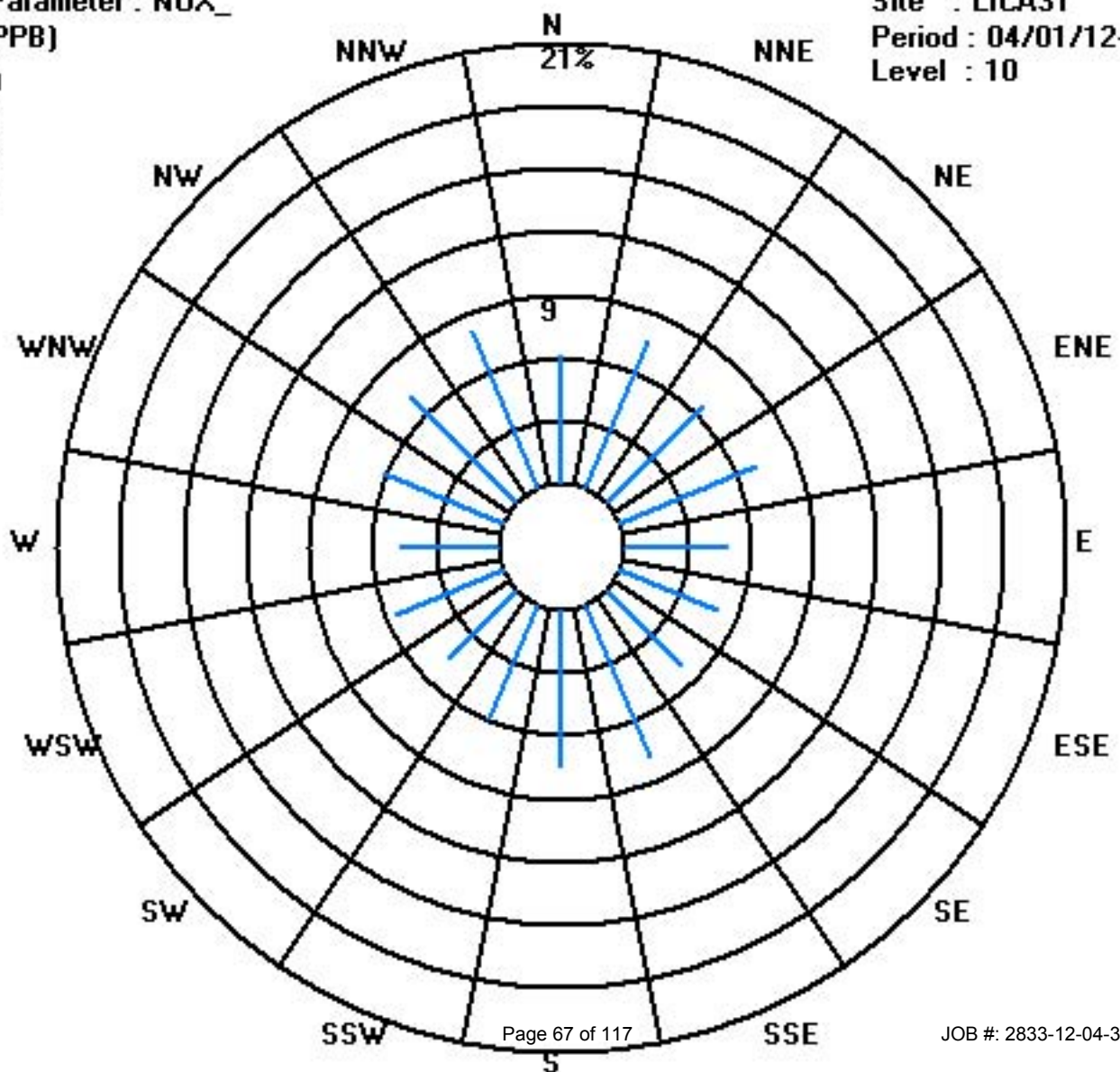
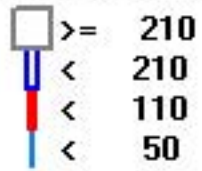
Calm : .00 %

Total # Operational Hours : 682

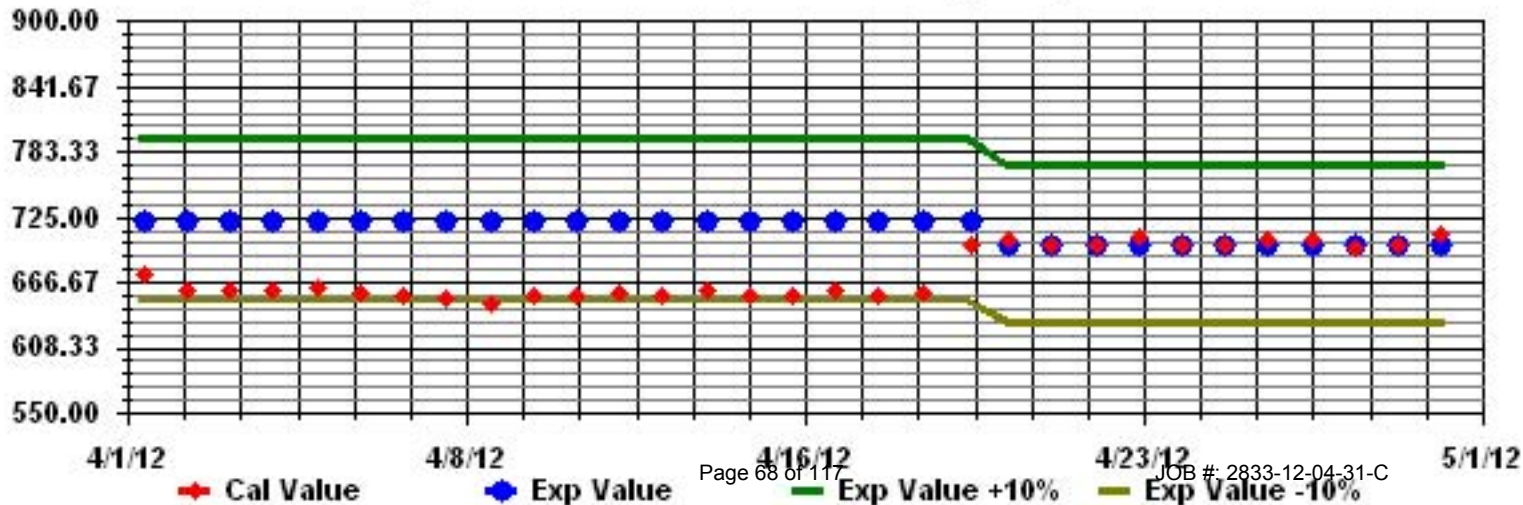
Class Limits (PPB)

Period : 04/01/12-04/30/12

Level : 10



Calibration Graph for Site: LICA31 Parameter: NOX_ Sequence: NO2 Phase: SPAN



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

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

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	1.5	2.1	4.6	5.1	0	N	8.6	7.6	0	11.1	5.1	6.1	0.5	2.1	3.1	0	3.6	4	2.1	1.1	0	4.6	3.6	3.1	11.1	3.5	23	
2	3	0.5	3.6	0.5	0	0	2.6	3.1	3	0.5	4.6	6.1	2.6	5.1	1.5	1.1	2.6	3.6	4.6	5.1	2.6	0.5	3.1	0.5	6.1	2.5	24	
3	2.1	2.1	4.6	2.6	0	3	8.6	7.1	3.6	5.5	2.6	5.5	2.6	6.1	2.1	5.1	2.1	3.1	3.6	5.1	2.1	4.6	4.6	1.5	8.6	3.7	24	
4	2.1	4	5.5	0	N	0.5	9.1	1.1	6.1	0	3	1.5	5.1	1.5	1.5	4	2.6	2.1	4	2.1	2.6	2.1	2.6	1.1	9.1	2.8	23	
5	0	5.5	4.6	3.6	4	6.1	5.1	0.5	6.1	6.1	6.1	0	6.1	5.5	1.5	2.6	3	0	3.6	0	0	1.1	2.1	4	6.1	3.2	24	
6	0	0	0	3.6	2.6	2.6	0.5	2.6	4	6.1	0	1.1	1.5	4	4.6	1.1	4	0	0.5	0	4.6	3.1	0	3.1	6.1	0.0	24	
7	3.1	6.1	2.6	2.1	3	2.6	2.6	0.5	0	N	0	N	1.5	0.5	0	1.1	5.1	1.5	1.5	1.1	1.5	2.1	7.1	7.1	2.1	2.1	22	
8	1.1	2.1	1.5	3	2.1	1.1	4.6	0	3	1.5	2.1	1.1	2.1	0	5.5	4	0	3.1	3	0	6.1	6.1	0	5.1	6.1	2.4	24	
9	1.1	4	5.1	3.6	4	1.5	0.5	5.1	6.6	1.1	0	0.5	0	2.6	3.6	4.1	4.1	2.1	6.6	1.1	3.6	2.6	1.1	0	6.6	2.7	24	
10	2.1	3	3.6	2.1	7.1	4	1.1	3.6	0	2.1	4	4	0	0	3	6.1	5.5	4.1	6.1	4.6	6.6	7.6	12.6	12.6	12.6	4.4	24	
11	5.1	6.1	4.6	3.6	11.1	11.6	8.6	8.1	6.6	9.1	7.1	8.1	8	5.1	6.6	6.6	11.6	8	12.6	6.6	10.5	11.1	6.1	12.6	12.6	8.1	24	
12	19.6	15.1	26.6	36.1	19.1	10.5	9.6	6.1	3	6.6	7.1	7.6	8.1	5.5	8.1	12.1	7.1	6.6	6.6	6.1	33.6	25.5	10.5	8.6	36.1	12.7	24	
13	11.6	10.5	5.1	1.5	2.1	8	8.1	7.1	10.1	12.6	11.6	7.6	18.6	8.6	0.5	7.6	4	5.5	4.6	2.6	10.5	6.6	4.6	3.6	18.6	7.2	24	
14	0	2.6	2.6	5.5	1.5	2.6	1.5	2.6	4	0	0.5	3.6	0	2.1	0	4	0.5	3.1	2.6	5.5	3.1	1.1	2.1	5.1	5.5	2.3	24	
15	4	3.1	4.6	3.6	3.1	3.1	3.1	2.1	1.1	6.1	0	0.5	2.1	6.2	4.6	1.1	6.1	4.9	3.3	2.3	6.6	4.5	0.6	3.1	6.6	3.3	24	
16	3.7	5.6	2	3	4.6	8.6	8	10.1	9	11.2	7	11.1	8.1	11.9	5.5	8.6	7.1	6.6	5.5	8.1	8.1	5	3.6	4	11.9	6.9	24	
17	4	3.1	4.6	4	3.6	3	2.1	3	1.5	3.6	7.1	2.6	1.5	4.6	5.1	0.5	2.1	5.1	4.6	6.1	0	5.5	2.1	1.1	7.1	3.4	24	
18	0	5.1	6.6	1.5	5.5	2.6	2.1	4	0.5	8.6	5.1	5.1	7.6	7.6	7.1	8	3.6	8	9.1	11.1	7.1	14.6	10	13.1	14.6	6.4	24	
19	5.5	6.1	7.6	5.1	5.5	8	5.1	7.6	5.5	6.6	6.1	5.5	7.1	9.1	C	3	4	2.6	2.1	7.6	1.1	9.1	3.6	7.6	9.1	5.7	24	
20	7.1	5.1	5.5	4	2.6	6.1	5.5	5.1	7.1	7.6	3.6	5.1	0	3.1	0	1.2	4.4	4.3	2	6.6	3	7.9	5.9	4.4	7.9	4.5	24	
21	3.3	5.5	5.4	7.1	1.9	3.3	0	2.9	0	3.3	3.2	1.5	0	0.5	4.9	1.3	2.8	0	1.1	3	1.5	2.2	5.9	5.3	7.1	2.7	24	
22	4.6	1.6	11.5	11	7.1	3.5	4.8	4.2	4.1	3.6	5.1	11.1	0	4.6	5.5	2.1	5.5	3.5	5.1	4.6	8.6	3.6	5.5	3	11.5	5.2	24	
23	4	6.6	3	5.5	5.5	4.6	2.6	5.5	3.6	1.5	5.1	8	1.5	4.6	6.1	3	4.6	4.6	2.1	12.1	2.1	4.6	3.6	2.6	12.1	4.5	24	
24	2.1	4	7.6	4	4	5.1	3.1	7.6	9.1	6.6	4	10.5	7.1	6.1	8.6	5.5	5.1	4.6	6.1	8.1	6.1	1.5	2.1	0	10.5	5.4	24	
25	5.1	4	2.1	0	0.5	0	1.1	0	1.1	0	1.1	0	4.6	4.6	4	5.1	0.5	0	5.5	5.5	4	3.6	7.1	7.6	7.6	2.8	24	
26	1.5	3	4	3.6	7.1	3.6	2.6	4	2.1	4	2.1	1.5	0.5	3.6	8	4	5.1	0	3.6	0	2.6	2.1	2.1	8.6	8.6	3.3	24	
27	6.1	5.5	5.5	5.5	5.1	7.6	6.1	5.5	4	4	7.1	5.1	0	5.1	0	2.1	1.5	2.1	1.1	3	1.1	2.1	2.1	0.5	7.6	3.7	24	
28	3.6	0	1.5	1.1	0	3.1	2.1	6.6	0	6.6	6.1	2.6	5.1	5.5	3.6	2.1	4.6	5.1	6.1	5.5	8	0.5	6.1	3.6	8.0	3.7	24	
29	3.6	3	5.5	2.6	2.6	3.6	4	2.6	1.5	4.6	1.5	N	1.5	1.1	1.1	1.1	0	0.5	5.1	4	3	2.1	1.1	3	5.5	2.6	23	
30	0	0	0.5	1.5	3	0.5	5.5	2.1	4.6	5.1	4	1.1	3.6	4	2.6	5.1	6.1	5.5	0.5	2.6	5.1	6.6	5.1	5.1	6.6	3.3	24	
HOURLY MAX	20	15	27	36	19	12	10	10	10	13	12	11	19	12	9	12	12	8	13	12	34	26	13	13				
HOURLY AVG	3.7	4.2	5.1	4.5	4.1	4.2	4.3	4.3	3.7	4.9	4.2	4.4	3.6	4.4	3.8	3.6	3.8	3.6	4.2	4.4	5.2	5.1	4.1	4.7				

STATUS FLAG CODES

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

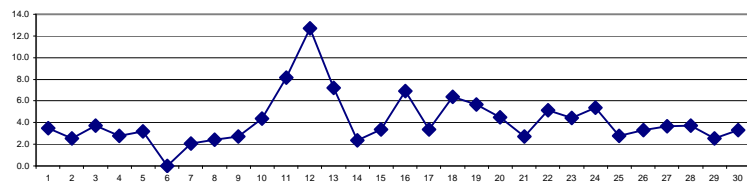
OBJECTIVE LIMIT:

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

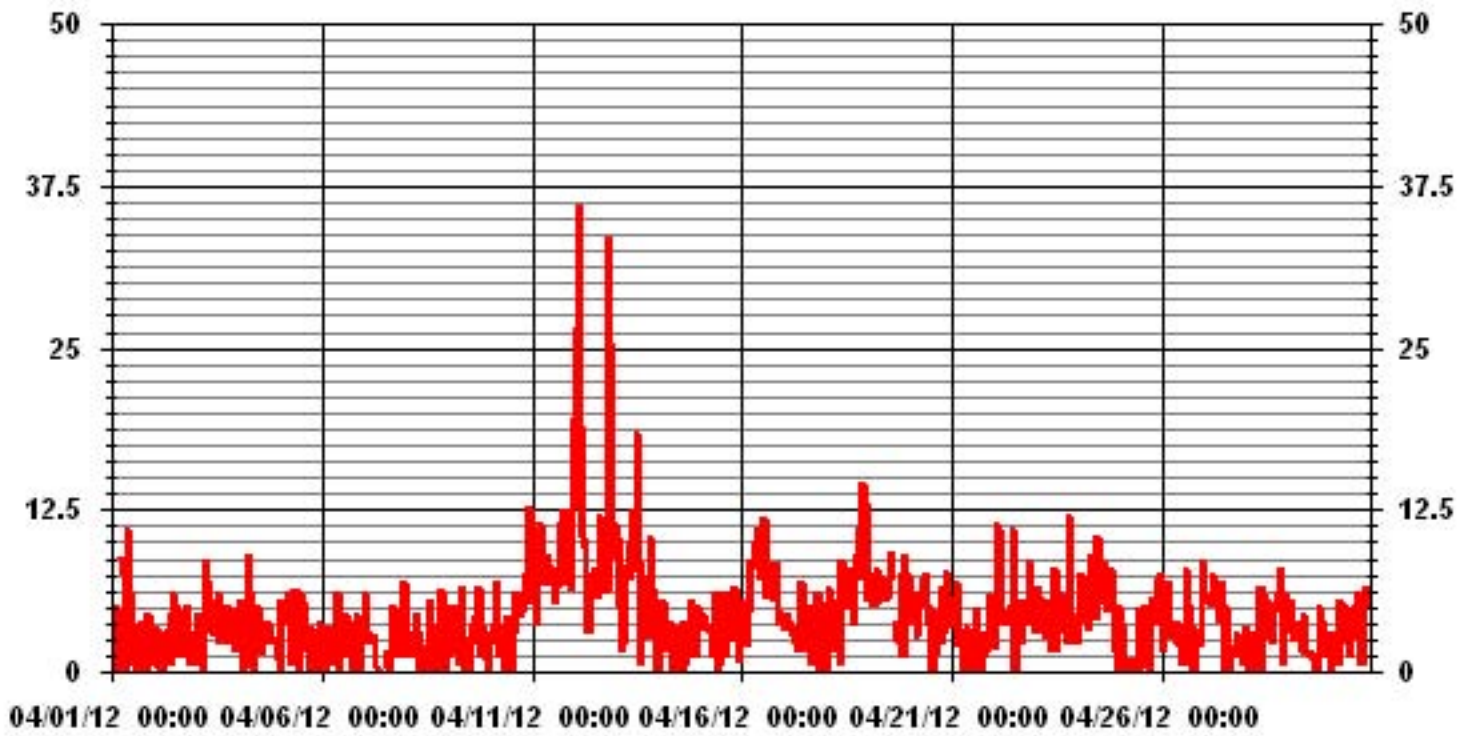
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-	PROPOSED CANADA WIDE GUIDELINE				
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	646					
MAXIMUM 1-HR AVERAGE:	36.1	UG/M ³	@ HOUR(S)	3	ON DAY(S)	12
MAXIMUM 24-HR AVERAGE:	12.7	UG/M ³			ON DAY(S)	12
IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	715	HRS	
MONTHLY CALIBRATION TIME:	1	HRS	AMD OPERATION UPTIME:	99.3	%	
STANDARD DEVIATION:	3.63		MONTHLY AVERAGE:	4.24	UG/M ³	

24 HOUR AVERAGES FOR APRIL 2012



01 Hour Averages



— LICA31 PM2 UG/M3

LICA31
PM2 / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : PM2
Units : UG/M3

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	6.02	7.70	6.16	7.00	4.76	4.62	5.60	8.12	7.56	5.88	4.62	5.46	4.62	6.44	7.28	7.84	99.71
< 60.0	.14	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.28
< 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	6.16	7.70	6.16	7.00	4.76	4.62	5.60	8.12	7.70	5.88	4.62	5.46	4.62	6.44	7.28	7.84	

Calm : .00 %

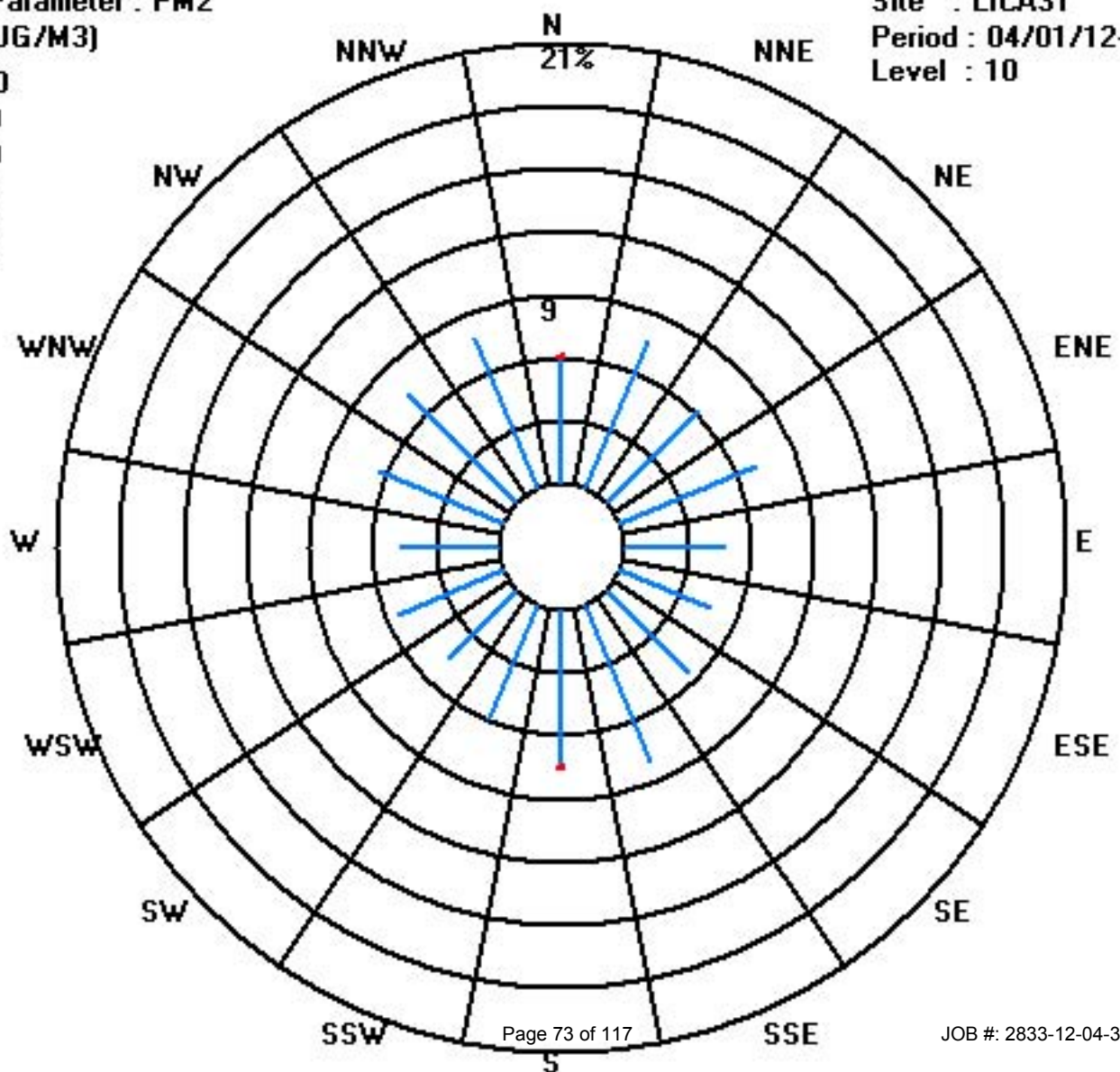
Total # Operational Hours : 714

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 30.0	43	55	44	50	34	33	40	58	54	42	33	39	33	46	52	56	712
< 60.0	1								1								2
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	44	55	44	50	34	33	40	58	55	42	33	39	33	46	52	56	

Calm : .00 %

Total # Operational Hours : 714



Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	DAILY MAX.	24-HOUR AVG.	RDGS.
DAY		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
1		3.3	3.1	3	2.9	2.9	2.9	2.9	2.7	0.8	0.3	0.5	0.5	0.3	0	-0.2	-0.4	-0.3	-0.4	-0.6	-0.8	-1.5	-2.2	-2.2	-1.9	3.3	0.7	24	
2		-1.8	-2.6	-2.9	-3.6	-3.9	-4	-3.3	-1.2	1.4	4.2	5.6	6.3	7.4	8.4	9.1	9.4	9.6	8.9	7.6	5.9	5.2	4.8	4.2	3.9	9.6	3.3	24	
3		4	3.7	3.1	2	1.1	0.8	1.7	3.6	4.9	5.7	7.9	8.5	10.4	12.9	14.8	16.1	16.9	15.9	14.2	12.7	11.5	9.9	9.4	8.8	16.9	8.4	24	
4		8.1	7.2	5.6	4.5	4.4	3.4	5.2	5.5	4.8	5.3	7.1	8.2	8.8	9	9.6	10.3	9.9	9.1	8.4	7.6	7	6.1	5.2	4.6	10.3	6.9	24	
5		4.4	4.5	4.1	3.7	3.6	3.4	4	6	7.1	5.2	3.6	1.6	0.3	0.5	1.8	2.8	2.4	2	1.1	0.6	0.2	-1.1	-1.8	-2.3	7.1	2.4	24	
6		-3.3	-3.8	-3.8	-4.4	-4.7	-4.7	-3.7	-1.6	0.1	1.4	2.1	2.9	3.8	4	3.1	2.7	2.1	1.8	0.5	-0.6	-1.8	-2.3	-3	-3.3	4.0	-0.7	24	
7		-3.8	-4.5	-4.6	-5.5	-6.1	-6.3	-5.5	-4.2	-1.5	1.1	2.8	4.3	5.3	5.8	6.4	6.9	6.7	6.1	4.3	2.5	1.1	0.2	-0.6	-1.5	6.9	0.4	24	
8		-2.1	-2.5	-3.8	-4.5	-4.9	-5.2	-4.3	-3.5	-2.7	-2.7	-1.8	-0.4	0.6	2.1	2.6	3	3.2	2.6	1.5	-0.5	-1.6	-2.2	-2.6	-3.1	3.2	-1.4	24	
9		-3.8	-4.3	-4.7	-5.1	-5.6	-5.8	-4.3	-2.4	-0.4	2.1	2.9	3.8	4.6	5.2	5.4	5.5	5.1	4.5	3	1.3	0.5	0	-0.5	-1.4	5.5	0.2	24	
10		-2	-3	-3.9	-5.1	-5.9	-6.7	-5.3	-2.5	0.8	2.7	4.5	5.8	6.8	7.5	8.2	8.3	8.6	7.8	6.6	5	3.9	2.8	1.9	1.6	8.6	2.0	24	
11		1.4	1.2	0.9	0	-1	-1.4	-0.6	0.1	1.9	4.5	6.9	9.4	12.1	13.7	14.4	14.9	14.9	13.6	12.4	11	9.8	8.5	6.9	5.5	14.9	6.7	24	
12		4.2	3.4	3	2.3	1.2	0.3	0.5	1.7	3.2	5.6	8.2	9.3	10.2	10.6	9.8	8.7	8.8	8.9	9.2	9.3	9.1	8.9	8.9	8.3	10.6	6.4	24	
13		5.9	4.3	4.3	4.3	3.9	3.6	2.5	2.6	2.5	2.3	2.8	3	3	3.3	3.4	3.3	3.1	2.9	2.9	2.6	2.4	2.1	1.9	1.8	5.9	3.1	24	
14		1.7	1.5	1.3	1	0.8	0.5	0.3	0.3	0.8	1.1	1.5	2.3	2.1	1.6	1.2	1.3	0.2	-0.8	-1.4	-2.2	-2.7	-3.5	-4.3	-4.7	2.3	0.0	24	
15		-5	-5.7	-6.1	-6.4	-5.8	-5.7	-6	-5.7	-4.9	-1.4	-1.8	-2.1	-2	-1.3	-1	-1.1	-1.5	-1.7	-2	-2.5	-3.3	-4	-4.9	-5.4	-1.0	-3.6	24	
16		-6.1	-6.3	-6.4	-6.2	-6.2	-5.7	-5.1	-3.9	-2	-0.1	2	4.4	4.2	5.4	5.7	6.3	7	6.8	4	2.1	0.7	0.4	0.2	-0.3	7.0	0.0	24	
17		-0.6	-0.9	-1.8	-3	-2.9	-2.7	-2.8	-2.9	-2.7	-1.2	0.3	1.6	2.4	3	3.7	4	4	3.4	2.2	0.5	-0.6	-1	-1.6	-1.7	4.0	-0.1	24	
18		-1.9	-2.8	-2.9	-3.7	-3.9	-3.8	-2.1	0	2.1	3.2	4.4	5.5	6.6	7.4	7.9	8.4	8.5	7.6	6.3	4.6	3.3	2.5	2.1	2.5	8.5	2.6	24	
19		2.3	2.1	1.8	1.5	1.2	1	0.8	1.4	3	5.9	7.6	6.7	7.3	8.8	9.4	10.3	10.5	9.9	9.2	7.4	5.8	4.8	3.8	3.1	10.5	5.2	24	
20		1.9	1.3	0.9	0.4	0.1	0.4	0.5	0.7	0.7	0.5	0.5	0.7	1	1.7	2.7	3.5	3.9	4.6	4	2.7	1.9	1.5	0.9	0.9	4.6	1.6	24	
21		1.1	0.6	0.9	0.5	0.1	0.3	2.2	4.3	6.9	8.3	10.1	11.9	12.5	13.4	13.8	13.9	14.1	13.3	12.1	10	8.5	7.6	6.7	5.9	14.1	7.5	24	
22		7.2	7	4.1	5	5	5.9	7.2	9.2	11.6	13.2	14.9	16.3	17.8	18.2	18.7	17.9	17.3	16.6	15.7	14.7	13.5	12.5	11.3	9.8	18.7	12.1	24	
23		8.6	7.8	7.3	6.4	5.5	5.4	5.6	6.2	7	10.4	12.9	13.4	14.2	15.1	15.6	16.4	16	14.5	13.4	12.1	10.6	9.8	9.6	8.7	16.4	10.5	24	
24		7.9	7.2	6.4	6.1	5.6	5.5	5.8	6	6.5	6.1	6.6	6.8	7.4	7.8	7.8	6.9	6.3	5.6	4.7	3.7	2	1	0.4	0	7.9	5.4	24	
25		-0.2	-0.5	-0.7	-0.9	-1.1	-1.3	-1.3	-1.1	-0.7	-0.2	0.9	1.2	2.2	3.3	3.9	4.1	3.5	2.7	1.9	1.4	1.1	0.8	0.9	1.2	4.1	0.9	24	
26		1.1	0.9	0.4	0.2	0.1	0	0.3	0.7	1.7	2.5	4.2	5.3	7.1	7.6	7.6	8	7.5	6.8	5.8	4.2	2.4	1.7	1.5	0.9	8.0	3.3	24	
27		0.5	0.9	1	1.1	1.6	1.8	1.2	0.5	0.4	0.5	0.8	1	1.2	1.1	1.1	1.2	1.2	0.9	0.3	0.2	0.1	0	0.1	0.2	1.8	0.8	24	
28		0.2	0.2	0.3	0.3	0.4	0.4	0.6	1.2	2.5	3.7	5.7	7.1	9.1	10.5	12	11.6	10.4	9.5	8	6.5	5	3.9	3.1	2.5	12.0	4.8	24	
29		1.9	1.9	2.2	2.1	2	2	3	4.2	6.1	8	11	14	12.2	12.4	12.2	12.8	13.3	12.6	11.3	10.3	9	8.3	7.2	6.3	14.0	7.8	24	
30		5.4	4.3	4	4	4.8	3.7	5.8	7.9	9.3	11	12.4	12.2	13.7	14.1	13.3	13.7	13.6	13.2	12.4	10.9	9.1	7.5	6	5.3	14.1	9.1	24	
HOURLY MAX		8.6	7.8	7.3	6.4	5.6	5.9	7.2	9.2	11.6	13.2	14.9	16.3	17.8	18.2	18.7	17.9	17.3	16.6	15.7	14.7	13.5	12.5	11.3	9.8				
HOURLY AVG		1.4	0.9	0.4	0.0	-0.3	-0.4	0.2	1.2	2.4	3.6	4.9	5.7	6.4	7.1	7.5	7.7	7.6	7.0	6.0	4.8	3.7	3.0	2.4	1.9				

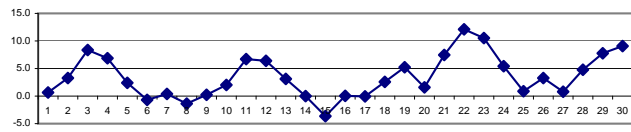
STATUS FLAG CODES

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

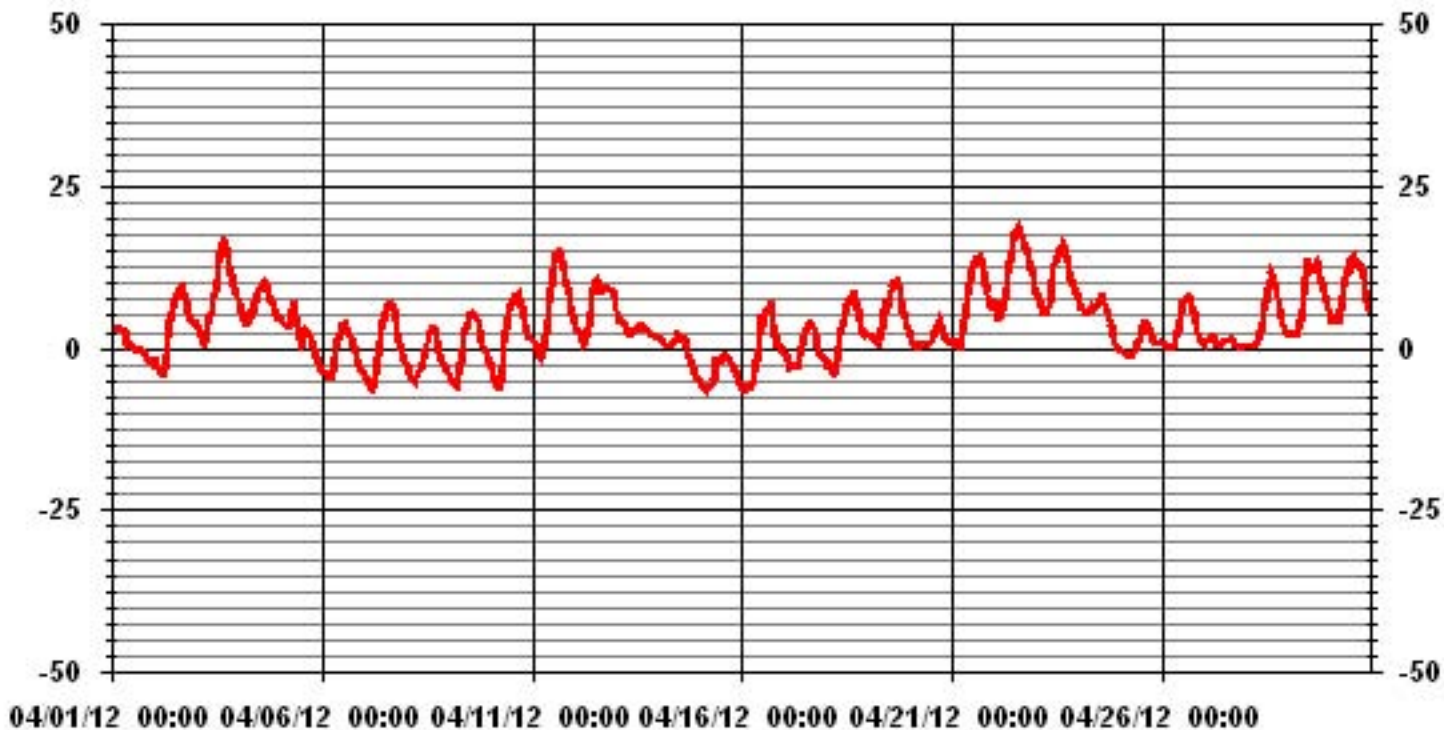
MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-6.7 °C	@ HOUR(S)	5	ON DAY(S)	10
MAXIMUM 1-HR AVERAGE:	18.7 °C	@ HOUR(S)	14	ON DAY(S)	22
MAXIMUM 24-HR AVERAGE:	12.1 °C			ON DAY(S)	22
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	720 HRS		
STANDARD DEVIATION:	5.18	AMD OPERATION UPTIME:	100.0 %		
		MONTHLY AVERAGE:	3.54 °C		

24 HOUR AVERAGES FOR APRIL 2012



01 Hour Averages



Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

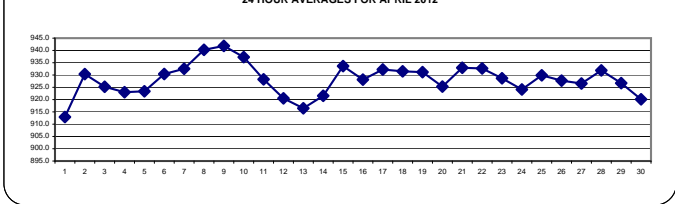
BAROMETRIC PRESSURE hourly averages (millibar)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	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	914	913	912	911	910	910	909	909	908	907	908	908	909	910	911	913	914	916	917	918	920	920	921	922	922	922	912.9	24	
2	922	923	924	925	926	927	928	929	931	932	932	933	934	934	934	935	935	935	935	934	932	932	931	931	930	930	935	930.4	24
3	930	929	929	928	927	926	926	926	927	926	926	926	926	926	926	925	926	925	924	923	922	921	921	920	920	930	925.2	24	
4	920	920	920	920	920	920	922	923	923	924	924	924	924	924	924	925	925	924	924	925	925	925	924	923	923	925	923.0	24	
5	922	921	921	919	918	918	918	918	919	920	921	922	924	924	925	926	927	927	928	928	929	929	929	929	929	929	929	923.4	24
6	928	928	928	928	929	929	929	929	930	931	931	931	931	931	931	931	931	931	932	933	932	932	932	932	931	933	930.4	24	
7	931	931	931	931	932	932	932	932	932	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	934	934	932.5	24	
8	934	935	936	936	936	937	937	938	939	940	941	942	942	943	943	944	944	944	944	943	943	943	942	942	942	942	944	940.3	24
9	942	942	942	942	942	942	942	942	943	944	944	944	944	943	943	943	943	942	942	941	940	939	939	939	939	944	941.8	24	
10	939	939	938	938	938	938	938	938	939	939	939	939	939	939	938	938	937	937	936	935	934	934	933	933	933	939	937.3	24	
11	932	932	931	930	930	929	929	929	930	929	929	929	929	928	928	928	927	926	926	925	925	924	924	924	924	932	928.3	24	
12	923	922	922	921	921	920	920	920	920	921	921	921	921	921	921	920	920	919	919	919	920	920	920	920	920	923	920.5	24	
13	919	918	918	918	917	917	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	916	919	916.5	24	
14	916	917	917	917	917	917	917	918	918	919	919	920	920	921	922	923	924	925	926	927	928	929	930	930	930	930	930	921.5	24
15	931	931	932	932	933	933	934	935	935	935	936	936	936	935	935	935	934	934	934	933	933	932	932	931	931	936	933.6	24	
16	930	930	929	929	929	928	928	928	929	929	929	929	929	928	928	928	928	926	926	927	926	927	927	927	927	930	928.1	24	
17	927	928	928	929	929	930	931	932	932	933	934	934	934	935	935	935	935	935	935	935	934	933	932	932	932	935	932.3	24	
18	932	932	931	931	930	930	931	931	932	932	932	932	933	933	933	933	933	932	932	931	930	930	930	930	930	933	931.5	24	
19	930	930	930	930	930	930	930	931	931	932	933	933	933	933	933	933	933	933	932	931	930	930	929	928	933	931.2	24		
20	928	927	926	925	925	924	924	924	923	923	923	923	923	923	924	924	925	926	926	927	927	927	927	928	928	928	925.3	24	
21	929	929	929	929	929	930	931	931	932	933	934	934	935	935	936	936	936	936	936	935	934	934	934	934	934	936	933.0	24	
22	934	934	934	934	934	934	934	934	934	934	934	933	933	933	933	932	932	931	931	931	930	930	930	930	930	934	932.7	24	
23	930	930	930	929	929	929	929	930	930	931	931	931	931	930	930	930	929	928	927	926	925	924	925	924	931	928.7	24		
24	923	923	923	923	923	922	922	922	923	924	924	924	924	925	925	925	925	925	925	925	926	926	926	926	926	926	924.1	24	
25	927	927	927	928	928	928	928	929	929	929	930	930	931	931	931	931	931	932	932	931	931	931	932	932	932	932	929.9	24	
26	931	932	931	931	931	930	930	929	929	929	928	928	928	927	927	926	926	925	925	925	925	924	924	924	932	927.7	24		
27	923	923	922	922	922	923	924	924	924	925	926	926	927	928	928	929	929	930	930	930	931	930	930	931	931	931	926.5	24	
28	931	931	931	931	931	931	932	932	932	933	933	933	933	933	934	934	933	933	933	932	931	931	930	930	930	934	931.9	24	
29	930	929	929	929	928	928	928	928	929	929	928	929	928	929	928	927	926	926	925	925	924	923	923	922	922	930	926.7	24	
30	921	921	920	920	920	920	920	920	921	921	921	921	921	921	921	920	920	920	920	920	919	919	919	918	921	920.1	24		
HOURLY MAX	942	942	942	942	942	942	942	942	943	944	944	944	944	943	943	943	944	944	944	944	943	942	942	942	942	942			
HOURLY AVG	928	928	927	927	927	927	927	928	928	928	929	929	929	929	929	929	929	929	929	929	929	928	928	928	928	928			

STATUS FLAG CODES

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

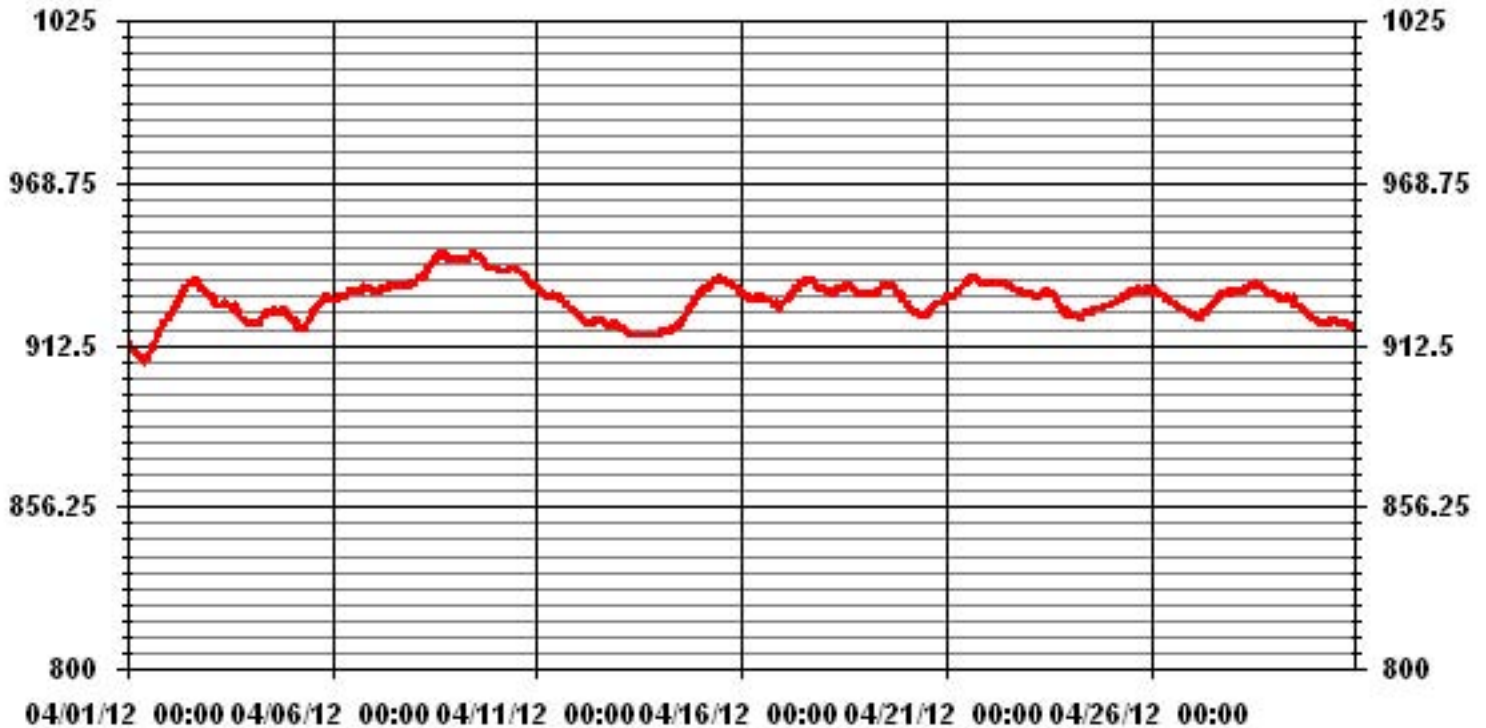
24 HOUR AVERAGES FOR APRIL 2012



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	944	MB	@ HOUR(S)	VAR	ON DAY(S)	8, 9
MAXIMUM 24-HR AVERAGE:	941.8	MB			ON DAY(S)	9
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:		720	HRS
STANDARD DEVIATION:	6.75		AMD OPERATION UPTIME:		100.0	%
			MONTHLY AVERAGE:		928	MB

01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

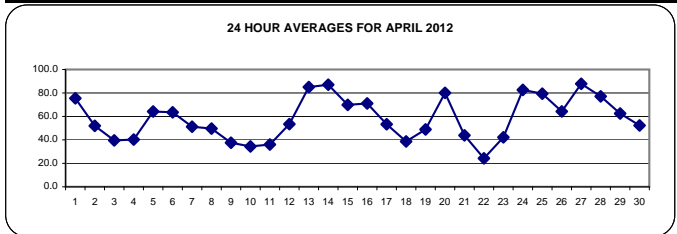
APRIL 2012

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	49	49	51	52	51	52	54	60	82	89	90	90	90	89	88	87	87	86	87	86	86	85	86	85	86	85	90	75.5	24
2	83	82	79	80	80	77	74	69	66	61	58	55	47	36	26	21	23	24	26	31	34	36	38	41	83	52.0	24		
3	42	46	49	54	57	58	55	50	49	48	43	43	40	32	28	22	20	21	25	28	31	36	36	37	58	39.6	24		
4	39	41	46	49	49	52	48	55	58	56	47	42	38	38	35	28	27	23	24	27	31	34	37	42	58	40.3	24		
5	55	61	65	65	64	64	62	55	53	56	66	71	74	70	62	57	59	60	61	62	68	74	77	80	80	80	64.2	24	
6	83	83	81	83	85	83	76	70	66	56	49	45	42	41	46	47	48	50	54	59	65	68	71	73	85	63.5	24		
7	74	77	79	80	84	84	80	74	64	50	37	30	28	27	28	30	31	31	31	33	38	43	46	50	84	51.2	24		
8	52	55	60	62	65	67	65	60	56	52	49	45	42	38	36	35	36	39	44	48	49	50	50	67	49.6	24			
9	51	52	50	50	51	52	50	46	42	33	32	32	30	28	27	26	26	27	28	32	32	33	34	37	52	37.5	24		
10	40	44	47	53	56	61	57	50	37	30	25	23	21	20	20	20	21	23	25	29	33	35	36	61	34.4	24			
11	35	36	39	43	48	51	52	51	46	40	35	31	27	25	24	23	23	25	27	28	31	35	42	48	52	36.0	24		
12	53	56	57	60	62	66	66	63	58	52	46	43	41	41	43	47	48	48	49	51	64	61	53	54	66	53.4	24		
13	76	86	83	75	69	69	80	80	79	84	87	84	90	90	90	90	90	90	91	91	91	91	90	90	91	91	85.0	24	
14	91	91	91	90	90	90	90	90	90	89	88	87	87	88	87	85	87	87	85	83	83	77	81	82	91	87.0	24		
15	82	80	79	79	79	80	79	75	70	57	60	63	61	59	57	58	60	62	65	71	74	73	76	77	82	69.8	24		
16	80	81	82	82	83	84	84	83	78	71	60	52	51	48	48	50	49	50	64	78	87	89	86	86	89	71.1	24		
17	86	83	82	84	84	84	80	75	72	66	56	46	34	30	28	26	28	29	31	34	35	34	36	37	86	53.3	24		
18	38	42	45	51	53	53	51	49	46	37	32	32	31	29	28	27	26	28	32	36	40	41	41	40	53	38.7	24		
19	43	45	50	53	55	56	58	59	60	56	54	62	58	51	43	37	34	34	36	40	44	47	48	50	62	48.9	24		
20	56	62	68	71	76	79	77	75	79	86	89	89	89	89	88	86	80	76	78	81	85	87	88	88	89	80.1	24		
21	87	88	85	78	74	68	62	56	47	43	39	34	30	27	24	22	21	21	22	24	24	25	25	27	88	43.9	24		
22	24	30	32	28	28	25	26	28	26	23	23	22	18	14	15	17	20	22	21	23	26	27	30	34	34	24.3	24		
23	38	41	43	44	47	48	49	50	49	41	36	36	35	33	33	30	32	36	39	43	47	50	53	59	59	42.2	24		
24	63	67	74	78	83	84	83	83	83	87	88	88	86	83	81	83	83	85	86	87	89	89	85	85	89	82.6	24		
25	86	86	84	84	86	86	86	85	80	79	75	74	72	69	68	68	70	73	79	82	83	85	84	81	86	79.4	24		
26	80	78	74	72	71	70	70	69	66	65	60	56	52	48	46	47	45	45	48	58	76	80	81	85	85	64.3	24		
27	88	86	86	85	81	79	83	89	89	90	89	89	89	89	89	89	89	89	89	90	90	90	90	90	90	90	87.8	24	
28	90	90	90	90	90	90	90	89	86	83	78	74	68	59	47	54	64	65	67	72	75	78	80	81	90	77.1	24		
29	82	82	81	81	81	79	76	72	71	61	45	53	53	53	45	42	42	50	52	53	52	55	58	82	62.5	24			
30	63	70	73	76	78	80	74	69	60	53	49	44	36	32	36	32	31	31	34	39	42	42	51	60	80	52.3	24		
HOURLY MAX	91	91	91	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	91	91	91	91	90	90					
HOURLY AVG	63.6	65.7	66.8	67.7	68.7	69.1	68.0	66.1	63.6	60.1	56.7	54.4	52.0	49.2	47.5	46.3	46.6	47.2	49.7	53.0	56.7	58.1	59.5	61.4					

STATUS FLAG CODES

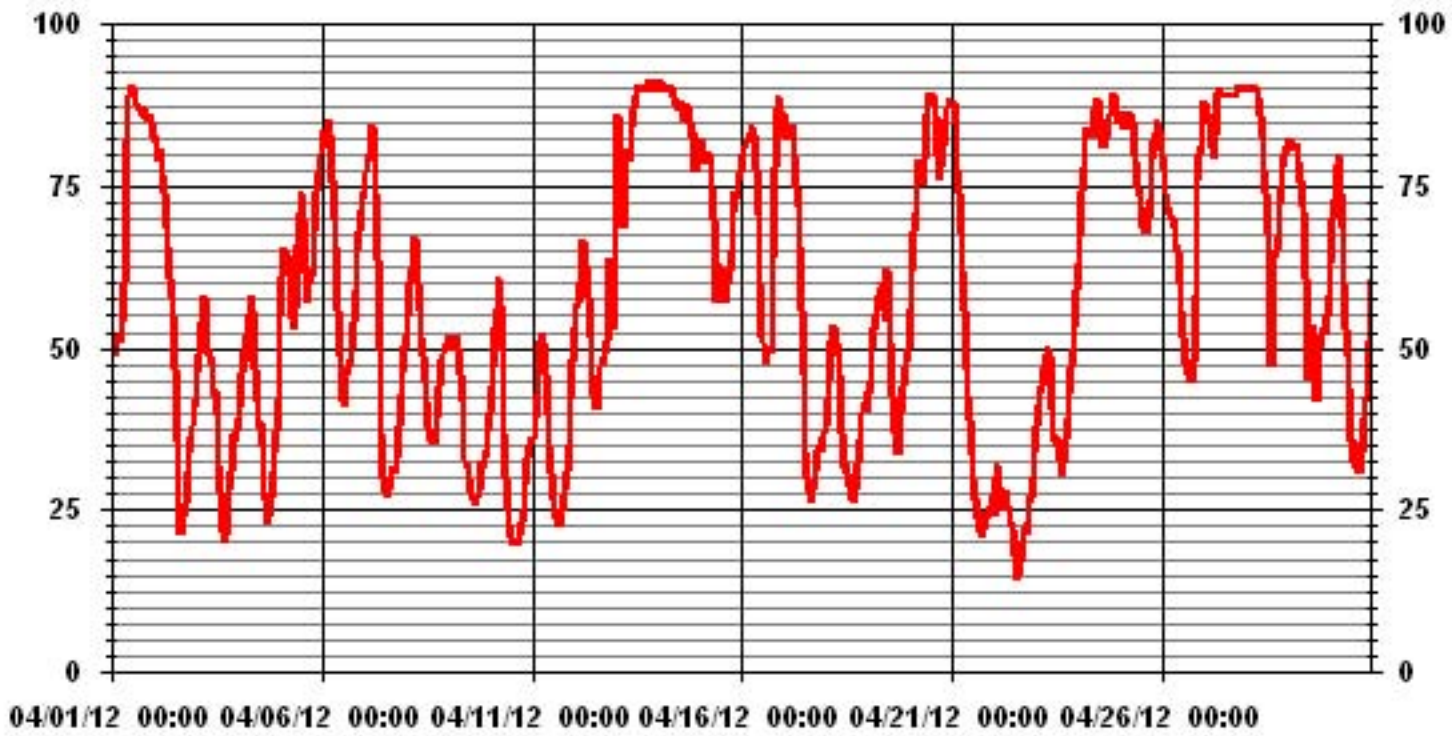
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	91	%	@ HOUR(S)	VAR	ON DAY(S)	13, 14
MAXIMUM 24-HR AVERAGE:	87.8	%			ON DAY(S)	27
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
STANDARD DEVIATION:	21.92		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	58.25	%	

01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

PRECIPITATION hourly averages (mm)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY		
HOURLY MAX	HOURLY 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.	
DAY																													
1		0	0	0	0	0	0	0.1	0.1	0.4	1	1.1	0.2	0.9	0.8	0.3	0.1	0.2	0	0	0	0	0	0	0	0	1.1	5.2	24
2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
7		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
8		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
9		0	0	0	0	0	0	0	0	0	0	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	0.0	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	0.0	24
12		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
13		2	0.4	0	0	0	0.2	0.7	0.2	0.1	0.7	0	0	0.1	0.1	0.1	0.2	0	0.2	0.8	0.2	0.2	0.1	0.2	0.1	0.1	2.0	6.6	24
14		0	0.2	0	0.1	0	0.1	0.2	0.1	0.1	0	0.3	0.3	0.5	0.5	0.6	0.1	0.3	0	0	0	0.1	0	0.1	0.1	0.6	3.7	24	
15		0.1	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	0.1	0.2	24
16		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.1	1.1	24	
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
19		0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3	24
20		0	0	0	0	0	0	0	0	0	0.5	1.4	1.1	0.5	0.5	0.1	0	0	0	0	0	0	0	0	0	0	1.4	4.1	24
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
24		0	0	0	0	0	0	0	0	0	0.2	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	1.2	24
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0.1	24	
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5	0.7	0.1	0.8	0.8	2.3	24
27		1.2	0.5	0.1	0	0.2	0.1	0.7	1.5	1.3	0.4	1.6	1.2	1.2	1	1	1	0	0.4	1.6	2.6	1.4	1.3	1.9	3.6	3.6	25.8	24	
28		2.9	1.1	0.3	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.9	4.5	24
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24
HOURLY MAX		2.9	1.1	0.3	0.2	0.2	0.2	0.7	1.5	1.3	1.0	1.6	1.2	1.2	1.0	1.0	1.0	0.3	0.4	1.6	2.6	1.4	1.3	1.9	3.6				

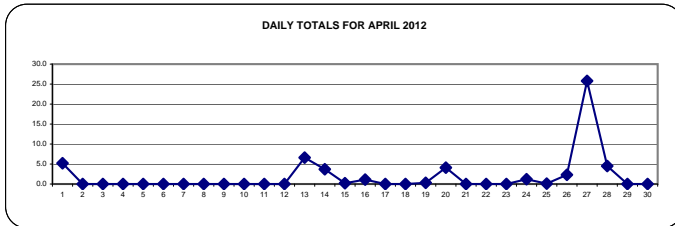
STATUS FLAG CODES

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

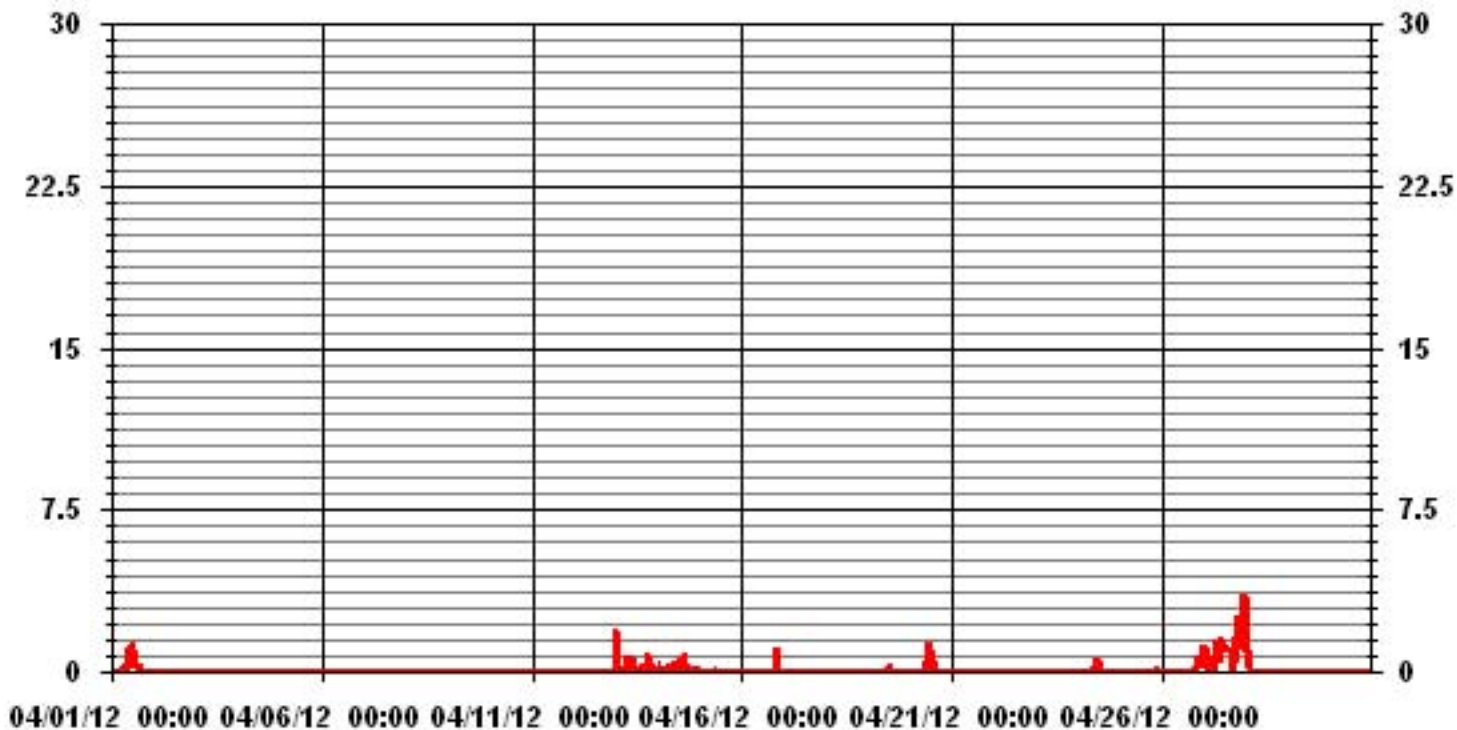
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	3.6	MM	HOURL(S)	23	ON DAY(S)	27
MAXIMUM DAILY TOTAL	25.8	MM			ON DAY(S)	27
MONTHLY TOTAL	55.1	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
STANDARD DEVIATION:	0.31		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.08	MM	

DAILY TOTALS FOR APRIL 2012



01 Hour Averages



— LICA31 PRECIP MM

Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

WIND SPEED hourly averages (km/hr)

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	14	15.6	14.9	15.6	16.4	17.8	14.2	17	22.1	22.3	12.4	13.7	8.9	21.5	25.1	24.4	25.6	23.8	18.6	14	12.1	12.2	11.7	12.7	25.6	10.1	24
2	13.3	10.5	10.5	9.1	10.4	12.2	11.8	9.6	9.9	8.9	13	13.1	6.9	3.3	6.3	6.3	9	12	5.8	9.2	12.5	14.3	15.9	16.7	16.7	5.8	24
3	18.2	17	14.2	14.6	15.2	15.1	15.3	17.4	19.3	16.8	5.6	6.1	7.4	9.7	11.5	4	3.3	5.1	7.1	10.6	13.2	14.3	10.6	7.9	19.3	8.4	24
4	6.4	2.6	5.9	10	11	9.9	10.1	16.1	16.7	19.2	17.5	9.2	3.8	2.2	2	3.8	4.4	4.9	6.1	4.1	2.5	3.3	2.1	1.8	19.2	4.6	24
5	3.6	7.5	5.8	6.4	5.6	8.1	8.3	8.8	9.9	17.1	18.5	19.1	17.6	17.2	16.5	15.6	13	13.8	10.9	7.5	10.2	12.9	10.2	4.1	19.1	7.2	24
6	11.5	11.6	15.9	16.2	12.5	11.3	14.9	20.4	21	15.6	0.4	2.4	5.2	8.4	6.7	11.2	11.3	16.2	16.1	14.7	13.3	11.5	10	9.4	21	7.9	24
7	10.1	14.7	12.1	12.7	9.8	8.1	10.8	9.9	10.5	10.9	11.2	10.3	8	6.3	9.6	14.8	16.4	13.5	16.7	16.4	14.1	12.9	13.2	14.3	16.7	11	24
8	14.7	16.2	14	12	9.7	10.4	14.9	18	16.9	18.5	16.5	16.2	17.3	16.7	17.6	16.7	15.7	13.6	13	14.4	16.3	16.4	15.3	15.7	18.5	12.2	24
9	15.8	11.1	9.8	10.1	10.2	11.1	11.6	9.3	12.9	6.2	9.1	7.1	1	7.4	8.2	9.5	10.2	9.4	8.8	9.1	9.2	9.6	8.4	11.8	15.8	8.6	24
10	7.2	9.9	9.4	4.9	4.5	4.4	3.4	6	14.6	18.1	14.8	15.5	14.3	12.8	10.1	11.6	12.7	12.9	10.8	9.4	9.3	9.1	11.9	15.1	18.1	9.7	24
11	15.7	16	12.5	11.9	9.5	9.6	7.5	9.4	9.5	7	7	8.6	8.5	14.6	17.1	16	10.8	8.7	7.9	5.5	6.5	7.5	3.8	4.1	17.1	9.2	24
12	2.4	3.8	4.4	5.8	6.2	8	6.8	5.1	4.7	6.7	8	6.9	6.4	5.9	6.7	7.6	8.1	12.2	10.9	7.1	8.6	3.4	2.7	1.8	12.2	4.3	24
13	2.3	6.3	7.8	7.4	8.4	9.2	9.7	10.8	9.4	10.4	9.4	8.5	6.3	6.7	6.9	7.4	8	9.7	7.7	23.7	9.4	12.7	14.3	13.3	23.7	2.7	24
14	13.4	13.4	13.6	13.7	13.5	10.6	8.8	9.8	9.8	8.6	9.9	4.8	4.9	2.7	3	3.4	10.7	7	4.8	4.6	3.5	10	6.8	7.6	13.7	2.8	24
15	6.3	6.8	6.6	8.3	10.8	10.2	8.4	10.3	10.2	4.9	10.6	9	8	3.5	7.6	4.3	9.6	13.1	13.1	12.8	14.5	14.7	7.4	7	14.7	1.6	24
16	8.6	7.8	8	8.4	1.9	11.8	11.7	11.9	9.1	7.4	6.7	6.8	10.7	7.8	12.2	12.3	5.1	9.1	8	6.2	10.1	12.3	7	8.4	12.3	3.1	24
17	7.4	5	6.8	9.6	8	8	6.4	8.1	5.2	5.9	6.7	8.2	8.8	7.8	4.8	6.2	9.7	4.9	4.6	14.6	9.7	6.6	13.2	15.2	15.2	4.4	24
18	9	5.3	8.8	10	9.9	11.9	13.2	9.9	9.4	7.1	5.8	8	6.7	2.6	5.7	6.3	4.3	8.2	9.2	9.6	5.5	7.8	9.2	10.8	13.2	2.9	24
19	9.4	8.4	8.8	8.3	6.6	6.7	6.9	8	7.5	8.8	10.6	3.9	9.2	10.7	9.6	8.9	11.4	9.7	11.8	10.1	12.1	13.9	13.5	14.4	14.4	8.9	24
20	12.7	12.3	13.6	14.9	15.5	15.6	12.8	14	16.9	13.9	4.5	9.3	9.1	9.8	9.8	5.3	11.4	12.6	14.8	6.3	5.1	8.1	7.6	8.9	16.9	7.7	24
21	8.4	9.7	10.1	12	11.6	12	13.5	13.1	17.9	20	9.7	6.3	9.3	6.6	6.7	6.7	2.7	2.2	4.1	8.2	10.2	9.6	11.5	12	20	2.1	24
22	10.9	6.3	2.8	6.2	7.5	8.7	8.8	8.9	3.5	5.2	13.8	15.5	14.7	11.1	9.5	6.9	5.7	6.3	5.6	12.1	8.4	10.6	12.9	16.1	16.1	3.6	24
23	15.1	14.3	12.7	11.5	12.2	12.9	14.7	13.1	11	3.7	7.5	8.5	9	6.6	8	7.5	8.4	9.6	11	8.6	9.1	9	5	6.7	15.1	8.3	24
24	7.4	11.9	13.4	13	17.3	15.2	14.6	12.3	11.2	9.3	7	11.4	10.9	9	9.4	11	10.1	12.5	13	9.6	5.5	4.7	7.4	8.2	17.3	8.9	24
25	9	7.2	6.1	7.5	6.5	6.1	5	4.3	7.4	6.1	5.4	4.6	5.3	6.1	3.6	3.8	4.6	4.3	6.1	4.6	8.4	4.8	3.3	4	9	3.4	24
26	3.1	5.6	7.6	6.6	5.5	6.4	5.3	7.1	8.6	8	12.6	12.6	10.3	13.1	12.1	12.4	13.2	13.6	7.4	7	7.9	11.8	11.5	4.8	13.6	8.2	24
27	21.6	21.8	19.9	20.5	21.1	18.8	5.1	6.4	8.9	6	6.8	9.6	15.9	11.9	11.6	11.4	12.4	12	14.4	15.1	13.9	9.8	9.7	11.5	21.8	3.2	24
28	9.1	5.3	12.9	14.6	13.5	5.5	7.8	15.2	13.4	12.8	11	7.2	10.2	7.9	11.7	4.8	5.8	5.5	2.9	3.1	1.8	2	2.2	3.5	15.2	2.9	24
29	6.4	6.1	7.1	5.5	5.1	8.8	10.1	12.6	9.7	11.4	9.2	0.7	9.3	12.7	12.7	10.1	10	9.6	14	12.2	11.5	11	10	12.5	14	3.3	24
30	10.2	5.8	5.4	6.4	7.7	6.3	5.9	12.8	1.9	5.5	7.6	7.4	7.6	8.2	9.2	10.2	8.8	9.6	6.2	8.4	6.4	7.6	7.3	5.9	12.8	4.6	24
HOURLY MAX	21.6	21.8	19.9	20.5	21.1	18.8	15.3	20.4	22.1	22.3	18.5	19.1	17.6	21.5	25.1	24.4	25.6	23.8	18.6	23.7	16.3	16.4	15.9	16.7			
HOURLY AVG	10.1	9.9	10.0	10.5	10.1	10.4	9.9	11.2	11.3	10.7	9.6	9.0	9.1	9.0	9.7	9.3	9.7	10.2	9.7	10.0	9.4	9.8	9.2	9.5			

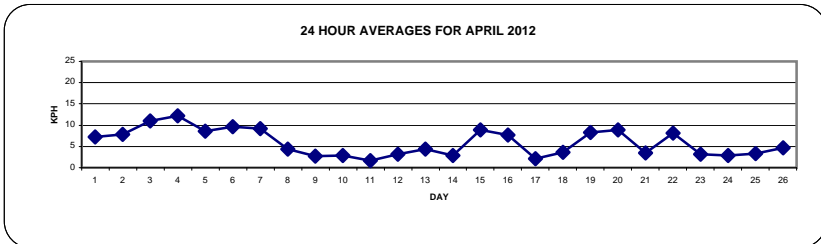
STATUS FLAG CODES

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

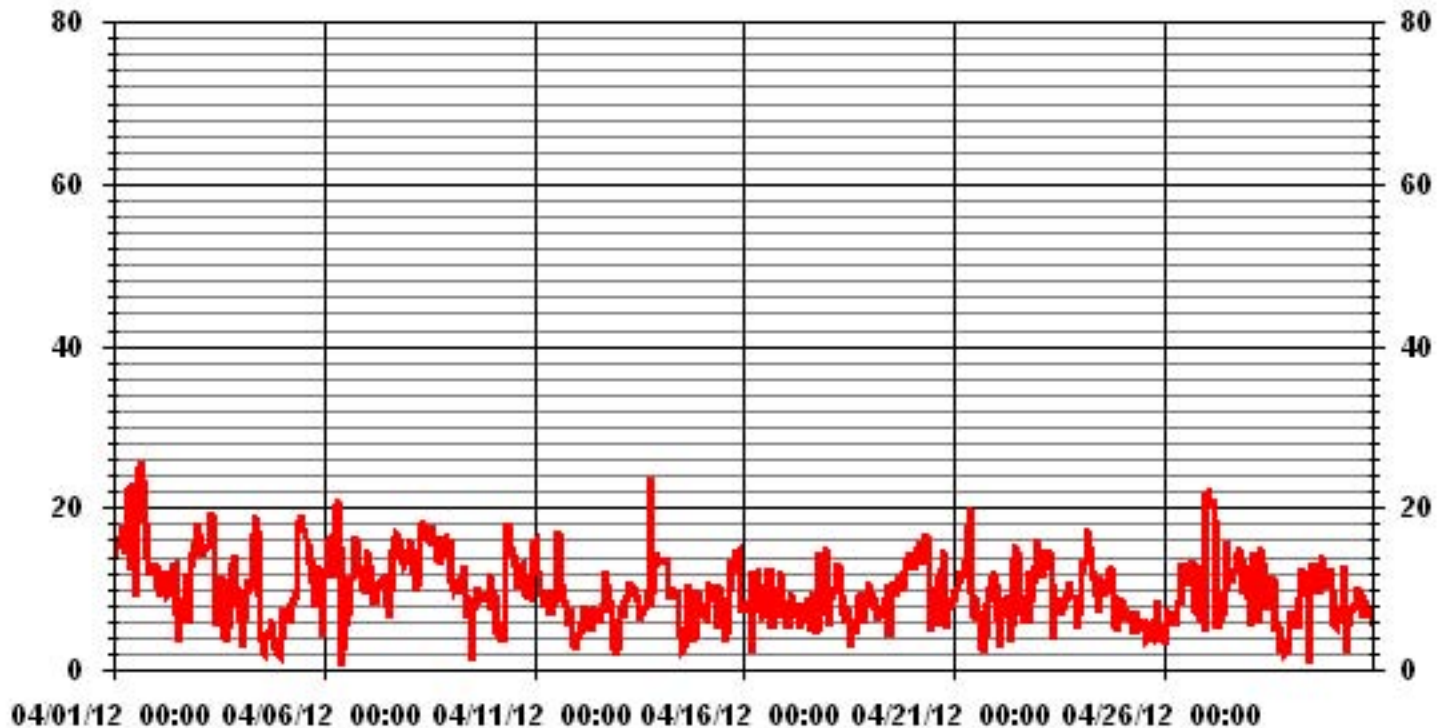
LAST CALIBRATION: June 17, 2010

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	25.6	KPH	@ HOUR(S)	16	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	12.2	KPH			ON DAY(S)	8
CALMS (≤ 0 KPH)	0.27	%	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME	100.0	%	
STANDARD DEVIATION	4.27		MONTHLY AVERAGE	9.89	KPH	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY
DAY	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		24.8	27.2	25.4	26.8	31.8	35.7	32.9	35.9	43.4	51.3	27	31.8	36.4	46.2	54.4	52.3	56.1	56.7	43.6	31.4	23.5	18.9	18.4	22.1	56.7
2		25.2	18.9	19.3	12.1	14.5	16.7	16.7	14.5	15.8	15.2	25.3	28.3	23.9	32.2	25.2	28	20	21.7	20	14.9	21	25.9	34.4	30.3	34.4
3		37.9	34.8	32.2	29.8	25.2	29.2	29.2	33.5	36.2	40.7	33.3	38.6	36.4	37.9	41.6	38.6	39.2	36.4	38.8	21.3	25.2	29.6	35.3	26.1	41.6
4		18.2	31.3	27.6	15.1	15.1	20.2	24.4	36	35.7	39.9	41	44	43.2	39	36.6	42.3	39.2	33.8	30	32.3	36.1	35.7	35.7	36.4	44
5		40.3	41.2	38.8	35.5	48.6	21.3	26.5	24.1	26.5	37.2	39.4	40.1	44.9	42.3	40.3	33.8	29.8	30.2	23.2	13.8	16.5	19.5	15.8	19.1	48.6
6		17.1	21	20.6	20.4	18.4	17.6	24.8	34	35.5	45.8	35.9	34.2	37.5	37.9	41.2	34.6	41	42.5	32	23.9	19.7	18	16.5	16	45.8
7		21.7	23.5	19.1	18.9	16.9	16.2	16.9	17.6	19.5	26.3	27.7	29.6	30.7	43.4	37.9	46	38.4	37	38.8	35.3	25.4	20.8	26.8	23	46
8		29.8	37.3	26.5	19.8	19.7	21.3	37	36.8	36.6	37.9	38.8	38.1	43.2	51.1	41.6	36.6	35.3	34.9	30.7	23.2	19.5	20.8	19.7	20.6	51.1
9		19.1	16	13.8	12.7	13.6	19.7	17.7	17.8	20.9	21	21.7	24.6	23.2	21.7	21.5	20.8	20.4	20.4	16.2	15.4	16.5	18.4	18.4	19.1	24.6
10		17.1	22.2	15.6	11.4	11	10.8	12.1	18	32.9	35.1	34	35.8	42.9	37.7	30.2	32.7	33.8	31.4	25.4	20.8	23.5	25.2	28.7	30.3	42.9
11		33.8	30.9	28.7	23.2	18.4	19.3	21.5	23	28.1	28.9	30.5	32.9	36.4	39.4	44.7	40.1	36.6	34.2	28.5	31.8	33.3	31.6	35.1	32.7	44.7
12		36.8	30.9	32.7	24.1	32.4	22	31.1	29.8	35.5	28.3	21.3	33.6	34.2	34	32.9	36.6	23.7	22.6	25.3	20.6	35.3	33.1	32.7	31.1	36.8
13		39	30.5	31.1	31.6	21.7	24.5	22.8	24.3	24.3	21.5	26.7	27.6	28.5	35.3	21.5	19.1	22.1	25	32.7	32.9	25.7	20.6	22.4	21.5	39
14		19.1	19.7	20.4	25.9	23.9	21.3	20	19.7	20.2	19.3	20	26.5	20.8	42.3	44.9	46.3	50.4	42.7	48.6	51.3	29.4	52.1	27.6	30.5	52.1
15		29.6	24.1	19.1	21.5	22.6	20.8	19.8	19.5	20.2	27	20.5	P	22.6	22.6	21.5	21.1	23.2	21.7	21.5	22.8	18.2	17.5	10.3	9.9	29.6
16		11.6	12.1	11.3	15.8	18.9	21.1	20.2	20	18.9	24.1	27.2	27	29.2	24.3	25.9	25.6	24.5	20.6	27.7	19.7	N	21.7	21.3	18	29.2
17		18.4	22.6	17.8	20.4	19.4	20.4	18.7	20	18.4	22	31.6	27.2	28.3	31.6	28.3	26.8	27.2	25	19.5	18.9	22.8	23.3	14.7	16.7	31.6
18		17.1	18.7	16.7	16.2	14.5	16.7	18.9	20.6	24.5	29.6	30	26.3	29.2	27.4	27	22.4	21.7	25.4	17.8	16.7	14.7	13.2	16	20	30
19		16.9	16.7	14.5	14.7	11	13.2	14.9	19.7	18.7	22.4	26.7	21.1	21.9	28.3	27	28.3	29.6	29.2	23.3	17.1	22.4	27	32.7	29.4	32.7
20		25.7	27.4	28.5	34.2	29.2	32.4	25.3	26.7	33.1	29.4	28.9	18.2	17.8	17.1	20.2	P	20	20.6	20.8	21.5	8.8	10.8	10.8	13.2	34.2
21		11.6	15.2	18	17.8	16.7	18	22.6	30.9	46.9	49.7	38.3	30.7	29.2	32.2	27.2	25	27.4	24.3	20.4	13.2	15.2	14	22.8	16.2	49.7
22		19.1	10.3	7.9	8.4	11	12.1	13.6	18.7	21	23.7	33.1	35.9	34.4	33.1	29.1	25.8	23.9	23.1	16.4	22.1	20.8	21.9	29.4	28.3	35.9
23		26.3	24.1	21.7	19.1	23	22.8	27.2	27.2	23	21	20.8	22.8	30.5	24.6	27.4	28.9	22.3	28.3	28.5	23.4	22.4	24.1	25.8	20.4	30.5
24		16.7	21.3	30.2	33.3	33.5	31.6	25	24.5	27	23.3	21.7	29.4	25.6	23.7	20.6	20.4	19.1	23.7	36.6	25.4	21.7	31.8	23.9	22.6	36.6
25		18.9	19.5	17.8	19.1	25.9	20.2	20.6	38.2	33.8	34.9	30.9	35.1	33.5	37	34.2	30.5	35.5	43.2	38.2	43.9	44.5	32.4	31.4	35.5	44.5
26		39.3	23.5	33.1	39.2	31.4	37.7	33.8	33.1	39.7	40.5	51.5	45.8	39.2	46.4	41.8	42.7	45.3	58.9	39.2	37.2	39.7	44	44.5	N	58.9
27		47.8	43.8	48.2	43.2	39.5	37	35.3	26.5	42.1	25.9	15.2	N	40.8	48.4	31.4	31.6	18.2	16.5	17.6	18.2	18.7	19.3	19.7	19.1	48.4
28		20.2	11.9	21.7	22.8	21.9	20	21.1	21.1	18.9	18.4	19.5	28.1	23.5	25.7	26.7	34.6	39	34.4	33.3	33.8	31.4	32.4	30.2	25.4	39
29		16.2	27.2	20.6	18.7	24.1	16	16	19.1	21.7	25.6	22.1	26.7	21.9	20.4	19.3	19.1	19.3	27.4	19.7	18.2	17.8	17.6	16.7	19.1	27.4
30		19.3	10.5	7.5	9.5	13	10.3	13.4	23.5	24.1	21.7	23.2	19.5	23.2	20.4	21.9	19.8	20.9	18.2	16.4	15.3	14.9	28.7	16.9	31.3	31.3
PEAK		47.8	43.8	48.2	43.2	48.6	37.7	37.0	38.2	46.9	51.3	51.5	45.8	44.9	51.1	54.4	52.3	56.1	58.9	48.6	51.3	44.5	52.1	44.5	36.4	

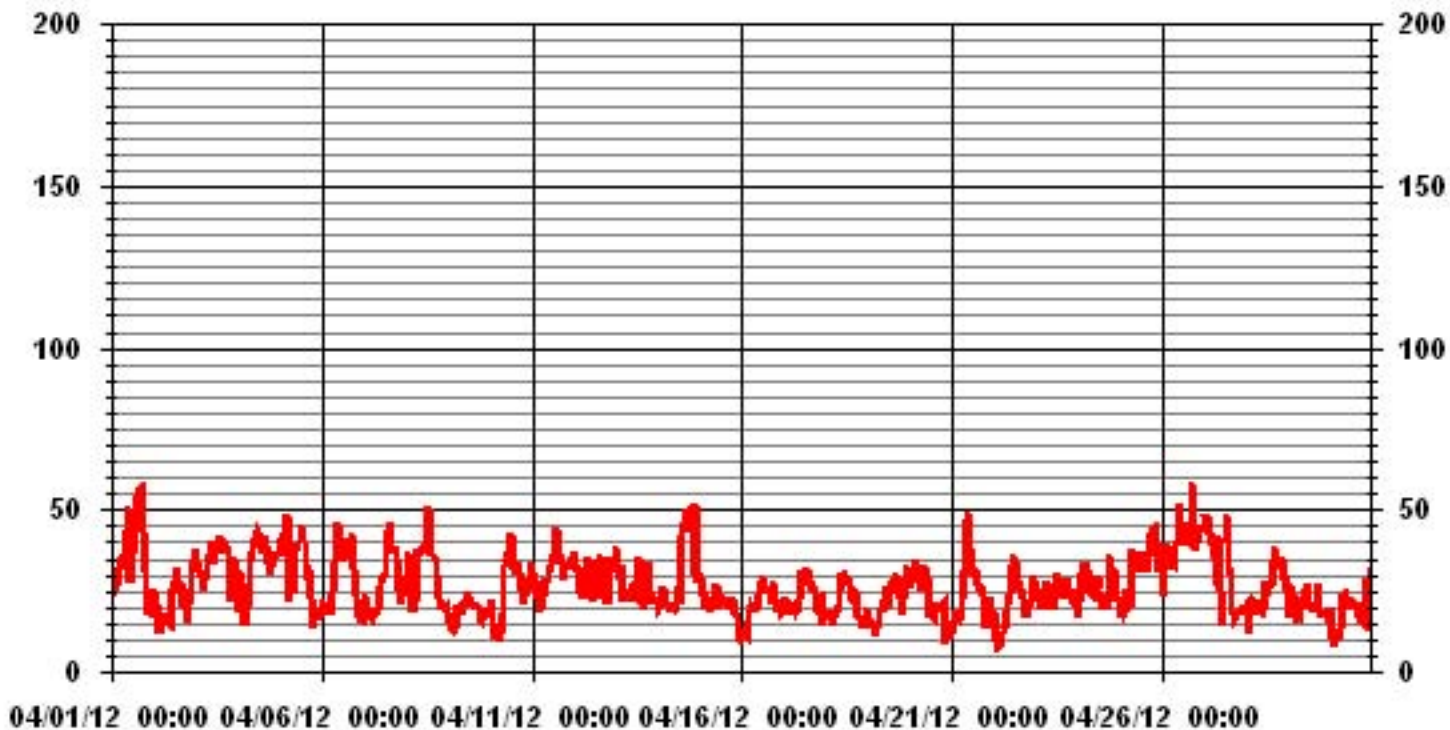
STATUS FLAG CODES

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

MAXIMUM INSTANTANEOUS READING	58.9	KPH	@ HOUR(S)	17
			ON DAY(S)	26

01 Hour Averages



LICA31
WSP / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : WSP
Units : KPH

Wind Parameter : WDR
Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	1.11	1.11	.97	1.25	1.80	1.11	1.38	1.11	1.94	.83	.55	.41	.69	.83	.83	1.11	17.08
< 12.0	3.75	3.05	2.22	3.47	1.66	2.22	2.91	4.16	4.02	2.50	3.19	3.33	2.63	3.47	3.88	5.97	52.50
< 20.0	1.25	3.47	3.05	1.94	.97	1.25	1.25	2.50	1.80	2.50	.83	1.66	1.25	1.66	1.80	.83	28.05
< 29.0	.00	.13	.13	.27	.27	.00	.00	.13	.00	.00	.00	.00	.00	.41	.69	.00	2.08
< 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	6.11	7.77	6.38	6.94	4.72	4.58	5.55	7.91	7.77	5.83	4.58	5.41	4.58	6.38	7.22	7.91	

Calm : .27 %

Total # Operational Hours : 720

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 6.0	8	8	7	9	13	8	10	8	14	6	4	3	5	6	6	8	123
< 12.0	27	22	16	25	12	16	21	30	29	18	23	24	19	25	28	43	378
< 20.0	9	25	22	14	7	9	9	18	13	18	6	12	9	12	13	6	202
< 29.0		1	1	2	2			1						3	5		15
< 39.0																	
>= 39.0																	
Totals	44	56	46	50	34	33	40	57	56	42	33	39	33	46	52	57	

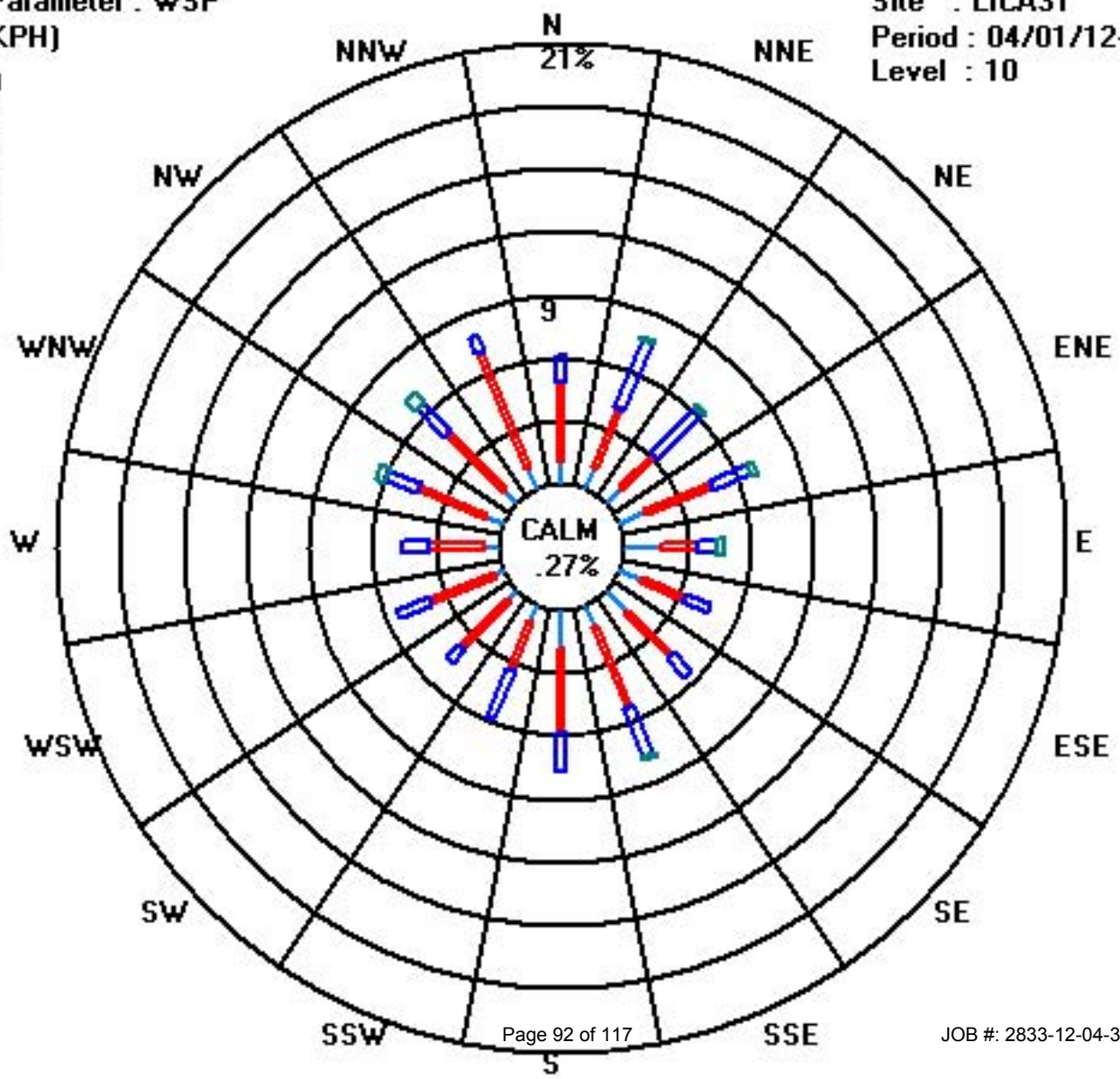
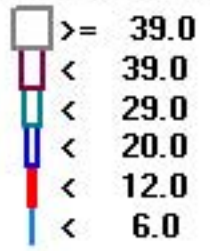
Calm : .27 %

Total # Operational Hours : 720

Class Limits (KPH)

Period : 04/01/12-04/30/12

Level : 10



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

APRIL 2012

WIND DIRECTION hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.	
DAY																												
1	44	48	53	52	50	38	24	17	26	39	22	351	269	317	311	307	308	310	295	291	265	254	247	246	343	NNW	24	
2	260	262	265	248	251	248	242	232	221	225	219	205	162	153	160	129	119	129	122	111	123	126	129	138	188	S	24	
3	145	148	156	166	159	159	162	164	162	162	137	93	71	67	93	106	79	74	60	54	59	61	69	63	125	SE	24	
4	57	24	339	329	327	315	331	320	322	326	342	297	252	145	43	80	136	168	133	130	253	237	162	330	NNW	24		
5	65	69	65	74	80	112	160	160	216	250	252	261	268	261	257	250	243	237	236	238	224	234	238	320	241	WSW	24	
6	337	316	317	321	335	332	307	294	295	267	152	23	351	351	4	6	2	16	35	51	60	71	84	85	347	NNW	24	
7	74	74	65	66	71	66	78	70	65	57	34	31	17	355	352	11	17	21	29	39	50	51	44	47	45	NE	24	
8	47	40	59	60	51	45	31	24	25	17	13	26	18	23	19	25	29	31	45	304	301	305	303	301	16	NNE	24	
9	289	285	287	284	299	284	270	277	269	286	285	308	148	287	280	255	253	257	242	240	230	223	224	233	267	W	24	
10	230	240	251	266	276	276	274	243	216	206	200	204	204	196	182	185	196	192	207	210	194	193	196	204	209	SSW	24	
11	207	206	210	221	225	212	212	210	206	173	176	173	176	175	174	170	167	171	173	181	166	165	168	217	190	S	24	
12	224	328	352	10	346	342	5	352	340	327	327	345	13	14	16	16	351	322	333	261	181	197	181	233	340	NNW	24	
13	50	352	352	347	335	337	331	335	332	338	5	1	4	4	340	339	341	320	198	167	161	178	183	189	326	NW	24	
14	202	212	215	225	226	294	290	294	297	304	318	202	180	117	97	89	344	309	304	47	116	64	94	104	257	WSW	24	
15	98	94	127	155	166	163	139	133	149	176	300	309	281	319	289	359	351	353	350	333	323	327	254	240	314	NW	24	
16	219	206	207	202	293	354	358	356	336	321	346	155	223	313	315	310	274	182	125	175	191	207	226	201	257	WSW	24	
17	197	149	151	175	158	199	168	170	198	166	176	199	194	162	181	343	318	352	17	69	49	161	161	156	162	SSE	24	
18	125	67	13	12	17	24	20	20	16	38	51	225	156	72	181	237	133	224	118	116	170	148	147	135	81	E	24	
19	135	137	156	161	163	163	177	185	185	137	130	282	143	144	189	178	151	187	145	145	141	150	155	166	157	SSE	24	
20	169	178	169	156	156	148	124	118	113	116	178	235	253	269	269	209	191	189	174	171	210	236	237	248	176	S	24	
21	249	226	247	249	250	255	256	269	294	298	352	6	26	39	40	34	175	100	147	128	119	107	91	98	279	W	24	
22	54	57	144	172	174	141	131	108	203	180	209	196	158	164	158	171	175	178	116	59	24	315	3	30	137	SE	24	
23	32	27	24	22	34	50	51	57	57	12	320	328	330	332	329	325	330	338	344	0	2	1	346	345	10	N	24	
24	324	325	335	2	23	50	61	50	22	24	24	18	14	16	38	53	37	49	322	328	329	322	343	334	13	NNE	24	
25	318	321	319	331	8	3	1	25	44	42	35	45	32	65	80	103	95	88	90	77	84	91	171	179	38	NE	24	
26	138	188	136	125	151	139	126	119	116	108	93	104	97	93	90	114	126	120	109	157	180	123	115	138	120	ESE	24	
27	83	77	87	80	66	66	117	278	279	294	282	232	276	281	279	285	284	285	285	286	286	275	263	261	312	NW	24	
28	284	325	195	184	188	227	359	357	351	356	353	343	323	322	320	40	94	89	62	110	57	358	13	340	337	NNW	24	
29	313	288	286	290	319	333	332	337	321	234	184	117	116	134	110	71	80	68	94	105	77	64	63	58	61	ENE	24	
30	44	330	303	339	23	26	61	92	85	288	308	269	238	277	311	287	291	304	291	290	303	340	342	342	321	ENE	24	
HOURLY AVG	337	352	352	347	346	354	359	357	351	356	353	351	351	355	352	359	351	353	350	333	329	358	346	345				

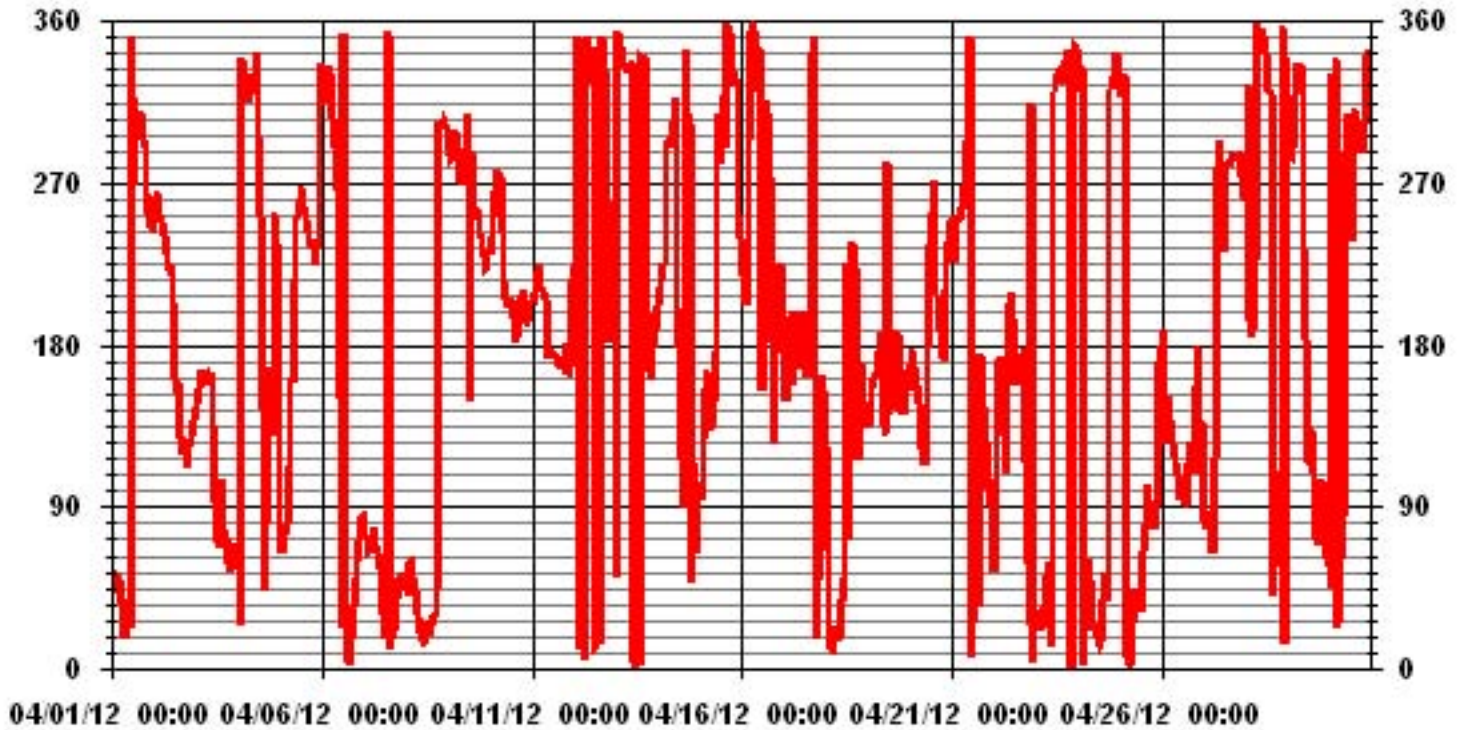
STATUS FLAG CODES

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:	720 HRS
STANDARD DEVIATION	107.12	AMD OPERATION UPTIME	100.0 %
		MONTHLY AVERAGE	351 DEG

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

APRIL 2012

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	8	8	8	9	9	9	18	10	10	10	12	14	40	13	13	14	14	13	16	15	9	6	6	8
2	9	9	8	5	3	4	5	6	7	13	10	18	44	71	50	47	26	15	44	5	9	10	11	11
3	12	13	12	10	8	9	9	10	11	13	58	45	35	32	37	73	72	47	35	18	14	15	23	28
4	30	61	24	9	8	23	12	13	13	13	15	56	73	72	70	74	58	45	36	49	66	65	70	70
5	69	43	52	45	53	28	23	21	45	33	28	33	37	37	35	35	38	37	44	11	7	6	6	20
6	6	8	6	4	6	7	7	10	17	44	83	81	70	50	53	35	35	23	20	19	10	9	7	7
7	11	16	9	8	12	16	8	13	15	23	30	46	51	61	50	29	24	26	23	19	11	11	14	13
8	19	31	20	10	16	17	19	19	30	34	40	27	26	30	35	29	29	38	43	36	5	6	5	5
9	3	5	4	3	4	5	4	10	16	75	50	57	78	58	52	36	25	19	17	10	15	16	18	11
10	22	20	9	14	17	20	38	30	17	18	24	27	30	34	36	31	26	25	23	21	25	27	20	17
11	17	16	19	15	17	21	27	22	28	42	48	40	47	28	25	25	36	38	35	42	42	36	57	49
12	60	49	49	43	33	27	38	48	51	37	35	48	53	58	50	40	33	16	21	26	41	59	73	70
13	67	36	32	30	24	24	22	19	21	20	31	37	45	43	36	33	29	23	35	8	22	12	7	7
14	9	17	24	27	27	14	16	15	15	15	13	53	54	64	70	67	66	57	71	74	66	38	42	35
15	44	40	36	25	18	25	24	20	19	43	20	54	54	57	58	59	21	11	8	13	7	11	5	6
16	4	5	4	5	29	15	18	18	21	32	43	58	33	50	22	35	46	44	29	43	53	16	38	27
17	38	50	35	29	26	38	43	34	51	50	49	41	39	43	54	52	56	75	65	7	43	59	2	2
18	16	33	11	7	5	5	6	15	22	44	35	59	63	54	64	68	67	55	12	8	28	7	8	10
19	10	10	10	8	8	8	11	11	16	48	38	31	42	44	47	57	47	54	14	10	11	11	11	10
20	9	9	9	11	11	12	13	13	12	12	25	18	16	9	30	27	16	15	5	44	6	5	4	5
21	5	8	7	6	5	5	7	13	16	16	34	59	42	65	59	64	76	67	49	13	7	6	16	6
22	13	24	29	7	4	6	10	13	59	55	28	32	30	38	37	45	53	40	26	27	42	54	27	9
23	8	8	7	7	8	9	9	12	12	31	35	32	34	41	39	42	31	26	23	29	31	28	43	35
24	22	14	32	14	11	10	10	15	16	16	17	12	14	16	15	12	13	11	30	24	40	47	34	29
25	23	32	36	30	41	41	49	57	45	52	63	64	62	58	77	68	67	69	58	66	40	61	59	54
26	74	44	43	50	51	49	59	50	45	49	34	33	43	38	38	36	35	33	51	48	33	31	32	64
27	34	31	36	34	24	31	36	22	21	25	19	44	14	15	10	38	7	6	3	4	6	12	23	12
28	16	13	26	7	8	24	31	5	5	7	13	29	23	34	25	45	50	53	61	62	67	66	64	46
29	25	32	28	38	34	13	10	6	42	45	61	51	35	11	11	17	21	28	10	6	7	10	12	10
30	22	12	10	7	5	9	9	11	54	46	45	38	44	39	30	22	29	16	30	14	23	27	30	33

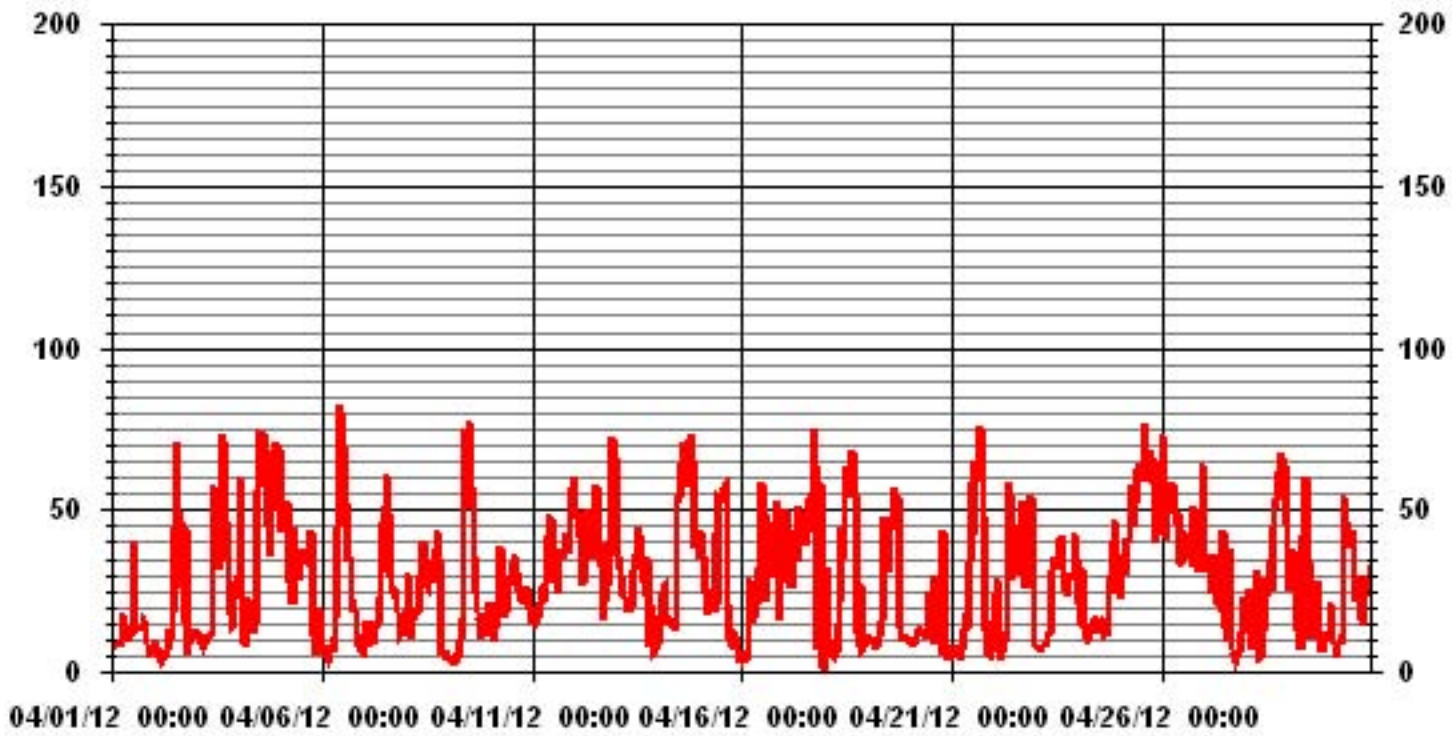
STATUS FLAG CODES

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: 720 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO2 Calibration Report
Station Information

Calibration Date	April 20, 2012	Previous Calibration	March 6, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	8:36	End Time (MST)	13:13
Reason:	Monthly Calibration		
Barometric Pressure	917 mBar	Station Temperature	21 Deg C
Cal Gas	49.6 ppm	Gas Cyl. #	LL42496
DAS Output Voltage	0 - 1 Volts	Cal Gas Expiry date	January 16, 2014
		Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	API 100E	S/N :	468	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 1000		
Sample Flow / Box Temp	520 ccm, 29.3 Deg C	513 ccm, 29.7 Deg C	
HVPS / Lamp Setting	540, 2298	540, 2294	
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, 40.0 Deg C	
Offset / Slope	80.6, 1.048	82.9, 1.041	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
	No Zero Adj.			
4922	75.6	750	754	0.9951
4922	75.6	750	749	1.0018
4955	40.3	400	402	0.9954
4980	17.1	170	171	0.9926
4997	0	0	0	N/A
		Sum of Least Squares		1.0000
		New Correction Factor		1.0018

IZS alibration Data

	Before Calibration	After Calibration
Auto Zero	1.0	0.2
Auto Span	279.0	277.0
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0013
Current Correction Factor Before Span Adjust:	0.9951
Percent Change:	0.6%

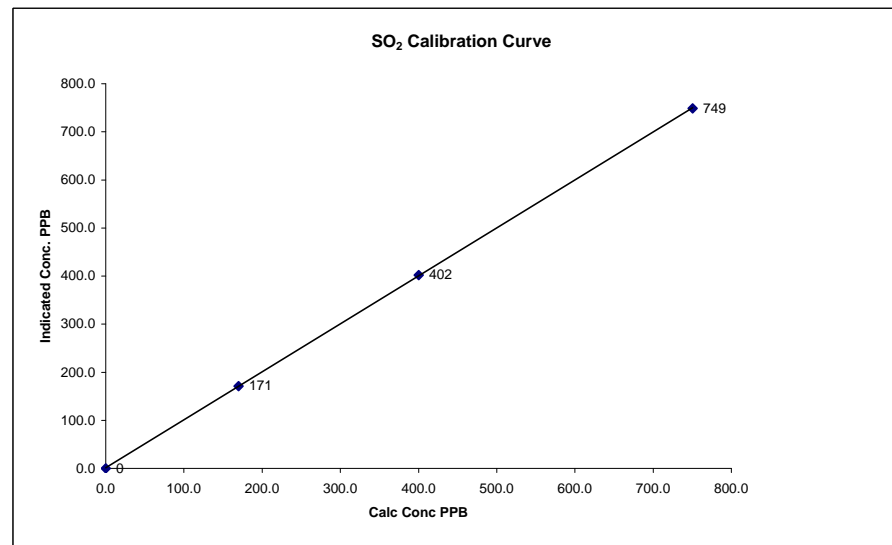
Notes: **N/A : Not applicable**
 After monthly calibration, ran daily calibration, noticed that the SO2 and O3 are in the same relay, aborted it and re-run the daily calibration.

Calibration Performed by: Ting Xu

SO2 Calibration Curve

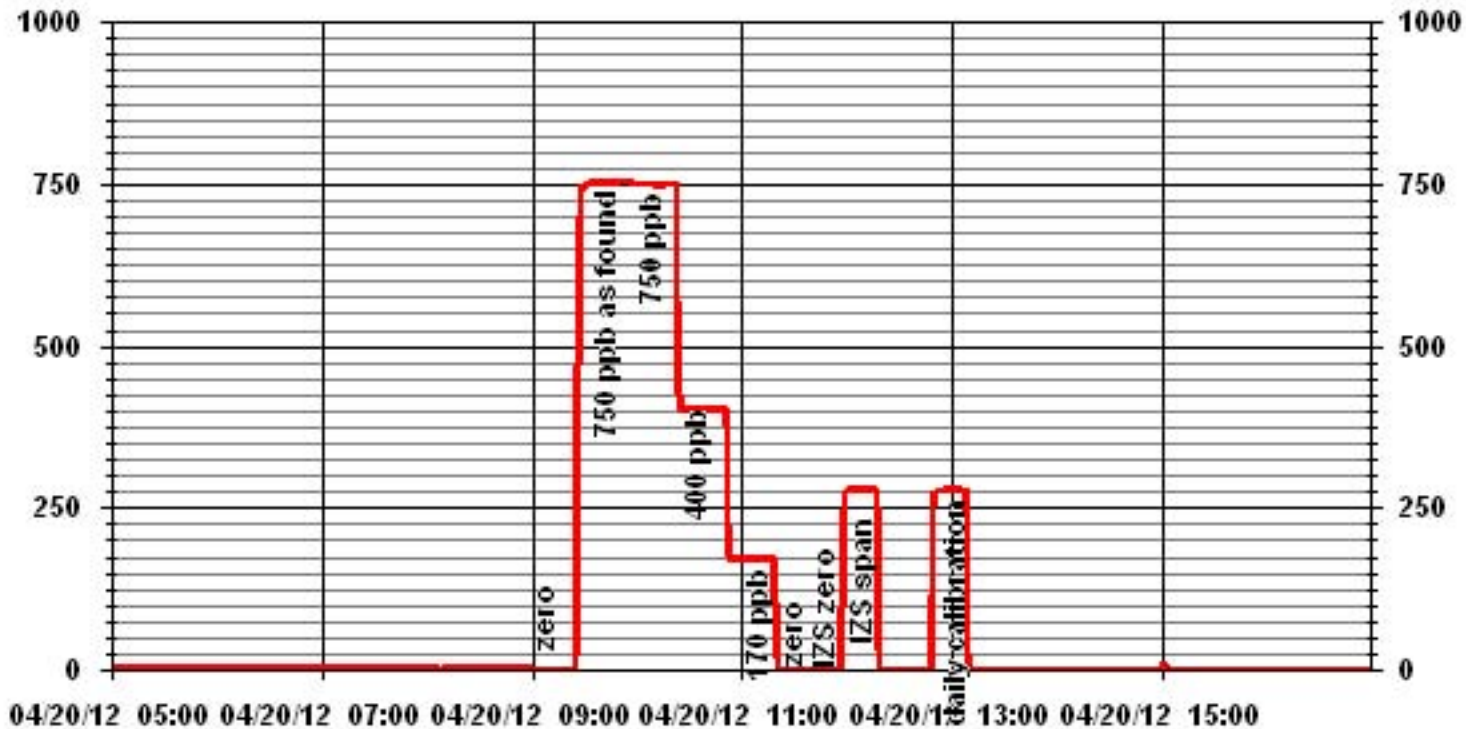
Calibration Date	April 20, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST. LINA
Start Time (MST)	8:36
End Time (MST)	13:13

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	n/a		0.999985
170	171	0.9926		0.998022
400	402	0.9954		1.104211
750	749	1.0018		



Notes:

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	April 19, 2012		Previous Calibration	March 5, 2012		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION					
Plant / Location	ST.LINA					
Start Time (MST)	9:35		End Time (MST)	13:35		
Reason:	Monthly Calibration					
Barometric Pressure	925	mBar	Station Temperature	21	Deg C	
Cal Gas	10	ppm	Gas Cyl. #	LL42648	Cal Gas Expiry date	December 27, 2012
DAS Output Voltage	0 - 1	Volts	Chart Rec. Output	NA	Volts	

Equipment Information

Analyzer Make / Model:	API 101E	S/N :	510	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	API 700	S/N :	831	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	A0717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	API 700	S/N :	831		

Analyzer Settings

	Before Calibration			After Calibration		
Concentration Range	0 - 100			ppb		
Sample Flow / Box Temp	537	ccm	31.9	Deg C	536	ccm
HV/PS / Lamp Setting	518		2371	Deg C	518	2370
PMT / RxCell Temp	8.4	Deg C	50	Deg C	8.4	Deg C
Converter / IZS Temp	315.3	Deg C	45	Deg C	315.4	Deg C
Offset / Slope	77.4		1.035		79.1	1.022

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4997	0	0	1	NA
4997	0	0	0	1.0000
4959	40.0	80	82	0.9758
4959	40.0	80	80	1.0000
4980	20.0	40	41	0.9756
4988	11.5	23	24	0.9584
5000	0	0	0	NA
Sum of Least Squares				0.9928
New Correction Factor				1.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	1.4	0.5
Auto Span	41.4	40.1
Sample Lines Connected		YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9758
Percent Change:	2.5%

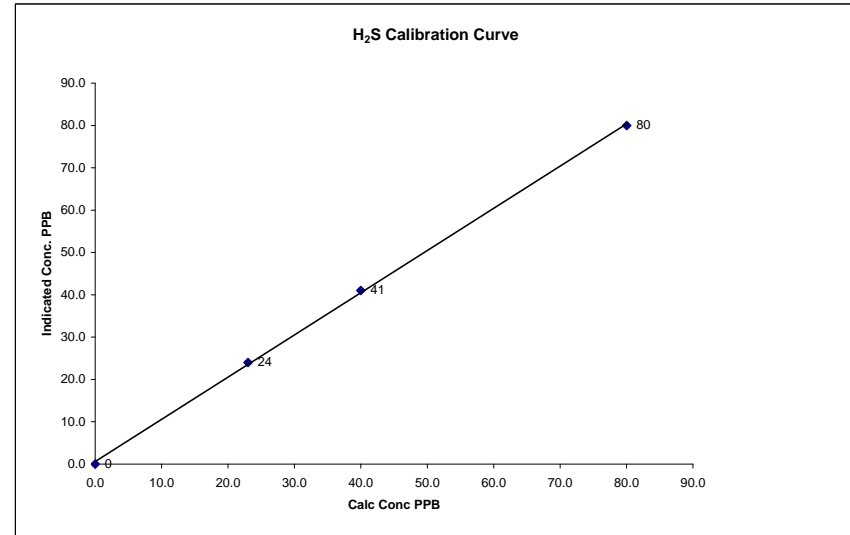
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

H₂S Calibration Curve

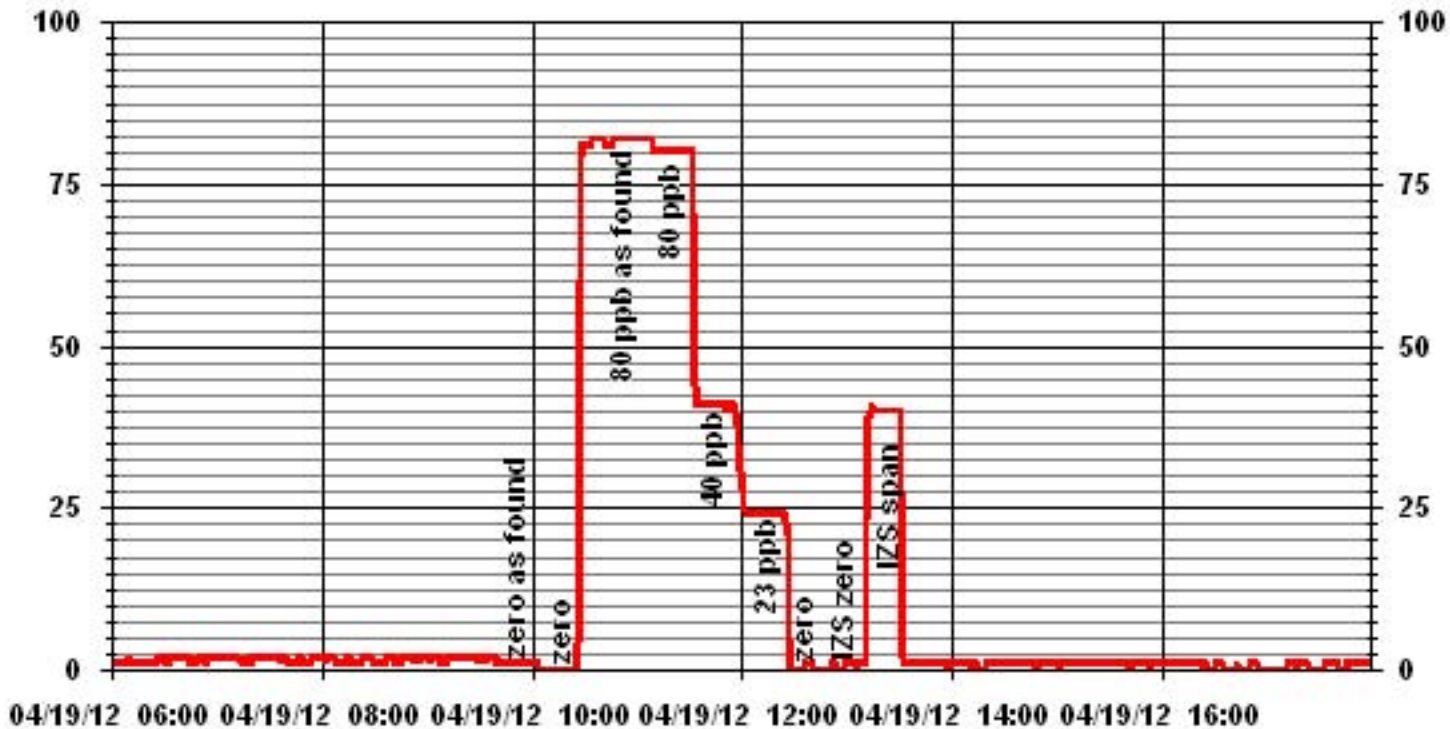
Calibration Date	April 19, 2012	
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION	
Plant / Location	ST.LINA	
Start Time (MST)	9:35	End Time (MST) 13:35

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0			0.999709
23	24	0.9584		0.997313
40	41	0.9756		0.591511
80	80	1.0002		



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	April 19, 2012	Previous Calibration	March 6, 2012
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	ST. LINA		
Start Time (MST)	12:55	End Time (MST)	16:40
Reason:	Monthly Calibration		
Barometric Pressure:	924 mBar	Station Temperature:	21 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	CH4 600 PPM	C3H8 204 PPM	
	TOTAL CH4 1161.0 PPM	Gas Cyl. # LL155310	Cal Gas Expiry Date: September 9, 2013
DAS make & Model:	ESC 8832	S/N :	AO 717
Chart Recorder:	NA	S/N:	NA
Output Voltage Range:	0 - 10 VDC	Chart Speed:	NA mm/hr

Analyzer Information

Make / Model	TECO 51C	S/N :	77021-384	Method	Flame Ionization
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Analyzer Settings

	Before Calibration		After Calibration	
Concentration Range	0 - 50	ppm	0 - 50	ppm
Sample Pressure	6.9	psi	6.9	psi
Hydrogen Pressure	10	psi	10	psi
Air Pressure	21	psi	21	psi

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	-0.4	NA
2000	0.0	0.0	0.0	NA
2000	70.0	39.3	40.2	0.9766
2000	70.0	39.3	39.5	0.9939
2000	35.0	20.0	20.0	1.0000
2000	20.0	11.5	11.5	1.0000
2000	0.0	0.0	0.0	NA
New Correction Factor:				0.9939

Percent Change

Previous Calibration Correction Factor:	0.9978
Current Correction Factor Before Span Adjust:	0.9766
Percent Change:	2.2%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-0.4	0.0
Auto Span	35.9	35.3
Sample Lines Connected	YES	

Cylinder Pressures			
Span	500 psi	Hydrogen	600 psi
		Zero Air	34 psi

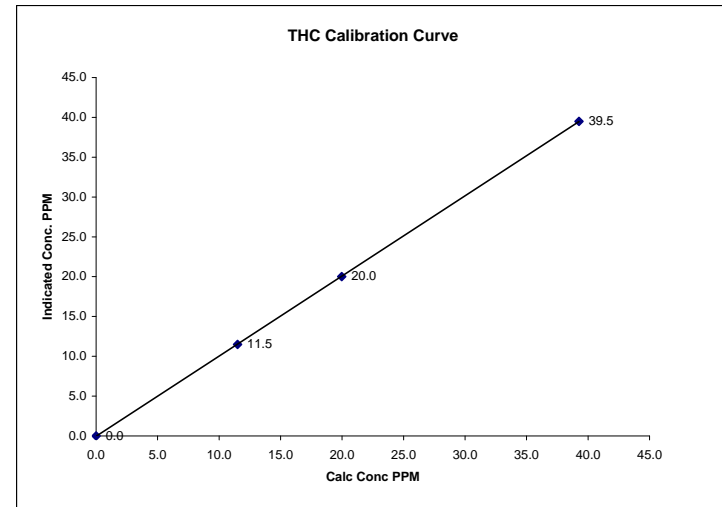
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

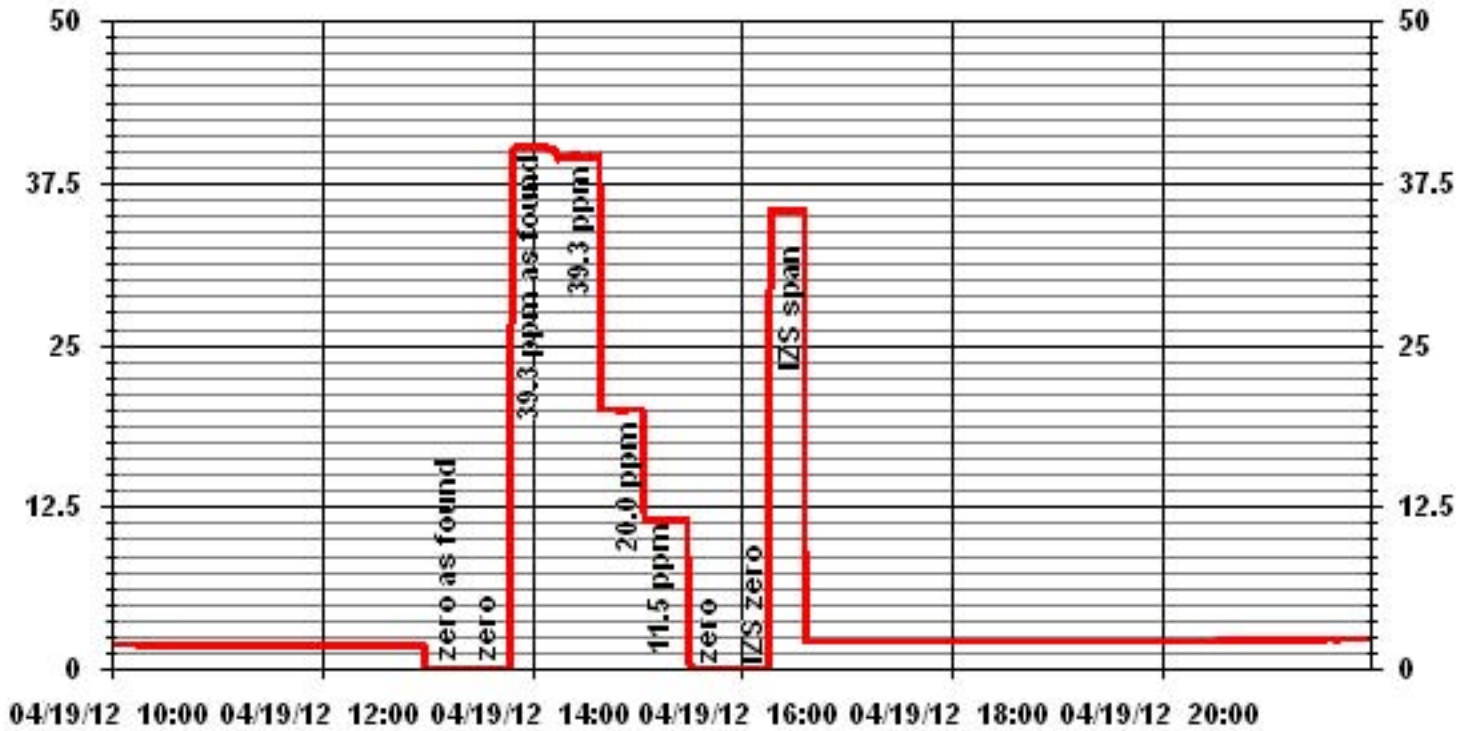
Calibration Date	April 19, 2012		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	12:55	End Time (MST)	16:40

Calculated Conc. ppm	Indicated Response ppm	Correction Factor	Correlation Coefficient Slope (0.85 to 1.15)	Correlation Coefficient Intercept (±3% F.S.)
0.0	0.0	NA	1.006331	-0.04293
11.5	11.5	0.9996		
20.0	20.0	0.9984		
39.3	39.5	0.9939		



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	April 19, 2012		Previous Calibration	March 5, 2012	
Company	LICA		Plant/Location	St. Lina	
Start Time (MST)	12:45		End Time (MST)	15:33	
Reason:	Monthly Calibration				
Barometric Pressure	925 mBar	Station Temperature	21 Deg C	MFCF	1
Cal Gas Concentration	NOx 49.6 ppm	NO	49.5 ppm	Cal Gas Expiry date	January 16, 2014
Cal Gas Cylinder #	LL42496				
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	NA Volts		

Equipment Information

Analyzer Make / Model:	TAPI 200E	S/N :	592	Method:	Chemiluminescent
Calibrator Make / Model:	EnviroNics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	EnviroNics 6100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 1000			ppb			
Sample Flow/Conv. Temp	480 ccm	314 Deg C		481 ccm	314 Deg C		
Ozone Flow / Vacuum	72 ccm	5.0 *Hg-A		71 ccm	5 *Hg-A		
HVPS / A ZERO	662 Volts	18.9 MV		662 Volts	19.3 MV		
Rx/ Temp / PMT Temp	50.0 Deg C	6.8 Deg C		50.0 Deg C	6.8 Deg C		
Box Temp / IZS Temp	28.8 Deg C	42.3 Deg C		30.1 Deg C	42.2 Deg C		
Offset	1.5 NOx	0.5 NO		1.5 NOx	0.2 NO		
Slope	1.289 NOx	1.266 NO		1.383 NOx	1.374 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	NA	0	0	NA	0	1	0	NA	NA
	No Zero Adj.									
4919	75.6	NA	751	749	NA	699	691	8	1.0741	1.0859
4919	75.6	NA	751	749	NA	753	752	2	0.9970	0.9977
4961	35.3	NA	350	350	NA	351	350	1	0.9984	1.0000
4977	17.2	NA	171	170	NA	170	170	0	1.0048	1.0000
4994	0.0	NA	0	0	NA	0	1	0	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4919	75.6	NA	751	749	NA	754	752	2	NA	NA
4919	75.6	600	751	NA	536	754	218	535	1.0019	99.81%
	No Span Adj.									
4919	75.6	300	751	NA	270	754	484	270	1.0000	100.00%
4919	75.6	120	751	NA	108	754	646	109	0.9908	100.94%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 0.998	NO= 0.997	NO2= 1.001
				NOx= 0.9970	NO= 0.9977	NO2= 1.0019
Average Converter Efficiency= 100.25%						

IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	0.2 NOx	0.0 NO2		-0.2 NOx	-0.2 NO2		
Auto Span	657 NOx	624 NO2		700 NOx	668 NO2		
Sample Lines Connected: YES							
Percent Change from Previous Calibration				NOx -7.1%	NO -7.7%	NO2 -0.2%	

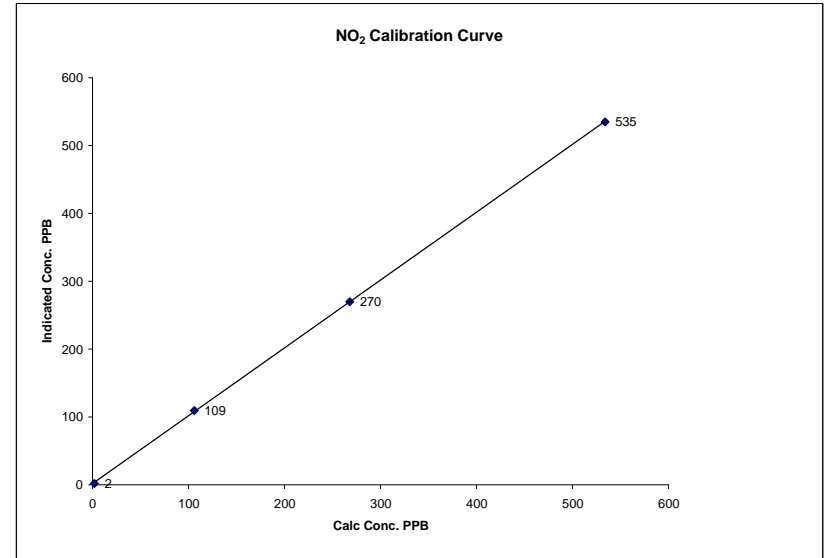
Notes: **NA : Not Applicable**
 Additional GPT was done for O3 claibration. O3 set point 450, NO=349, NO2=405, NOx=754
 After finished the A/F points, tried to adjust the span value, by accidentally put the wrong concentration value, fixed it and then redid the point.

Calibration Performed by: Ting Xu

NO2 Calibration Curve

Calibration Date	April 19, 2012	
Company	LICA	
Plant / Location	St. Lina	
Start Time (MST)	12:45	End Time (MST) 15:33

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) Intercept	(0.85 to 1.15) (± 3% F.S.)
2	2	N/A			0.999969
106	109	0.9725			1.000143
268	270	0.9926			
534	535	0.9981			1.46754

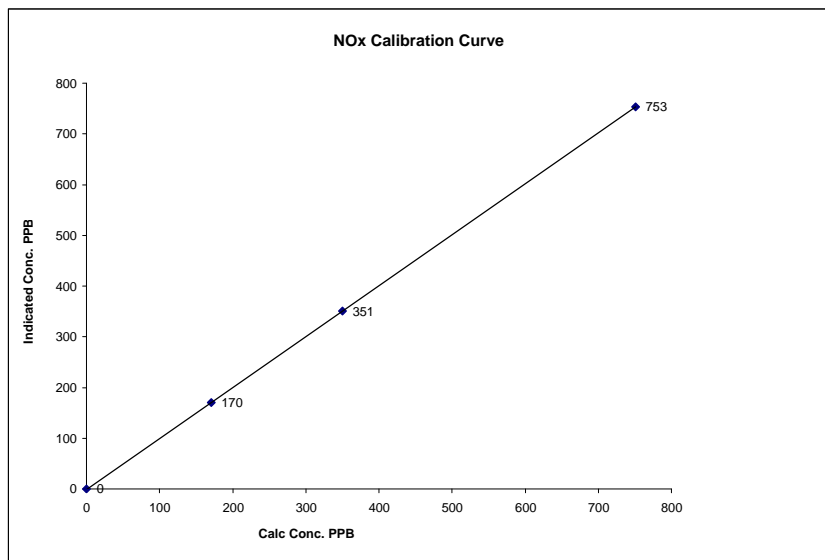


Notes:

NOx Calibration Curve

Calibration Date	April 19, 2012	
Company	LICA	
Plant / Location	St. Lina	
Start Time (MST)	12:45	End Time (MST) 15:33

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999997
0	0	N/A	Slope (0.85 to 1.15)	1.003560
171	170	1.0048	Intercept (± 3% F.S.)	-0.63705
350	351	0.9984		
751	753	0.9970		

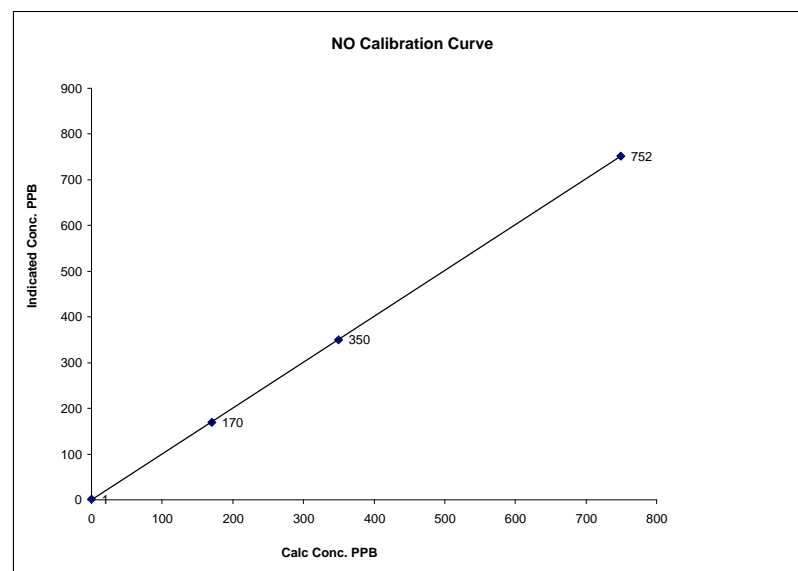


Notes:

NO Calibration Curve

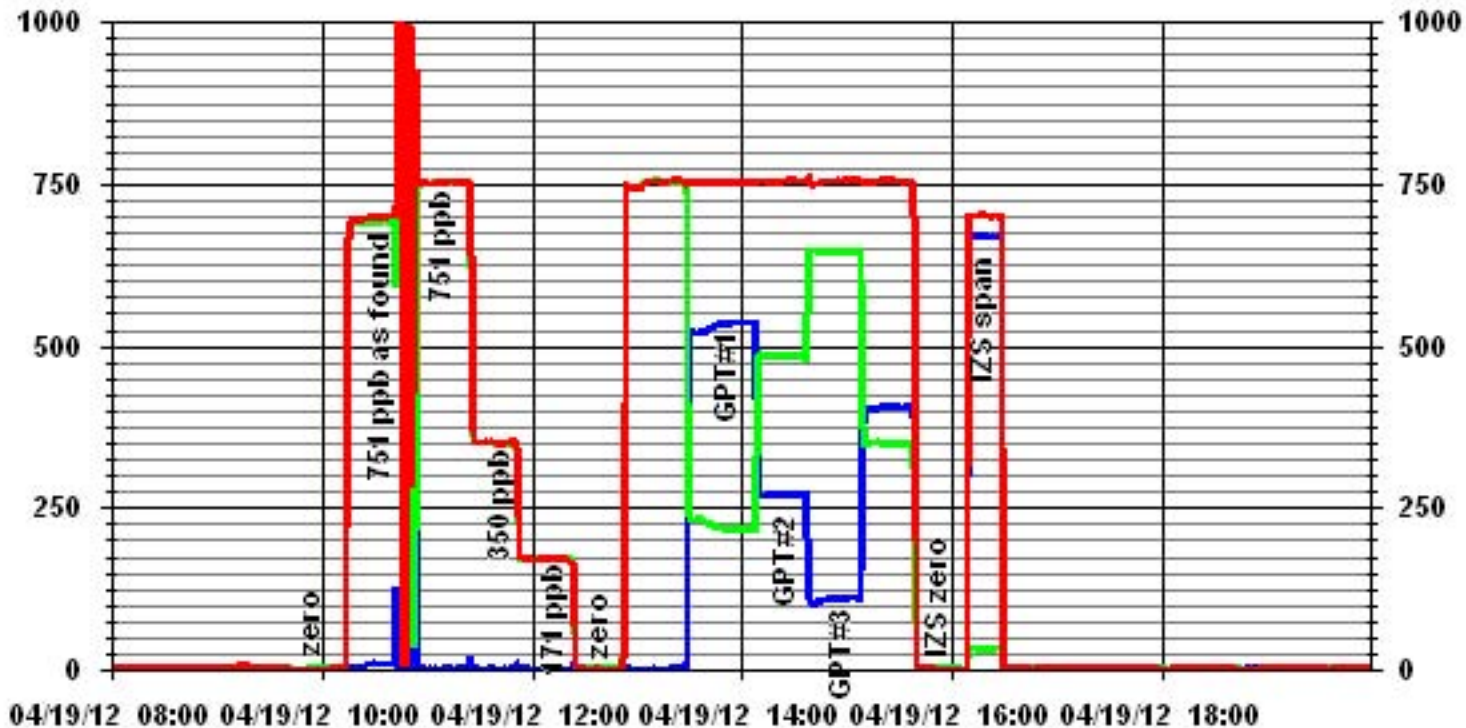
Calibration Date	April 19, 2012	
Company	LICA	
Plant / Location	St. Lina	
Start Time (MST)	12:45	End Time (MST) 15:33

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999991
0	1	N/A	Slope (0.85 to 1.15)	1.005683
170	170	1.0028	Intercept (± 3% F.S.)	-1.8994
350	350	0.9992		
749	752	0.9963		



Notes:

01 Minute Averages



— LICA31 NOX_ PPB

— LICA31 NO_ PPB

— LICA31 NO2_ PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	April 20, 2012	Previous Calibration	March 5, 2012
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	8:36	End Time (MST)	12:22
Reason:	Monthly Calibration		
Barometric Pressure	917 mBar	Station Temperature	21 Deg C
DAS Output Voltage	0-10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49C	S/N :	49C-54926-302	Method:	Fluorescent
Calibrator Make / Model:	Enviroics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO 717		

Analyzer Settings

	Before Calibration		After Calibration	
	0 - 500			
Concentration Range	ppb			
Cell A Flow / Cell B Flow	837 ccm	868 ccm	836 ccm	866 ccm
Pressure	703 mmHg		703 mmHg	
Bench Temp	56.7 Deg C		56.7 Deg C	
O3 Lamp / Box Temp	80 Deg C	31.3 Deg C	80 Deg C	31.8 Deg C
Offset / Slope	0.1	0.976	0.1	1.003

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	NA
	No Zero Adj			
4994	450	403	392	1.0281
4994	450	403	404	0.9975
4994	300	268	271	0.9889
4994	120	106	109	0.9725
4994	0	0	0	N/A
			Sum of Least Squares	N/A
			New Correction Factor	0.9975

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.9	0.2
Auto Span	318	327
Sample Lines Connected		YES
Percent Change from Previous Calibration		-2.5%

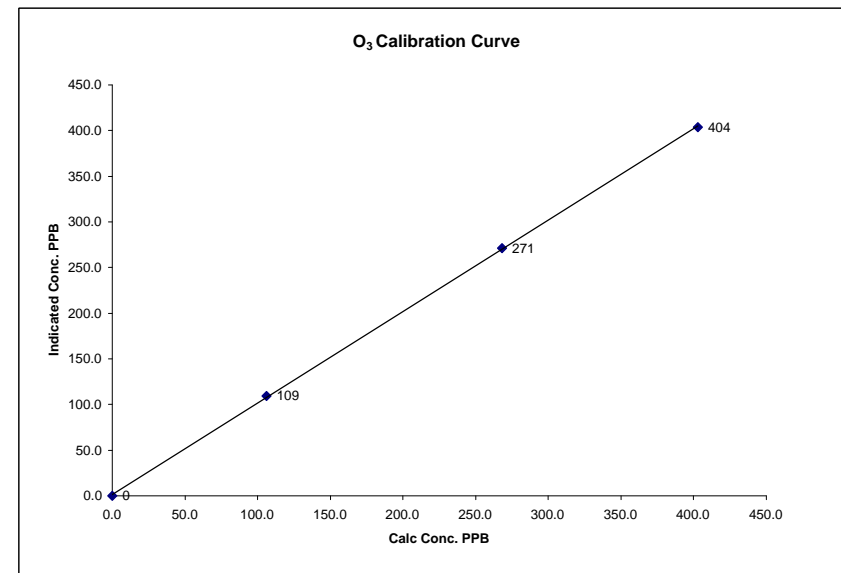
Note: **NA: Not Applicable**

Calibration Performed by: Ting Xu

O₃ Calibration Curve

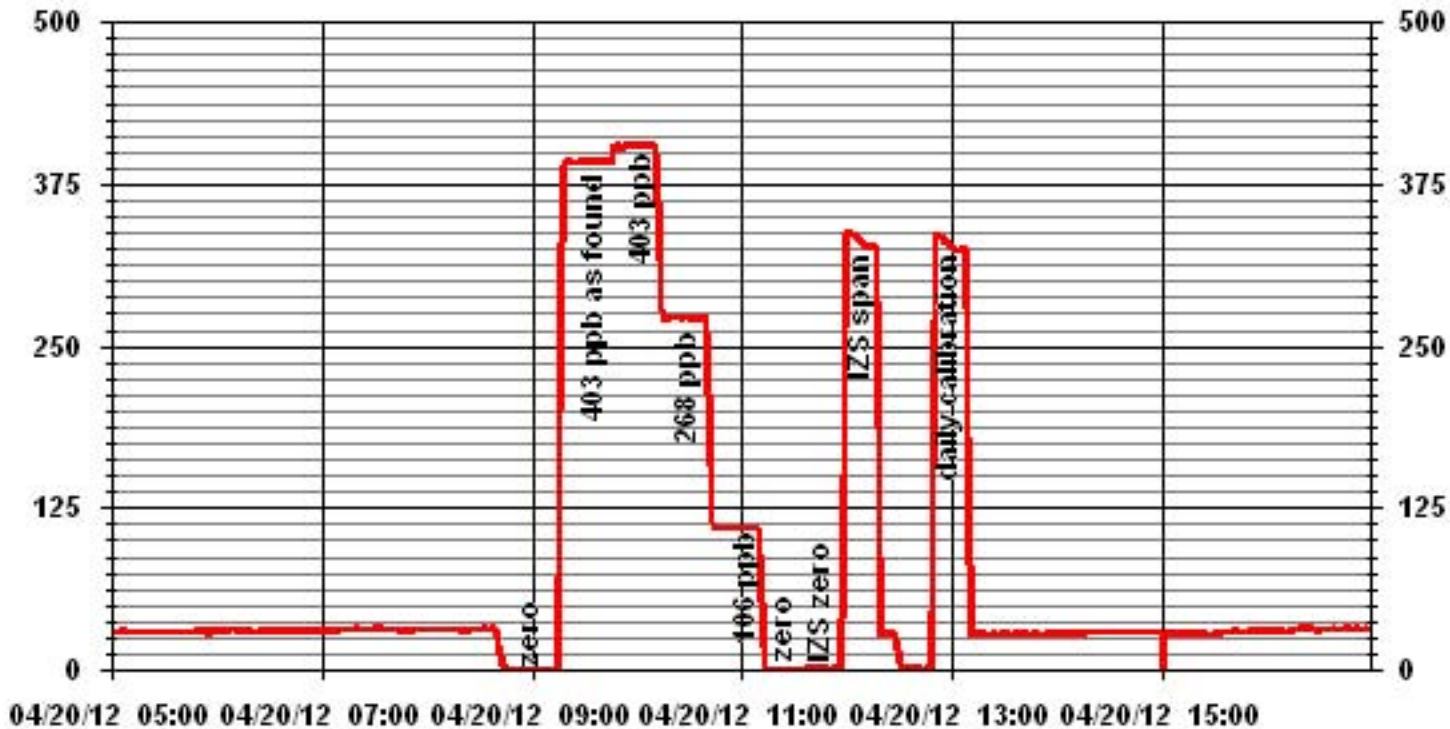
Calibration Date	April 20, 2012		
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	8:36	End Time (MST)	12:22

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope (≥ 0.995) (0.85 to 1.15)	0.999932
0	0	n/a	Intercept (± 3% F.S.)	1.410451
106	109	0.9725		
268	271	0.9889		
403	404	0.9975		



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOMÒ 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	<u>April 19, 2012</u>	Make/Model:	<u>Streamline FTS</u>
Station Name:	<u>Lica St. Lina (CASA # 31)</u>	Serial Number:	<u>LO 091099, Hi 091001</u>
Location:	<u>St. Lina Station</u>	Cell s/n:	<u>NA</u>
Operator:	<u>LICA</u>	Thermometer s:	<u>Station Temp. Sensor</u>

	<u>Sampler</u>		<u>Set-up and current Sampler readings</u>
Make/Model	<u>Thermo Scientific Series 1405F</u>	F-Main Set Pt (l/min)	<u>3.00</u>
Unit #	<u>NA</u>	F-Aux Set Pt (l/min)	<u>13.67</u>
Unit s/n	<u>1405A207691003</u>	Filter Load (%)	<u>31.5%</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>9.97</u>
		Press (ATM)	<u>0.924</u>

Conversion from mmHg or "Hg to ATM (Atmospheres)

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

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

Audit

Status			
Noise <0.10ug	<u>0.004</u>	Warnings	<u>None</u>
Pump Vacuum <0.4atm	<u>0.29</u>	Pump Gauge (inHg)	<u>NA</u>
Temperature/Pressure			
Measured Temp (± 2 °C)	<u>8.9</u>	D °C	<u>1.1</u>
Measured Press (± 0.01atm)	<u>0.922</u>	DATM	<u>0.002</u>
Flow Audit			
Indicated Main Flow (l/min)	<u>3.00</u>	Main Flow Drift (±10.0%)	<u>0.36%</u>
Measured Main Flow (l/min)	<u>3.13</u>	Flow Adjusted to Measured?	<u>YES</u>
Indicated Bypass Flow (l/min)	<u>13.67</u>	Bypass Flow Drift (±10.0%)	<u>1.35%</u>
Measured Bypass Flow (l/min)	<u>13.60</u>	Flow Adjusted to Measured?	<u>YES</u>
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	<u>NA</u>	Flow Control = Active	
Aux (< 0.6 l/min)	<u>NA</u>	Report Conditions = Actual	
K_o Factor			
Measured	<u>NA</u>		
K _o Difference (± 2.5%)	<u>NA</u>		

Start Time: 14:12 **Finish Time:** 15:28

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

Comments: _____

Auditor/s: Ting Xu

Lakeland Industry & Community Association

Cold Lake Monitoring Site

Ambient Air Monitoring

Data Report

For

April 2012

Prepared By:



May 24, 2012

Lakeland Industry & Community Association Cold Lake Monitoring Site Ambient Air Monitoring

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○ Sulphur Dioxide	17	Passive Monitoring Laboratory Analysis	13+
○ Total Reduced Sulphur	25	Volatile Organics Laboratory Analysis	14)
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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: April 2012

The monthly ambient data report:

- Prepared by Lily Lin
- Reviewed by Katherine Rapske

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

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

Calibration Procedure

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

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

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

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

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

MONTHLY CONTINUOUS DATA SUMMARY

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

Continuous Ambient Monitoring – April 2012

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION COLD LAKE SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)
						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDENCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY	
	1-HR	24-HR	1-HR	24-HR									
SO ₂ (PPB)	172	48	0	0	0.06	2	8	VAR	VAR	VAR	0.7	8	99.9
TRS (PPB)	-	-	-	-	0.00	0	ALL	ALL	VAR	VAR	0.0	ALL	99.9
NO ₂ (PPB)	159	-	0	-	2.51	21	19	6	1.5	50(NE)	6.2	19	99.7
NO (PPB)	-	-	-	-	0.29	19	19	6	1.5	50(NE)	1.9	19	99.7
NO _x (PPB)	-	-	-	-	2.84	40	19	6	1.5	50(NE)	8.0	19	99.7
O ₃ (PPB)	82	-	0	-	37.60	62	22	VAR	VAR	VAR	48.7	11	99.9
THC (PPM)	-	-	-	-	1.95	3.0	22	7	2.8	61(ENE)	2.3	29	100.0
PM 2.5 (UG/M ³)	-	30	-	0	4.14	16.5	11	20	5.5	98(E)	8.6	11	98.9
TEMPERATURE (DEG C)	-	-	-	-	3.44	19.3	22	15	6.4	180(S)	9.9	23	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	60.97	100	14	VAR	VAR	VAR	93.4	14	100.0
VECTOR WS (KPH)	-	-	-	-	7.45	18.6	5	13	-	232(SW)	12.8	26	100.0
VECTOR WD (DEGREES)	-	-	-	-	63(ENE)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS NA: NOT AVAILABLE

Monthly Non-Continuous Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

Passive Ambient Monitoring Network – April 2012

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO ₂	#14	1.0	0.37
H ₂ S	#17, #32	0.13	0.08
NO ₂	#28	2.2	0.7
O ₃	#32	40.8	34.0

Volatile Organics Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

Xontech Model 910A – April 3 2012

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

Xontech Model 910A – April 10 2012

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

Xontech Model 910A – April 15 2012

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

Xontech Model 910A – April 21 2012

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

Xontech Model 910A – April 27 2012

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

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

PUF cartridge – April 3 2012

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

PUF cartridge – April 10 2012

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

PUF cartridge – April 15 2012

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

PUF cartridge – April 21 2012

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

PUF cartridge – April 27 2012

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

General Monthly Summary - Cold Lake

Equipment Operation

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

AQM STATION – LICA – COLD LAKE

Sulphur Dioxide (PPB)

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

No operational issues were observed during the month. The inlet filter was changed before the monthly calibration was started on April 9th. 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 were observed during the month. The inlet filter was changed before the monthly calibration was started on April 10th. Data was corrected using daily zero information.

Ozone (PPB)

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

No operational issues were observed during the month. The inlet filter was changed before the monthly calibration was started on April 10th. 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 were observed during the month. The inlet filter was changed before the monthly calibration was started on April 9th. Data was corrected using daily zero information.

Nitrogen Dioxide (PPB)

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

No operational issues were observed during the month. The inlet filter was changed before the monthly calibration was started on April 9th. It was noticed that the analyzer spanned high on April 19th. An as found point check was performed on April 20th, and the result was good. The pump for the daily calibration system was rebuilt on April 20th. A daily calibration was run after the repair, and the result was within the acceptable range. Data was corrected using daily zero information.

Particulate Matter 2.5 (UG/M3)

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

No operational issues were observed this month. A routine Teom audit was performed on April 9th. Both the Teom filter and the FDMS filter were changed on April 9th. 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. Eight hours of data were invalid as the data were below –3 ug/m3.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

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

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

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

No operational issues were observed during the month.

Relative Humidity (PERCENT)

- System make / model - Rotronic Hygroclip-S3

No operational issues were observed during the month.

Ambient Temperature (DEGC)

- System make / model - Rotronic Hygroclip-S3

No operational issues were observed during the month.

Trailer Temperature (DEGC)

- System make / model - R&R 61

No operational issues were 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

The manifold and sample inlet were cleaned on April 9th.

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. Fifty-seven hours of AQI value recorded in April 2012 was within the Fair range, and they were all due to ozone. Others were within the Good range. The highest hourly concentration of ozone was 62 ppb and an AQI value of 35 on April 22nd, in various hours. The highest AQI value for PM2.5 was 11 on April 22nd, hour of 0.

Passive Network

The duplicated sample for ozone at station 13 was damaged.
The 10% duplicate sampling program was run this month.

Volatile Organics (VOCs)

The volatile organics were sampled from April 3rd to April 27th. 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. Due to personnel shortage, the scheduled sample running date for April 9th was moved to April 10th.

Polycyclic Aromatic Hydrocarbons (PAHs)

The PAHs scheduled to be sampled on April 3rd to April 27th. 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. Due to personnel shortage, the scheduled sample running date for April 9th was moved to April 10th.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

AIR QUALITY INDEX (AQI)

MST	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	DAILY MAX
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	
1	14	20	21	21	22	23	25	24	24	24	23	22	21	20	19	20	21	23	23	-	22	22	21	20	25
2	19	18	17	16	15	14	16	17	17	18	20	23	25	25	25	25	25	25	25	NA	03	03	03	03	03
3	22	22	22	21	20	20	19	18	19	20	22	25	28	28	29	29	-	28	26	26	25	25	25	25	29
4	24	22	21	20	17	8	7	10	16	18	21	23	25	25	25	25	-	25	25	25	25	24	24	24	25
5	24	24	23	22	21	20	22	22	20	19	22	23	23	19	17	-	NA	03	03	03	03	03	03	03	03
6	11	14	15	14	13	13	15	16	18	19	21	21	22	-	23	22	22	20	20	21	21	20	20	23	23
7	20	20	20	19	18	18	18	19	20	20	21	21	22	-	23	24	25	25	25	24	22	22	21	19	25
8	20	20	-	17	17	17	17	17	19	20	-	21	21	22	23	23	23	23	23	23	22	21	20	20	23
9	18	13	17	15	13	11	12	21	22	22	23	-	-	-	-	-	-	-	-	-	19	15	9	9	23
10	22	21	21	20	20	17	21	-	-	-	-	24	24	25	27	28	28	28	28	28	25	25	25	24	28
11	23	23	23	22	21	20	19	21	22	-	25	27	28	28	28	28	31	30	28	28	25	25	27	26	31
12	24	24	23	23	22	21	20	20	-	20	20	21	21	21	20	22	23	23	24	25	26	26	25	23	26
13	20	22	22	22	22	22	21	-	20	19	19	18	17	17	16	15	14	14	12	12	11	10	10	9	22
14	9	9	8	8	9	10	-	10	10	11	-	13	13	13	13	14	-	16	18	20	21	22	23	24	24
15	25	25	24	24	24	-	23	23	23	23	23	24	24	24	24	25	25	25	25	22	18	21	21	21	25
16	20	19	18	16	-	11	14	17	19	21	23	23	24	24	24	24	24	24	23	21	19	20	20	20	24
17	20	21	23	-	22	22	20	21	22	22	23	25	25	27	27	28	28	26	23	16	10	9	8	28	28
18	6	6	-	6	8	6	8	14	21	25	28	28	28	29	29	29	29	28	28	23	17	13	10	7	29
19	6	-	8	5	4	9	9	19	21	22	26	28	28	28	28	27	25	25	24	22	17	14	18	22	28
20	-	22	20	19	17	16	17	17	19	20	20	20	19	17	-	-	-	-	16	14	11	7	6	-	22
21	4	7	9	10	11	13	13	15	16	19	21	22	22	22	23	23	23	22	22	19	10	11	-	7	23
22	11	8	4	4	5	2	7	9	19	21	26	30	33	35	35	35	33	33	30	27	21	-	25	25	35
23	24	24	23	22	21	21	20	21	22	24	24	24	24	24	24	24	24	24	23	22	-	22	22	20	24
24	19	20	19	19	20	19	18	16	17	17	16	15	16	16	15	15	15	16	17	-	17	17	17	17	20
25	18	17	16	15	-	14	13	14	14	16	16	16	16	17	17	18	18	18	-	18	18	18	17	17	18
26	18	18	19	19	20	19	19	-	19	20	20	21	22	22	22	22	22	-	23	22	22	21	21	22	23
27	23	22	19	18	17	16	16	16	16	16	15	15	15	16	15	14	-	15	14	14	12	13	13	-	23
28	14	15	14	13	14	12	11	11	13	12	12	14	16	17	20	-	21	22	21	21	17	13	14	9	22
29	8	3	4	5	10	11	12	13	16	17	16	16	17	18	-	21	22	22	20	19	15	14	17	12	22
30	7	4	3	3	3	10	20	22	21	21	21	21	22	-	24	24	25	28	28	25	19	19	20	19	28
PEAK	25	25	24	24	24	23	25	24	24	25	28	30	33	35	35	35	33	33	30	28	26	26	27	26	30

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)	57	7.9%	35	VAR	22	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	57	7.9%
GOOD (1-25)	590	81.9%	-	-	-	20	2.8%	11	0	22	0	0.0%	-	-	-	0	0.0%	-	-	-	610	84.7%
OVERALL	637	89.9%	-	-	-	20	2.8%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	667	92.6%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53	7.4%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

SULPHUR DIOXIDE (SO₂) hourly averages in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	IZS	0	0	0	0	1	0.0	24	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0.0	24	
3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	IZS	0	0	0	0	0	0	1	0.0	24	
4	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	IZS	0	0	0	0	0	0	0	1	0.1	24	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0.0	24	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0.0	24	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	1	1	1	0.2	24	
8	0	0	0	1	2	2	2	1	0	0	0	1	IZS	1	1	1	1	1	1	0	0	0	0	0	2	0.7	24	
9	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	M	0	0	0	0	0	0	0.0	23	
10	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0.1	24	
11	0	0	0	0	0	0	0	0	0	IZS	1	1	0	0	0	0	1	1	0	1	0	0	0	1	1	0.3	24	
12	1	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
13	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
14	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
15	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
16	0	0	0	0	IZS	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
17	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
18	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
19	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
20	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	24	
22	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	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0.0	24	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	IZS	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	IZS	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	IZS	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	IZS	0	0	0	0	0	0	0	0	0	0.0	24	
29	0	0	0	0	0	0	0	0	0	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	1	0.2	24	
30	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	
HOURLY MAX	1	0	0	1	2	2	2	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
HOURLY AVG	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.0	0.1	0.0	0.0	0.1	0.1	0.1	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

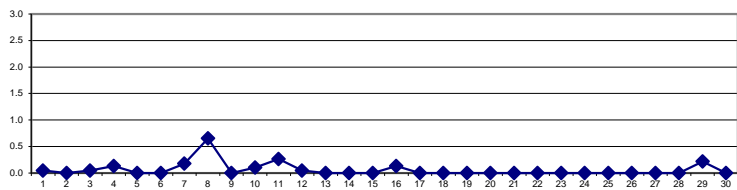
OBJECTIVE LIMIT:

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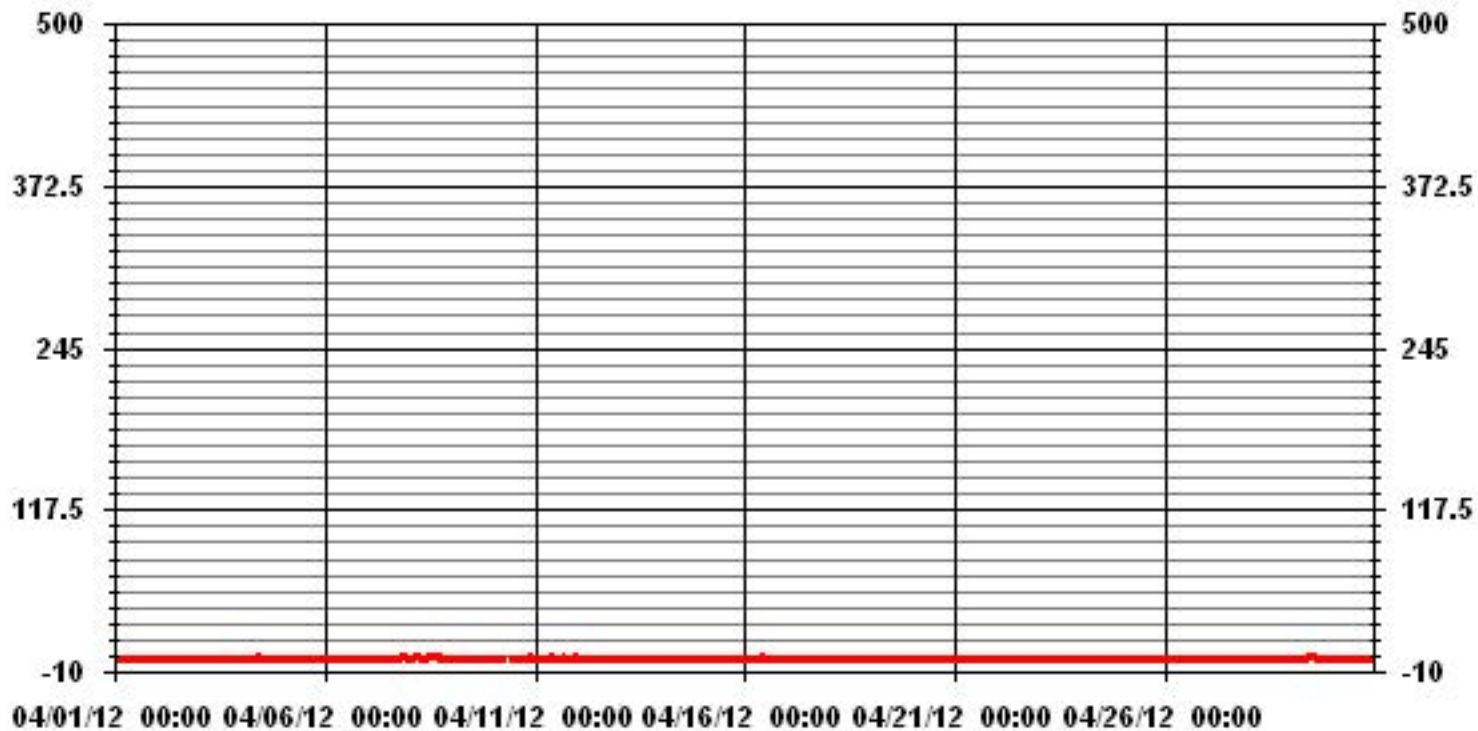
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	38		
MAXIMUM 1-HR AVERAGE:	2 PPB @ HOUR(S) VAR ON DAY(S) 8		
MAXIMUM 24-HR AVERAGE:	0.7 PPB ON DAY(S) 8		
IZS CALIBRATION TIME:	30 HRS	OPERATIONAL TIME:	719 HRS
MONTHLY CALIBRATION TIME:	4 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.26	MONTHLY AVERAGE:	0.06 PPB

24 HOUR AVERAGES FOR APRIL 2012



01 Hour Averages



— LICA SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	IZS	1	0	1	0	2	2	0.2	24	
2		0	0	0	1	0	0	0	0	0	0	1	1	1	1	1	1	1	IZS	1	0	1	0	1	1	1	0.5	24	
3		1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	IZS	1	1	1	0	1	0	1	0.8	24		
4		0	0	0	0	0	0	0	1	1	2	1	1	1	1	0	IZS	1	0	1	1	0	0	0	2	0.5	24		
5		0	0	1	0	0	0	1	1	1	1	1	1	1	0	IZS	0	0	0	0	0	0	0	0	1	0.4	24		
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	1	0	0	1	0.1	24		
7		1	1	1	1	1	0	1	1	1	0	0	0	0	IZS	0	0	0	1	1	1	2	2	2	2	2	0.8	24	
8		1	1	1	2	2	2	2	2	1	1	1	1	IZS	1	2	1	1	1	1	1	1	1	1	0	2	1.2	24	
9		1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	M	0	0	0	1	0	1	0.1	23	
10		0	0	0	1	0	0	0	C	C	C	C	IZS	0	0	1	1	1	1	0	1	1	1	1	1	1	0.5	24	
11		1	1	0	1	1	1	0	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	24	
12		1	1	1	1	1	1	1	0	IZS	0	1	1	1	1	1	1	0	0	1	0	1	0	0	1	0.7	24		
13		0	0	0	0	0	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
14		0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0.0	24	
15		0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.1	24	
16		0	0	0	1	IZS	0	0	0	1	1	1	1	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0.3	24
17		0	0	1	IZS	1	1	1	0	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	0.3	24
18		0	0	IZS	0	0	1	0	0	0	1	1	1	1	1	1	0	0	1	1	0	0	0	0	0	1	0.4	24	
19		0	IZS	0	0	0	1	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0.3	24
20		IZS	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	IZS	1	0.2	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	24	
22		0	0	0	0	0	0	1	1	1	0	1	1	1	1	0	1	0	0	0	1	1	IZS	0	1	1	0.5	24	
23		1	0	0	1	1	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	IZS	0	0	0	1	0.3	24
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0.0	24	
25		0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	1	0.0	24
26		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
27		1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	1	0.1	24
28		0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	IZS	1	1	0	0	0	0	0	0	0	1	0.2	24
29		0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	0	0	0	0	1	0.5	24
30		0	0	0	0	0	0	0	1	1	1	1	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
HOURLY MAX		1	1	1	2	2	2	2	2	1	2	1	1	1	1	2	1	1	1	2	1	2	2	2	2	2			
HOURLY AVG		0.3	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.3	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.2	0.3	0.2				

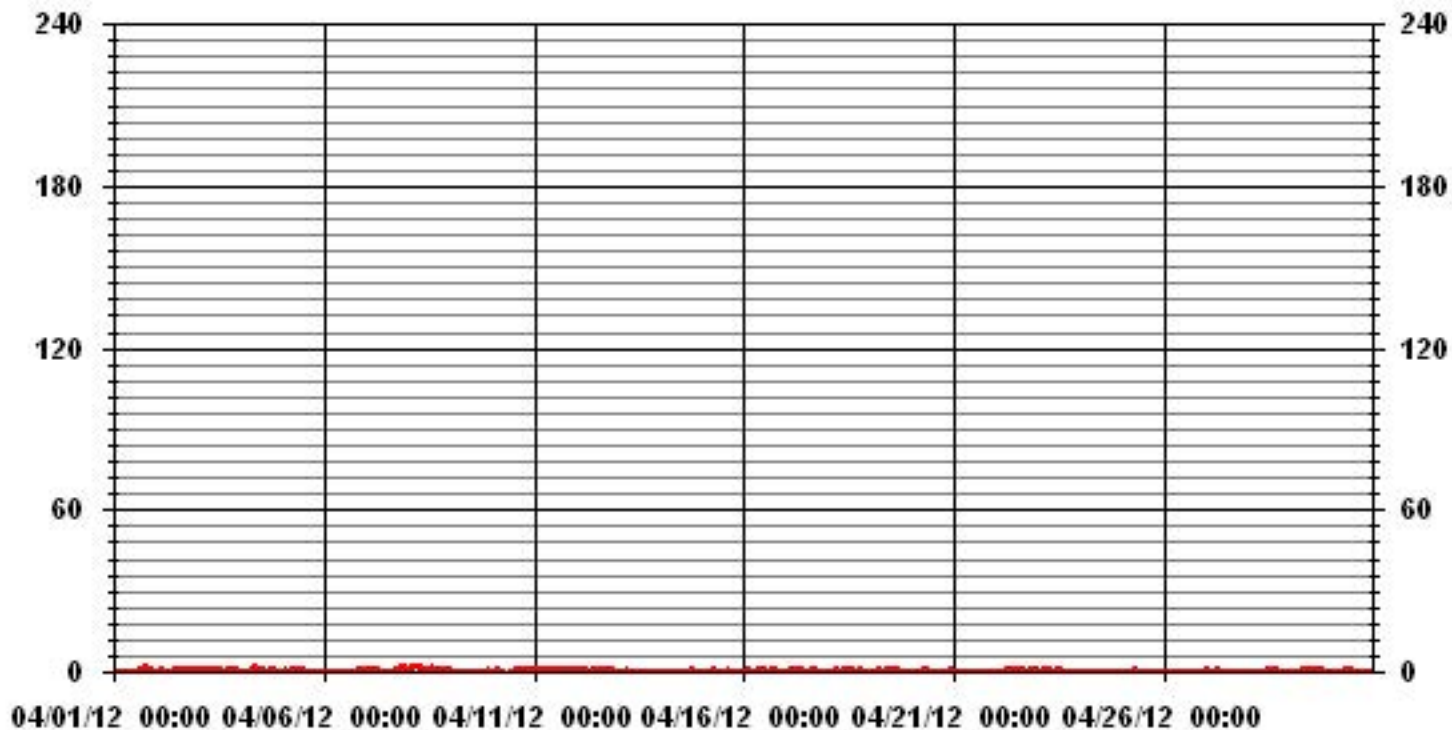
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	223					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.51					

01 Hour Averages



LICA
 SO2_ / WDR Joint Frequency Distribution (Percent)

April 2012

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	4.81	11.82	10.51	5.83	15.62	5.10	11.82	3.50	1.89	3.06	5.54	5.10	3.79	4.81	3.50	3.21	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	4.81	11.82	10.51	5.83	15.62	5.10	11.82	3.50	1.89	3.06	5.54	5.10	3.79	4.81	3.50	3.21	

Calm : .00 %

Total # Operational Hours : 685

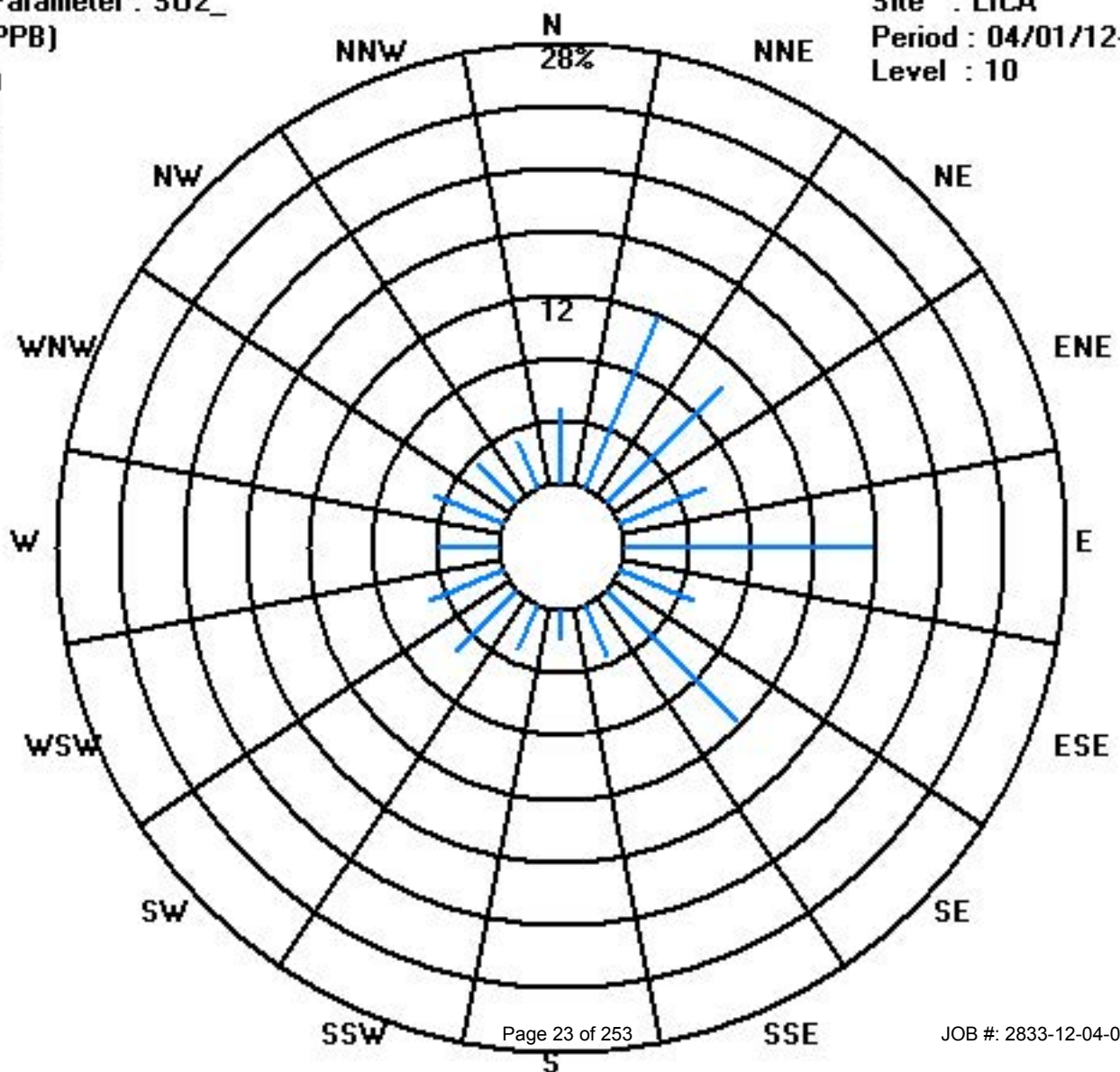
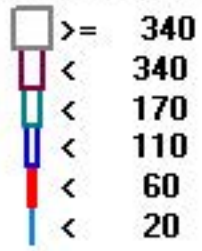
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	33	81	72	40	107	35	81	24	13	21	38	35	26	33	24	22	685
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	33	81	72	40	107	35	81	24	13	21	38	35	26	33	24	22	

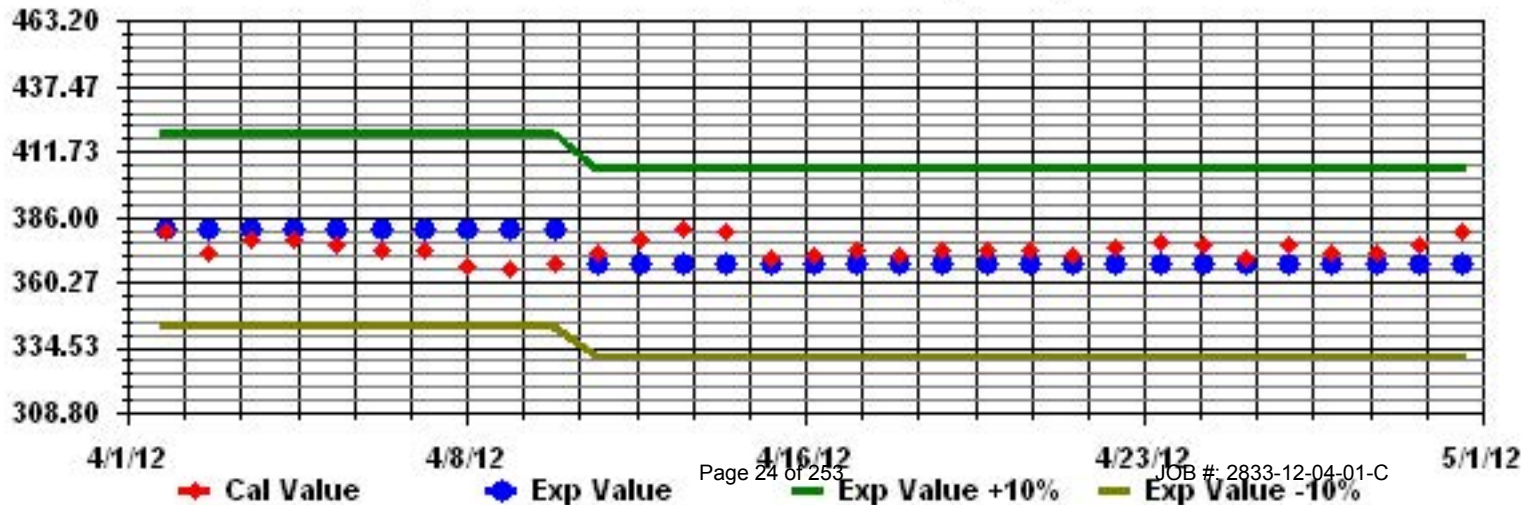
Calm : .00 %

Total # Operational Hours : 685

Class Limits (PPB)



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



Total Reduced Sulphur

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

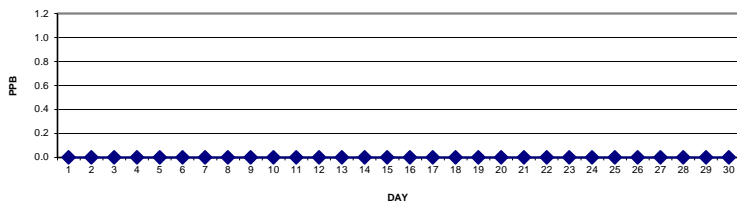
TOTAL REDUCED SULPHUR (TRS) hourly averages in ppb

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	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	IZS	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	IZS	0	0	0	0	0	0	0.0	24	
3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0.0	24	
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0.0	24	
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0.0	24	
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0.0	24	
7		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	
8		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	
9		0	0	0	0	0	0	0	0	0	0	0	IZS	C	C	C	C	0	0	M	0	0	0	0	0	0	0.0	23	
10		0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
11		0	0	0	0	0	0	0	0	0	IZS	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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
13		0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
14		0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
15		0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
16		0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
17		0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
18		0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
19		0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
20		IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	24	
22		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	
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0.0	24	
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	IZS	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	IZS	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	IZS	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	IZS	0	0	0	0	0	0	0	0	0.0	24	
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
30		0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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			
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

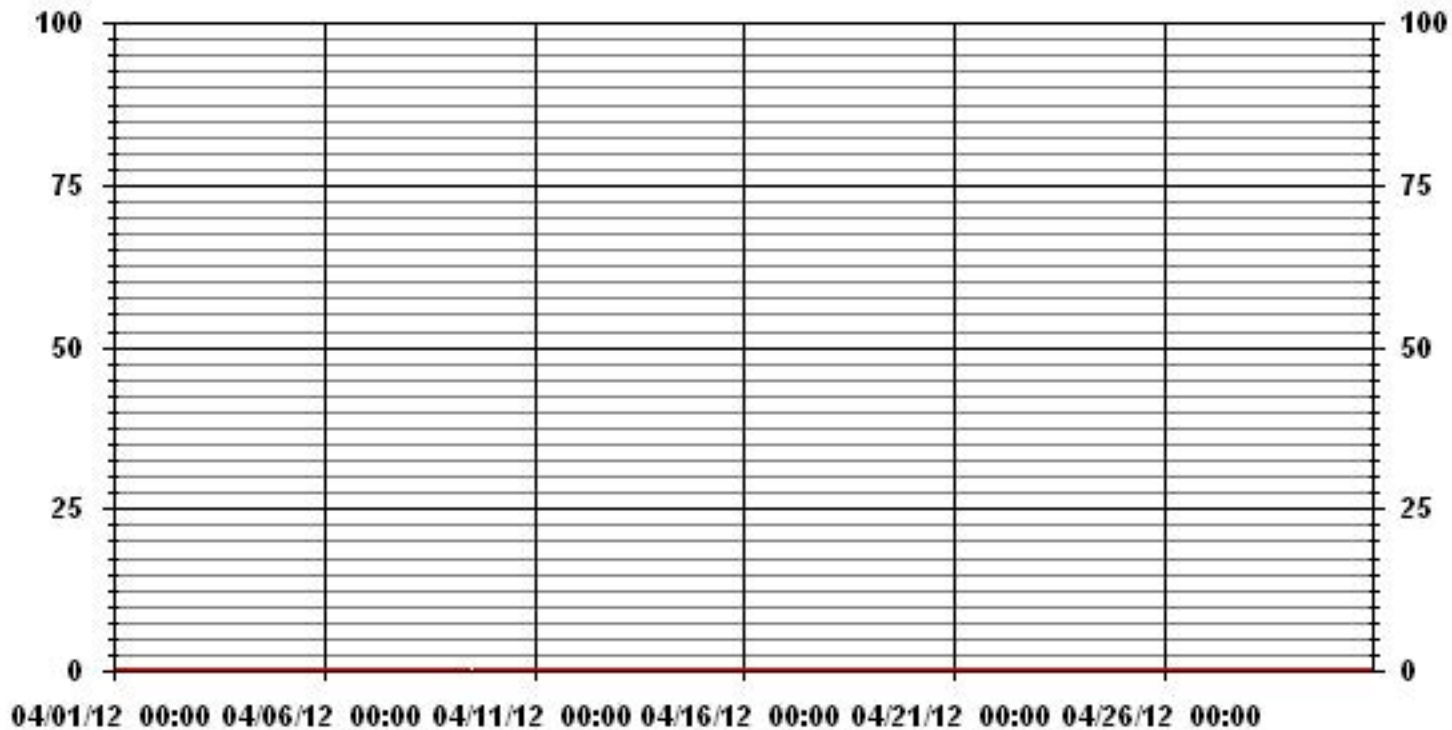
24 HOUR AVERAGES FOR APRIL 2012



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	0
MAXIMUM 1-HR AVERAGE:	0 PPB @ HOUR(S) ALL ON DAY(S) ALL
MAXIMUM 24-HR AVERAGE:	0.0 PPB VAR-VARIOUS ON DAY(S) ALL
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	4 HRS
OPERATIONAL TIME:	719 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.00
MONTHLY AVERAGE:	0.00 PPB

01 Hour Averages



— LICA TRS_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

MST

DAY	HOUR START																								DAILY 24-HOUR			
	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	0	0	0	0	0	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	23
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0	24
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
HOURLY MAX	1	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		
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	0.1	0.0		

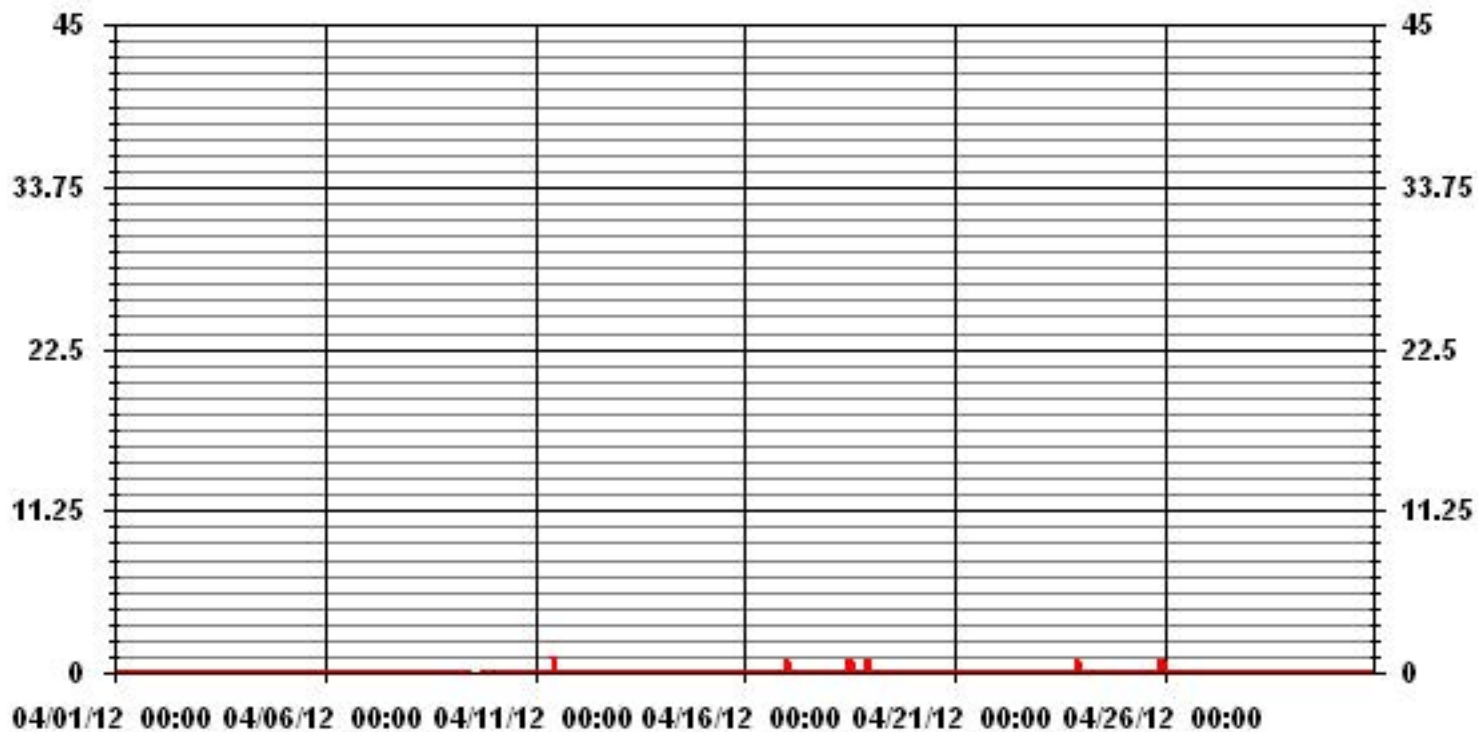
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	6
MAXIMUM INSTANTANEOUS VALUE:	1 PPB @ HOUR(S) VAR ON DAY(S) VAR
	VAR - VARIOUS
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.09
OPERATIONAL TIME:	719 HRS

01 Hour Averages



LICA
 TRS_ / WDR Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	4.82	11.84	10.23	5.55	15.64	5.55	11.84	3.50	1.90	3.07	5.55	5.11	3.80	4.82	3.50	3.21	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.82	11.84	10.23	5.55	15.64	5.55	11.84	3.50	1.90	3.07	5.55	5.11	3.80	4.82	3.50	3.21	

Calm : .00 %

Total # Operational Hours : 684

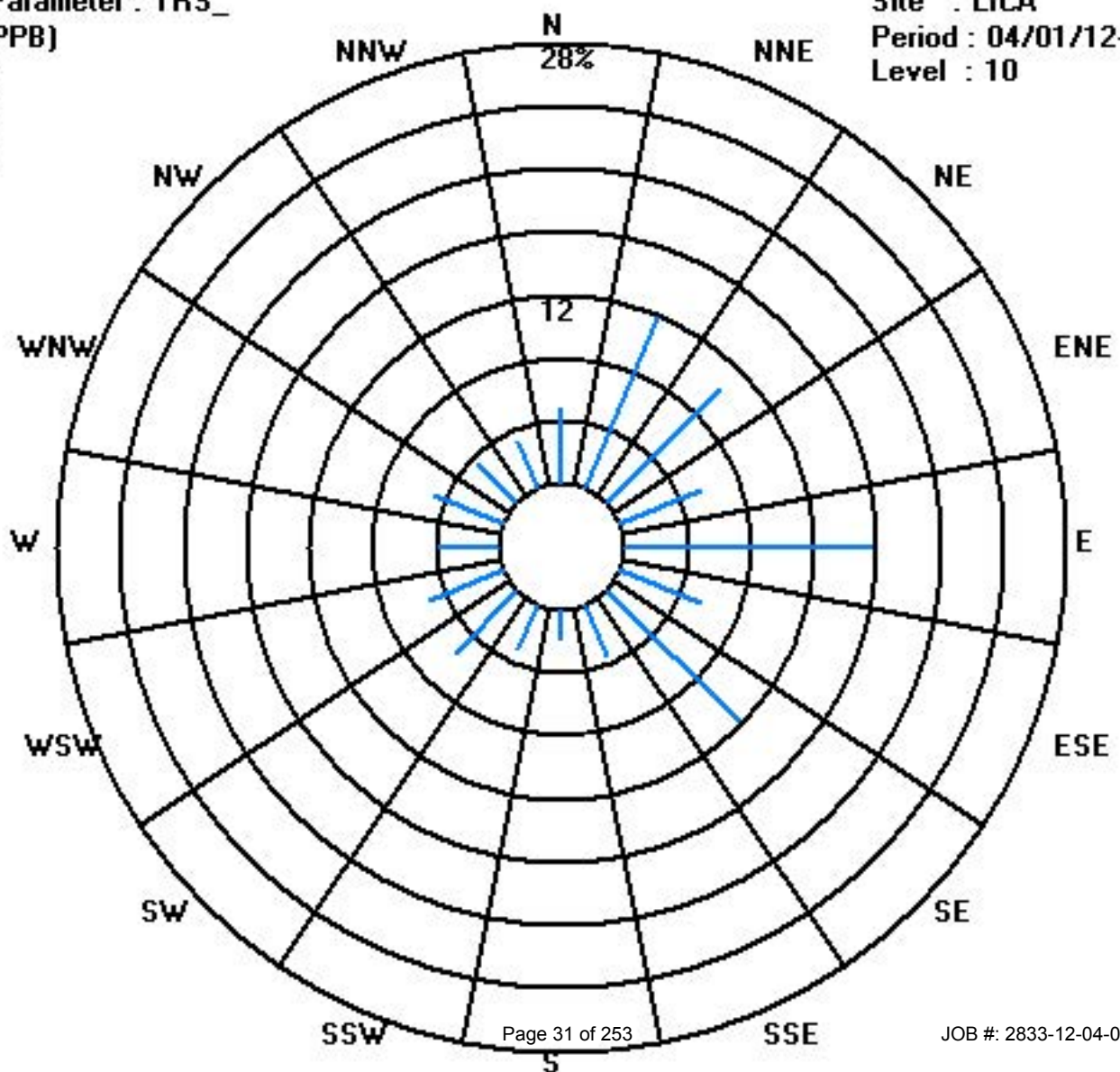
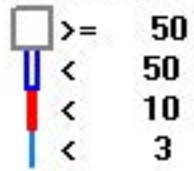
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	33	81	70	38	107	38	81	24	13	21	38	35	26	33	24	22	684
< 10																	
< 50																	
>= 50																	
Totals	33	81	70	38	107	38	81	24	13	21	38	35	26	33	24	22	

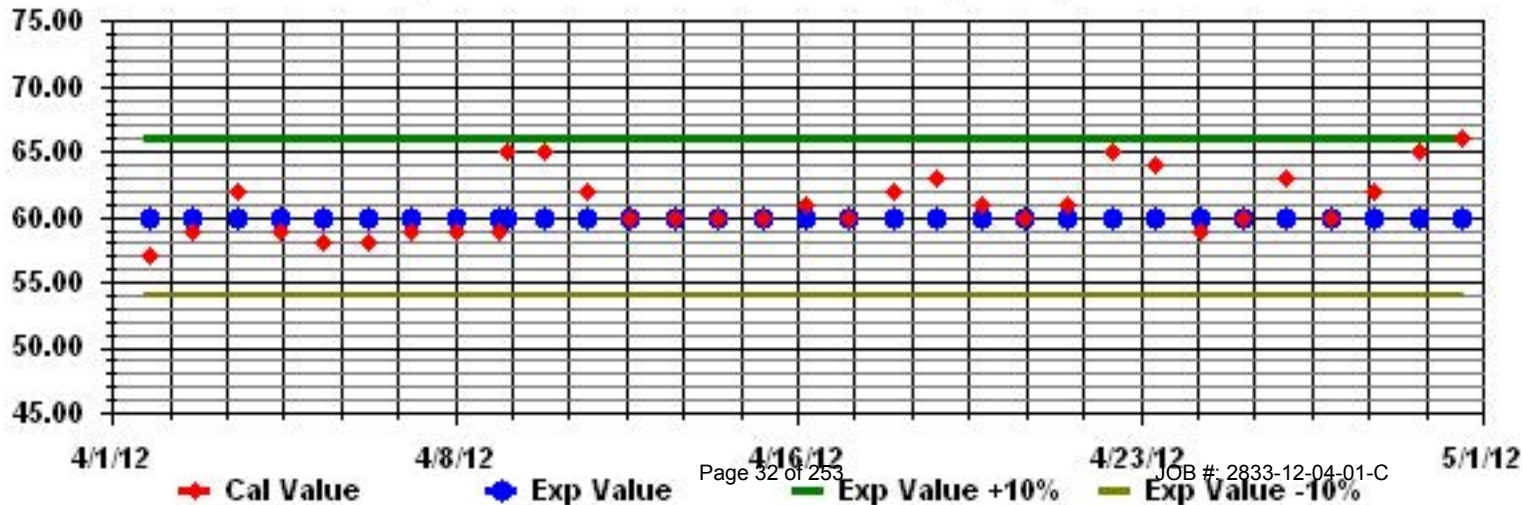
Calm : .00 %

Total # Operational Hours : 684

Class Limits (PPB)

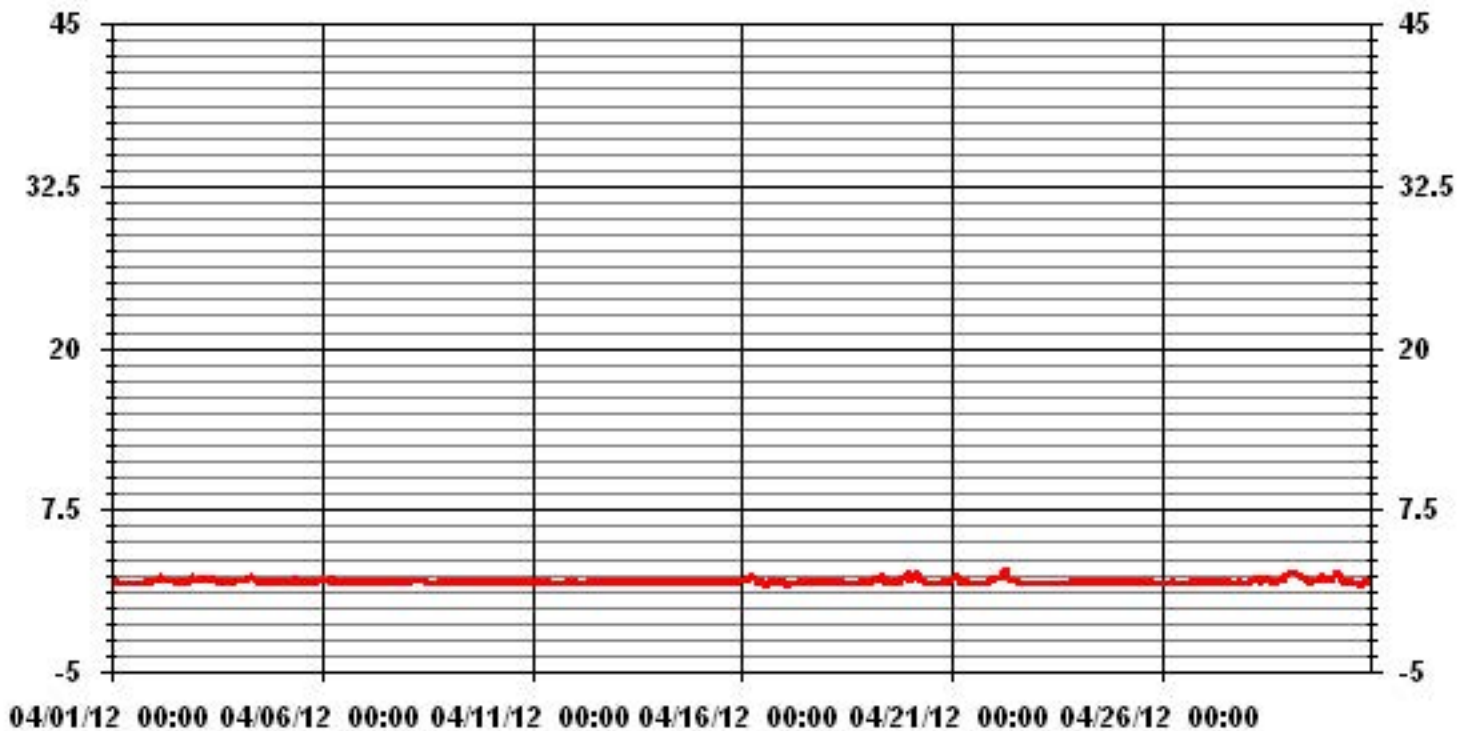


Calibration Graph for Site: LICA Parameter: TRS_ Sequence: TRS Phase: SPAN



Total Hydrocarbons

01 Hour Averages



— LICA — THC — PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST																										DAILY	24-HOUR	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	2.3	2	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	IZS	2	2	2	2	2.3	1.9	24
2	2	2.1	2.2	2.4	2.3	2.3	2.3	2.1	2	2.1	2.1	2	2	2	2	2	2	2	IZS	2.5	2.3	2.4	2.4	2.1	2.5	2.2	24	
3	2	2.1	2.1	2.1	2.4	2.2	2.2	2.2	2.1	2.2	2.2	2.7	2.1	2	2	1.9	1.9	IZS	1.9	2	2	1.9	2	2	2.7	2.1	24	
4	2	2	2	2	2.1	2.6	2.4	2.3	2.5	2.5	2.2	2	1.9	1.9	1.9	IZS	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.1	24
5	1.9	1.9	1.9	1.9	1.9	1.9	2.6	1.9	2.2	2.3	2.2	2	1.9	1.9	1.9	IZS	2	2	2	2	2	2	2	2.1	2.6	2.0	24	
6	2.2	2.3	2.4	2.2	2.2	2.1	2.2	2.1	2.1	2	2	2	2	1.9	IZS	1.9	1.9	1.9	1.9	2	2	2	2	2	2.4	2.1	24	
7	2	2	2	2	2.1	2	2	2	2	2	2	1.9	1.9	IZS	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2	2.1	2.0	24	
8	2	2	2	2	2.1	2.1	2	2	2	2	2	2	2	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.0	24
9	1.9	2	1.9	1.9	2	2	3.7	1.9	1.9	1.9	1.9	IZS	2	1.9	1.9	C	C	C	C	C	C	2.1	2.2	2.2	2	3.7	2.1	24
10	1.9	2.2	2	2	2	3.2	2	2	2	2	IZS	1.9	1.9	1.9	2	2.1	2	2	2	2	2	1.9	2	1.9	1.9	3.2	2.0	24
11	2	2	2	1.9	2	1.9	2	1.9	2	1.9	IZS	1.9	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	2	1.9	24
12	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	1.9	1.9	1.9	1.9	1.9	1.9	2	1.9	24
13	2	1.9	2	1.9	1.9	2	2	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	2	1.9	24
14	1.9	1.9	1.9	1.9	1.9	1.9	IZS	1.9	1.9	2	2.2	1.9	1.9	1.9	1.9	1.9	2	1.9	2	2	2	2	2	2	2.2	1.9	24	
15	2	2	2	2	2	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	1.9	2	2	2	2	2	2	1.9	24
16	2.1	2.1	2.1	2.2	IZS	2.4	2.4	2.4	2.2	2.1	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	2	2	2	2.4	2.1	24
17	1.9	1.9	1.8	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2	2	2	1.9	24
18	2	2	IZS	2	2	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.1	2	2	2	2.1	2.0	24
19	2	IZS	2.1	6.7	2.2	2.3	2.7	2.4	2.4	2.2	2.2	2	2	2	2	2	2.1	1.9	2	2.3	2.5	2.6	2.7	2.4	6.7	2.4	24	
20	IZS	2.4	2.5	2.7	3	2.5	2.1	2.2	2.1	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2.2	IZS	3	2.1	24		
21	2.3	2.6	2.6	2.4	2.4	2.2	2.1	2.1	2.1	2	1.8	1.9	1.8	1.9	1.8	1.8	1.8	1.9	1.9	2	2.2	IZS	2.2	2.6	2.1	24		
22	2.2	2.3	2.3	2.6	2.8	2.7	3.1	3.3	2.6	2.3	2.4	2	2.1	2.1	2.1	1.9	1.9	1.8	1.9	1.9	1.9	IZS	1.9	1.8	3.3	2.3	24	
23	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.8	1.9	1.8	1.8	1.8	1.9	IZS	1.9	1.9	2.2	2.2	1.9	24		
24	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	1.9	1.9	IZS	1.9	1.9	1.9	1.9	1.9	2	1.9	24	
25	1.9	2	2	2	2	2	2	2	2	2	2	2	2.1	2	2.1	2	2	2	IZS	1.8	1.9	1.9	1.9	1.9	2.1	2.0	24	
26	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	1.9	IZS	1.9	1.9	1.9	1.9	2	2	2	1.9	24	
27	1.9	1.9	1.9	1.9	1.9	1.9	2	1.9	2.1	2	2	2	2	2	2.4	2.1	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4	2.0	24	
28	1.9	1.9	1.9	2.1	2.1	2.4	2.6	2.6	2.3	2.2	2.4	2.3	2.2	2.2	2.1	IZS	2	2	2	2.1	2.1	2.2	2.5	2.7	2.7	2.2	24	
29	2.8	2.8	2.8	2.7	2.7	2.8	2.8	2.9	2.4	2.2	2.3	2.2	2.1	2.1	IZS	2	2	2	2.2	2.4	2.5	2.4	2.1	2.1	2.9	2.4	24	
30	2.2	2.3	2.5	2.7	2.9	2.7	2.5	2	1.9	1.9	1.9	1.9	1.9	IZS	1.9	1.9	1.9	2	1.9	1.9	2	1.9	1.9	2	2.9	2.1	24	
HOURLY MAX	3	3	3	7	3	3	4	3	3	3	2	3	2	2	2	2	2	2	2	2	3	3	3	3	3			
HOURLY AVG	2.0	2.1	2.1	2.3	2.1	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0				

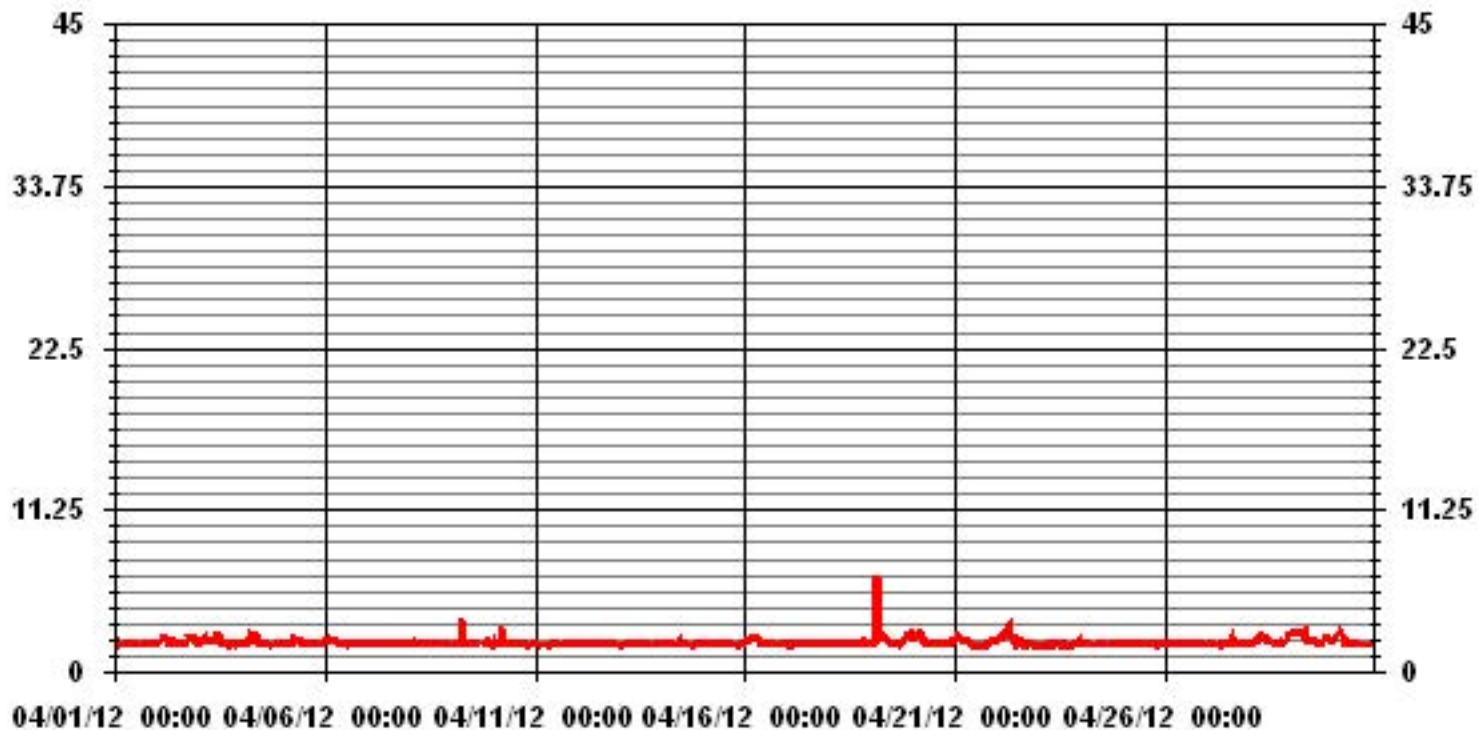
STATUS FLAG CODES

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
BB - BELOW BACKGROUND OF 1.5 PPM	

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684
MAXIMUM INSTANTANEOUS VALUE:	6.7 PPM @ HOUR(S) 3 ON DAY(S) 19
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	5 HRS
STANDARD DEVIATION:	0.29
OPERATIONAL TIME:	720 HRS

01 Hour Averages



LICA
 THC / WD Joint Frequency Distribution (Percent)

April 2012

Distribution By % Of Samples

Logger Id : 01
 Site Name : LICA
 Parameter : THC
 Units : PPM

Wind Parameter : WD
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	4.81	11.82	10.36	5.54	15.47	5.54	11.82	3.50	1.89	3.06	5.54	5.10	3.79	4.81	3.50	3.21	99.85
< 10.0	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.81	11.82	10.36	5.69	15.47	5.54	11.82	3.50	1.89	3.06	5.54	5.10	3.79	4.81	3.50	3.21	

Calm : .00 %

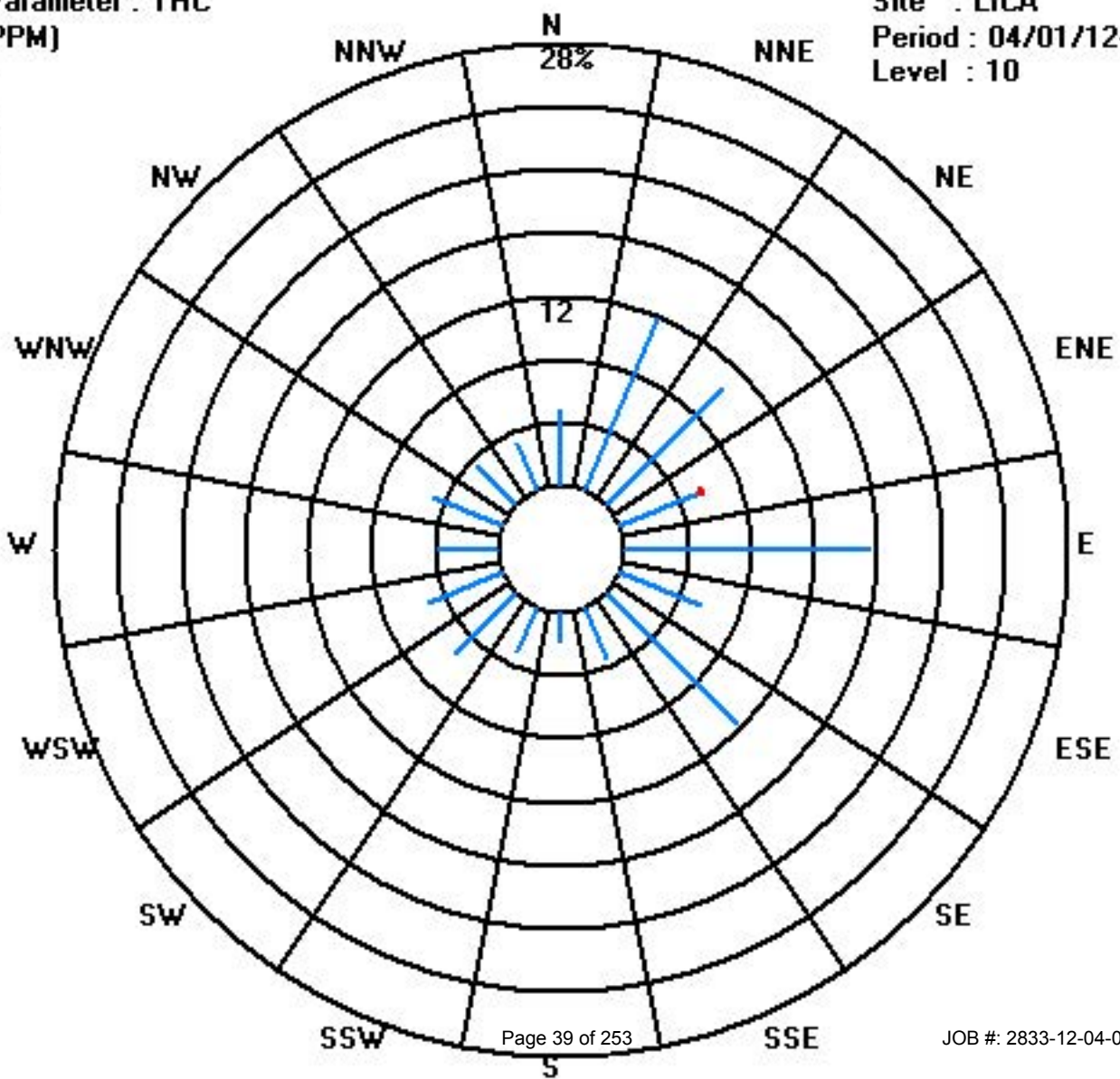
Total # Operational Hours : 685

Distribution By Samples

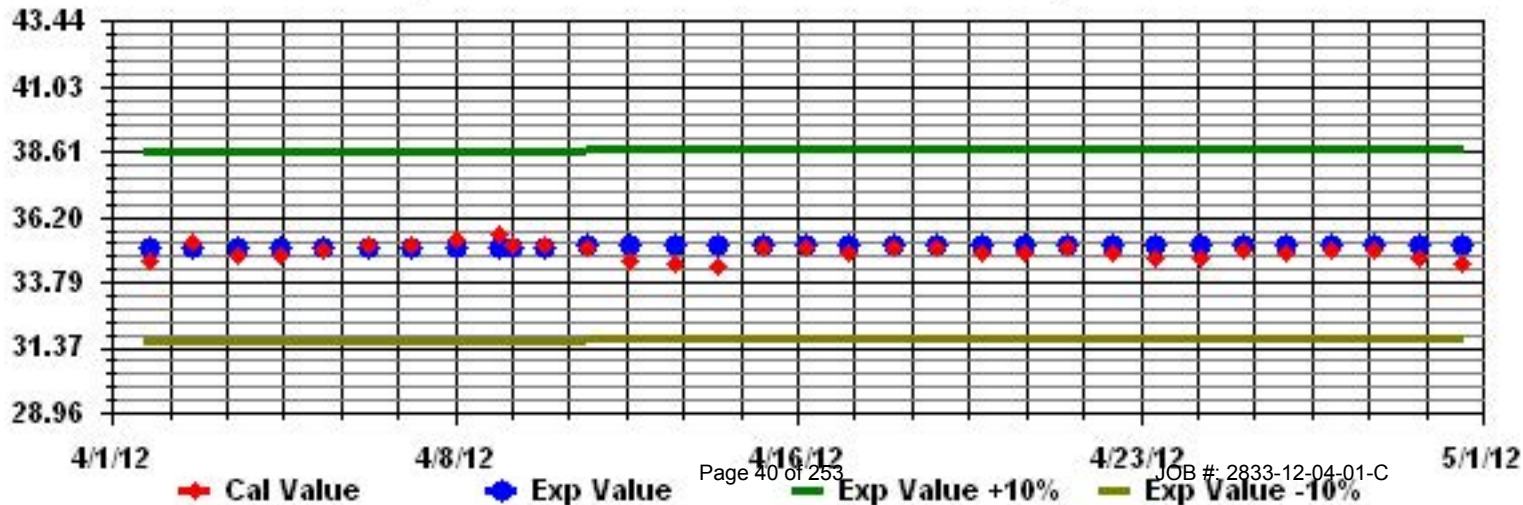
	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	33	81	71	38	106	38	81	24	13	21	38	35	26	33	24	22	684
< 10.0				1													1
< 50.0																	
>= 50.0																	
Totals	33	81	71	39	106	38	81	24	13	21	38	35	26	33	24	22	

Calm : .00 %

Total # Operational Hours : 685



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



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

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

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOURLY MAX	HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		5	5.5	1	6	0	12.5	6.5	2.9	4.4	7.9	1.4	3.4	4	1.9	0.4	0.5	1.9	0.5	2.5	6.9	1.9	4	0.5	4.4	12.5	3.6	24	
2		2.9	1.9	0.5	1	0.5	1	2.5	1.4	2.5	1.9	1	2.5	4.4	1	4	6.5	5	1.9	1.9	7.5	5	9	9.9	1.4	9.9	3.2	24	
3		1.4	4	2.5	4	4	1.4	1.9	4	4.4	1.4	4.4	3.4	4	4	0	2.9	1.4	5	0	1.9	1.9	0.4	4	5	5.0	2.8	24	
4		2.9	6	6.5	7.5	6.9	6.5	7	9.9	4	4.4	4	5	4.4	1.9	2.5	1	6	3.4	1.9	4.4	2.5	3.4	4.4	3.4	9.9	4.6	24	
5		1	1.4	3.4	1.9	1.9	2.9	1.9	10.5	0	5.5	1.4	4.4	6	6	3.4	9.9	6	1.4	1.9	5.5	0	6.5	2.5	2.9	10.5	3.7	24	
6		1.4	N	6.5	4.4	1.4	7.5	2.9	2.5	5	0	3.4	2.5	0	4.4	5	4.4	1	0.5	0	4.4	0	0	4.4	2.9	7.5	2.8	23	
7		1.4	0	0.5	6.5	0.5	7	2.9	1	1.9	0.5	1.9	2.5	1	5.5	0	2.9	3.4	1	1	1.4	1	1.4	4	4	7.0	2.2	24	
8		1.4	2.9	N	4.4	5	9.4	6	0	5	1	N	5	9	4	0	1.4	0	3.4	7.5	7	6.5	1.4	5	1.4	9.4	3.9	22	
9		5	1	7.5	0	0	1	2.9	4.4	0	0.5	1	6.5	2.5	0	1	C	1	0.5	0.5	4	4	7	9.9	7.9	9.9	3.0	24	
10		4	0.5	4	5	3.4	8.4	5	5	2.5	7.5	1	1.4	2.5	4	2.9	5.5	1.4	6.4	1.4	1.9	7.5	16	13.5	15	16.0	5.2	24	
11		6.9	5	3.4	12	9.4	9.9	10.5	10.9	5.5	7.5	9.4	6	5.5	5	6.9	3.4	12.5	15	10.5	10.5	16.5	7.9	6.5	10.9	16.5	8.6	24	
12		12	13	6.9	5	9.9	6.5	1	9.4	6.9	2.5	7.5	9.4	11.5	11.5	7.9	10.5	7.5	6	8.4	7.5	9.4	12	9.4	6.9	13.0	8.3	24	
13		6.9	4	3.4	0.4	5.5	9.4	10.9	2.5	9	9.4	9.9	9.4	12.5	13	4.4	5	2.5	5.5	3.4	0	2.9	4	1.4	4.4	13.0	5.8	24	
14		4.4	2.9	2.9	0	0	4	0	2.9	0	5	N	0	1.9	3.4	5	4	N	6.5	1.4	0.5	0	3.4	0	0	6.5	2.2	22	
15		0	0	0.5	6.5	1.9	0	0	3.4	0	5.5	2.5	0	3.4	0	0	1	6.5	1.9	0.5	1.9	5.5	1	0	2.9	6.5	1.9	24	
16		2.9	6	0	6	1.4	5.5	2.5	6	4.4	7.5	10.5	9.4	6.5	8.4	6.9	6	4.4	5	6.5	9.9	6	6	6.5	4	10.5	5.8	24	
17		8.4	1.9	1	0	6	4	2.9	1.4	1	5	6	0.5	3.4	8.4	3.4	5	5	4	3.4	2.9	5	7	5	7	8.4	4.1	24	
18		2.9	4.4	2.9	3.4	3.4	5.5	3.4	5.5	1.4	1.9	2.5	5.5	5	4	2.5	2.5	5.5	5.5	1	6	7.9	5	11.5	7	11.5	4.4	24	
19		7.5	10.5	9.4	5.5	4.4	10.5	10.5	7.5	1.4	1	6.5	5.5	4.4	6.5	5	1.9	6.9	6.9	6.5	6.5	4	8.4	6.5	8.4	10.5	6.3	24	
20		4.4	4.4	5	7.5	4	6.5	3.4	7.5	6	5.5	5	1.4	2.9	2.5	7.9	4.4	7.9	1.4	2.5	1.4	0	3.4	1.4	0.5	7.9	4.0	24	
21		1	2.5	7	2.5	1.9	6	2.5	1	0.4	2.9	0.4	1.4	4.4	0	2.5	4.4	3.4	2.9	2.9	0.4	6	2.9	1.4	8.4	8.4	2.9	24	
22		13	9	5	5	6	2.9	7.9	9.9	6.9	6	4	2.5	8.4	7.5	6.9	7.9	1.4	1	5	5	2.5	4	5	0	13.0	5.5	24	
23		6.5	4.4	2.5	0.4	1.4	3.4	4.4	1.4	2.5	0	7.9	4.4	2.9	4.4	2.5	0	6	2.9	8.4	7.9	4.4	3.4	1.4	4	8.4	3.6	24	
24		0.4	2.5	4.4	6.9	3.4	1	6	6	6	7.5	2.5	5.5	5	1.9	2.9	5.5	2.5	2.9	0	1.4	5	6.5	0	0	7.5	3.6	24	
25		0	2.9	1	0	N	4.4	1.9	0	1	8.4	1.4	0.5	2.9	0	4.4	4	4	5	3.4	6	3.4	1.9	4.4	5.5	8.4	2.9	23	
26		7	4	1	4	7.9	1.9	6	N	7.5	7.5	1.4	6	5	3.4	5	2.9	2.9	2.5	2.9	2.9	4.4	1.9	1	6.5	7.9	4.2	23	
27		9	3.4	4	4.4	5	4	4	3.4	2.9	5.5	5	6.9	2.5	5.5	1.9	1.4	1.4	4	3.4	5	4	1.9	0	N	9.0	3.8	23	
28		2.5	4.4	5	5	1.9	2.9	5.5	1.4	0	3.4	0	2.9	0.4	1.9	3.4	1.9	5	5	4	4	3.4	3.4	6	4	6.0	3.2	24	
29		9.4	3.4	4.4	6	8.4	6	1	2.5	2.9	2.5	4	4.4	6	4.4	1.4	2.9	6.9	4	1.9	2.9	4.4	1.9	2.9	2.5	9.4	4.0	24	
30		1	1.9	2.5	0.5	4	4	3.4	1.4	6.5	1	2.9	2.5	4	1.4	5	2.9	7.5	6.9	6.9	5.5	7.5	1.4	2.9	1.9	7.5	3.6	24	

STATUS FLAG CODES

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

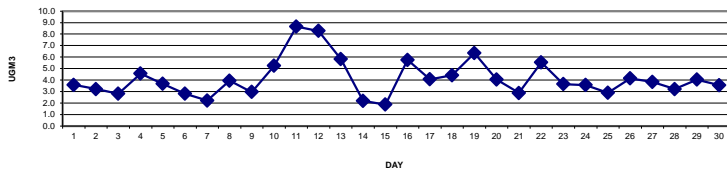
OBJECTIVE LIMIT:

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

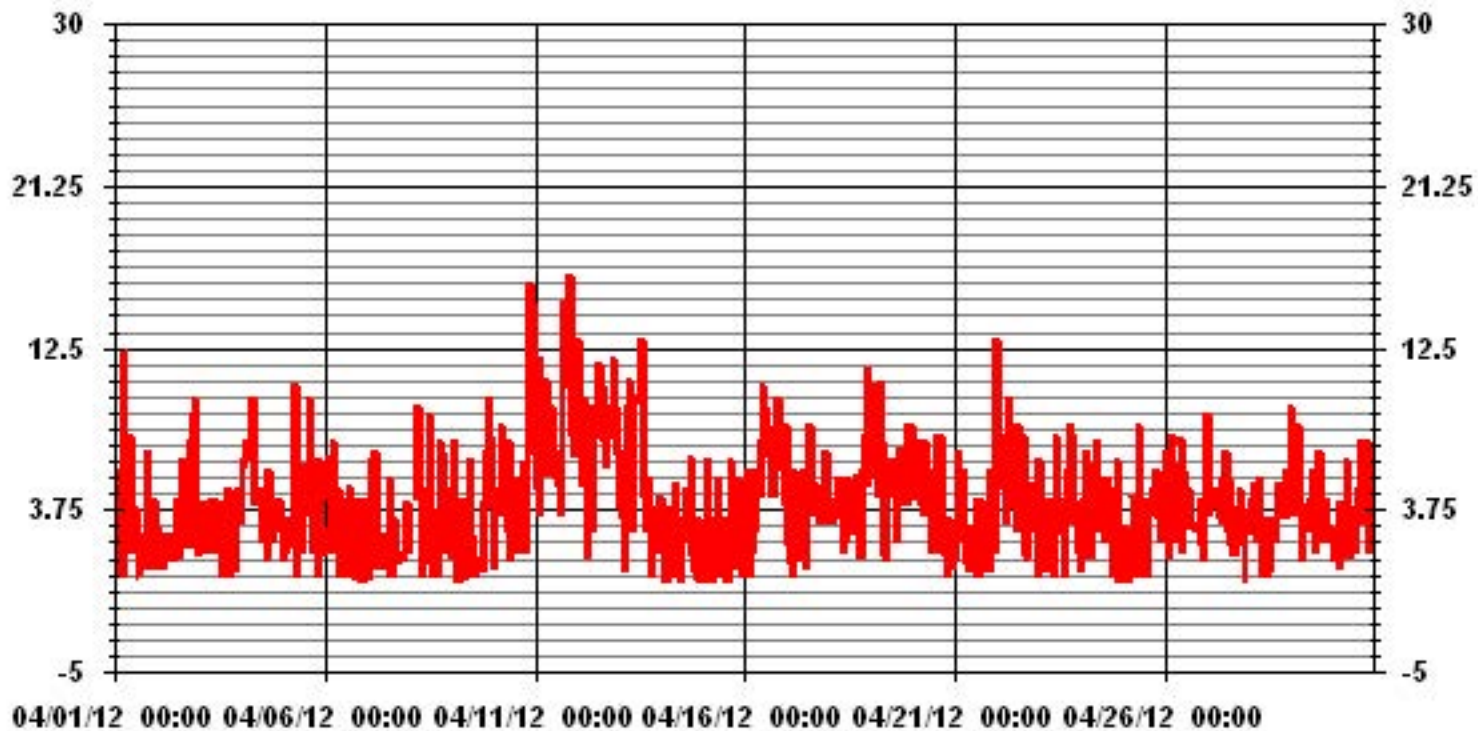
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-	PROPOSED CANADA WIDE GUIDELINE
NUMBER OF 24-HR EXCEEDENCES:	0	
NUMBER OF NON-ZERO READINGS:	657	
MAXIMUM 1-HR AVERAGE:	16.5 UG/M ³	@ HOUR(S) 20 ON DAY(S) 11
MAXIMUM 24-HR AVERAGE:	8.6 UG/M ³	ON DAY(S) 11
IZS CALIBRATION TIME:	0 HRS	OPERATIONAL TIME: 712 HRS
MONTHLY CALIBRATION TIME:	1 HRS	AMD OPERATION UPTIME: 98.9 %
STANDARD DEVIATION:	2.99	MONTHLY AVERAGE: 4.14 UG/M ³

24 HOUR AVERAGES FOR APRIL 2012



01 Hour Averages



— LICA PM2 UG/M3

LICA
 PM2 / WD Joint Frequency Distribution (Percent)

April 2012

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	4.64	11.53	10.82	5.62	15.61	5.90	11.67	3.37	1.82	3.09	5.62	5.06	3.79	4.92	3.23	3.23	100.00
< 60.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 80.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.64	11.53	10.82	5.62	15.61	5.90	11.67	3.37	1.82	3.09	5.62	5.06	3.79	4.92	3.23	3.23	

Calm : .00 %

Total # Operational Hours : 711

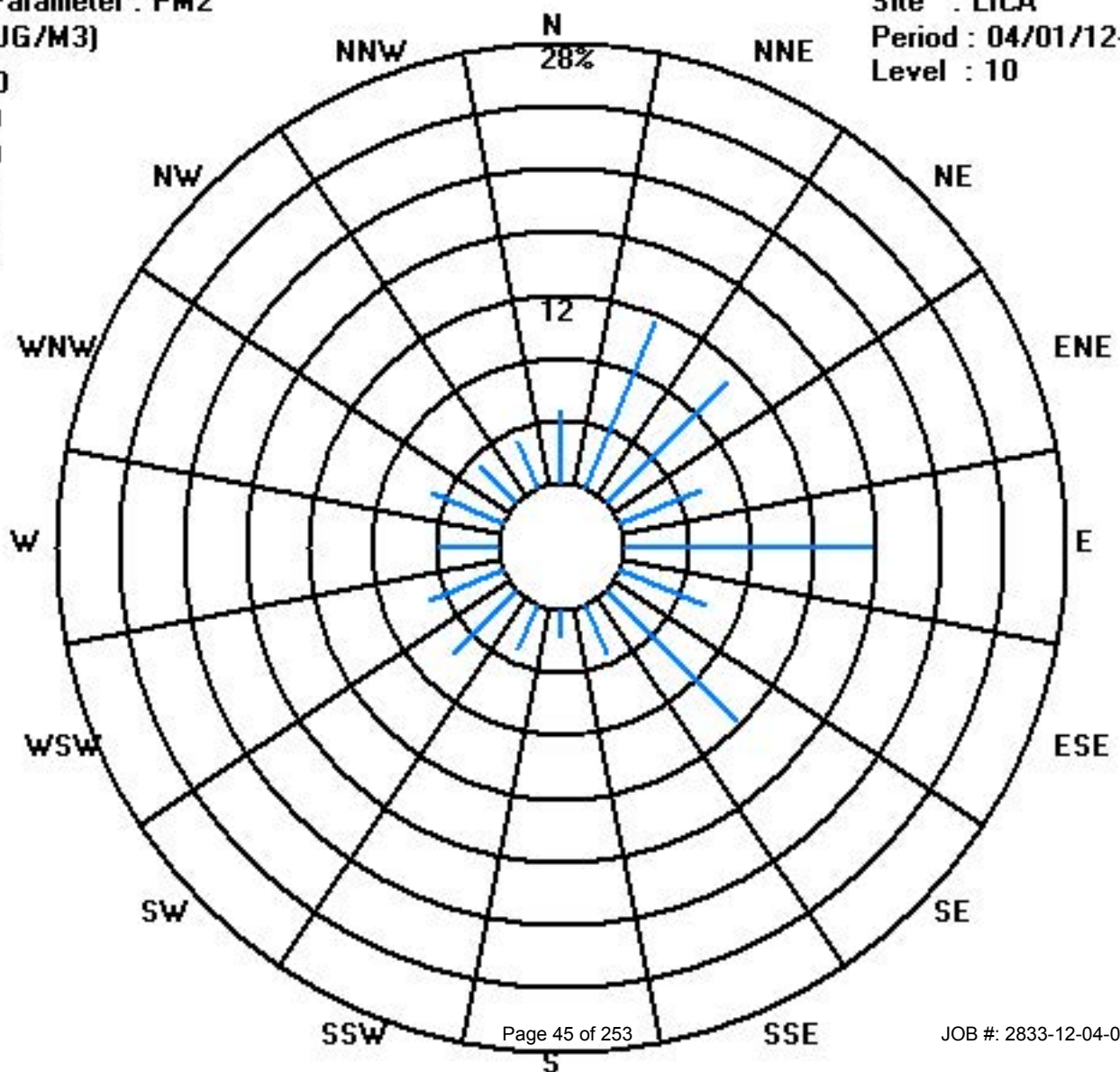
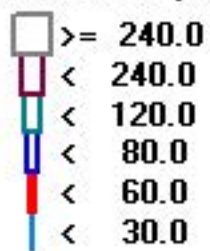
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	33	82	77	40	111	42	83	24	13	22	40	36	27	35	23	23	711
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	33	82	77	40	111	42	83	24	13	22	40	36	27	35	23	23	

Calm : .00 %

Total # Operational Hours : 711

Class Limits (UG/M3)



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

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	7	3	3	3	3	3	2	2	2	2	2	2	1	1	2	2	1	1	2	IZS	2	1	2	3	7	2.3	24	
2	3	3	3	3	4	4	5	3	3	2	2	2	1	1	1	1	1	1	IZS	9	7	13	11	3	13	3.7	24	
3	1	1	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1	IZS	1	2	1	1	1	1	2	1.4	24	
4	1	2	2	2	2	11	10	12	6	6	4	3	2	2	3	1	IZS	2	2	1	1	1	1	1	12	3.4	24	
5	1	1	1	1	1	3	3	2	2	2	2	2	1	2	2	IZS	2	1	1	2	2	2	3	2	3	1.8	24	
6	2	2	2	2	3	3	3	2	2	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	2	3	1.6	24	
7	1	1	1	2	3	2	2	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	3	3	3	2	3	1.5	24
8	1	1	1	3	4	4	4	3	1	1	1	1	IZS	1	1	1	1	1	1	2	2	2	3	2	4	1.9	24	
9	2	5	3	2	2	3	9	2	2	1	1	IZS	C	C	C	C	C	C	C	4	8	14	15	5	15	4.9	24	
10	2	3	3	5	6	7	4	3	1	1	IZS	1	1	1	1	1	1	1	1	2	2	3	3	2	7	2.4	24	
11	2	2	2	3	4	5	5	4	2	IZS	2	1	1	1	1	1	2	2	2	2	3	2	2	2	5	2.3	24	
12	3	3	3	2	2	3	3	3	IZS	2	2	2	2	2	3	2	2	2	2	2	2	2	2	1	2	3	2.3	24
13	3	1	2	2	2	2	3	IZS	2	3	3	3	2	2	3	2	3	2	3	2	2	2	2	1	3	2.3	24	
14	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
15	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	4	1	1	4	1.2	24	
16	1	2	2	2	IZS	6	4	2	2	2	1	2	1	2	2	1	1	1	1	2	1	2	2	2	6	1.9	24	
17	1	1	1	IZS	2	2	2	1	1	1	1	1	1	1	1	1	1	1	3	3	6	10	9	6	10	2.5	24	
18	10	11	IZS	9	4	8	8	9	3	1	1	1	1	1	1	1	1	1	2	6	8	8	14	12	14	5.3	24	
19	9	IZS	12	13	17	20	21	7	3	2	2	1	1	2	2	1	2	1	2	3	5	9	5	3	21	6.2	24	
20	IZS	3	4	3	3	3	3	2	1	1	1	1	2	2	C	M	M	C	3	4	3	4	5	IZS	5	2.7	22	
21	4	4	4	3	3	3	3	3	3	2	1	1	1	1	1	1	1	1	1	3	10	4	IZS	10	10	3.0	24	
22	11	7	10	11	7	7	8	13	6	4	2	1	1	1	2	1	1	1	1	2	4	IZS	1	1	13	4.5	24	
23	1	1	1	1	1	3	3	2	2	1	1	1	1	1	1	1	1	1	2	3	IZS	2	1	1	3	1.4	24	
24	2	1	1	1	1	2	2	4	2	1	1	1	1	1	1	1	2	1	1	IZS	1	1	1	1	4	1.3	24	
25	1	1	1	1	2	3	2	2	2	1	1	1	1	1	1	1	2	2	IZS	1	1	1	1	1	3	1.3	24	
26	1	1	1	1	1	1	2	2	1	1	1	1	1	1	2	2	2	IZS	1	2	2	1	2	1	2	1.3	24	
27	1	1	1	1	1	2	3	3	3	3	5	4	4	3	4	4	IZS	4	5	5	6	6	5	3	6	3.3	24	
28	3	2	2	1	1	3	6	5	4	3	3	4	3	3	2	IZS	1	1	2	2	2	3	3	5	6	2.8	24	
29	6	5	4	3	2	2	2	2	2	2	3	2	2	2	IZS	2	1	1	2	2	4	5	3	2	6	2.7	24	
30	2	3	2	2	4	5	6	3	1	1	1	1	1	IZS	1	1	1	1	1	2	5	2	1	1	6	2.1	24	
HOURLY MAX	11	11	12	13	17	20	21	13	6	6	5	4	4	3	4	4	3	4	5	9	10	14	15	12				
HOURLY AVG	2.9	2.5	2.6	2.9	3.1	4.2	4.5	3.5	2.2	1.8	1.7	1.6	1.4	1.4	1.6	1.3	1.3	1.3	1.7	2.6	3.4	3.7	3.6	2.7				

STATUS FLAG CODES

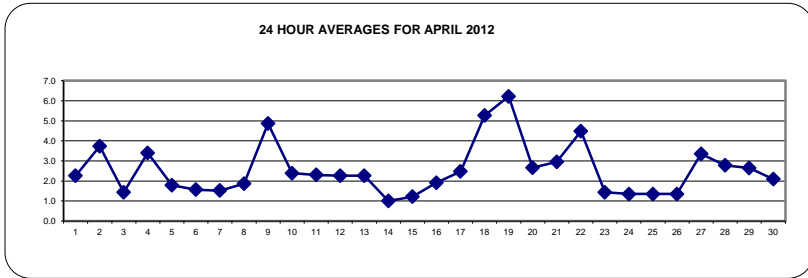
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

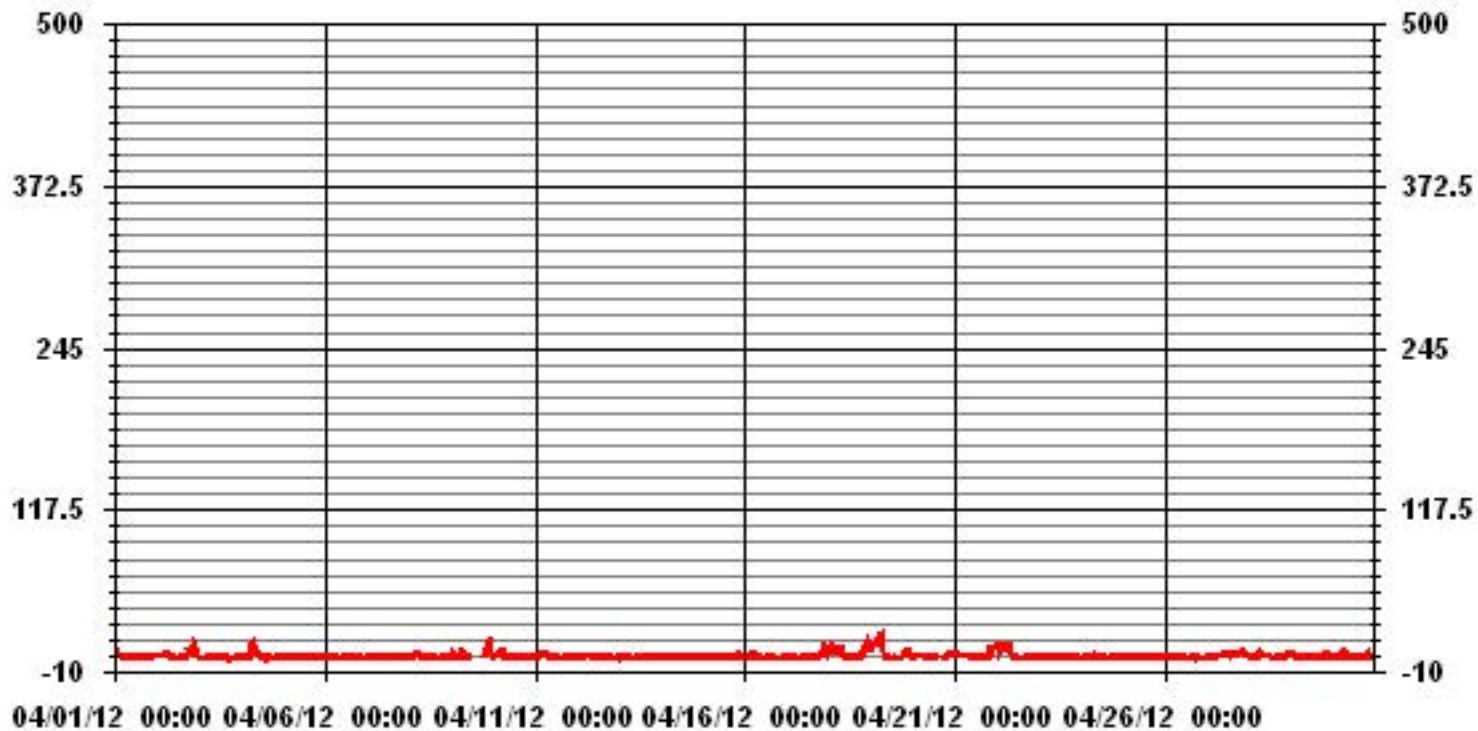
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	678					
MAXIMUM 1-HR AVERAGE:	21	PPB	@ HOUR(S)	6	ON DAY(S)	19
MAXIMUM 24-HR AVERAGE:	6.2	PPB			ON DAY(S)	19
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	9	HRS	AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	2.51		MONTHLY AVERAGE:	2.51	PPB	



01 Hour Averages



— LICA H02_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

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	24:00	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	12	6	5	8	4	26	3	5	4	5	3	2	2	1	3	5	2	2	3	IZS	3	2	3	3	26	4.9	24	
2	4	6	5	5	6	5	6	4	4	3	3	3	2	2	2	6	1	1	IZS	21	13	21	21	6	21	6.5	24	
3	1	2	2	2	3	4	4	5	2	2	2	4	4	2	2	3	IZS	2	2	2	1	2	2	2	5	2.5	24	
4	2	2	2	4	5	23	21	21	11	7	5	3	5	3	14	2	IZS	2	2	2	2	2	2	2	23	6.3	24	
5	2	1	1	2	2	9	5	5	10	3	3	2	2	2	5	IZS	3	2	2	2	2	4	4	29	10	29	4.8	24
6	4	3	3	3	5	4	4	3	2	2	3	1	1	1	IZS	1	1	1	1	1	2	2	1	3	5	2.3	24	
7	2	2	2	3	4	2	3	2	1	4	1	1	1	IZS	1	1	1	1	1	2	4	4	4	3	4	2.2	24	
8	2	2	2	5	5	4	4	4	3	2	2	2	IZS	1	1	2	2	2	3	3	3	3	4	3	5	2.8	24	
9	4	15	6	3	5	8	15	3	15	2	2	IZS	C	C	C	C	C	C	C	C	8	14	28	28	8	28	10.3	24
10	4	5	6	10	10	22	13	6	4	3	IZS	1	1	2	2	5	5	2	4	4	2	5	5	2	22	5.3	24	
11	3	4	3	4	6	8	7	35	3	IZS	4	2	2	2	3	3	3	4	7	7	5	3	2	3	35	5.3	24	
12	6	4	3	3	4	5	6	5	IZS	9	2	3	5	3	12	11	6	5	3	2	2	2	2	4	12	4.7	24	
13	5	3	3	2	4	4	5	IZS	3	5	4	4	3	5	10	3	5	4	4	4	4	3	4	2	10	4.0	24	
14	2	2	2	3	1	3	IZS	2	2	4	1	2	2	1	1	3	1	2	2	1	1	1	1	1	4	1.8	24	
15	1	2	2	2	2	IZS	2	2	1	1	2	2	1	2	1	2	4	1	3	9	5	3	2	1	9	2.3	24	
16	2	2	2	3	IZS	15	9	7	3	3	2	7	2	17	28	3	3	3	2	6	2	3	2	3	28	5.6	24	
17	2	1	1	IZS	4	3	4	2	2	1	1	2	2	1	1	2	2	3	24	9	15	16	14	13	24	5.4	24	
18	14	15	IZS	13	6	11	16	14	5	3	3	2	2	7	2	2	2	3	4	17	14	14	25	17	25	9.2	24	
19	15	IZS	15	17	21	26	27	19	4	3	2	2	2	12	9	4	9	2	9	5	11	17	17	4	27	11.0	24	
20	IZS	4	7	3	4	5	6	5	2	4	5	2	7	10	C	M	M	C	8	8	6	7	7	IZS	10	5.6	22	
21	5	5	4	4	4	4	4	6	4	3	1	1	1	1	1	1	1	1	1	9	19	8	IZS	16	19	4.5	24	
22	15	10	13	15	8	9	15	17	9	5	5	3	3	3	8	2	1	1	2	3	13	IZS	2	2	17	7.1	24	
23	2	2	2	2	4	7	16	6	4	3	4	3	2	2	5	3	2	3	4	5	IZS	3	3	2	16	3.9	24	
24	3	3	2	3	2	5	5	14	2	5	2	1	1	2	3	2	4	6	2	IZS	2	2	2	1	14	3.2	24	
25	1	2	2	2	4	4	5	8	3	2	7	3	3	2	4	4	3	3	IZS	2	3	2	1	2	8	3.1	24	
26	2	2	2	2	2	3	4	9	4	2	3	2	2	2	4	3	4	IZS	3	7	23	2	9	2	23	4.3	24	
27	1	2	2	2	3	4	4	4	5	5	20	6	5	4	5	7	IZS	8	22	7	11	7	19	5	22	6.9	24	
28	9	3	3	2	2	6	8	6	7	4	4	6	4	4	4	IZS	2	2	7	2	5	5	8	13	13	5.0	24	
29	11	9	13	5	5	3	3	2	2	3	3	5	2	3	IZS	4	2	2	3	4	6	12	5	4	13	4.8	24	
30	4	7	4	3	5	9	9	9	2	5	1	3	1	IZS	2	1	2	2	4	4	8	4	2	2	9	4.0	24	
HOURLY MAX	15	15	15	17	21	26	27	35	15	9	20	7	7	17	28	11	9	8	24	21	23	28	29	17				
HOURLY AVG	4.8	4.3	4.1	4.7	4.8	8.3	8.0	7.9	4.2	3.6	3.4	2.8	2.5	3.6	5.1	3.2	2.8	2.6	4.9	5.6	7.0	6.4	7.8	4.8				

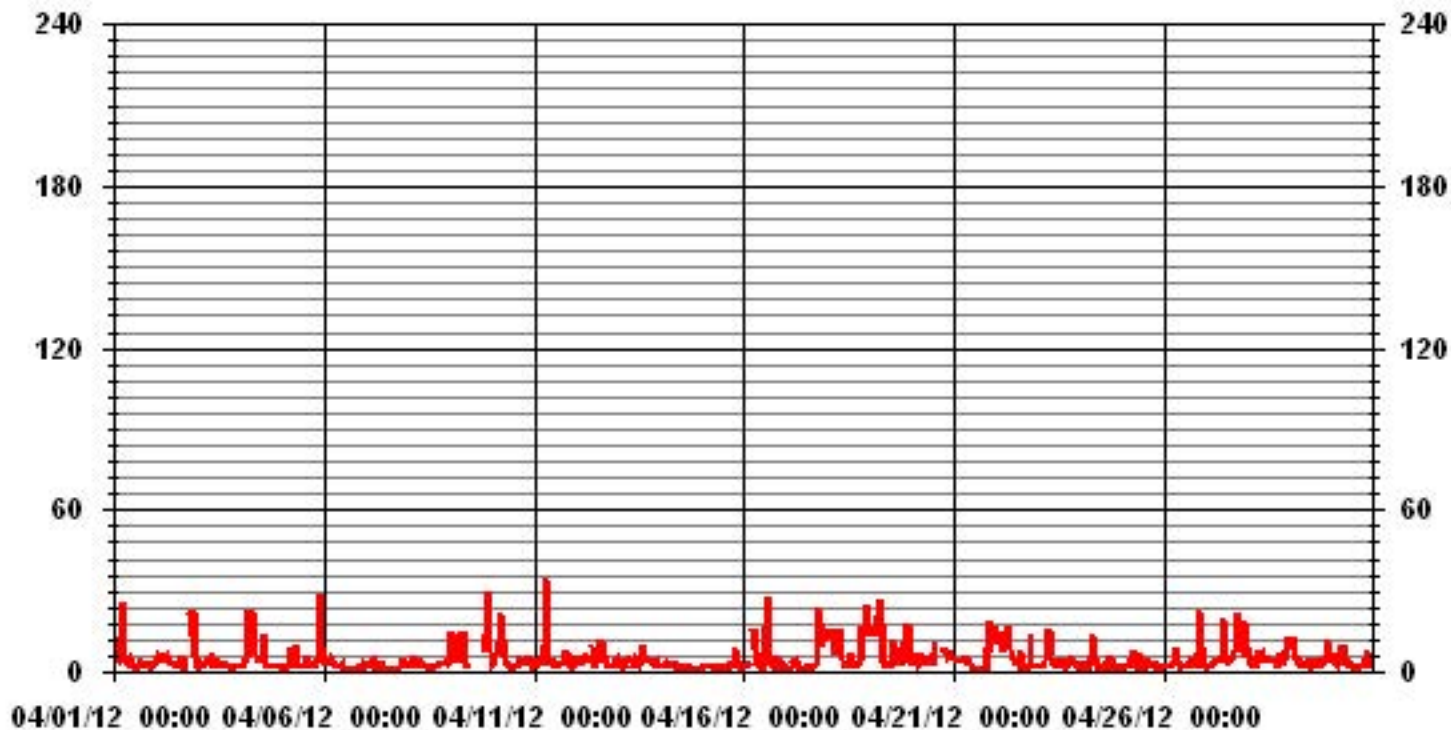
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	678					
MAXIMUM INSTANTANEOUS VALUE:	35	PPB	@ HOUR(S)	7	ON DAY(S)	11
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	718	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	5.00					

01 Hour Averages



— LICA NO2MAX PPB

LICA
 NO2_ / WD Joint Frequency Distribution (Percent)

April 2012

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	4.86	11.65	10.02	5.60	15.48	5.60	11.94	3.53	1.91	3.09	5.60	5.16	3.83	4.86	3.53	3.24	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.86	11.65	10.02	5.60	15.48	5.60	11.94	3.53	1.91	3.09	5.60	5.16	3.83	4.86	3.53	3.24	

Calm : .00 %

Total # Operational Hours : 678

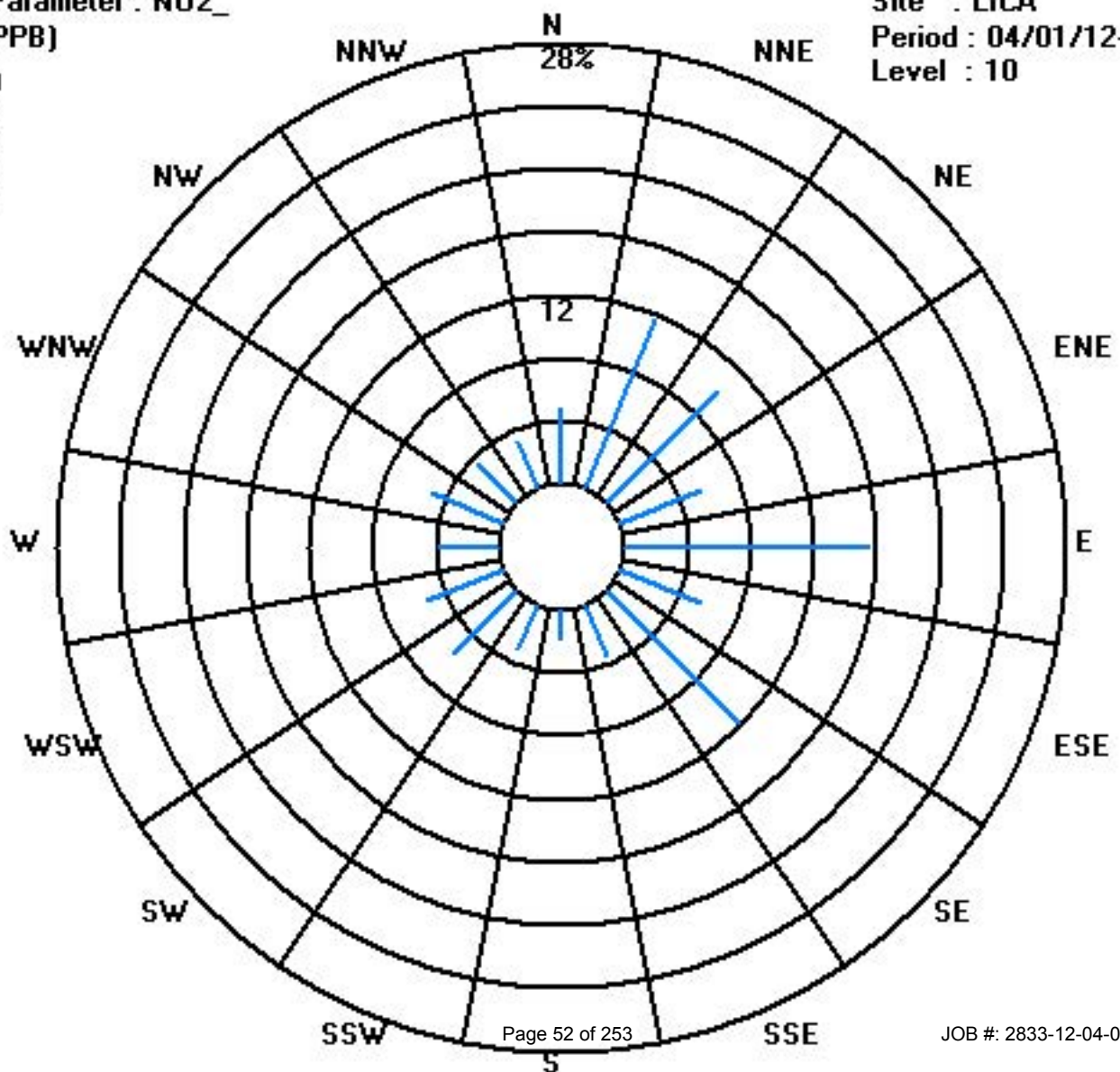
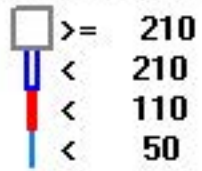
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	33	79	68	38	105	38	81	24	13	21	38	35	26	33	24	22	678
< 110																	
< 210																	
>= 210																	
Totals	33	79	68	38	105	38	81	24	13	21	38	35	26	33	24	22	

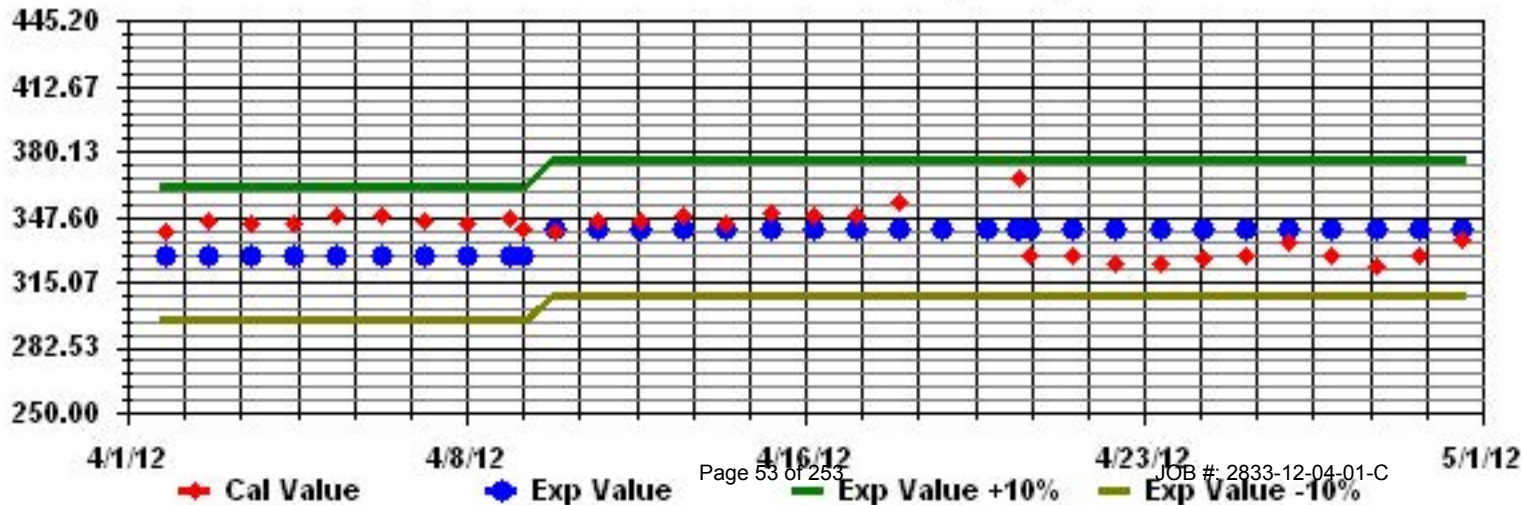
Calm : .00 %

Total # Operational Hours : 678

Class Limits (PPB)



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

NITRIC OXIDE hourly averages in ppb

MST

DAY	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY MAX.	24-HOUR AVG.	RDGS.	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0.0	24
2	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	0.2	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0.0	24
4	0	0	0	0	0	3	2	4	1	2	1	1	0	0	1	0	IZS	0	0	0	0	0	0	0	0	4	0.7	24	
5	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	1	0.0	24	
6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
9	0	0	0	0	0	0	2	1	0	0	0	IZS	C	C	C	C	C	C	C	0	0	1	1	0	2	0.3	24		
10	0	0	0	0	0	0	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
11	0	0	0	0	0	0	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
12	0	0	0	0	0	0	1	1	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
13	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	1	0.2	24	
14	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
15	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
16	0	0	0	0	IZS	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
17	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0.1	24	
18	0	0	IZS	0	0	1	3	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	4	0.5	24	
19	0	IZS	1	2	3	13	19	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	1.9	24	
20	IZS	0	0	0	0	0	1	1	0	0	0	0	0	2	C	M	M	C	1	0	0	0	0	0	IZS	2	0.3	22	
21	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	IZS	1	1	0.2	24	
22	0	0	2	3	0	2	6	7	2	1	1	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	7	1.0	24	
23	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	0.1	24	
24	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	1	0.0	24	
25	0	0	0	0	1	1	1	1	0	0	1	0	1	0	1	0	0	0	IZS	0	0	0	0	0	0	1	0.3	24	
26	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	0	1	IZS	0	0	1	0	0	0	1	0.3	24		
27	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	IZS	1	1	1	1	0	1	0	1	0.6	24		
28	0	0	0	0	0	0	1	1	1	1	2	2	1	1	0	IZS	0	0	0	0	0	0	0	0	0	2	0.4	24	
29	0	1	1	1	0	0	0	0	1	0	0	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	1	0.3	24	
30	0	0	0	0	1	9	3	1	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	9	0.6	24	
HOURLY MAX	0	1	2	3	3	13	19	7	2	2	2	2	1	2	1	1	1	1	2	1	1	1	2	1	1				
HOURLY AVG	0.0	0.0	0.1	0.2	0.2	1.0	1.5	1.1	0.4	0.3	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0					

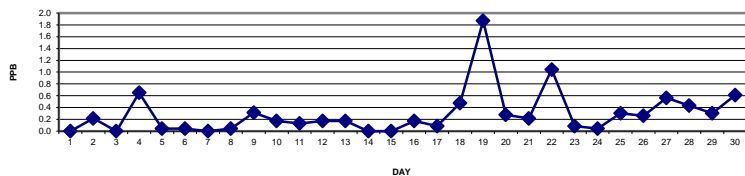
STATUS FLAG CODES

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

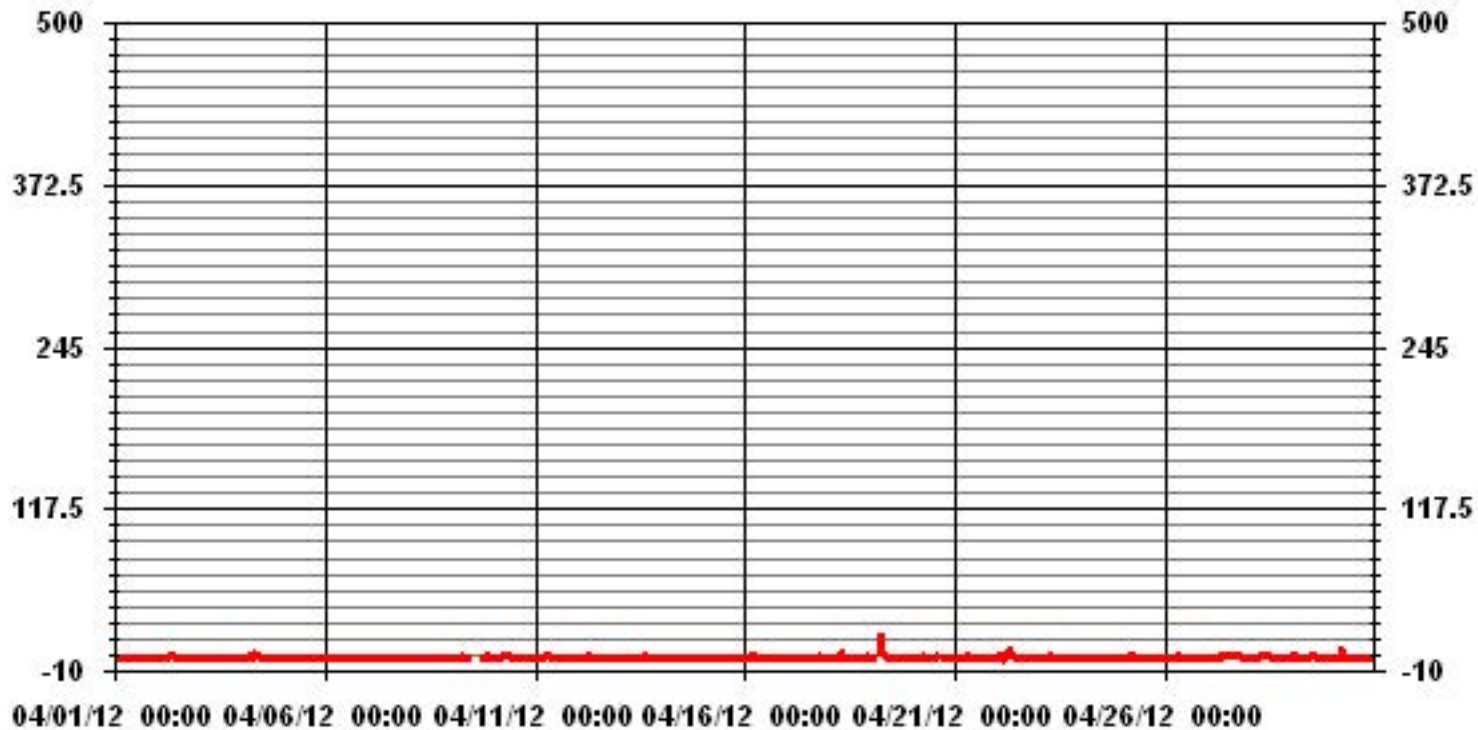
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	118
MAXIMUM 1-HR AVERAGE:	19 PPB @ HOUR(S) 6 ON DAY(S) 19
MAXIMUM 24-HR AVERAGE:	1.9 PPB ON DAY(S) 19
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	9 HRS
STANDARD DEVIATION:	1.13
OPERATIONAL TIME:	718 HRS
AMD OPERATION UPTIME:	99.7 %
MONTHLY AVERAGE:	0.29 PPB

24 HOUR AVERAGES FOR APRIL 2012



01 Hour Averages



— LICA NO₂ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

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	1	1	2	1	6	1	1	1	1	1	1	1	0	0	1	0	0	0	IZS	0	1	1	1	6	1.0	24	
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	IZS	9	1	1	1	0	9	1.3	24	
3	0	0	0	1	1	3	2	1	1	1	1	1	8	3	1	2	6	IZS	0	1	0	0	0	0	8	1.4	24	
4	0	1	0	1	1	25	6	10	3	3	2	3	2	1	7	1	IZS	1	0	1	0	0	1	1	25	3.0	24	
5	1	1	1	1	1	8	1	1	1	3	1	1	0	1	1	IZS	1	1	0	0	1	0	10	4	10	1.7	24	
6	1	1	1	0	3	1	1	1	1	1	1	1	0	1	IZS	0	0	0	0	0	0	0	0	0	3	0.6	24	
7	0	0	0	0	1	0	0	0	0	3	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	3	0.2	24	
8	0	0	0	0	0	0	0	1	0	1	1	1	IZS	0	0	0	0	0	1	0	0	0	0	1	1	0.3	24	
9	0	2	0	0	0	1	11	1	3	1	1	IZS	C	C	C	C	C	C	C	0	1	3	17	1	17	2.6	24	
10	1	1	1	2	2	6	2	4	8	4	IZS	1	1	1	4	4	3	1	2	4	0	1	0	0	8	2.3	24	
11	1	3	1	1	1	1	1	3	2	IZS	1	1	1	2	2	1	3	1	1	2	0	0	0	1	3	1.3	24	
12	1	1	1	1	7	1	1	6	IZS	11	2	1	1	1	13	6	4	1	0	0	0	0	1	13	2.7	24		
13	2	1	1	1	1	1	1	IZS	1	5	1	1	1	6	5	5	2	6	3	5	1	1	1	1	6	2.3	24	
14	1	1	1	1	1	1	IZS	1	1	2	3	1	1	1	0	9	0	10	0	0	0	0	0	1	10	1.6	24	
15	0	1	1	1	1	IZS	1	1	1	0	1	2	0	1	5	0	2	0	0	1	1	1	2	0	5	1.0	24	
16	0	0	0	0	IZS	8	1	3	1	1	0	1	6	24	9	0	1	1	0	3	0	0	1	1	24	2.7	24	
17	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	44	11	1	6	1	6	44	3.6	24	
18	1	2	IZS	1	2	3	11	10	2	1	1	1	2	5	1	1	1	2	1	5	4	4	14	2	14	3.3	24	
19	1	IZS	2	13	8	25	43	21	1	1	1	0	0	3	3	0	3	0	2	2	2	1	1	1	43	5.8	24	
20	IZS	0	1	0	1	1	8	8	1	3	1	1	3	42	C	M	M	C	11	2	2	2	1	IZS	42	4.9	22	
21	1	1	2	1	2	1	2	3	1	1	0	1	0	1	0	0	0	0	0	0	7	1	IZS	2	7	1.2	24	
22	1	1	6	7	1	5	14	14	5	2	5	1	1	1	1	0	0	1	0	0	0	IZS	1	1	14	3.0	24	
23	1	1	1	1	1	6	8	9	5	1	1	6	2	1	1	2	1	1	2	2	IZS	1	1	1	9	2.4	24	
24	1	1	1	1	0	1	4	12	2	5	1	1	0	1	3	0	1	6	1	IZS	1	1	1	1	12	2.0	24	
25	1	1	1	1	3	1	8	6	1	1	5	1	4	0	2	1	1	1	IZS	0	0	0	0	1	8	1.7	24	
26	1	1	1	1	1	1	1	4	5	5	10	1	1	4	3	1	6	IZS	2	1	24	4	1	1	24	3.5	24	
27	1	1	2	1	1	1	1	1	4	1	15	3	2	1	1	6	IZS	11	12	6	12	2	11	1	15	4.2	24	
28	3	0	0	0	0	1	1	5	5	1	3	3	2	1	2	IZS	2	0	2	0	1	0	2	5	5	1.7	24	
29	2	5	14	5	1	1	1	1	1	1	1	6	1	1	IZS	3	1	1	1	1	1	9	1	0	14	2.6	24	
30	1	5	1	1	2	29	8	12	1	1	1	2	1	IZS	2	1	1	1	2	1	3	0	0	4	29	3.5	24	
HOURLY MAX	3	5	14	13	8	29	43	21	8	11	15	6	8	42	9	13	6	11	44	11	24	9	17	6				
HOURLY AVG	0.8	1.2	1.4	1.6	1.6	4.8	4.9	4.9	2.1	2.2	2.2	1.6	1.5	3.9	2.2	2.0	1.7	1.9	3.3	2.0	2.2	1.3	2.4	1.3				

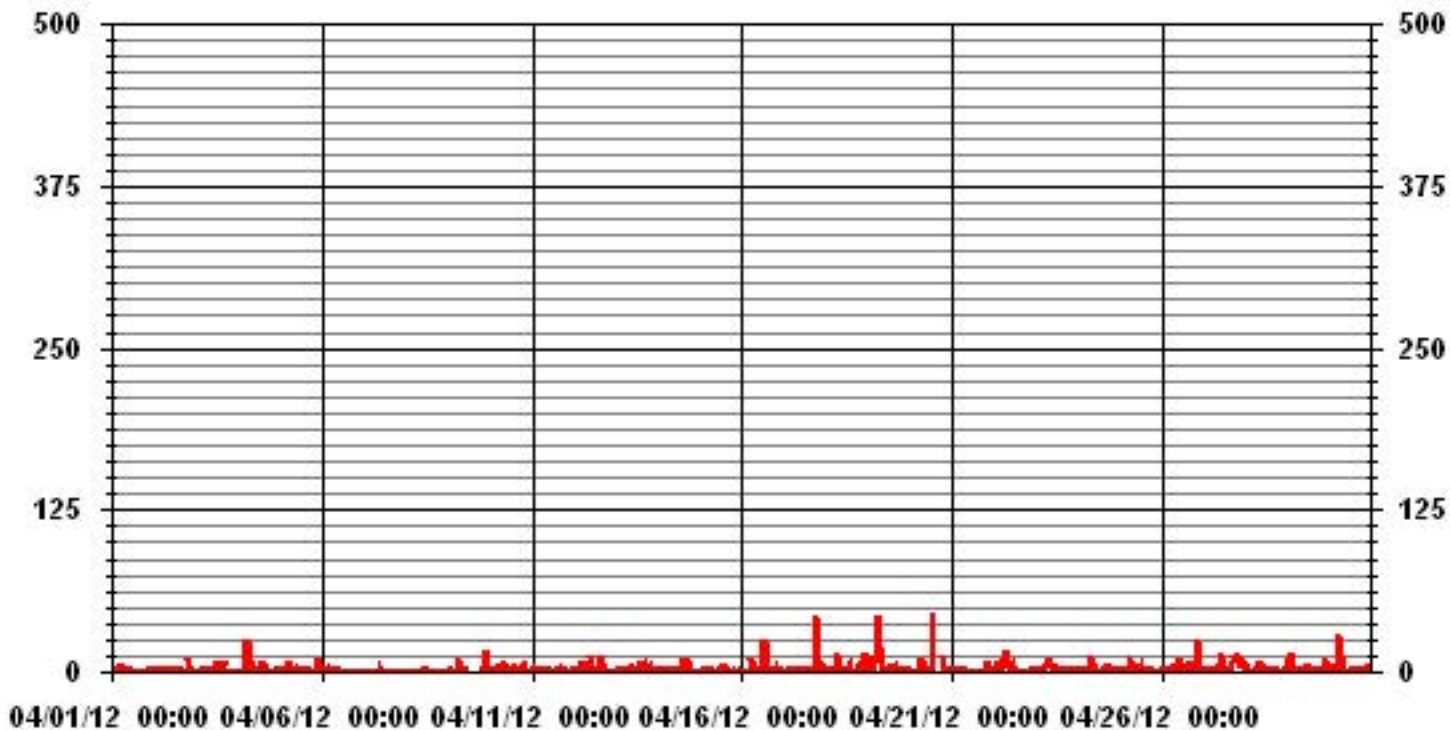
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	525				
MAXIMUM INSTANTANEOUS VALUE:	44	PPB	@ HOUR(S)	18	ON DAY(S) 17
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	718	HRS
MONTHLY CALIBRATION TIME:	9	HRS			
STANDARD DEVIATION:	4.35				

01 Hour Averages



— LICA NOMAX PPB

LICA
 NO_ / WD Joint Frequency Distribution (Percent)

April 2012

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	4.86	11.65	10.02	5.60	15.48	5.60	11.94	3.53	1.91	3.09	5.60	5.16	3.83	4.86	3.53	3.24	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.86	11.65	10.02	5.60	15.48	5.60	11.94	3.53	1.91	3.09	5.60	5.16	3.83	4.86	3.53	3.24	

Calm : .00 %

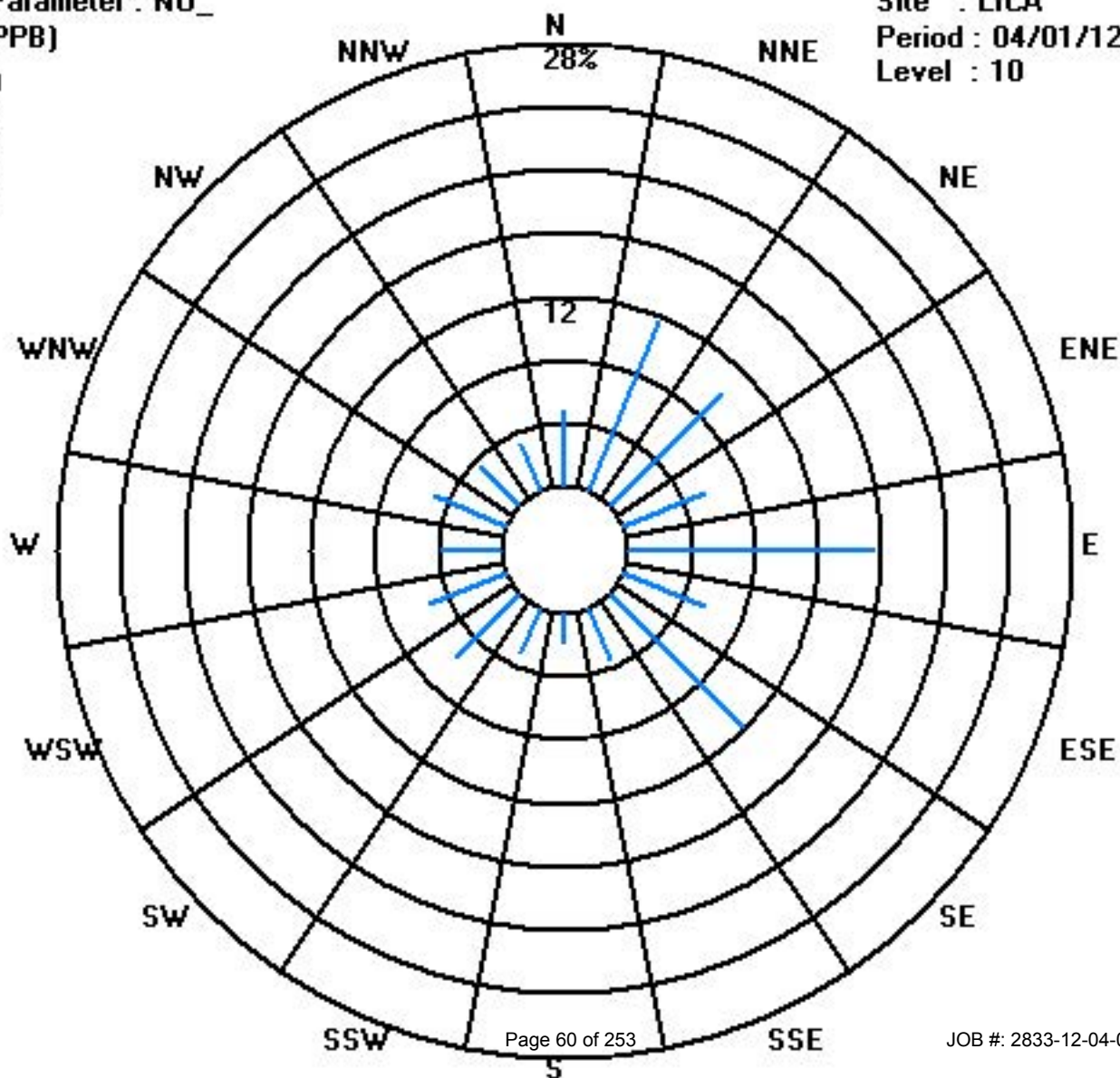
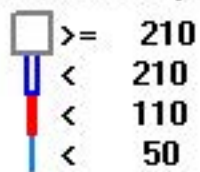
Total # Operational Hours : 678

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	33	79	68	38	105	38	81	24	13	21	38	35	26	33	24	22	678
< 110																	
< 210																	
>= 210																	
Totals	33	79	68	38	105	38	81	24	13	21	38	35	26	33	24	22	

Calm : .00 %

Total # Operational Hours : 678



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

OXIDES OF NITROGEN hourly averages in ppb

MST	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	7	3	3	3	3	3	2	2	2	2	2	2	1	1	2	2	1	1	2	IZS	2	1	2	3	7	2.3	24	
2	3	3	4	3	4	4	5	4	4	3	2	2	1	1	1	1	1	1	IZS	9	7	14	11	3	14	4.0	24	
3	1	1	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1	IZS	1	2	1	1	1	1	2	1.5	24	
4	1	2	2	2	2	13	13	17	7	7	5	3	2	2	4	1	IZS	2	2	1	1	1	1	1	17	4.0	24	
5	1	1	1	1	1	3	4	3	2	3	2	2	2	2	2	IZS	2	1	1	2	2	2	4	2	4	2.0	24	
6	2	2	2	2	3	3	3	2	2	2	1	1	1	1	IZS	1	1	1	1	1	1	1	1	2	3	1.6	24	
7	1	1	1	2	3	2	2	1	1	1	1	1	1	IZS	1	1	1	1	1	1	3	3	3	2	3	1.5	24	
8	1	1	1	3	4	4	4	3	2	2	2	2	IZS	1	1	1	1	1	1	2	2	2	3	2	4	2.0	24	
9	2	6	4	2	2	3	11	3	2	2	1	IZS	C	C	C	C	C	C	C	4	8	14	16	5	16	5.3	24	
10	2	3	3	6	6	7	5	4	2	2	IZS	1	1	1	1	1	1	1	1	3	2	3	3	2	7	2.7	24	
11	2	2	2	3	4	5	5	5	2	IZS	3	1	1	1	1	1	2	2	2	3	3	2	2	2	5	2.4	24	
12	3	3	3	2	2	3	4	3	IZS	3	2	3	3	2	3	3	3	3	2	1	2	2	1	2	4	2.5	24	
13	3	1	2	2	2	3	3	IZS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	2.7	24
14	2	2	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.1	24	
15	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	3	4	1	1	1	4	1.2	24	
16	1	2	2	2	IZS	7	5	3	2	2	2	2	1	3	2	1	1	1	1	2	1	2	2	2	7	2.1	24	
17	1	1	1	IZS	2	2	2	2	1	1	1	1	1	1	1	1	1	2	4	3	6	10	9	6	10	2.6	24	
18	10	11	IZS	9	4	9	11	13	4	2	1	1	1	2	1	1	1	2	2	6	8	8	15	12	15	5.8	24	
19	9	IZS	12	15	20	33	40	11	3	2	2	1	1	2	2	1	2	1	2	3	6	9	5	3	40	8.0	24	
20	IZS	3	4	3	3	3	4	3	2	2	1	1	2	3	C	M	M	C	3	4	3	5	5	IZS	5	3.0	22	
21	4	4	4	3	3	3	3	4	3	2	1	1	1	1	1	1	1	1	1	3	11	4	IZS	11	11	3.1	24	
22	11	7	12	13	8	8	14	20	8	5	2	2	1	1	2	1	1	1	1	2	4	IZS	1	1	20	5.5	24	
23	1	1	1	1	1	3	4	3	2	1	1	2	1	1	1	2	1	2	2	3	IZS	2	1	1	4	1.7	24	
24	2	1	1	1	1	2	2	5	2	2	1	1	1	1	2	1	2	2	1	IZS	1	1	1	1	5	1.5	24	
25	1	1	1	1	3	3	3	3	2	2	2	2	1	1	2	2	2	2	IZS	1	1	1	1	1	3	1.7	24	
26	1	1	1	1	1	2	2	3	2	1	2	1	1	1	2	2	2	IZS	2	2	3	1	2	1	3	1.6	24	
27	1	1	1	1	2	2	3	3	4	4	6	5	4	4	4	5	IZS	5	6	5	7	6	6	3	7	3.8	24	
28	3	2	2	1	1	3	7	6	5	3	4	6	4	3	2	IZS	1	1	2	1	2	3	3	6	7	3.1	24	
29	6	6	6	4	2	2	2	2	3	3	3	3	3	3	IZS	2	1	1	2	2	4	5	3	2	6	3.0	24	
30	2	3	2	2	5	14	9	4	1	1	1	1	1	IZS	1	1	1	1	2	2	5	2	1	1	14	2.7	24	
HOURLY MAX	11	11	12	15	20	33	40	20	8	7	6	6	4	4	4	5	3	5	6	9	11	14	16	12				
HOURLY AVG	2.9	2.6	2.8	3.1	3.3	5.2	6.0	4.7	2.7	2.3	2.0	1.9	1.6	1.7	1.7	1.5	1.4	1.6	1.9	2.7	3.6	3.8	3.7	2.8				

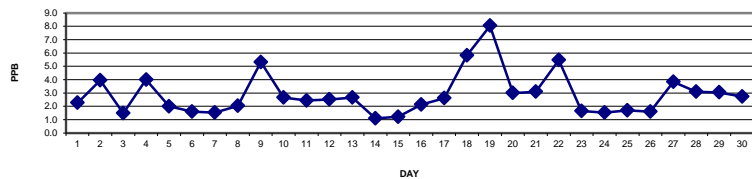
STATUS FLAG CODES

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

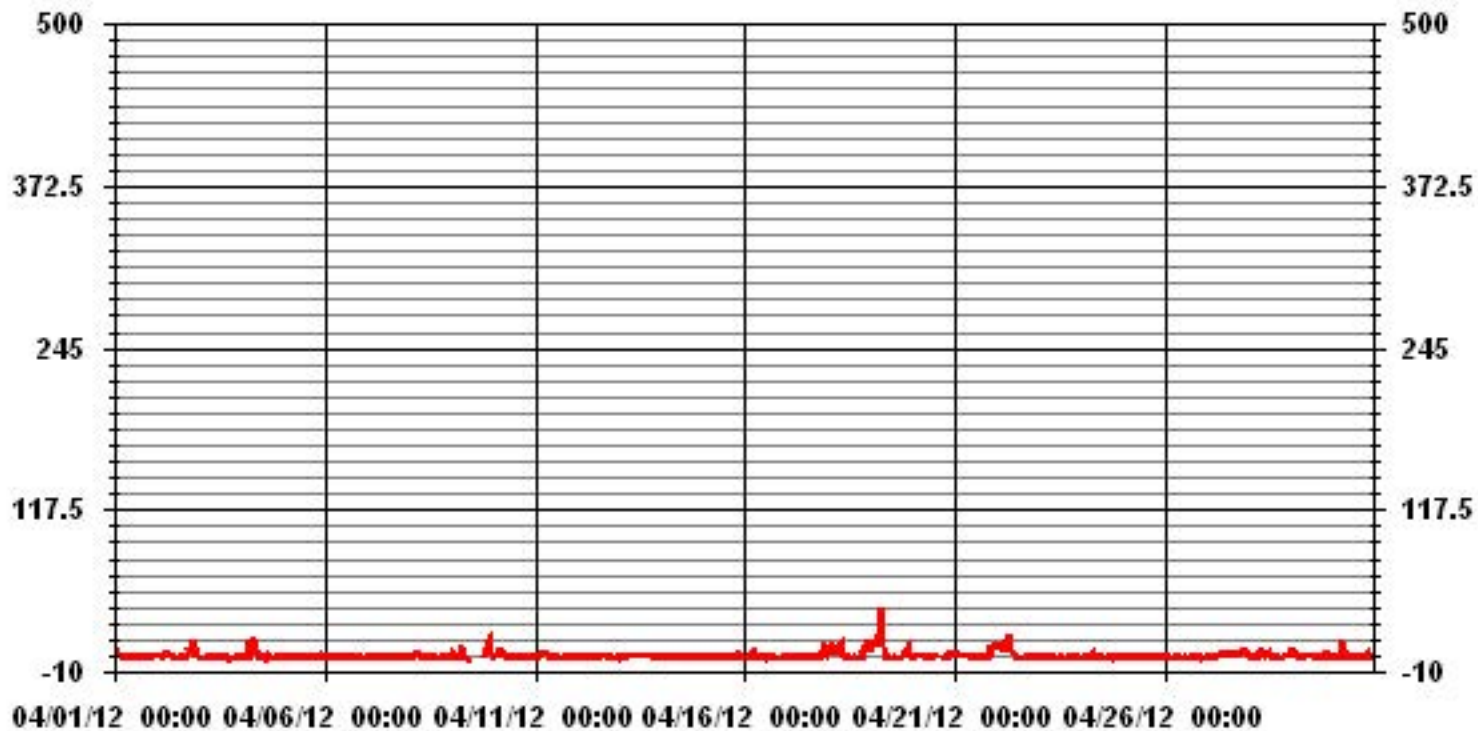
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	678
MAXIMUM 1-HR AVERAGE:	40 PPB @ HOUR(S) 6 ON DAY(S) 19
MAXIMUM 24-HR AVERAGE:	8.0 PPB ON DAY(S) 19
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	9 HRS
STANDARD DEVIATION:	3.27
OPERATIONAL TIME:	718 HRS
AMD OPERATION UPTIME:	99.7 %
MONTHLY AVERAGE:	2.84 PPB

24 HOUR AVERAGES FOR APRIL 2012



01 Hour Averages



— LICA NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

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	12	7	6	10	5	32	3	5	5	5	3	3	2	2	4	5	2	2	3	IZS	3	3	3	4	32	5.6	24	
2	4	6	6	6	6	6	6	6	5	4	4	4	2	2	2	7	1	2	IZS	30	13	22	22	6	30	7.5	24	
3	2	2	2	2	3	5	4	6	2	3	2	4	5	2	2	3	4	IZS	2	3	2	1	2	2	6	2.8	24	
4	2	2	2	5	5	44	27	31	13	9	7	6	6	3	20	4	IZS	3	3	2	2	2	2	44	8.8	24		
5	3	2	2	2	2	17	5	6	11	4	4	2	3	3	7	IZS	4	3	2	2	4	4	39	13	39	6.3	24	
6	5	4	3	3	7	5	5	4	3	3	3	2	2	2	IZS	1	2	1	1	1	2	2	1	3	7	2.8	24	
7	2	2	2	3	5	2	3	2	2	6	1	2	1	IZS	1	1	1	1	2	2	4	4	4	3	6	2.4	24	
8	2	3	3	5	5	4	5	4	3	3	2	2	IZS	2	2	2	2	2	4	3	3	4	5	4	5	3.2	24	
9	4	17	7	3	6	8	22	4	19	3	3	IZS	C	C	C	C	C	C	C	8	15	32	43	8	43	12.6	24	
10	6	6	7	12	11	27	15	8	6	6	IZS	2	2	2	5	6	8	3	6	5	2	6	5	3	27	6.9	24	
11	3	5	3	5	6	9	8	38	4	IZS	5	2	2	2	4	4	4	4	7	7	5	3	2	3	38	5.9	24	
12	6	4	4	3	8	6	7	9	IZS	17	3	4	6	3	14	14	6	7	3	2	2	2	4	17	5.9	24		
13	7	3	4	3	5	4	6	IZS	4	8	5	5	4	11	14	5	6	6	6	6	5	5	5	3	14	5.7	24	
14	3	3	3	3	2	3	IZS	2	3	6	3	2	3	2	1	8	2	4	3	1	1	1	1	2	8	2.7	24	
15	1	2	2	2	3	IZS	2	3	2	2	3	3	1	2	3	2	6	2	3	9	6	3	4	1	9	2.9	24	
16	2	2	2	3	IZS	20	11	10	4	4	2	8	3	40	37	3	3	4	3	8	2	4	3	3	40	7.9	24	
17	2	1	1	IZS	4	4	5	3	3	2	2	3	3	2	2	2	3	3	59	10	15	21	15	20	59	8.0	24	
18	15	16	IZS	14	7	13	26	23	7	4	4	2	4	9	2	2	3	5	5	22	15	15	35	19	35	11.6	24	
19	15	IZS	16	20	28	48	67	32	5	4	2	2	2	15	12	4	12	3	10	7	12	18	18	4	67	15.5	24	
20	IZS	5	8	3	4	6	6	11	2	6	5	3	8	37	C	M	M	C	18	9	7	9	7	IZS	37	8.6	22	
21	5	5	6	4	5	5	5	8	5	4	1	1	1	1	1	1	1	1	1	9	24	8	IZS	18	24	5.2	24	
22	17	10	19	22	9	14	29	31	13	7	9	3	4	4	9	2	2	1	2	3	13	IZS	2	2	31	9.9	24	
23	2	2	3	2	4	13	23	9	8	4	5	8	2	2	7	4	3	4	5	6	IZS	4	4	3	23	5.5	24	
24	3	3	3	3	2	6	9	22	3	7	3	2	1	3	4	2	4	10	2	IZS	2	2	3	2	22	4.4	24	
25	2	3	3	3	6	6	10	13	4	4	11	4	4	2	6	5	3	3	IZS	2	3	2	2	2	13	4.5	24	
26	2	3	3	3	3	4	5	12	5	3	6	3	3	5	5	3	10	IZS	5	8	45	5	9	2	45	6.6	24	
27	1	3	3	2	3	4	5	4	7	6	34	9	7	5	7	11	IZS	15	34	11	20	9	29	5	34	10.2	24	
28	11	3	3	2	2	7	9	9	11	5	6	8	5	5	6	IZS	2	2	9	2	6	6	9	16	16	6.3	24	
29	12	12	24	10	6	4	4	2	3	3	3	6	3	3	IZS	5	3	2	3	4	6	21	6	4	24	6.5	24	
30	5	12	5	4	7	35	15	18	3	5	1	4	1	IZS	3	2	2	3	6	5	11	4	2	3	35	6.8	24	
HOURLY MAX	17	17	24	22	28	48	67	38	19	17	34	9	8	40	37	14	12	15	59	30	45	32	43	20				
HOURLY AVG	5.4	5.1	5.3	5.6	5.8	12.4	12.0	11.6	5.7	5.1	4.9	3.8	3.2	6.3	6.9	4.2	3.8	3.7	7.7	6.7	8.6	7.7	9.8	5.7				

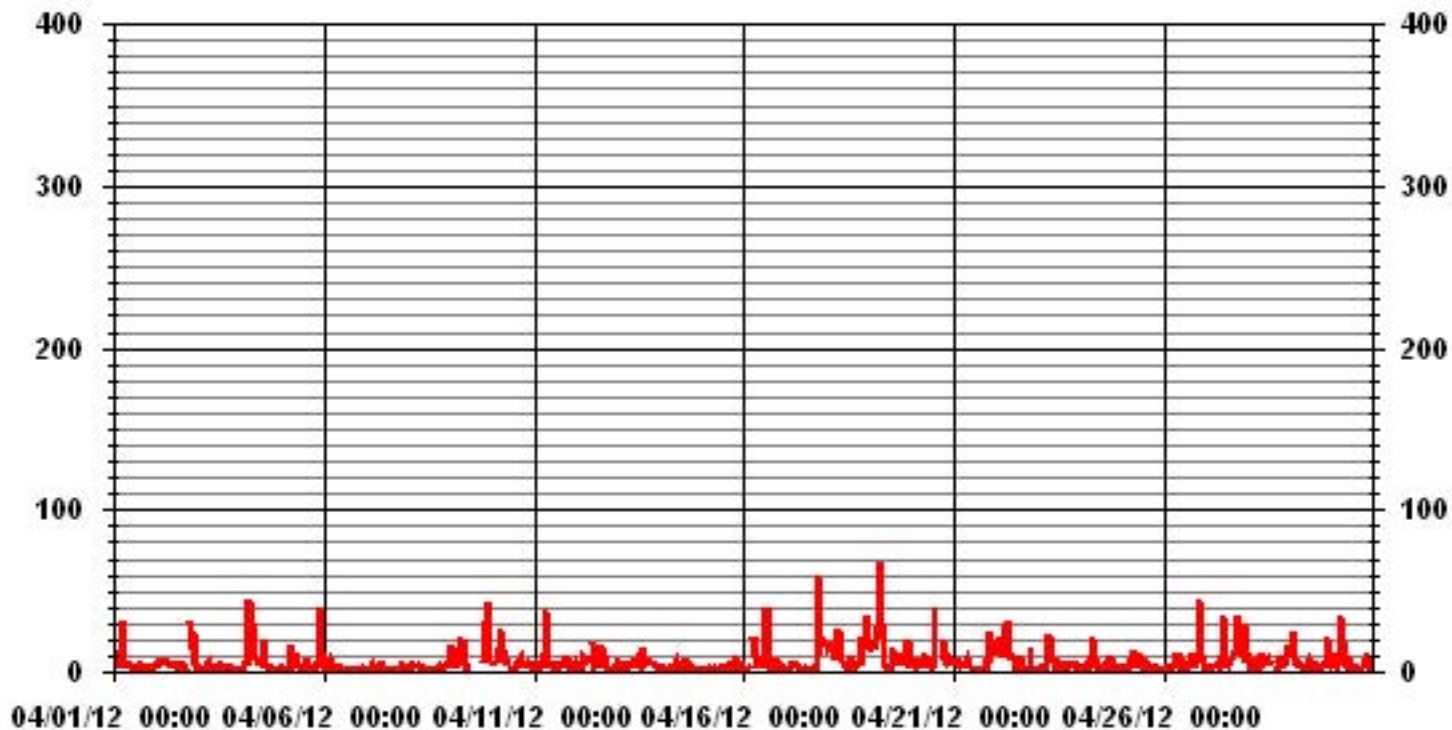
STATUS FLAG CODES

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:	678
MAXIMUM INSTANTANEOUS VALUE:	67 PPB @ HOUR(S) 6 ON DAY(S) 19
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	9 HRS
OPERATIONAL TIME:	718 HRS
STANDARD DEVIATION:	7.78

01 Hour Averages



LICA
 NOX_ / WD Joint Frequency Distribution (Percent)

April 2012

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	4.86	11.65	10.02	5.60	15.48	5.60	11.94	3.53	1.91	3.09	5.60	5.16	3.83	4.86	3.53	3.24	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.86	11.65	10.02	5.60	15.48	5.60	11.94	3.53	1.91	3.09	5.60	5.16	3.83	4.86	3.53	3.24	

Calm : .00 %

Total # Operational Hours : 678

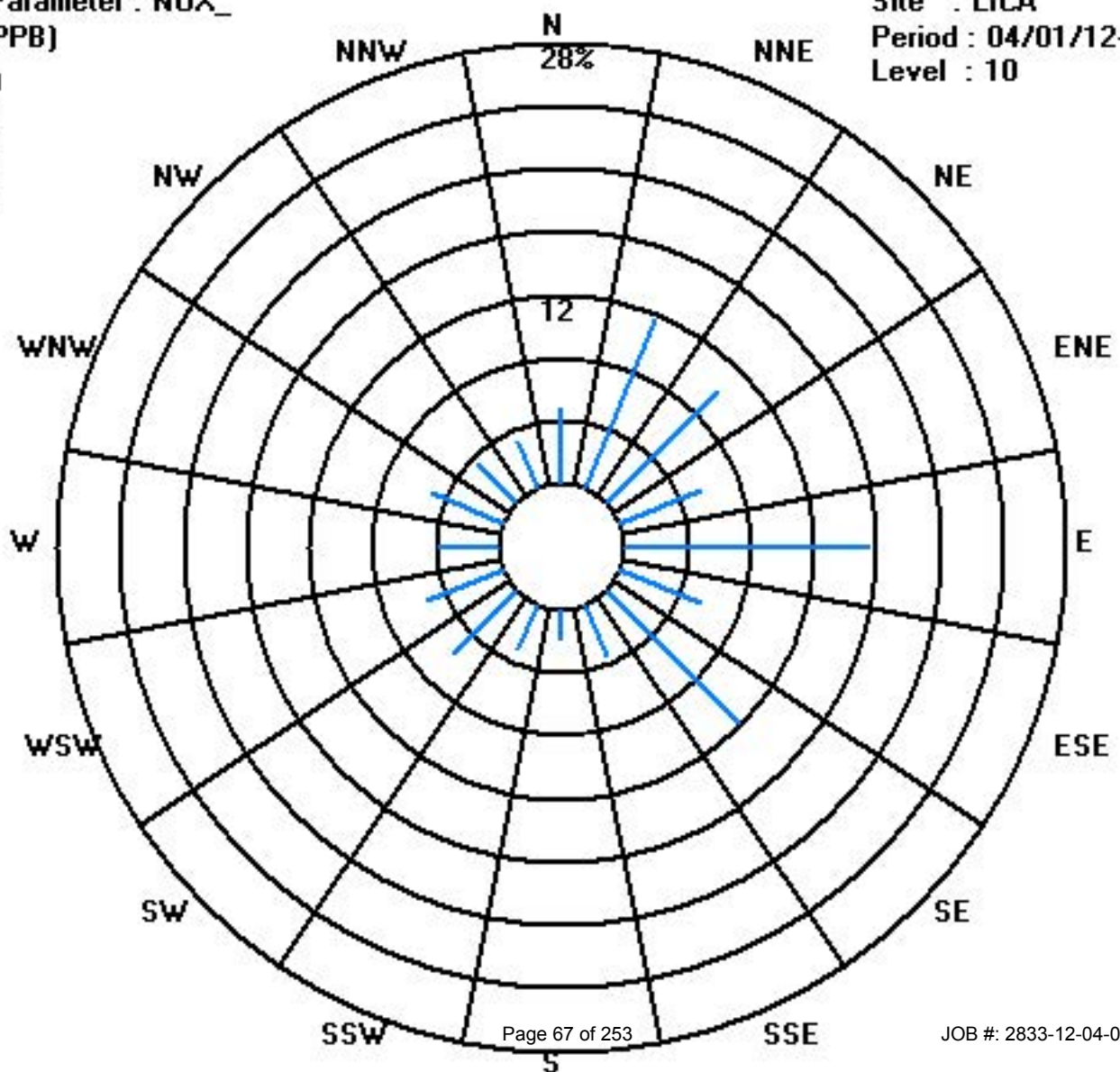
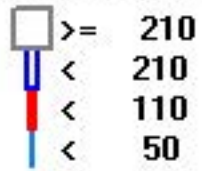
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	33	79	68	38	105	38	81	24	13	21	38	35	26	33	24	22	678
< 110																	
< 210																	
>= 210																	
Totals	33	79	68	38	105	38	81	24	13	21	38	35	26	33	24	22	

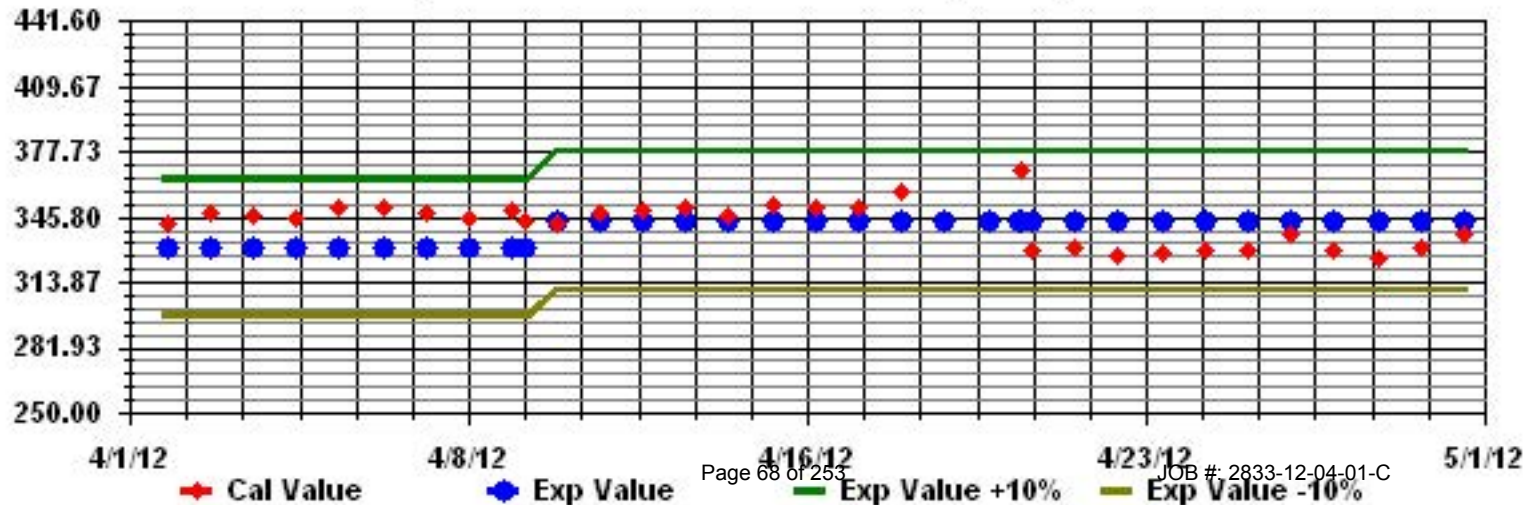
Calm : .00 %

Total # Operational Hours : 678

Class Limits (PPB)



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

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		
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																													
1		27	40	41	41	44	46	50	48	47	47	46	44	41	39	38	39	42	45	45	IZS	43	43	41	40	50	42.5	24	
2		37	35	35	34	32	30	28	31	33	34	35	40	46	50	50	50	50	50	IZS	31	28	16	26	42	50	36.7	24	
3		44	44	44	43	42	40	39	37	36	37	40	44	50	53	54	55	55	IZS	53	51	51	50	49	49	55	46.1	24	
4		47	44	42	39	33	16	13	19	32	36	41	45	49	49	50	IZS	49	49	49	49	49	48	48	48	50	41.0	24	
5		47	47	46	44	42	39	44	43	39	37	43	45	45	38	34	IZS	30	30	29	28	27	25	20	17	47	36.5	24	
6		22	24	27	30	27	25	26	29	32	36	38	41	41	43	IZS	45	44	43	44	40	40	41	41	40	45	35.6	24	
7		40	40	39	38	35	36	36	38	39	40	41	42	43	IZS	46	47	49	50	49	47	44	43	41	38	50	41.8	24	
8		39	39	38	34	34	34	33	33	38	39	42	42	IZS	44	45	46	46	45	46	45	44	42	40	39	46	40.3	24	
9		36	26	33	29	25	22	23	42	44	44	46	IZS	48	48	49	48	48	49	M	38	30	18	18	37	49	36.4	23	
10		43	41	42	40	40	33	42	C	C	C	IZS	47	48	50	52	54	54	54	53	49	50	49	49	48	54	46.9	24	
11		46	45	45	43	41	39	38	41	43	IZS	49	52	53	53	54	54	57	56	54	53	50	50	52	51	57	48.7	24	
12		48	47	46	45	44	41	39	39	IZS	39	40	41	42	41	40	43	45	46	48	50	51	51	50	45	51	44.4	24	
13		39	43	44	44	43	43	41	IZS	40	38	37	35	33	33	31	29	28	27	24	23	21	20	19	18	44	32.7	24	
14		17	17	16	16	17	19	IZS	20	19	21	23	25	26	25	26	27	29	32	36	40	42	44	45	47	47	27.3	24	
15		50	49	48	48	48	IZS	46	46	46	46	46	47	48	48	48	49	49	49	50	43	35	42	42	41	50	46.3	24	
16		40	38	35	32	IZS	22	28	33	37	42	45	46	48	48	48	47	47	47	45	42	38	39	40	39	48	40.3	24	
17		39	41	46	IZS	43	43	43	40	42	43	44	46	49	50	52	52	53	54	51	45	31	20	18	16	54	41.8	24	
18		11	11	IZS	11	15	11	16	28	42	49	53	54	54	55	55	55	55	54	53	46	34	25	18	14	55	35.6	24	
19		12	IZS	8	6	5	2	8	37	42	44	51	54	54	54	53	52	50	49	47	44	34	27	35	44	54	35.3	24	
20		IZS	44	39	37	33	31	33	34	38	39	40	40	37	34	35	34	34	33	32	27	21	14	12	IZS	44	32.8	24	
21		8	13	18	19	21	22	25	26	29	32	38	41	44	44	44	45	46	44	43	37	20	21	IZS	6	46	29.8	24	
22		7	7	3	3	5	4	5	18	37	42	51	56	60	62	62	62	59	59	56	52	41	IZS	50	49	62	37.0	24	
23		48	47	45	44	42	41	40	42	44	47	48	48	48	48	48	48	47	47	45	43	IZS	44	44	40	48	45.1	24	
24		38	40	38	38	40	38	36	31	34	34	31	30	31	31	30	29	31	33	IZS	34	34	34	34	34	40	33.9	24	
25		35	33	31	30	28	27	26	27	28	31	31	31	32	34	34	35	35	35	IZS	36	36	36	34	34	36	32.1	24	
26		35	36	38	38	39	38	37	37	38	39	39	41	43	43	44	44	44	IZS	45	43	43	41	41	43	45	40.4	24	
27		45	43	38	35	33	32	32	32	31	31	30	30	30	31	29	28	IZS	29	28	27	24	26	26	26	45	31.1	24	
28		28	29	27	25	28	23	21	22	25	24	24	28	32	33	39	IZS	42	43	42	41	33	26	27	18	43	29.6	24	
29		8	6	3	8	20	21	23	25	31	33	31	32	33	36	IZS	42	43	43	40	37	30	28	34	24	43	27.4	24	
30		17	13	8	6	4	2	20	39	44	41	41	42	43	IZS	47	47	49	53	53	49	38	38	40	38	53	33.6	24	
HOURLY MAX		50	49	48	48	48	46	50	48	47	49	53	56	60	62	62	62	59	59	56	53	51	51	52	51				
HOURLY AVG		32.9	33.9	33.2	31.0	31.1	28.3	30.7	33.5	36.8	38.0	40.1	41.7	43.1	43.5	44.1	44.9	45.0	44.5	44.2	41.3	36.6	34.5	35.7	35.3				

STATUS FLAG CODES

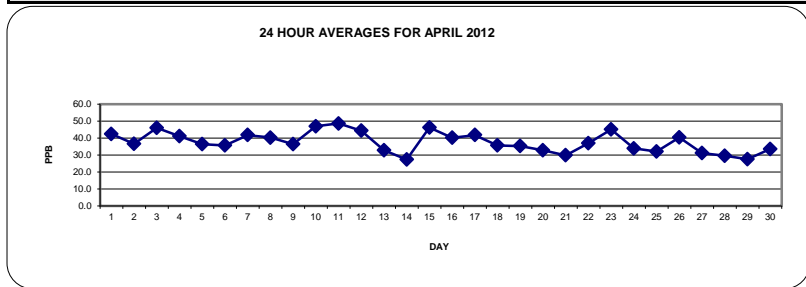
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

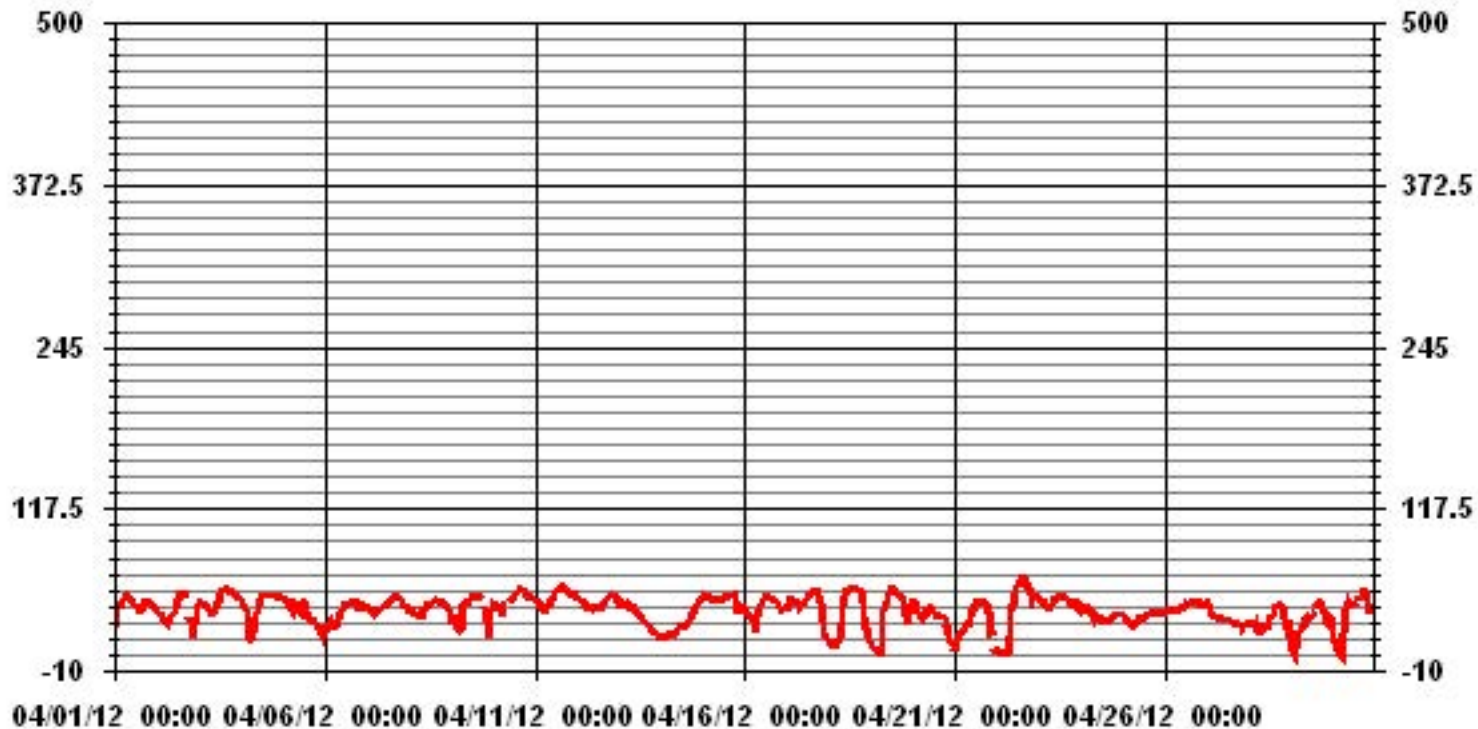
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	685				
MAXIMUM 1-HR AVERAGE:	62	PPB	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	48.7	PPB			ON DAY(S)
					VAR-VARIOUS
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS
MONTHLY CALIBRATION TIME:	3	HRS	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	11.51		MONTHLY AVERAGE:	37.60	PPB



01 Hour Averages



— LICA 03_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

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	34	41	43	43	45	49	51	50	49	48	48	46	43	40	40	41	43	46	46	IZS	45	45	42	40	51	44.3	24	
2	38	36	36	36	33	32	30	32	34	36	38	46	49	51	51	51	51	IZS	IZS	55	53	52	51	50	50	51	39.7	24
3	46	45	45	44	42	41	39	38	37	39	41	48	53	57	56	56	57	IZS	IZS	55	53	52	51	50	50	57	47.6	24
4	49	46	43	42	38	27	24	27	35	38	44	49	50	51	51	51	IZS	IZS	50	50	50	49	49	49	51	44.0	24	
5	48	48	48	45	43	43	45	44	41	40	45	46	46	43	36	IZS	31	31	31	29	28	27	26	22	48	38.5	24	
6	26	28	29	32	29	26	28	31	34	38	40	42	43	46	IZS	46	45	44	45	43	42	42	42	41	46	37.5	24	
7	41	41	40	38	38	37	37	40	40	41	43	43	44	IZS	47	48	50	51	50	48	47	45	42	40	51	43.1	24	
8	40	40	40	37	36	35	34	34	40	40	43	44	IZS	45	46	47	47	46	46	46	45	44	42	40	47	41.6	24	
9	39	33	38	33	32	26	39	43	44	46	47	IZS	49	49	50	49	50	50	M	45	36	28	31	43	50	40.9	23	
10	44	44	45	42	43	38	45	C	C	C	IZS	48	50	51	54	55	56	54	54	52	51	50	50	49	56	48.8	24	
11	47	46	45	44	43	41	40	43	45	IZS	51	53	54	55	54	57	59	58	56	55	53	51	52	52	59	50.2	24	
12	50	48	46	46	45	44	40	40	IZS	40	41	43	44	42	42	44	48	47	51	51	51	52	51	50	52	45.9	24	
13	42	45	46	46	45	43	43	IZS	42	40	39	36	35	34	33	31	30	28	27	24	23	21	20	19	46	34.4	24	
14	18	17	17	19	20	21	IZS	21	20	23	25	26	27	26	27	29	31	35	39	41	44	45	46	49	49	29.0	24	
15	51	50	50	49	49	IZS	47	47	47	47	47	49	49	49	49	50	50	51	51	50	40	43	43	42	51	47.8	24	
16	41	40	37	36	IZS	28	32	36	40	45	46	49	49	50	49	49	48	48	46	45	44	41	41	43	50	42.7	24	
17	40	46	47	IZS	44	45	46	42	43	44	45	48	50	52	53	54	55	55	55	49	46	28	22	23	55	44.9	24	
18	14	14	IZS	15	19	14	25	38	46	55	54	55	55	56	56	56	56	55	55	52	44	31	22	18	56	39.3	24	
19	15	IZS	10	10	8	3	17	44	43	50	54	55	55	56	54	53	52	50	50	48	42	38	42	47	56	39.0	24	
20	IZS	46	43	39	35	32	36	36	39	40	41	41	40	36	36	36	36	35	34	33	26	19	16	IZS	46	35.2	24	
21	14	18	19	21	22	24	27	28	32	36	44	42	45	45	47	48	45	44	43	31	27	IZS	10	48	32.9	24		
22	10	10	9	8	8	5	9	32	42	50	57	58	62	64	63	63	61	60	57	55	48	IZS	51	50	64	40.5	24	
23	49	48	47	45	43	43	42	44	47	49	50	49	49	50	49	49	50	49	47	45	IZS	45	45	43	50	46.8	24	
24	39	41	40	40	41	40	38	35	35	35	33	31	32	32	34	31	31	32	33	IZS	36	35	35	36	41	35.4	24	
25	36	35	32	31	30	29	28	29	30	32	32	32	34	35	36	36	36	IZS	IZS	37	37	37	36	35	37	33.5	24	
26	37	37	39	39	40	39	38	38	39	39	40	43	44	44	46	46	46	IZS	47	45	44	42	41	45	47	41.7	24	
27	46	45	41	37	34	33	33	33	32	32	32	32	32	33	31	30	IZS	31	31	30	26	29	29	28	46	33.0	24	
28	30	31	30	29	30	27	24	24	28	25	26	31	35	38	43	IZS	44	45	43	43	42	38	35	32	45	33.6	24	
29	13	10	6	12	24	23	24	28	33	34	32	33	34	41	IZS	43	45	45	42	40	37	36	36	31	45	30.5	24	
30	21	18	12	9	6	5	35	44	45	43	43	44	44	IZS	48	49	51	55	55	52	44	40	41	39	55	36.7	24	
HOURLY MAX	51	50	50	49	49	49	51	50	49	55	57	58	62	64	63	63	61	60	57	55	53	52	52	52				
HOURLY AVG	35.1	36.1	35.3	33.3	33.3	30.8	34.3	36.5	38.6	40.2	42.1	43.5	44.7	45.4	45.7	46.3	46.7	45.8	45.9	44.5	40.9	38.0	38.5	38.3				

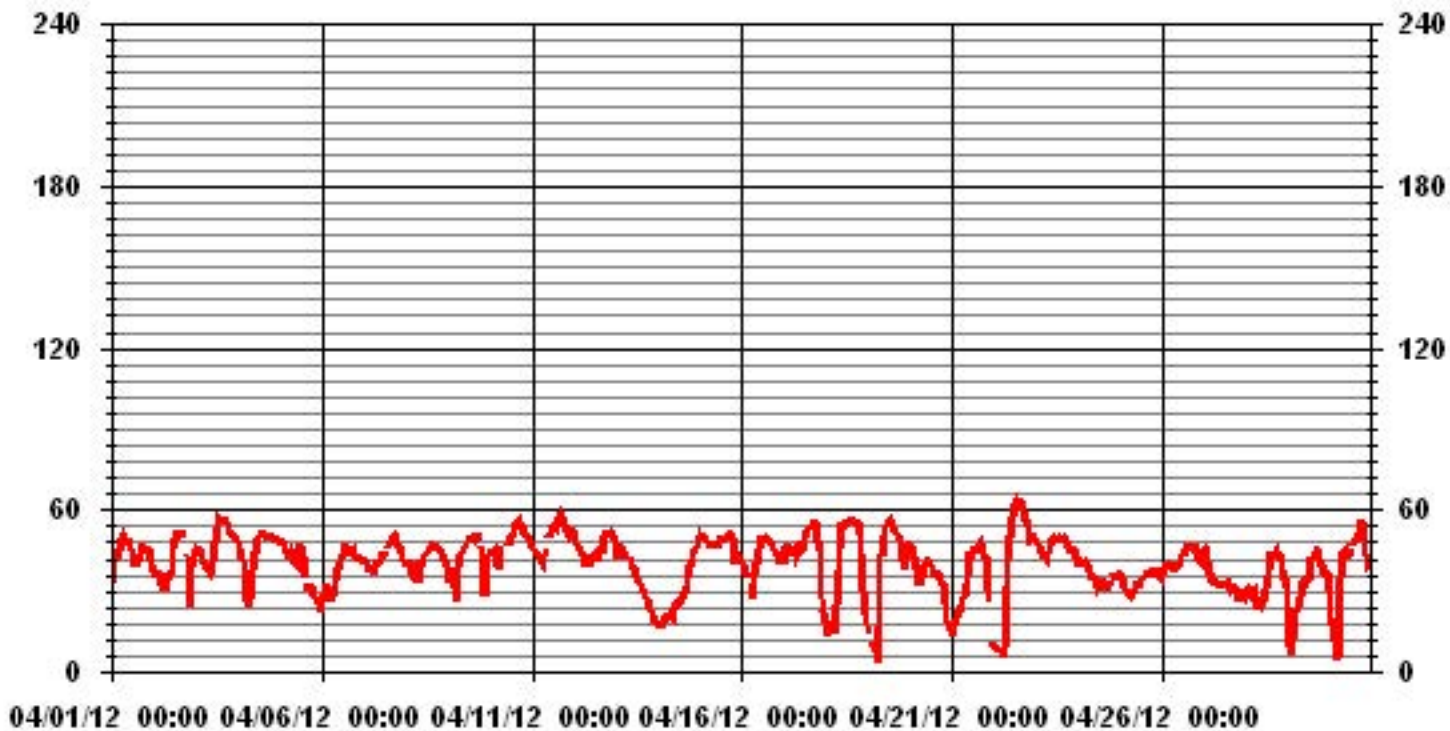
STATUS FLAG CODES

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:	685					
MAXIMUM INSTANTANEOUS VALUE:	64	PPB	@ HOUR(S)	13	ON DAY(S)	22
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	719	HRS	
MONTHLY CALIBRATION TIME:	3	HRS				
STANDARD DEVIATION:	10.81					

01 Hour Averages



— LICA O3MAX PPB

LICA
O3_ / WD Joint Frequency Distribution (Percent)

April 2012

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	4.52	11.38	9.05	5.69	14.45	3.94	8.61	2.77	1.60	2.91	4.96	4.23	3.06	4.81	3.35	3.21	88.61
< 110	.29	.43	1.45	.14	1.16	1.16	3.21	.72	.29	.14	.58	.87	.72	.00	.14	.00	11.38
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.81	11.82	10.51	5.83	15.62	5.10	11.82	3.50	1.89	3.06	5.54	5.10	3.79	4.81	3.50	3.21	

Calm : .00 %

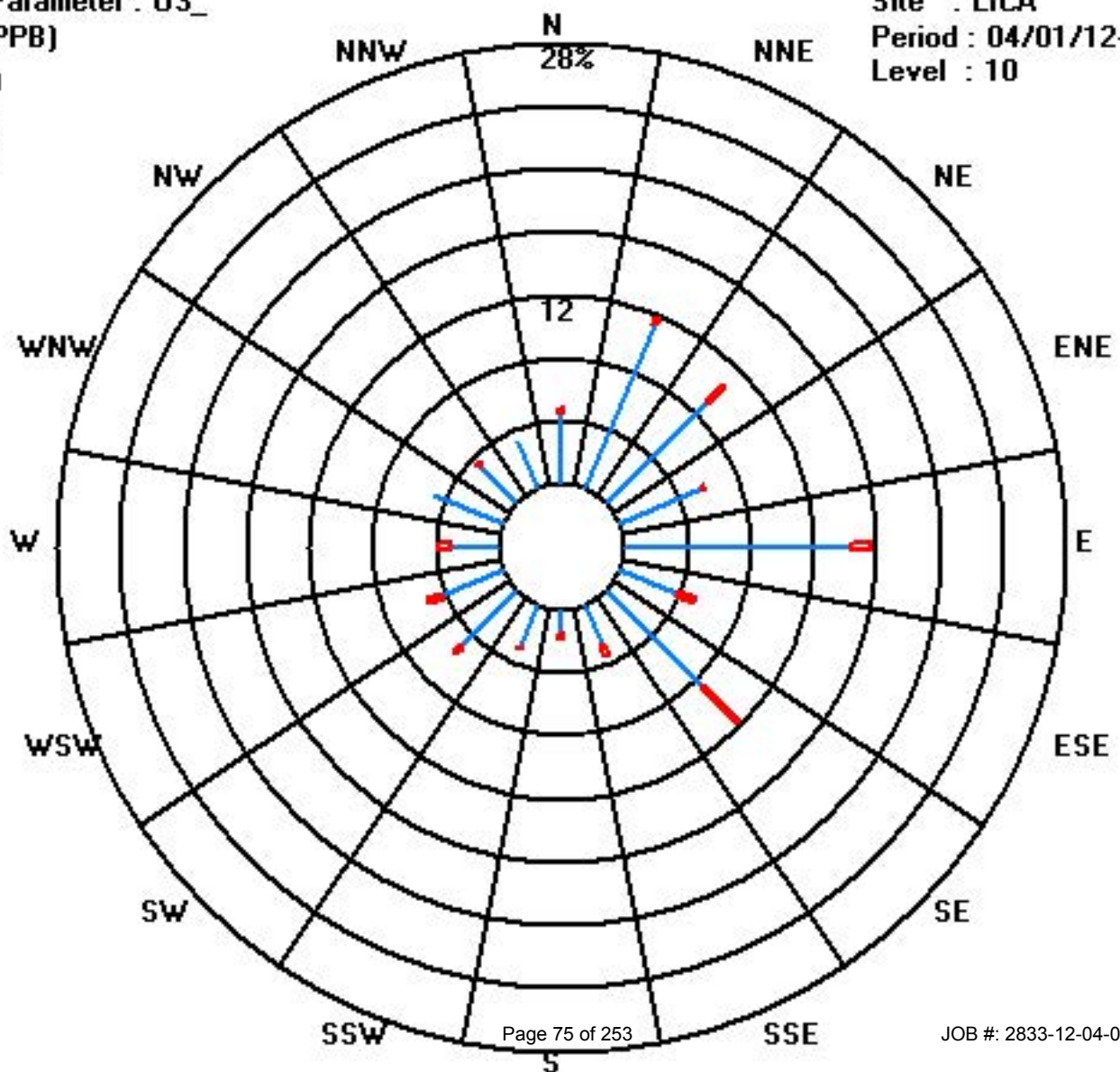
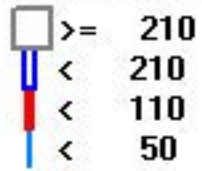
Total # Operational Hours : 685

Distribution By Samples

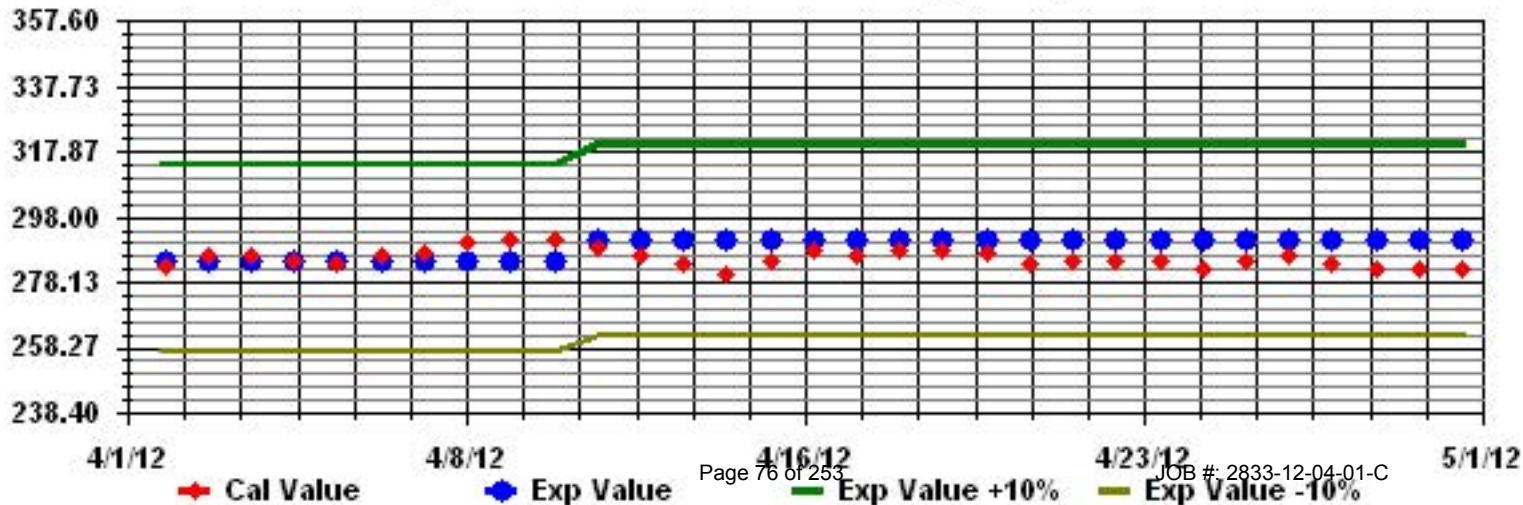
	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	31	78	62	39	99	27	59	19	11	20	34	29	21	33	23	22	607
< 110	2	3	10	1	8	8	22	5	2	1	4	6	5		1		78
< 210																	
>= 210																	
Totals	33	81	72	40	107	35	81	24	13	21	38	35	26	33	24	22	

Calm : .00 %

Total # Operational Hours : 685



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



Ambient Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

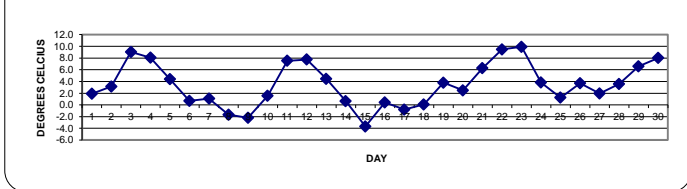
AMBIENT TEMPERATURE hourly averages (Degrees C)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	RDGS.
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	
DAY	1	0.1	1.4	1.7	2.2	2.5	3.3	5.8	5.6	5.2	4.2	2.5	1.5	1.2	1.5	1.8	1.8	1.2	1	0.7	0.7	0.4	0.5	-0.2	-0.6	5.8	1.9	24
2	-1.1	-1.5	-1.6	-1.7	-2.2	-2.7	-2.5	-0.7	1.3	3.2	5.2	6.8	8.3	9.2	9.8	10.2	10.2	10.1	8.6	3.7	0.8	-0.3	0.6	2	10.2	3.2	24	
3	2.4	2.5	2.6	2.1	1.7	1.6	1.6	2.3	4.2	7.3	9.6	12.1	14.4	15.2	15.8	16.6	16.9	16.3	15.2	13.2	12.4	11.7	10.3	9.3	16.9	9.1	24	
4	8.6	7.8	6.6	5.1	2.8	0.6	0	4	6	8.2	10.5	12.3	12.4	12.3	12.4	12	11.6	10.4	9.6	9.5	9.2	8.3	7.5	6.1	12.4	8.1	24	
5	5.4	4.9	4.2	4.1	3.9	4	6.7	7.4	8.5	8.9	8.8	8.7	9.2	7	4.5	3	2.2	2.1	1.5	1.1	1.1	0.8	-1	-1.8	9.2	4.4	24	
6	-1.7	-2.2	-2.5	-2.5	-3	-3.6	-3.2	-1.4	0.6	2.1	2.4	3.7	4.6	5.6	5.7	4.7	3.5	2.6	1.4	0.6	0	-0.1	0	-0.4	5.7	0.7	24	
7	-1.1	-1.7	-2.3	-3	-4	-4.7	-5	-4.3	-2.5	-0.5	1.3	2.9	3.9	5.6	6.7	7.6	7.9	7.4	5.7	3.5	2.4	1.5	0	-1.1	7.9	1.1	24	
8	-2.3	-3	-4	-4.5	-4.5	-4.8	-5	-5.2	-5.5	-4.3	-2.8	-1	0.5	1.7	2.5	3.3	3.2	2.9	1.6	-0.3	-1.1	-1.8	-2.6	-3.4	3.3	-1.7	24	
9	-4.7	-6.3	-6.4	-8.1	-9.2	-9.8	-7.5	-5.3	-4.2	-2.4	-0.8	0.6	1.8	2.9	3.6	3.9	4.2	3.9	3.5	0.2	-2.3	-3.4	-3.7	-2.9	4.2	-2.2	24	
10	-2.8	-3.8	-4.5	-5.1	-5.5	-7	-5.3	-3.4	-1.1	0.9	3	4.8	6.1	7.1	8	8.6	8.5	8.2	7.1	4.8	3.5	2.8	2.1	1	8.6	1.6	24	
11	0.2	-0.2	-0.3	-0.4	-0.5	-1.2	-0.9	0.8	2.8	5.3	8.6	12	13.9	15.3	16.3	16.6	16.4	15.7	14	12.2	10.5	9	8.1	6.9	16.6	7.5	24	
12	5.8	4	3.4	2.7	2.2	1.4	1.6	3.1	4.3	6	8.1	8.7	9.9	10.5	10.8	12	13	13.4	13	11.9	11.5	11.2	10.5	7.1	13.4	7.8	24	
13	6.7	7.3	6.8	6.2	6.3	5.8	5.4	5.6	4.8	4.8	4	4.1	4.6	4.5	4.2	4.5	4.6	4.1	2.8	2.3	2.1	1.9	1.9	1.8	7.3	4.5	24	
14	1.9	2	2.1	2.3	2.3	2.1	1.9	1.6	1.6	1.3	1.1	1.8	2.3	2.2	1.9	1.8	1.6	0.7	-0.3	-1.8	-2.9	-3.6	-3.9	-4.3	2.3	0.7	24	
15	-5.1	-5.3	-5.7	-5.9	-6.8	-7.8	-8.2	-8	-7.6	-6.7	-5.2	-3.5	-2.3	-1.3	-0.6	0	0.3	0.5	0.6	-0.8	-2.1	-2	-2.5	-2.7	0.6	-3.7	24	
16	-2.8	-3	-3.5	-4	-4.5	-5.1	-3.8	-1.7	-0.8	0.2	1.7	2.5	3.3	3.6	4.7	4.7	5.1	5.1	3.9	2.1	1.1	0.5	0.5	0.3	5.1	0.4	24	
17	0.1	-0.5	-1.5	-2.1	-2.5	-2.6	-2.7	-3.3	-3.3	-2.1	-1.3	-0.5	0.8	1.6	2.4	2.9	3.4	3.4	2.7	0.4	-1.7	-3	-4.1	-5.5	3.4	-0.8	24	
18	-6.2	-6.9	-7.6	-8.1	-8.9	-8.8	-5.3	-1.8	1.2	3.2	4	4.8	5.7	6.1	6.7	6.9	7.1	6.9	6	4	0.6	-1.6	-2.5	-3.6	7.1	0.1	24	
19	-4.4	-5.1	-5.5	-5.7	-6.2	-6	-2.1	1.7	4.3	7.4	8.7	9.7	10	10.4	10.4	10.8	10.6	10.3	9.6	7.7	4.5	3.1	2.6	4.1	10.8	3.8	24	
20	3.4	2.5	0.9	0.2	-0.3	-0.1	1.2	2	2.9	3.2	3.9	4.1	3.9	3.7	3.4	3.4	3.5	3.5	3.5	3	2.1	1.9	2	1.7	4.1	2.5	24	
21	0.9	0.9	1.2	1.2	0.9	0.7	1.8	3.2	4.3	6.1	8	10	11.3	12.4	12.9	13.3	14.4	14.3	13.6	10.6	5.7	2.4	0.8	-0.3	14.4	6.3	24	
22	-1.3	-1.9	-1.7	-1.9	-2.3	-1.7	-0.4	3.1	7.6	11.2	13.9	15.5	17	18.6	18.8	19.3	19	18.4	17.6	16	13	11.7	9.7	8.1	19.3	9.5	24	
23	7.5	6.1	5.1	5	5	4.4	5.5	7	9.1	10.8	11.9	12.6	13.4	14.2	14.7	14.5	15.1	14.5	12.4	10.8	10.2	10.7	10	7.7	15.1	9.9	24	
24	6.7	6.5	5.6	5.7	5.4	5.1	5.1	5.1	5.7	5.7	4.7	4.8	4.4	3.6	3.3	3.5	3	2.2	1.6	1.1	0.9	0.9	0.8	0.4	6.7	3.8	24	
25	0.2	0.1	-0.2	-0.4	-0.5	-0.7	-0.9	-1	-0.7	-0.5	-0.1	0.5	1.6	2.5	3.8	3.8	3.6	3.3	3.1	3	3	2.7	2	1.5	3.8	1.2	24	
26	1	0.5	0.9	0.7	0.3	0.2	0.3	0.7	1.4	2.5	3.7	5.5	6.3	7	6.9	7	7.3	7.3	5.9	4.5	4.6	4.7	4.7	4.8	7.3	3.7	24	
27	4.7	3.6	2.8	2.9	2.9	2.9	2.8	2.4	1.9	1.9	1.3	0.8	1.2	1.6	1.6	1.4	2	2.1	1.9	1.4	0.6	0.6	0.6	0.7	4.7	1.9	24	
28	0.6	0.6	0.6	0.5	0.6	0.7	0.8	1	1.2	1.3	2.3	3.8	4.8	5.8	7.2	8.3	8.7	8.8	8.5	7	5	3.3	2.7	1.6	8.8	3.6	24	
29	0.5	-0.2	-0.9	-0.7	0.7	1.3	2.2	3.9	7.3	7.9	7.8	9	9.9	11.1	12.1	12.4	13	13	12.2	10.4	8.2	6.4	6.1	4.3	13.0	6.6	24	
30	2.9	1.6	0.1	-0.5	0	1.1	5.5	7.6	8.8	9.6	10.9	11.8	12.4	13.2	13.3	13.9	13.9	13.7	12.6	10.1	8.4	7.9	7.5	6.1	13.9	8.0	24	
HOURLY MAX		8.6	7.8	6.8	6.2	6.3	5.8	6.7	7.6	9.1	11.2	13.9	15.5	17.0	18.6	18.8	19.3	19.0	18.4	17.6	16.0	13.0	11.7	10.5	9.3			
HOURLY AVG		0.9	0.4	-0.1	-0.5	-0.8	-1.0	-0.2	1.1	2.3	3.6	4.6	5.7	6.6	7.2	7.5	7.8	7.8	7.5	6.7	5.1	3.7	3.0	2.4	1.6			

STATUS FLAG CODES

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

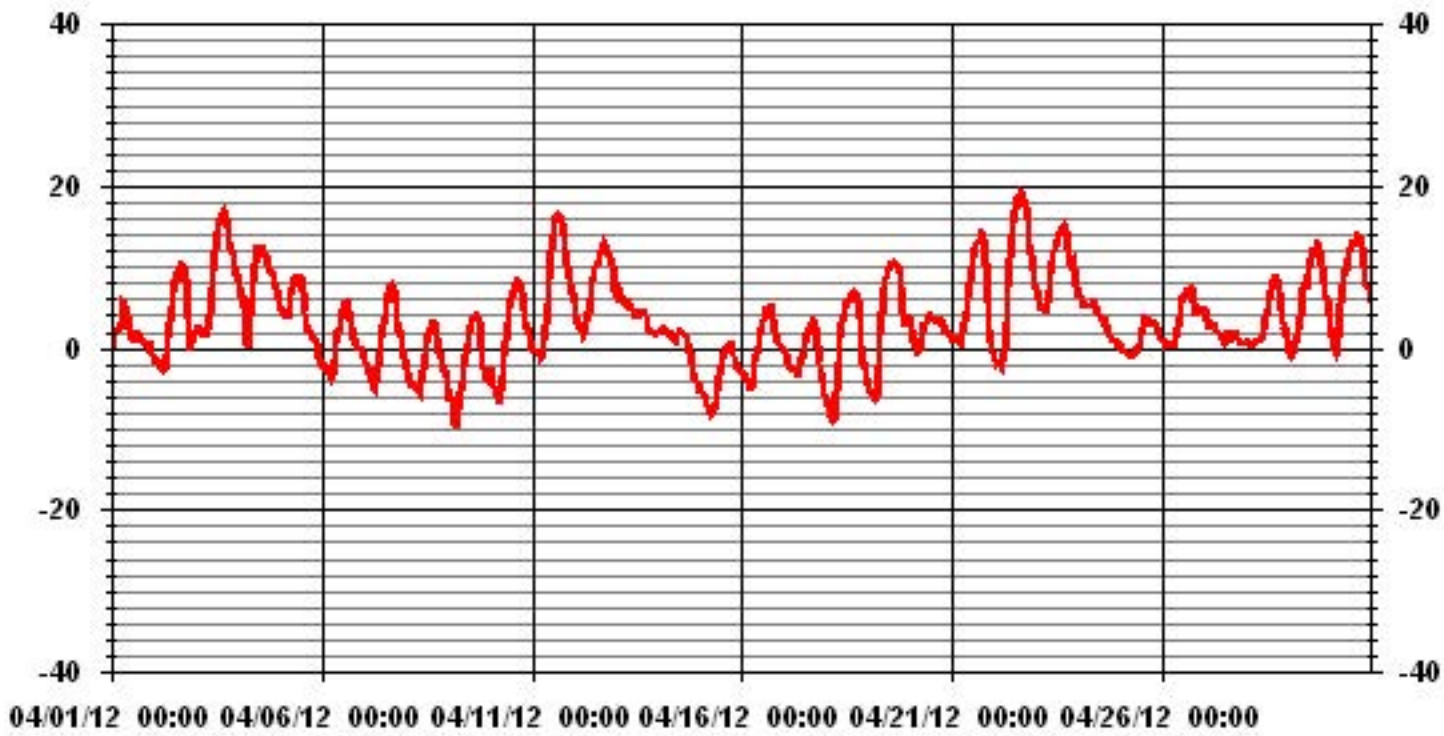
24 HOUR AVERAGES FOR APRIL 2012



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-9.8 °C	@ HOUR(S)	5	ON DAY(S)	9
MAXIMUM 1-HR AVERAGE:	19.3 °C	@ HOUR(S)	15	ON DAY(S)	22
MAXIMUM 24-HR AVERAGE:	9.9 °C			ON DAY(S)	23
				VAR-VARIOUS	
CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	720 HRS		
		AMD OPERATION UPTIME:	100.0 %		
STANDARD DEVIATION:	5.44	MONTHLY AVERAGE:	3.44 °C		

01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

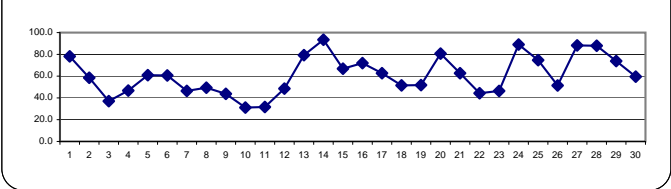
RELATIVE HUMIDITY hourly averages (%)

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	DAILY MAX.	24-HOUR AVG.	RDGS
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																													
1		72	66	64	62	64	58	49	55	60	64	83	93	96	96	96	94	94	90	88	85	88	85	87	87	96	78.2	24	
2		88	89	87	86	87	88	85	77	70	63	59	52	43	35	31	25	25	26	27	43	55	63	54	46	89	58.5	24	
3		44	44	44	48	53	57	59	58	54	45	38	31	25	24	24	22	21	23	24	27	29	30	32	33	59	37.0	24	
4		36	39	44	49	58	68	71	58	50	44	39	36	36	36	37	39	40	44	46	46	47	50	52	57	71	46.8	24	
5		61	62	64	66	68	69	56	54	52	51	49	49	47	56	62	64	62	60	62	63	64	66	75	79	79	60.9	24	
6		79	83	85	83	84	86	85	79	70	59	55	47	41	38	36	40	44	46	49	52	51	52	54	57	86	60.6	24	
7		60	62	63	66	71	71	71	67	58	48	42	37	35	30	27	26	24	23	28	31	35	39	46	54	71	46.4	24	
8		58	59	63	65	65	66	67	66	62	56	50	44	41	37	35	32	32	32	36	38	40	44	47	50	67	49.4	24	
9		56	65	64	73	78	81	66	43	36	30	25	25	24	23	24	24	24	24	26	37	44	54	56	48	81	43.8	24	
10		43	44	45	45	45	55	42	37	33	31	27	25	22	20	18	17	17	18	20	25	27	28	30	33	55	31.1	24	
11		37	39	40	42	45	49	50	44	40	34	27	21	19	19	18	19	19	20	23	26	29	31	32	37	50	31.7	24	
12		43	51	54	57	60	64	64	58	54	49	44	42	40	40	40	39	39	37	41	48	44	41	42	74	74	48.5	24	
13		75	49	47	49	50	53	58	67	77	78	88	92	88	86	91	89	89	92	94	97	98	98	99	99	99	79.3	24	
14		99	100	100	100	100	100	100	100	99	98	98	96	91	89	89	89	87	88	84	85	86	88	100	100	93.4	24		
15		84	84	80	78	77	79	79	77	74	70	68	64	60	57	53	49	48	45	41	53	64	65	76	79	84	66.8	24	
16		79	81	83	86	88	90	85	76	71	62	53	51	49	48	46	47	47	50	64	85	93	97	98	98	98	72.0	24	
17		98	95	90	89	88	87	86	80	67	60	55	50	45	41	36	33	30	27	30	41	57	67	73	80	98	62.7	24	
18		82	84	86	86	87	86	75	57	44	35	31	29	27	29	27	25	24	25	26	32	46	60	63	70	87	51.5	24	
19		76	80	81	82	83	83	68	48	44	39	33	29	28	28	31	32	35	37	39	45	54	59	58	50	83	51.8	24	
20		51	52	59	68	78	82	75	73	70	70	68	74	82	88	90	91	92	93	93	94	97	98	99	99	99	80.7	24	
21		99	99	99	97	96	90	80	74	67	62	60	53	48	42	36	33	27	25	25	33	51	64	70	75	99	62.7	24	
22		80	82	81	82	84	82	78	61	40	31	22	20	17	16	16	17	19	20	24	28	38	38	41	46	84	44.3	24	
23		46	50	54	55	55	59	55	51	47	43	39	39	36	35	34	35	35	37	42	47	50	49	53	67	67	46.4	24	
24		78	78	84	85	87	92	92	94	93	92	94	94	91	93	94	91	90	90	89	90	89	86	85	86	94	89.0	24	
25		83	83	86	84	81	82	83	83	81	80	79	77	72	68	64	65	64	66	66	68	69	68	71	70	86	74.7	24	
26		68	68	64	62	61	63	62	61	57	53	50	42	38	37	35	33	33	33	43	55	54	53	54	55	68	51.4	24	
27		61	75	83	81	78	74	73	80	85	86	93	95	95	94	95	95	95	96	96	96	97	98	98	98	98	88.2	24	
28		98	98	98	98	98	98	98	97	96	96	92	87	85	84	78	72	70	67	68	72	83	91	92	94	98	87.9	24	
29		95	95	96	96	96	95	92	84	66	63	65	61	61	58	54	52	50	51	56	65	74	80	80	88	96	73.9	24	
30		92	95	96	96	97	95	80	73	66	64	52	46	42	36	30	30	28	24	25	34	49	55	58	66	97	59.5	24	
HOURLY MAX		99	100	100	100	100	100	100	99	98	98	96	96	96	96	95	95	96	96	96	97	98	98	99	99				
HOURLY AVG		71	72	73	74	75	77	73	68	63	59	56	53	51	49	48	47	47	47	49	55	60	63	65	69				

STATUS FLAG CODES

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

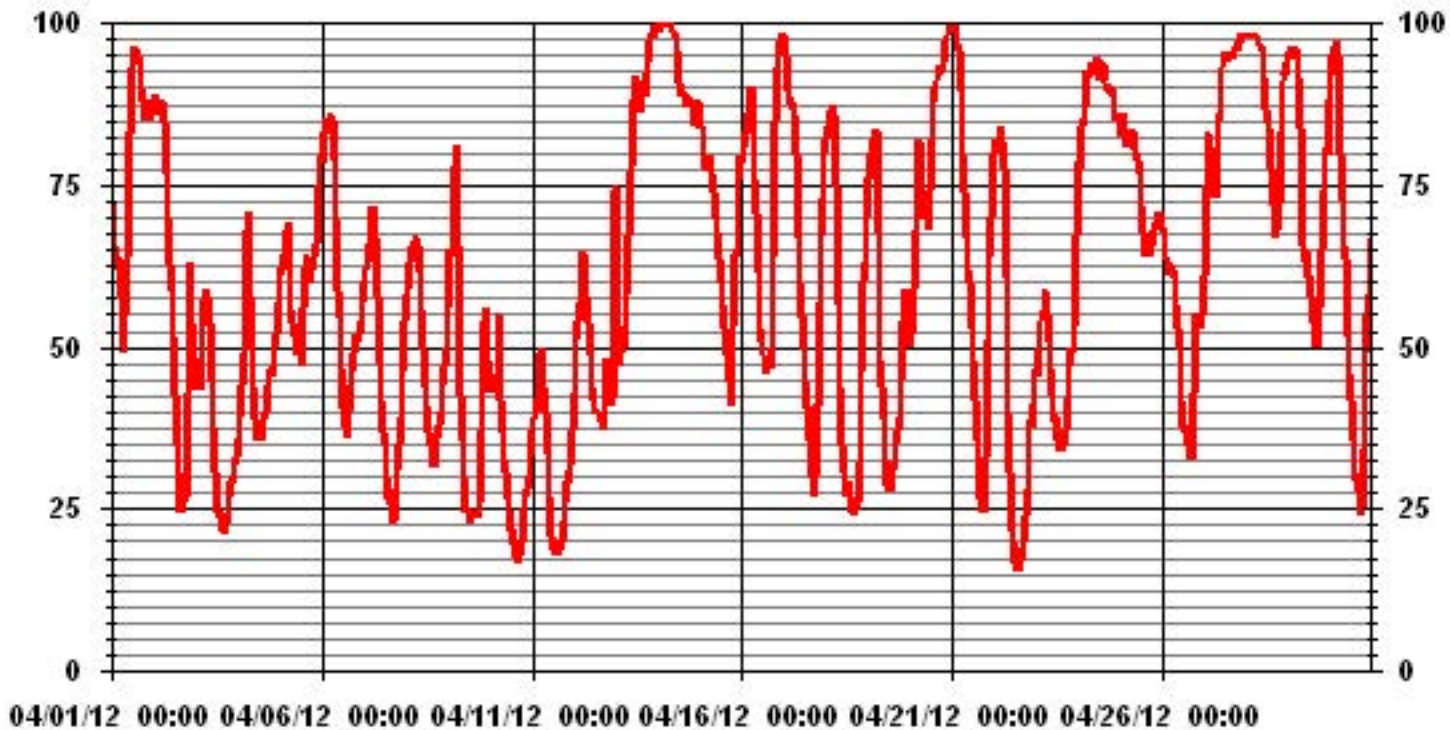
24 HOUR AVERAGES FOR APRIL 2012



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	100	%	@ HOUR(S)	VAR	ON DAY(S)	14
MAXIMUM 24-HR AVERAGE:	93.4	%			ON DAY(S)	14
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS	
STANDARD DEVIATION:	23.62		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	60.97	%	

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

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

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00			
DAY																											
1	2	2.8	4.2	3.1	4.8	7.2	11.7	6.4	4.4	8.4	9.7	9.2	6.9	6.9	6.7	11.9	13	15.8	14.9	13.8	13.1	11.6	11.6	10.5	15.8	4.9	24
2	7.9	7.3	7.5	7.4	7.6	5.7	5.4	7.6	8.5	8.2	8.8	10.3	10.2	11	10.2	10.1	7.9	6.1	3.7	1.6	2.5	2.8	4.6	6.5	11	5.7	24
3	7.8	9.1	9.3	12	12	12.8	14.7	14.9	14.1	13.7	14	13.2	14.3	14.4	11.1	9.9	12.6	12.9	11.9	9.9	11.6	10.7	7.8	8.2	14.9	11.7	24
4	10.3	11.4	9.5	3.8	2.2	0	1	1.1	4	5.6	8	7.6	10	8.9	11.2	12.7	10.5	9.1	8.4	10.5	8.4	8.3	9	8.7	12.7	4.6	24
5	9.9	10.8	11	10.9	10.8	6.5	11.1	9.7	15.1	9.4	12.9	10	13.9	18.6	17.7	14.3	13.5	11.5	9.1	4.8	2.6	1	1.5	2	18.6	9.9	24
6	3.3	2.4	1.6	4.4	5.3	3.7	3.4	5.3	7.7	10.4	11.3	13.2	13.4	13.9	15.2	15.9	13.9	12.4	11.9	11	10.4	9.7	9.3	10	15.9	9.1	24
7	11.8	12.3	10.7	8.9	7.3	10.5	10.7	13.5	14.3	13.3	12.5	13.5	14	12.8	14.8	15.3	15.9	17.3	12.4	12	11.4	10.2	6.8	7.2	17.3	12.1	24
8	7.6	6.6	3.4	6.5	8.2	8.2	10.4	14	14.4	14.1	15.6	15.6	15.1	15.9	15.3	14.7	14.3	13.6	7.6	7.4	7.8	5.1	4.1	2.9	15.9	10.4	24
9	2.4	1.5	1.3	1	0.9	0.3	1.7	6.2	5.7	4.6	6.4	6.4	6.2	5.1	7.2	9.3	8.4	7.9	3.8	0.1	0.9	1.3	2.5	3.6	9.3	3.9	24
10	5.1	3.2	3.9	4.7	3.4	0.9	7.4	7.3	7	8.4	8.2	8.1	9.1	9.1	8.5	7.8	10.5	12.3	9.8	5.9	7.1	7.8	9	8.6	12.3	7.2	24
11	7.9	8.4	8.3	7.1	6.7	7	6.7	9	9.3	7.7	10.5	15.3	18.3	17.5	15.7	16.4	15.9	12.5	9	7.2	5.5	7	7.4	8	18.3	10.2	24
12	6.9	8.1	9.7	11.5	10.9	9.8	8.4	10.2	11.2	11.3	11.7	13.5	14.8	14.2	13	14	12	12.9	14.7	16	12.3	13.2	13.3	6.6	16.0	11.7	24
13	3.9	8.8	7.6	9.3	7.7	9.8	8.7	12.7	12.5	12.6	10.7	9.4	10.2	11.6	10.8	9.9	9.3	7.6	4.9	5.3	5.1	4.2	3.6	3.7	12.7	8.3	24
14	3.3	3.4	2.4	2.1	1.2	2.9	4.3	4.2	4.6	5.9	6.5	7.9	9.7	10.8	12.9	10.8	12.3	11.3	11.7	13.3	14.9	12.2	12.4	11.6	14.9	8.0	24
15	14.4	11.7	10.8	10.8	10.7	8.2	8.9	9.2	8.5	9	7	7	5.3	3.7	1.9	3.5	2.9	2	2.1	1	1.3	5.8	4.2	3.4	14.4	6.4	24
16	3	1.6	1.7	1.3	1.7	1.7	2.9	4	6.6	7.1	5.9	7.6	6.7	7.5	5.1	4.3	5.1	4	4.6	2.4	1.7	3.5	3.7	5.3	7.6	4.1	24
17	7.2	10.1	9.9	8.3	6.4	7.2	7.9	8.3	7.3	6.7	5.7	5.6	2.4	3.7	2.8	4.9	4.8	5.9	4.3	2	0.7	0.7	0.7	0.7	10.1	5.2	24
18	0.8	0.5	0.6	0.2	0.8	0.2	0.8	2.6	3	3.5	5.4	6.2	5.5	9.5	11.6	9.4	8.1	7.8	7.6	2.8	0.9	0.2	0.7	0.4	11.6	3.7	24
19	0.4	0.4	1.1	0.9	0.9	1.5	1.5	4	2.9	1.6	1.3	3.5	3.9	4.4	6.6	4.4	6.3	4.6	2.8	2.3	2.4	1.9	4.2	6.3	6.6	2.9	24
20	3.8	3	2.2	7.6	7.4	5.9	6.9	9.8	11.5	15.7	15.1	14.7	9.7	6.3	5.4	5.7	5.7	5.1	3.3	1.8	1.5	1.5	2.4	1.1	15.7	6.4	24
21	2.1	3.6	4.3	3.8	4.9	6.2	7.6	7.1	10.3	11.4	13.5	12.2	13.4	12.7	12.4	11.3	10.7	10.8	8.7	2.4	1.1	1.3	0.6	1.3	13.5	7.2	24
22	1.6	0.6	0.7	1	0.6	0.4	0.4	2.8	2.2	3	4.4	7.3	6.4	7.4	10.4	6.4	9	7.2	7	4	2.1	4.7	7.5	6.4	10.4	4.3	24
23	5	4.5	4.7	5.6	5.9	4.7	5.8	6.6	5.8	4	6.4	6.5	8.5	9	9.7	8.9	9.8	8.4	6.4	4.2	4.1	7.9	6.1	2.6	9.8	6.3	24
24	3.7	3.7	5.2	7.8	9	7.6	5.9	5.2	8.7	10.1	10	12.3	12.5	10.7	10.3	9.8	8.8	10.2	10.5	10.3	9.5	8.7	8.5	9.7	12.5	8.7	24
25	12	8.1	7.9	8.5	7.6	6.7	7.3	8.4	9	11.4	11.4	11.2	11.3	11.8	11.8	12.6	10.6	11.8	11.1	11.2	9.8	11.3	10.6	9.8	12.6	10.1	24
26	8.4	8.8	7.7	10.3	11.4	10.6	11.8	11.5	14.9	13.9	14.4	16.4	15.2	15.4	16.8	15.9	14.6	14.5	15	13.8	14.7	10.7	10.5	10.1	16.8	12.8	24
27	11.6	12.3	12.3	12.8	14.6	11.5	11.6	10.4	8.9	9.3	8.7	7.5	7.8	8.2	5.9	5.3	5.8	4.2	3.8	3.3	2.8	3	1.7	1.8	14.6	7.7	24
28	1.6	1.2	0.9	2.6	1.5	1.5	1.3	1.3	2.1	3.6	3.9	3.5	3.6	4.3	6.2	5.9	5.7	6.1	4.7	3.1	1.3	1.1	1.8	0.6	6.2	2.9	24
29	1	0.5	1	1.9	3.9	2.8	1.9	2.3	4.1	5.8	5.6	0.9	3.6	2.9	7.2	5.9	3.8	5.9	4.2	2.6	0.9	4	2.8	0.7	7.2	3.2	24
30	2.1	1.1	2.3	2.3	1.6	0.1	2.6	4.2	7.1	9.5	8	8.7	8.2	8	9	7.6	8	8.5	7.6	6	4.7	5.8	5.9	6.3	9.5	5.6	24
HOURLY MAX	14.4	12.3	12.3	12.8	14.6	12.8	14.7	14.9	15.1	15.7	15.6	16.4	18.3	18.6	17.7	16.4	15.9	17.3	15.0	16.0	14.9	13.2	13.3	11.6			
HOURLY AVG	5.6	5.6	5.5	5.9	5.9	5.4	6.4	7.3	8.2	8.6	9.1	9.5	9.7	9.9	10.1	9.8	9.7	9.3	7.9	6.4	5.8	5.9	5.8	5.5			

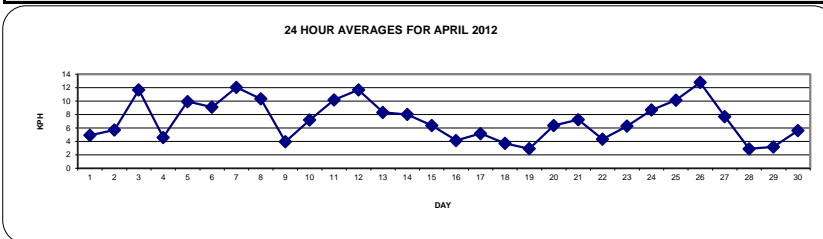
STATUS FLAG CODES

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

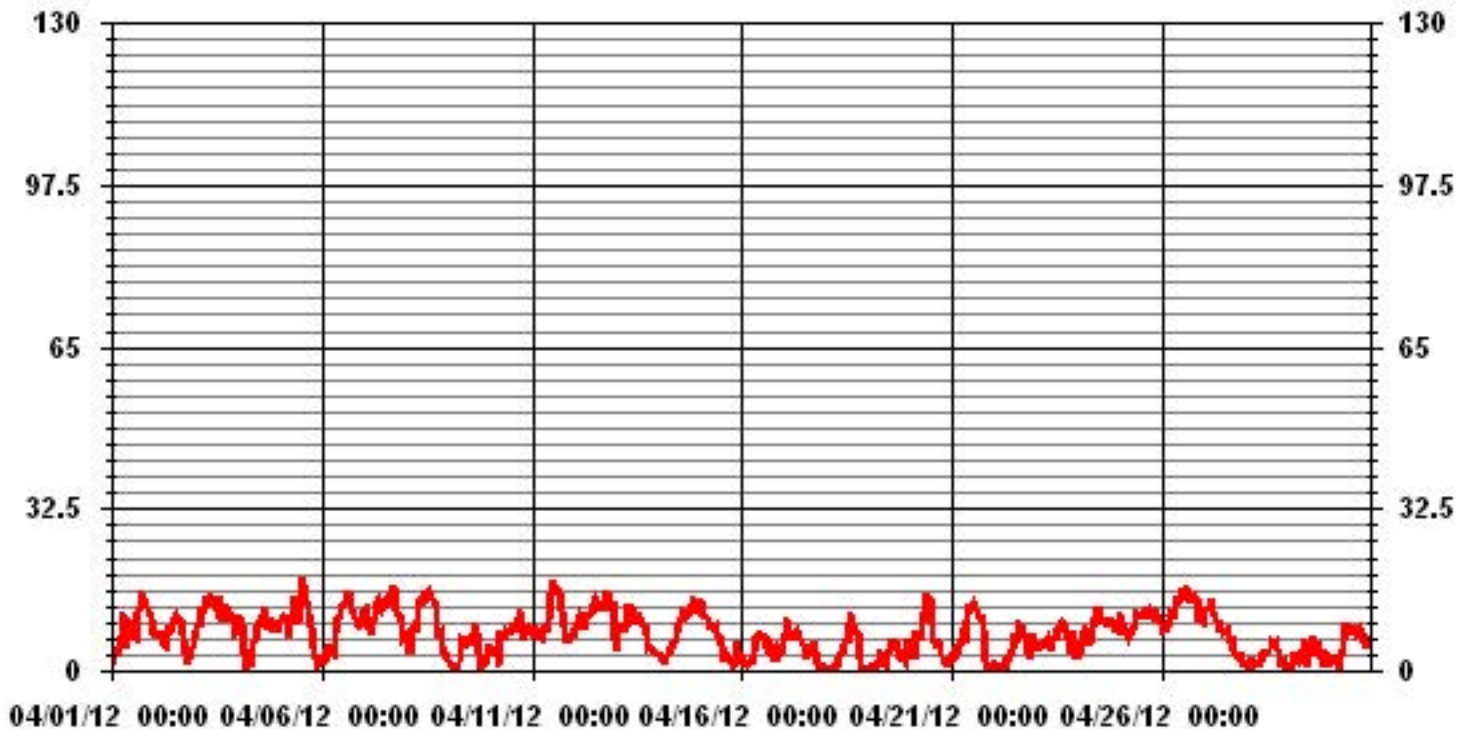
LAST CALIBRATION: December 16, 2010

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	18.6	KPH	@ HOUR(S)	13	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	12.8	KPH			ON DAY(S)	26
CALMS (≤ 0 KPH)	0.94	%	OPERATIONAL TIME:	720	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	4.28		MONTHLY AVERAGE:	7.45	KPH	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

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		4.8	5.2	6.2	5.8	7.9	14.4	17.9	13.1	9.1	12.8	15.3	15.4	11.5	9.9	11.1	18.4	21.6	25.2	22	20	18.5	19.2	16	16	25.2	
2		10.7	10.2	10.9	11.2	10.7	9.5	8.2	12.3	14	12.4	16.3	18.3	17.5	17.9	16.6	15.3	17.2	12.5	9.7	2.8	3.6	3.9	5.9	9.6	18.3	
3		10.7	12.3	13.3	14.4	14.6	16.1	19.9	19.3	21.6	19.8	20.9	18.7	28.2	24.1	23.1	17.6	20	19.5	17.7	13.5	16.8	14.2	12.4	12.7	28.2	
4		14.1	14.5	16.3	8.2	5.6	3.3	4.2	3.7	7.8	12.2	15.8	15.9	15.5	13.9	18.1	18.5	18	14.4	14.2	15.2	12.3	14.8	14.6	13.1	18.5	
5		13.4	16.2	16.1	17.5	14.4	9.6	18	17.2	25.3	18.4	25.1	22.4	23.9	25.3	26.9	22.6	20.2	20.3	16.5	9.6	5.4	2.3	2.9	4.8	26.9	
6		6.1	4	3.1	8.1	8	8	6.6	9.2	12.8	17.8	18	21	22.4	23.4	26.2	24.9	20.7	18.5	17.9	17.6	21.9	18.8	15	16.5	26.2	
7		17.7	16.4	16.2	13.8	13.5	15.3	17.4	19	21.1	20.4	18.8	24.8	23.6	24.2	23.9	24.3	23.5	24.2	19.3	17.9	17.6	16.7	15.4	14.3	24.8	
8		15.7	12.4	6.5	14.1	13.8	13.8	14.8	20.2	23	23.9	24.3	25.7	23.4	26.5	25.6	21.3	22.7	18.8	14.1	11.7	11.2	7.5	6.7	6.5	26.5	
9		3.7	3.7	4.5	2.8	2.8	1.5	5.1	10.6	11.5	9.8	12.3	13.8	12.3	13	13.1	15.6	13	13.6	9.1	1.6	2.1	3.3	4.4	7.7	15.6	
10		8.4	7.1	7.6	7.3	8.1	5.4	13.5	11.5	12.7	14.9	14.6	16.3	14.8	18.6	16.1	16.4	18.7	18.6	15.7	8.2	10	11.3	11.9	11.9	18.7	
11		10.6	11.2	11.3	11.1	10.2	9.7	9.7	13.8	15.7	12.4	16.7	23.6	27.4	26.6	22.2	23.9	21.9	21.2	18.6	13.2	9.1	10.8	11.7	14.1	27.4	
12		11.6	13	14.5	15.8	16.1	13.7	15	17.1	17.3	18.5	20.4	24.4	22.4	24.7	21.7	24.6	18.6	23.5	25.1	25.4	19.6	22.3	24.1	19.7	25.4	
13		8.8	13.2	12.8	15.6	12	14.3	14.3	19.5	17.6	19.1	19	14.2	16.6	21.2	18.7	15.8	15.3	12.1	11.2	8.2	7.3	6.8	5.6	5.7	21.2	
14		6.2	5.6	5.5	4.6	5	5	7.3	7.3	8.3	10.6	10.5	13.6	14.9	16.2	18.7	16.6	19.6	20.2	19.1	20.2	23.1	17.4	20.7	18.5	23.1	
15		25.7	17.7	17.7	15.9	14.5	13.8	14.5	15.6	12.4	13	13.1	15.2	12	10.6	10.2	9.4	9.1	7.6	6.2	3	4.2	8.8	9.1	6.2	25.7	
16		6.5	4.8	3.6	3.3	3.1	3.3	6	9	11	11.6	14.5	12.6	12.3	13.4	15.4	10.6	12.3	9.3	9.9	5.6	3.7	7.1	5.5	9.1	15.4	
17		11.1	19	16.8	13.8	12	13.2	13.2	12.6	11	9.9	10.8	10.7	8.3	10.4	10.2	9.6	14.7	11.9	8.2	5.6	1.3	2.2	2.4	3	19	
18		2.5	1.3	1.7	3.1	2.9	1.8	3.6	4.5	6.3	12.7	13.3	15.7	14.4	15.3	19.6	14.6	12.7	12.4	12.4	6.3	2.2	1.9	1.8	2.2	19.6	
19		1.2	1.6	2.8	2.2	2.5	4.1	3.3	8.2	7.5	8.9	12	10.6	11.9	13.1	14.6	11.9	10.9	8.3	6.9	4.3	3.7	3.9	6.7	9.6	14.6	
20		8.3	6.4	5.3	11.8	10.4	10.1	12.1	14.4	17.5	21.3	23.4	21.3	15	12.3	11	9.8	8.6	7.3	6.1	4.4	4.8	4.3	5.5	4.1	23.4	
21		4.5	7.7	6.8	6.2	7	8.1	10	10.5	16	20.8	26.3	19.6	24.2	21.9	21.6	21.7	16.9	16	14.8	9.8	2.9	3	2.1	4	26.3	
22		5.1	3.4	2.6	2.6	3.3	1.8	3.5	4.8	4.7	6.6	9.9	14.6	15	19.1	23.4	16.3	21.9	13.6	12.3	7.7	4.3	9.1	12.2	9.4	23.4	
23		8.9	7.1	8.3	8.7	9	8.6	8.4	9.7	8.5	8.5	10.5	11.7	13.8	13.2	15.9	13.1	14.5	13.7	9.2	7.8	8.6	12.5	10.9	7.4	15.9	
24		6.6	6.4	8.3	15.1	14.5	11.4	12.4	10.9	13.9	17.1	14.2	18.5	20.2	15.6	16.4	13.9	13.3	16.1	15.5	14.9	17.3	13.5	15.3	15	20.2	
25		17.4	14.2	13.1	14.5	11.2	9.8	11	13.6	15.7	18.2	15.9	17.9	18.7	18.2	20	20.4	18.1	19.6	18.6	17.6	16.9	19	17.4	15	20.4	
26		13.2	14.1	12.7	17.9	18.3	17.7	17	19.5	21.4	20.6	24.2	23.6	22.6	24.7	24.4	24.4	24.6	20.3	22.5	20.1	22	16.1	17.1	16.5	24.7	
27		17.5	17.3	18.4	19.7	24	18.1	18.7	16.2	14.9	14.4	15.7	13.3	11.4	13.6	9.6	8.4	8.4	7.9	6.8	5.9	4.2	5	2.9	3.2	24	
28		3.2	2.2	2.1	5.2	3.1	2.5	2.6	4.2	7.9	5.7	8.1	7.7	8.2	9.6	13.6	10.8	11.6	10.6	8.4	6.9	3.3	4.4	5.6	3.1	13.6	
29		2.2	2.5	3.2	4.8	7	5.8	5.7	5.9	8.7	10.2	10.1	6.4	7.7	10	12.8	13.1	12.8	13	10.6	6.8	2.3	10.9	5.4	4.8	13.1	
30		3.9	4.1	4.5	4.2	4	2.7	5.7	7.6	12.3	13.9	12.6	13.9	13.4	14.7	15.5	14.1	14.6	12.8	11.1	12.3	8.2	9.6	9.7	9.2	15.5	
PEAK		25.7	19.0	18.4	19.7	24.0	18.1	19.9	20.2	25.3	23.9	26.3	25.7	28.2	26.6	26.9	24.9	24.6	25.2	25.1	25.4	23.1	22.3	24.1	19.7		

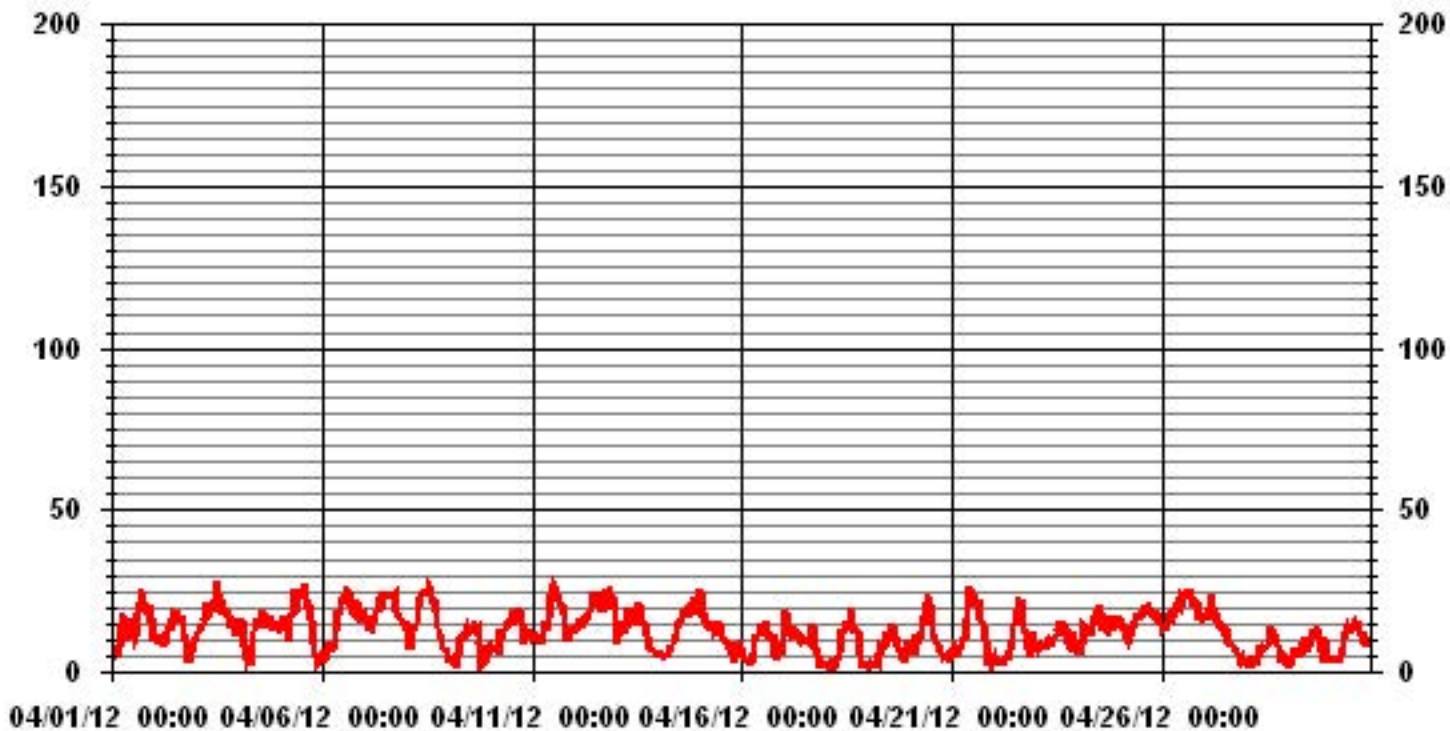
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	28.2	KPH	@ HOUR(S)	13
			ON DAY(S)	3

01 Hour Averages



LICA
WSP / WD Joint Frequency Distribution (Percent)

April 2012

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	1.94	4.16	3.88	2.77	4.02	1.80	3.47	2.63	1.52	2.63	4.02	2.36	1.11	.27	.41	1.11	38.19
< 12.0	2.36	6.52	6.66	2.63	7.77	3.61	4.58	.69	.27	.13	1.25	2.22	1.66	1.94	1.66	.55	44.58
< 20.0	.55	.83	.13	.41	3.61	.41	3.47	.13	.00	.13	.27	.27	.83	2.50	1.11	1.52	16.25
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	4.86	11.52	10.69	5.83	15.41	5.83	11.52	3.47	1.80	2.91	5.55	4.86	3.61	4.72	3.19	3.19	

Calm : .97 %

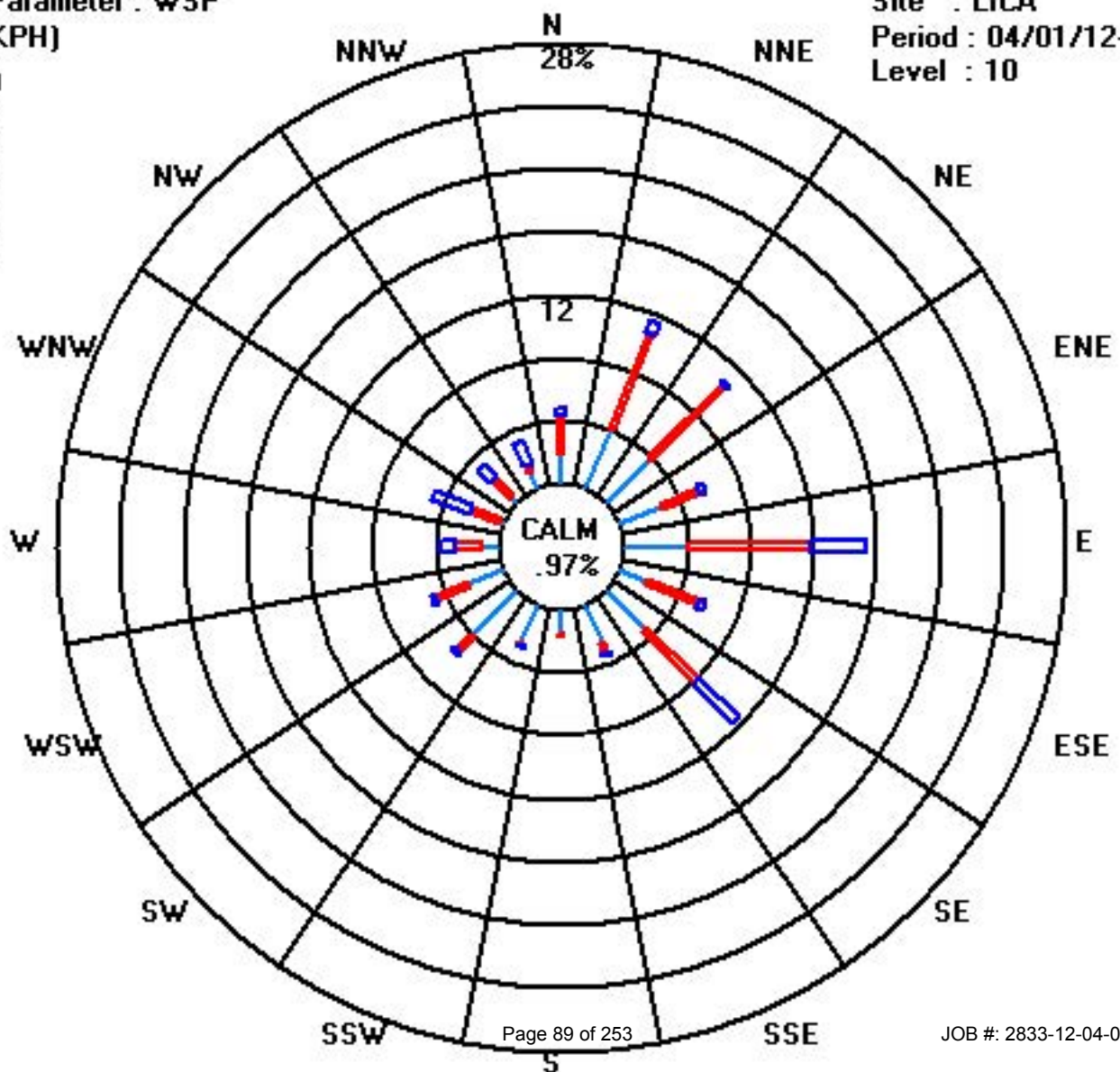
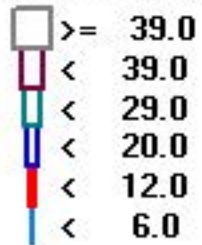
Total # Operational Hours : 720

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	14	30	28	20	29	13	25	19	11	19	29	17	8	2	3	8	275
< 12.0	17	47	48	19	56	26	33	5	2	1	9	16	12	14	12	4	321
< 20.0	4	6	1	3	26	3	25	1		1	2	2	6	18	8	11	117
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	35	83	77	42	111	42	83	25	13	21	40	35	26	34	23	23	

Calm : .97 %

Total # Operational Hours : 720



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

VECTOR WIND DIRECTION (WD) 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		37	35	41	31	29	44	58	39	15	22	28	31	357	333	296	284	286	283	284	283	265	272	253	253	315	NW	24			
2		245	247	253	259	250	227	231	240	253	263	260	258	265	248	271	263	261	235	222	130	115	113	123	127	246	WSW	24			
3		129	129	127	128	127	128	129	131	130	131	131	131	143	142	147	153	147	139	135	129	130	128	124	124	133	SE	24			
4		124	128	130	134	146	205	247	145	221	306	334	352	351	15	11	9	19	19	15	5	7	7	21	34	22	NNE	24			
5		33	32	38	36	35	44	88	104	133	179	212	193	221	232	239	243	267	282	293	292	261	174	167	193	230	SW	24			
6		202	163	155	225	239	232	229	221	233	242	259	266	271	268	284	289	288	294	286	299	311	308	305	311	276	W	24			
7		309	306	313	313	291	298	299	306	308	300	285	289	283	278	286	289	296	322	330	322	315	314	343	353	304	WNW	24			
8		2	341	321	303	314	311	315	319	338	337	333	331	331	342	345	348	346	341	12	5	351	344	2	351	338	NNW	24			
9		333	27	43	204	256	248	59	42	28	32	43	40	57	37	47	66	55	81	60	293	123	84	85	94	53	NE	24			
10		81	106	108	86	90	114	126	106	116	119	122	113	104	115	132	141	133	130	130	127	128	129	127	129	121	ESE	24			
11		127	125	123	116	110	98	96	116	120	105	109	125	130	128	132	130	131	124	115	120	98	99	110	104	120	ESE	24			
12		91	81	84	87	85	84	81	88	89	94	86	84	86	85	83	82	78	76	102	126	100	95	103	95	90	E	24			
13		58	72	62	59	50	51	57	80	78	84	79	74	75	84	83	80	77	72	21	38	36	32	28	28	67	ENE	24			
14		27	22	8	11	334	353	333	344	344	1	6	14	20	13	8	12	14	16	23	23	20	17	15	14	13	NNR	24			
15		16	24	38	27	23	26	15	16	14	17	26	24	32	55	32	70	345	220	279	83	140	134	194	205	27	NNR	24			
16		208	183	181	205	215	195	185	205	230	231	204	217	224	230	223	181	160	161	180	196	227	227	222	357	210	SSW	24			
17		7	9	9	9	24	42	34	25	27	29	54	66	73	36	42	79	49	37	101	130	97	70	72	235	35	NE	24			
18		88	76	78	263	261	342	32	59	74	112	127	109	95	35	11	23	36	44	50	51	68	99	94	151	54	NE	24			
19		48	38	80	76	87	102	50	131	147	132	182	243	192	261	249	246	244	247	164	152	138	124	135	136	185	S	24			
20		144	136	124	129	130	124	126	132	131	132	128	131	123	125	95	48	20	12	4	19	281	247	236	208	121	ESE	24			
21		214	223	230	220	232	243	254	260	266	283	309	304	303	294	292	293	284	281	287	281	163	230	98	114	279	W	24			
22		228	255	84	165	236	74	6	61	74	80	84	102	137	161	152	180	237	231	232	227	209	352	27	35	158	SSE	24			
23		25	31	28	26	29	24	25	37	16	55	75	62	52	44	43	42	47	39	36	43	49	60	48	347	41	NE	24			
24		33	31	43	24	22	30	43	17	26	18	27	7	7	16	15	25	20	21	28	40	45	46	44	45	27	NNE	24			
25		49	50	48	63	64	78	82	72	83	91	87	87	93	98	96	95	94	91	94	95	97	101	98	96	85	E	24			
26		81	90	114	91	97	99	92	98	93	96	95	93	95	100	96	95	98	104	101	94	96	98	94	103	96	E	24			
27		105	96	90	92	92	95	90	92	86	89	89	91	90	90	85	76	82	86	90	81	54	60	49	355	89	E	24			
28		10	1	352	301	305	266	249	241	201	248	249	234	216	147	143	159	170	165	160	162	196	178	145	113	187	S	24			
29		92	116	135	126	138	138	132	208	227	230	238	183	258	113	120	127	164	205	178	153	152	22	50	200	167	SSE	24			
30		273	147	254	238	244	304	37	48	39	46	45	35	27	45	59	35	49	50	40	39	61	83	89	92	49	NE	24			
HOURLY AVG		333	341	352	313	334	353	333	344	344	337	334	352	357	342	345	348	346	341	330	322	351	352	343	357						

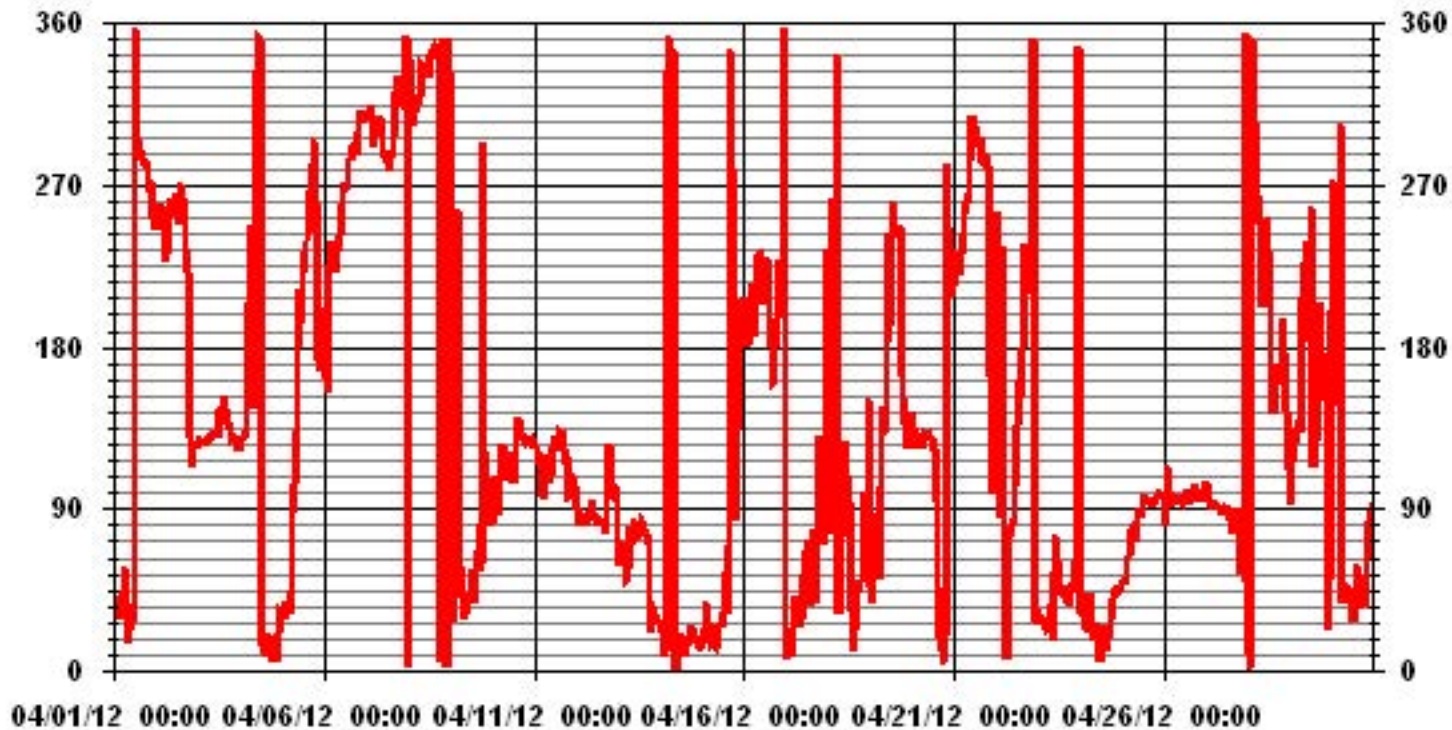
STATUS FLAG CODES

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:	December 16, 2010
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	720	HRS
STANDARD DEVIATION:	98.99		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	63	DEG

01 Hour Averages



— LICA WDR DEG

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

APRIL 2012

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	26	18	26	19	22	17	40	25	18	20	21	17	17	17	18	19	18	19	19	18	19	16	15
2	16	14	16	16	15	17	18	20	22	22	26	27	27	25	27	25	25	31	21	17	10	13	11	10
3	13	14	15	11	11	11	12	12	14	14	16	19	24	25	33	32	28	18	13	13	13	13	16	15
4	14	13	12	27	43	66	51	61	25	22	24	32	22	19	18	17	18	19	18	15	15	26	20	20
5	19	19	19	19	18	19	20	20	17	37	30	36	30	20	20	20	20	20	16	17	26	46	19	30
6	23	30	45	24	16	30	27	21	22	22	23	24	27	27	24	20	21	18	18	16	14	15	14	15
7	14	14	15	14	15	14	14	15	18	20	23	24	23	24	23	22	21	17	14	13	12	12	16	19
8	20	25	14	17	13	14	14	15	19	21	19	21	21	19	22	21	21	17	21	22	15	15	17	22
9	18	22	31	34	41	57	25	20	32	44	30	38	37	47	28	24	23	21	27	47	26	33	19	21
10	21	38	24	17	36	76	17	22	22	25	26	33	27	30	38	38	25	15	13	12	13	13	13	12
11	14	15	17	20	21	20	20	20	21	25	24	21	18	18	20	17	18	19	21	20	21	21	23	24
12	23	19	16	16	17	17	20	22	21	23	24	22	22	21	21	20	21	20	19	18	22	22	22	21
13	18	19	18	16	20	15	17	20	19	19	19	19	20	19	21	20	22	23	20	20	18	20	21	24
14	24	23	25	36	47	22	15	17	18	17	22	19	18	17	17	18	17	18	20	20	22	19	17	19
15	18	20	19	20	21	21	18	20	22	20	29	31	44	57	53	51	45	58	39	53	42	13	36	34
16	31	41	34	37	22	36	32	36	24	26	44	30	33	28	39	33	43	42	33	32	31	19	19	28
17	18	18	17	22	22	21	21	20	20	22	28	32	69	62	60	43	48	30	25	40	26	38	33	42
18	43	31	36	46	31	56	49	30	39	45	43	42	39	24	22	22	21	19	14	19	40	51	41	58
19	52	51	39	46	55	27	28	20	54	61	73	56	51	48	37	46	30	24	24	25	26	31	15	14
20	35	36	32	14	12	17	18	14	17	15	18	16	21	20	22	22	18	17	18	34	50	55	26	45
21	34	16	17	19	18	14	16	19	19	22	19	22	22	26	20	21	26	22	22	23	23	34	34	38
22	53	72	53	38	67	51	50	25	27	43	39	29	44	42	29	41	31	26	19	17	22	28	19	20
23	24	22	21	19	20	23	20	19	20	27	24	24	22	24	22	19	17	19	18	20	17	15	18	32
24	29	26	18	20	19	20	20	36	20	18	20	17	27	18	17	20	19	19	19	19	18	17	17	17
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26	21	22	23	19	23	22	21	23	21	22	22	23	23	23	22	21	22	22	22	21	21	22	20	22
27	24	19	19	21	18	22	20	20	19	20	21	33	21	19	21	20	20	23	23	18	14	16	17	17
28	19	26	28	13	30	15	21	53	30	18	36	33	40	36	28	34	38	33	30	33	38	48	43	40
29	29	65	34	18	18	25	50	42	38	25	29	55	49	45	30	31	45	31	32	27	54	22	28	40
30	33	39	17	23	41	49	40	26	21	21	31	26	26	29	26	31	26	20	18	18	16	15	17	15

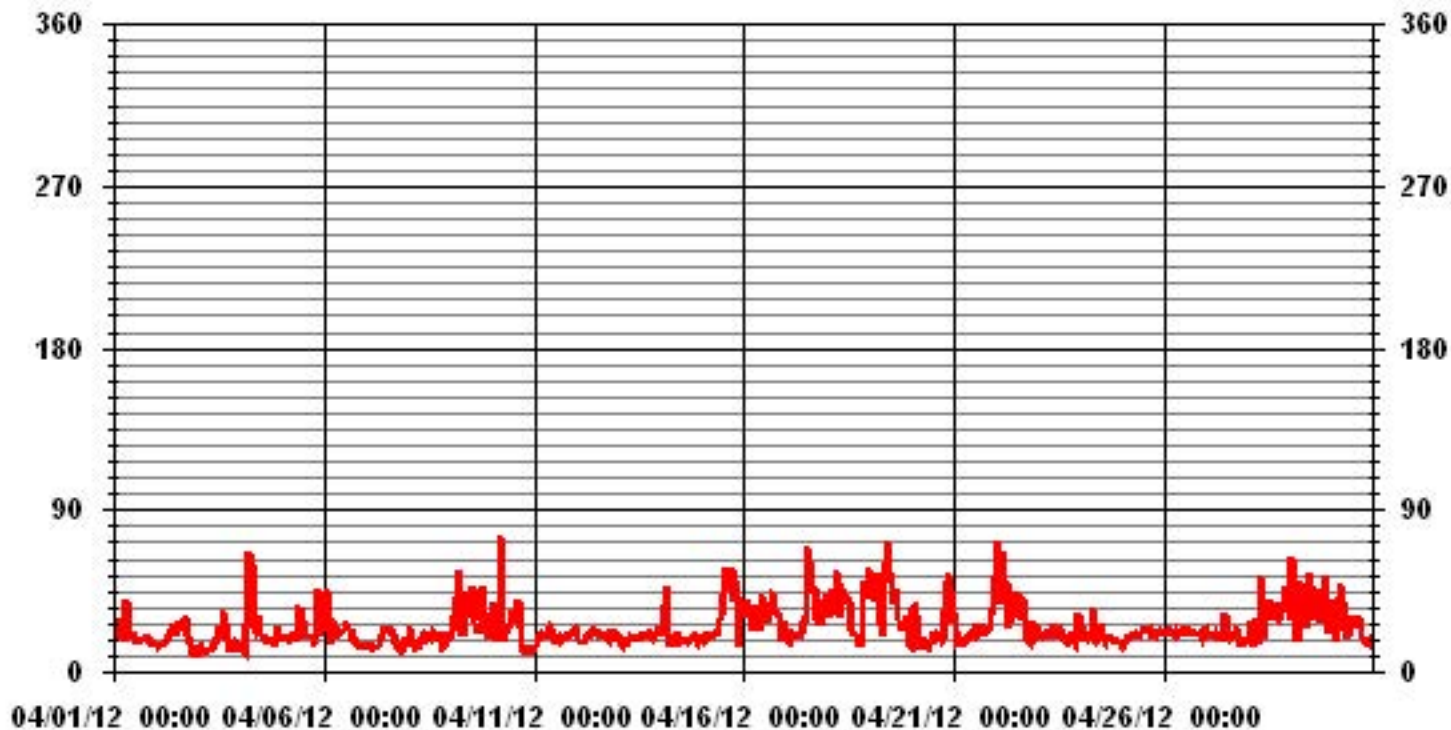
STATUS FLAG CODES

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: December 16, 2010

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 720 HRS

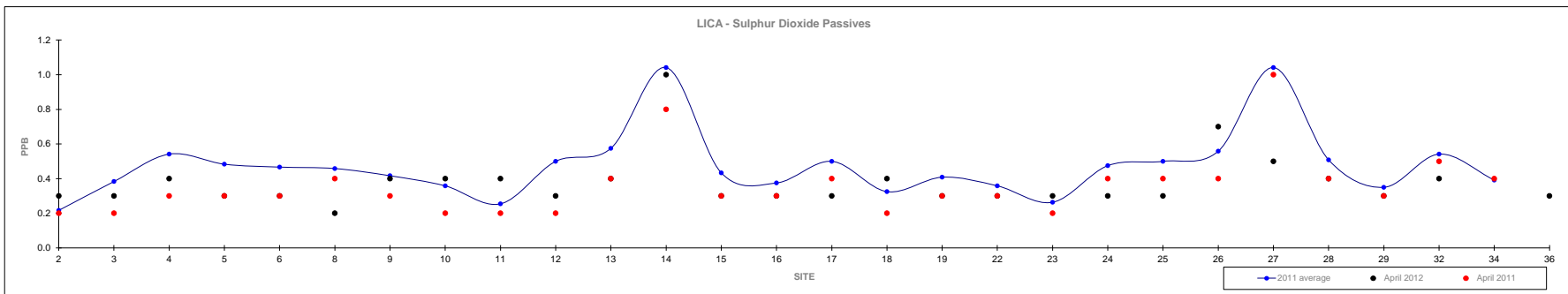
01 Hour Averages



Non-Continuous Monitoring

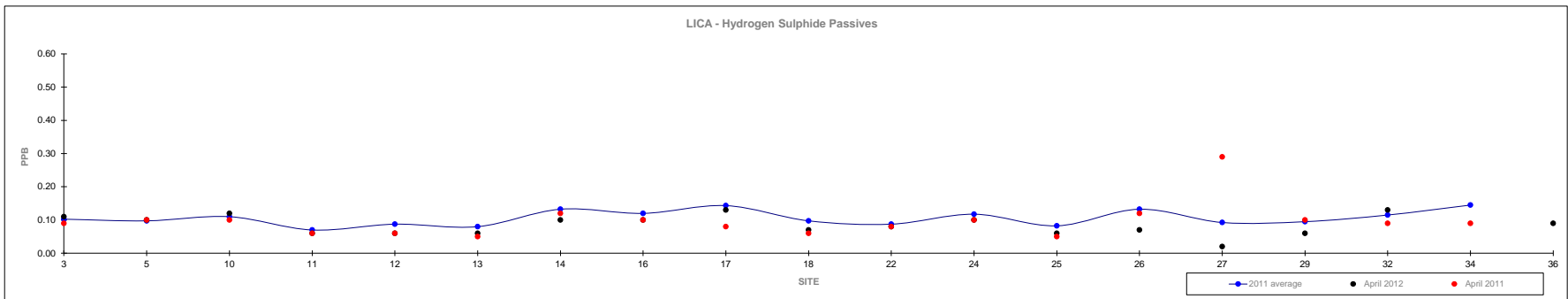
Passive Summary Results for April 2012 Lakeland Industry & Community Association

	Sulphur Dioxide ppb																												April 2012	Site
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	25	26	27	28	29	32	34	Reading	-	
Mean	0.2	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.5	0.6	1.0	0.4	0.4	0.5	0.3	0.4	0.4	0.3	0.5	0.5	0.6	1.0	0.5	0.4	0.4	0.37	-		
Minimum	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.1	0.2	0.1	0.2	#08	
Maximum	0.6	1.3	1.3	1.1	1.0	1.0	1.0	1.0	0.6	1.5	1.9	2.2	1.1	0.9	1.3	0.8	1.0	1.3	0.5	1.4	1.4	1.1	1.7	1.1	0.9	1.4	0.9	1.0	#14	



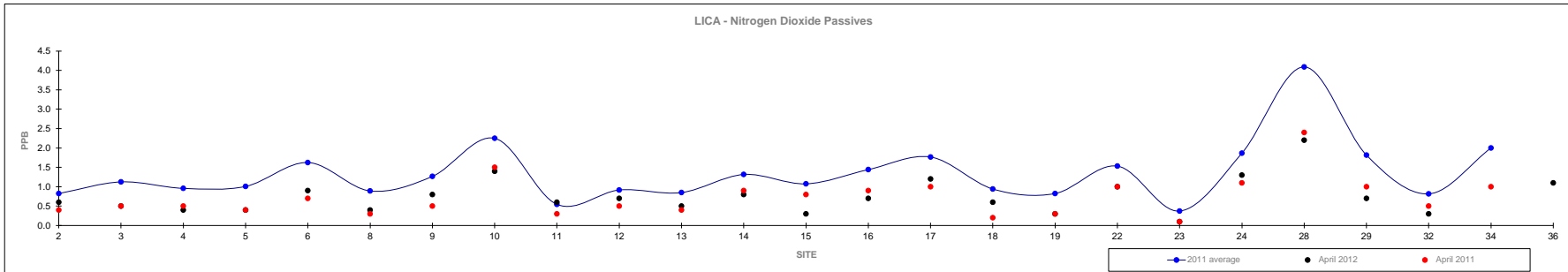
Passive Summary Results for April 2012 Lakeland Industry & Community Association

	Hydrogen Sulphide ppb															April 2012				
	3	5	10	11	12	13	14	2011 16	17	18	22	24	25	26	27	29	32	34	Reading	Site
Mean	0.15	0.20	0.14	0.09	0.11	0.15	0.17	0.15	0.29	0.12	0.14	0.16	0.09	0.17	0.48	0.15	0.15	0.18	0.08	-
Minimum	0.03	0.10	0.10	0.04	0.06	0.04	0.12	0.06	0.08	0.05	0.08	0.09	0.04	0.12	0.13	0.09	0.09	0.09	<0.02	#27
Maximum	0.29	0.38	0.21	0.13	0.17	0.80	0.21	0.21	0.67	0.18	0.23	0.21	0.18	0.25	1.12	0.25	0.22	0.29	0.13	#32



Passive Summary Results for April 2012 Lakeland Industry & Community Association

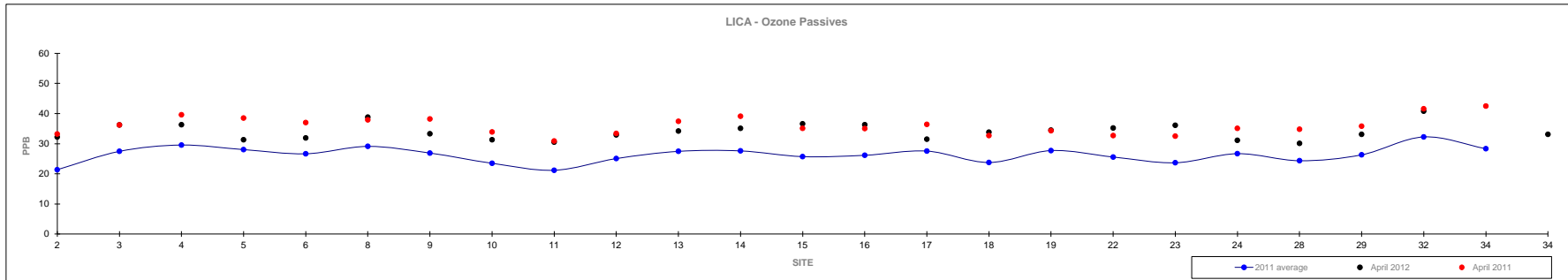
	Nitrogen Dioxide ppb																												April 2012	
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	28	29	32	34	Reading	Site				
Mean	0.8	1.1	1.0	1.0	1.6	0.9	1.3	2.3	0.5	0.9	0.9	1.3	1.1	1.4	1.8	0.9	0.8	1.5	0.4	1.9	4.1	1.8	0.8	2.0	0.7	-				
Minimum	0.1	0.4	0.1	0.2	0.6	0.2	0.4	0.7	0.1	0.2	0.1	0.1	0.2	0.4	0.9	0.2	0.2	0.3	0.1	0.8	1.6	0.3	0.2	0.5	<0.1	#23				
Maximum	2.5	2.6	2.2	2.2	3.5	2.4	3.0	5.6	1.2	2.3	2.1	3.0	2.4	3.0	3.5	2.2	2.3	3.7	1.0	3.7	11.3	4.7	2.3	6.9	2.2	#28				



Passive Summary Results for April 2012

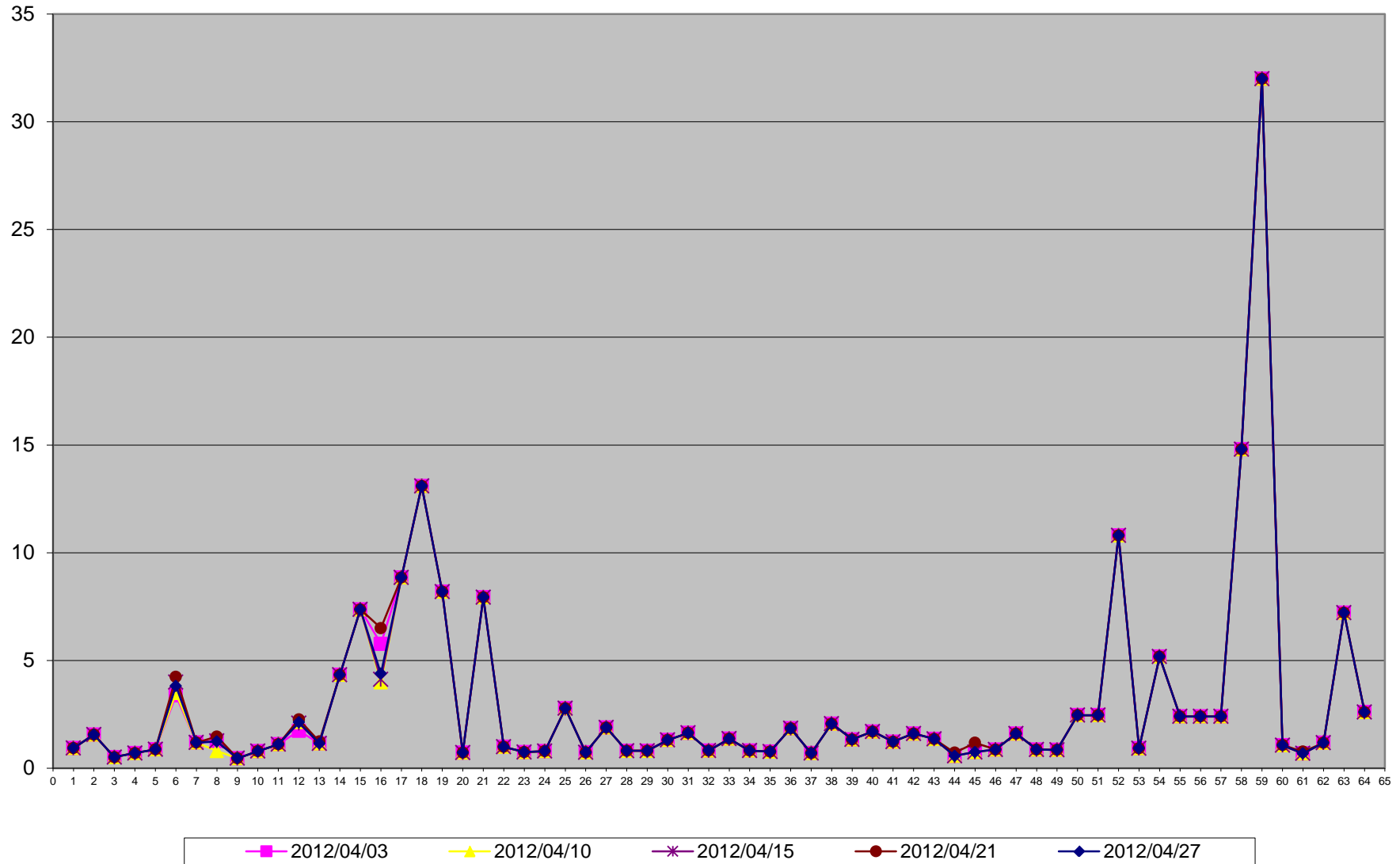
Lakeland Industry & Community Association

	Ozone ppb																												Reading	April 2012	Site
	2	3	4	5	6	8	9	10	11	12	2011 13	14	15	16	17	18	19	22	23	24	28	29	32	34	34.0	-					
Mean	21.4	27.5	29.6	28.0	26.6	29.1	26.9	23.5	21.2	25.1	27.5	27.6	25.7	26.1	27.5	23.8	27.7	25.6	23.7	26.7	24.3	26.3	32.2	28.3							
Minimum	11.9	17.6	20.0	18.5	16.8	19.1	18.0	13.9	11.5	14.0	18.4	19.1	16.1	16.6	17.8	13.3	18.6	15.1	12.8	17.1	15.8	17.3	25.0	17.6	30.1	#28					
Maximum	33.2	39.2	39.6	44.1	40.8	42.4	38.2	33.9	30.9	34.9	38.1	39.1	40.3	37.0	40.3	35.4	40.1	37.0	32.5	35.9	34.8	36.4	42.0	42.5	40.8	#32					



Volatile Organics

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



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

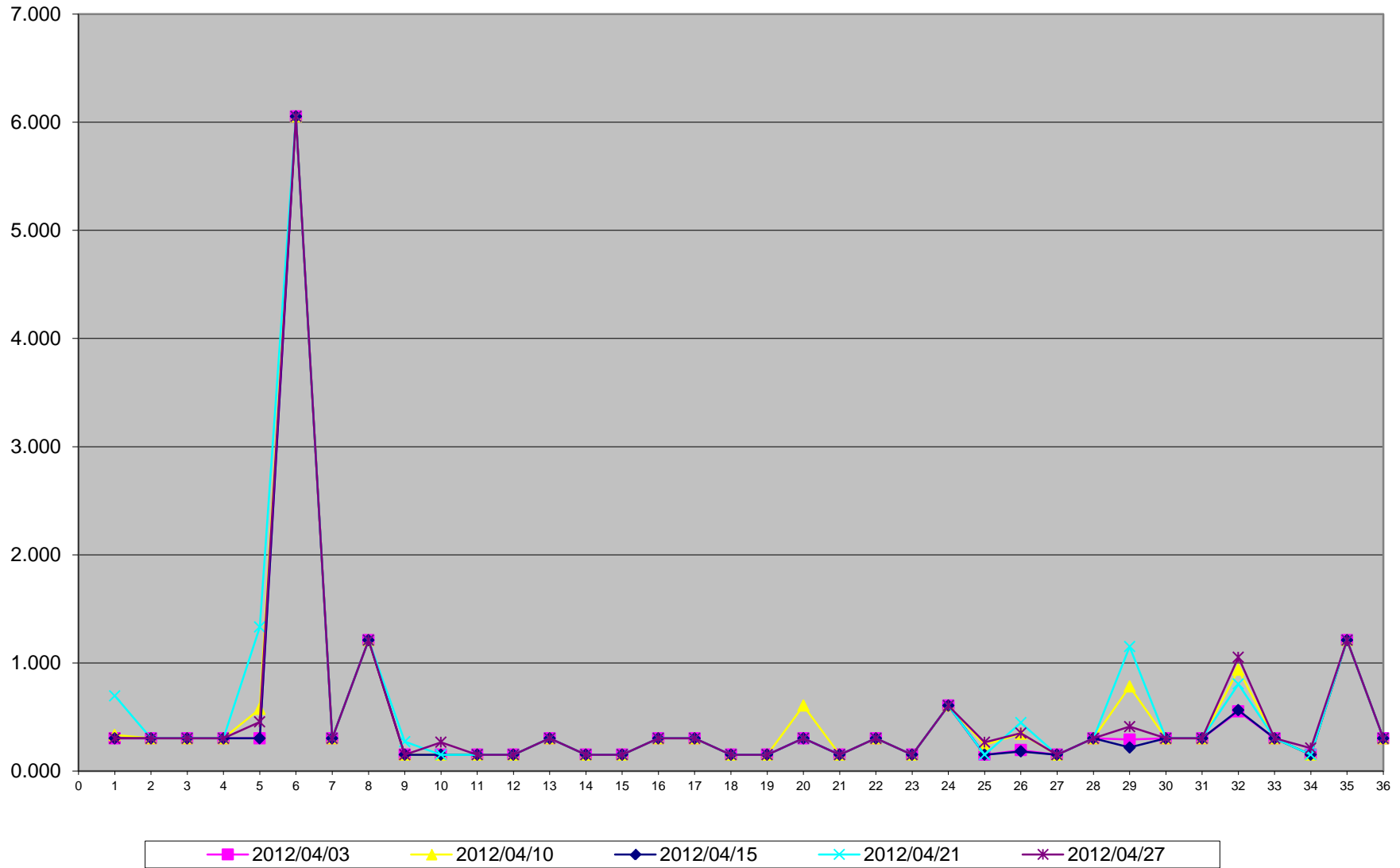
Polycyclic Aromatic Hydrocarbons

Polycyclic Aromatic Hydrocarbons (PAHs) Results for April 2012
LICA- Cold Lake South Site
Unit: ng/m3

PAHs	2012/04/03	2012/04/10	2012/04/15	2012/04/21	2012/04/27
Sample Volume (unit: m3)	330.33	330.37	330.35	330.36	330.35
1 1-Methylnaphthalene	0.303	0.333	0.303	0.696	0.303
2 1-Methylphenanthrene	0.303	0.303	0.303	0.303	0.303
3 2-Chloronaphthalene	0.303	0.303	0.303	0.303	0.303
4 2-Methylantracene	0.303	0.303	0.303	0.303	0.303
5 2-Methylnaphthalene	0.303	0.575	0.303	1.332	0.454
6 3-Methylcholanthrene	6.054	6.054	6.054	6.054	6.054
7 7,12-Dimethylbenzo(a)anthracene	0.303	0.303	0.303	0.303	0.303
8 9,10-Dimethylantracene	1.211	1.211	1.211	1.211	1.211
9 Acenaphthene	0.151	0.151	0.151	0.272	0.151
10 Acenaphthylene	0.151	0.151	0.151	0.151	0.266
11 Anthracene	0.151	0.151	0.151	0.151	0.151
12 Benzo(a)anthracene	0.151	0.151	0.151	0.151	0.151
13 Benzo(a)fluorene	0.303	0.303	0.303	0.303	0.303
14 Benzo(a)pyrene	0.151	0.151	0.151	0.151	0.151
15 Benzo(b)fluoranthene	0.151	0.151	0.151	0.151	0.151
16 Benzo(b)fluorene	0.303	0.303	0.303	0.303	0.303
17 Benzo(e)pyrene	0.303	0.303	0.303	0.303	0.303
18 Benzo(g,h,i)perylene	0.151	0.151	0.151	0.151	0.151
19 Benzo(k)fluoranthene	0.151	0.151	0.151	0.151	0.151
20 Biphenyl	0.303	0.605	0.303	0.303	0.303
21 Chrysene	0.151	0.151	0.151	0.151	0.151
22 Coronene	0.303	0.303	0.303	0.303	0.303
23 Dibenz(a,h)anthracene	0.151	0.151	0.151	0.151	0.151
24 Dibenzo(a,e)pyrene	0.605	0.605	0.605	0.605	0.605
25 Fluoranthene	0.151	0.242	0.151	0.151	0.266
26 Fluorene	0.194	0.345	0.182	0.448	0.351
27 Indeno(1,2,3-cd)pyrene	0.151	0.151	0.151	0.151	0.151
28 m-Terphenyl	0.303	0.303	0.303	0.303	0.303
29 Naphthalene	0.291	0.781	0.218	1.150	0.412
30 o-Terphenyl	0.303	0.303	0.303	0.303	0.303
31 Perylene	0.303	0.303	0.303	0.303	0.303
32 Phenanthrene	0.551	0.938	0.563	0.805	1.053
33 p-Terphenyl	0.303	0.303	0.303	0.303	0.303
34 Pyrene	0.151	0.151	0.151	0.151	0.212
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-Methylantracene
5	2-Methylnaphthalene
6	3-Methylcholanthrene
7	7,12-Dimethylbenzo(a)anthracene
8	9,10-Dimethylantracene
9	Acenaphthene
10	Acenaphthylene
11	Anthracene
12	Benzo(a)anthracene
13	Benzo(a)fluorene
14	Benzo(a)pyrene
15	Benzo(b)fluoranthene
16	Benzo(b)fluorene
17	Benzo(e)pyrene
18	Benzo(g,h,l)perylene
19	Benzo(k)fluoranthene
20	Biphenyl
21	Chrysene
22	Coronene
23	Dibenz(a,h)anthracene
24	Dibenzo(a,e)pyrene
25	Fluoranthene
26	Fluorene
27	Indeno(1,2,3-cd)pyrene
28	m-Terphenyl
29	Naphthalene
30	o-Terphenyl
31	Perylene
32	Phenanthrene
33	p-Terphenyl
34	Pyrene
35	Quinoline
36	Tetralin

Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	April 10, 2012	Previous Calibration	March 19, 2012
Company	Lakeland Community and Industry Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	7:34	End Time (MST)	11:03
Reason:	Monthly Calibration		
Barometric Pressure	0.958 atm	Station Temperature	23 Deg C
Cal Gas	49.6 ppm	Gas Cyl. #	LL42496
DAS Output Voltage	0 - 10 Volts	Cal Gas Expiry date	January 16, 2014
		Chart Rec. Output	NA Volts

Equipment Information

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

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0 - 1000 ppb				
Sample Flow / Box Temp	454 ccm	30.3 Deg C	453 ccm	32 Deg C	
HVPS / Lamp Setting	-632	742	-632	742	
PMT / RxCell Temp	OK Deg C	45.3 Deg C	OK Deg C	44.9 Deg C	
Converter / IZS Temp	NA Deg C	45 Deg C	NA Deg C	45.0 Deg C	
Offset / Slope	5.9	1.024	5.9	1.024	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	N/A
	No Zero Adj			
4953	40.3	400	402	0.9958
	No Span Adj.			
4976	22.7	225	228	0.9879
4987	12.6	125	126	0.9921
4995	0	0	0	N/A
Sum of Least Squares				0.9938
New Correction Factor				0.9958

Before Calibration

Auto Zero	0.0	After Calibration	0.0
Auto Span	366.0		368.0
Sample Lines Connected			YES

Percent Change

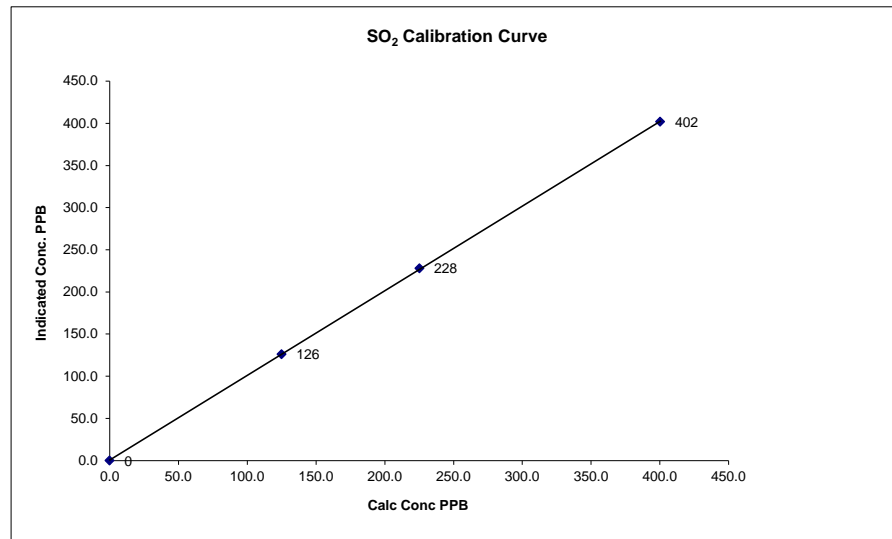
Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	0.9958
Percent Change:	0.4%

Notes: N/A : Not applicable

SO2 Calibration Curve

Calibration Date	April 10, 2012
Company	Lakeland Community and Industry Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	7:34
End Time (MST)	11:03

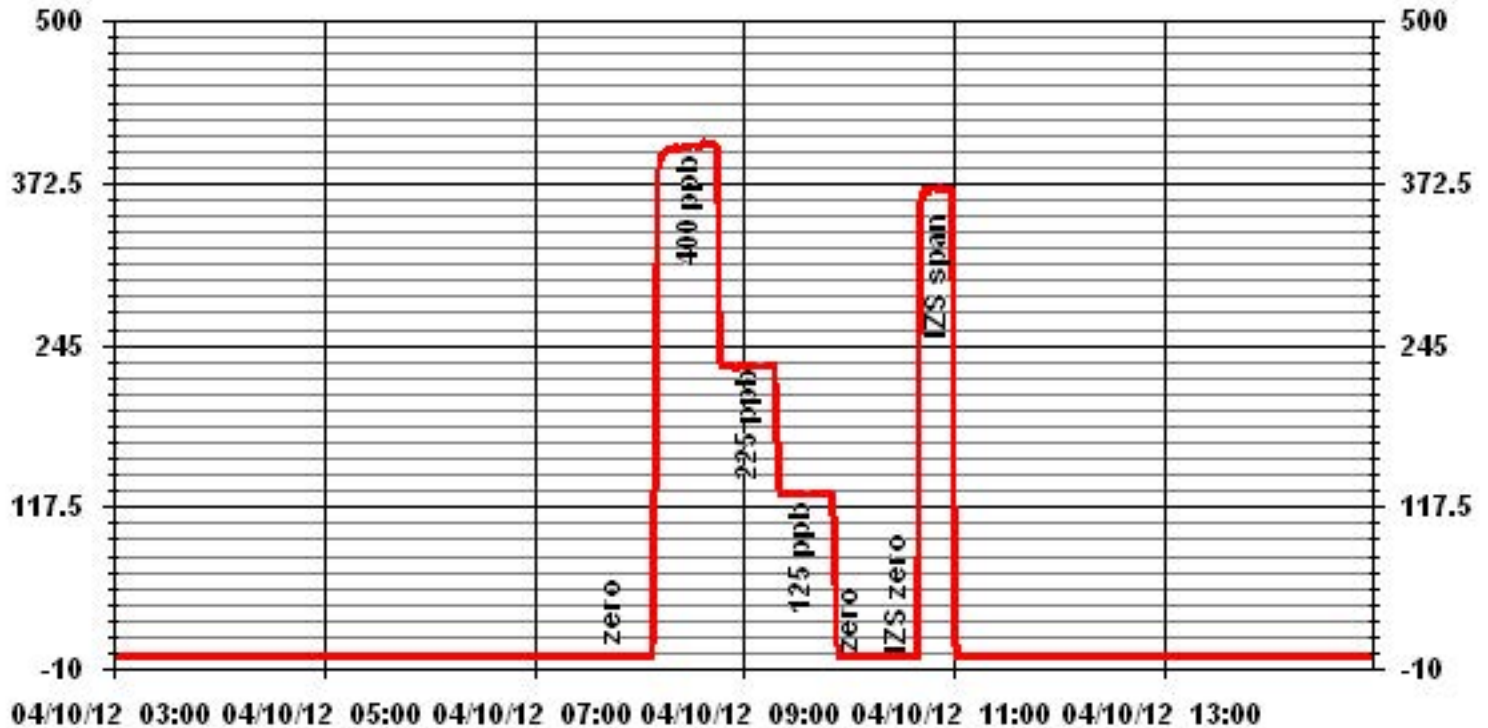
Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	n/a		0.999975
125	126	0.9921		1.004664
225	228	0.9879		
400	402	0.9958		0.485557



Notes:

Calibration Performed by: Ting Xu

01 Minute Averages



— LICA SO2_ PPB

Total Reduced Sulphur

TRS Calibration Report

Station Information

Calibration Date	April 9, 2012	Previous Calibration	March 19, 2012
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	12:16	End Time (MST)	16:02
Reason:	Monthly Calibration		
Barometric Pressure	0.958 atm	Station Temperature	23 Deg C
Cal Gas	10 ppm	Gas Cyl. #	LL42648
DAS Output Voltage	0 - 10 Volts	Cal Gas Expiry date	December 27, 2012
		Chart Rec. Output	NA Volts

Equipment Information

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

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 100	0 - 100	
Sample Flow / Box Temp	358 ccm, 32.6 Deg C	358 ccm, 32.8 Deg C	
HVPS / Lamp Setting	-623.1, 752	-623.1, 750	
PMT / RxCell Temp	OK, 45.2 Deg C	OK, 45.1 Deg C	
Converter / IZS Temp	810, 45 Deg C	810, 45.0 Deg C	
Offset / Slope	13.3, 1.304	13.8, 1.356	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4996	0	0	0	N/A
	No Zero Adj			
4961	40.0	80	77	1.0388
4961	40.0	80	81	0.9875
4976	20.0	40	41	0.9764
4985	11.5	23	24	0.9590
4996	0.0	0	0	N/A
Sum of Least Squares				0.9836
New Correction Factor				0.9875

Before Calibration

Auto Zero	-0.3	After Calibration	0.0
Auto Span	58.7		64.5
Sample Lines Connected			YES

Percent Change

Previous Month's Calibration Correction Factor:	1.0000
Current Correction Factor Before Span Adjust:	1.0388
Percent Change:	-3.7%

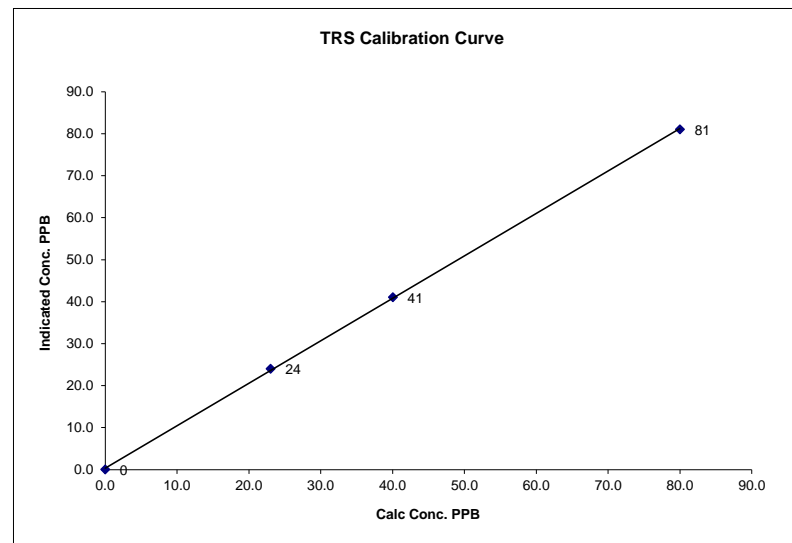
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

TRS Calibration Curve

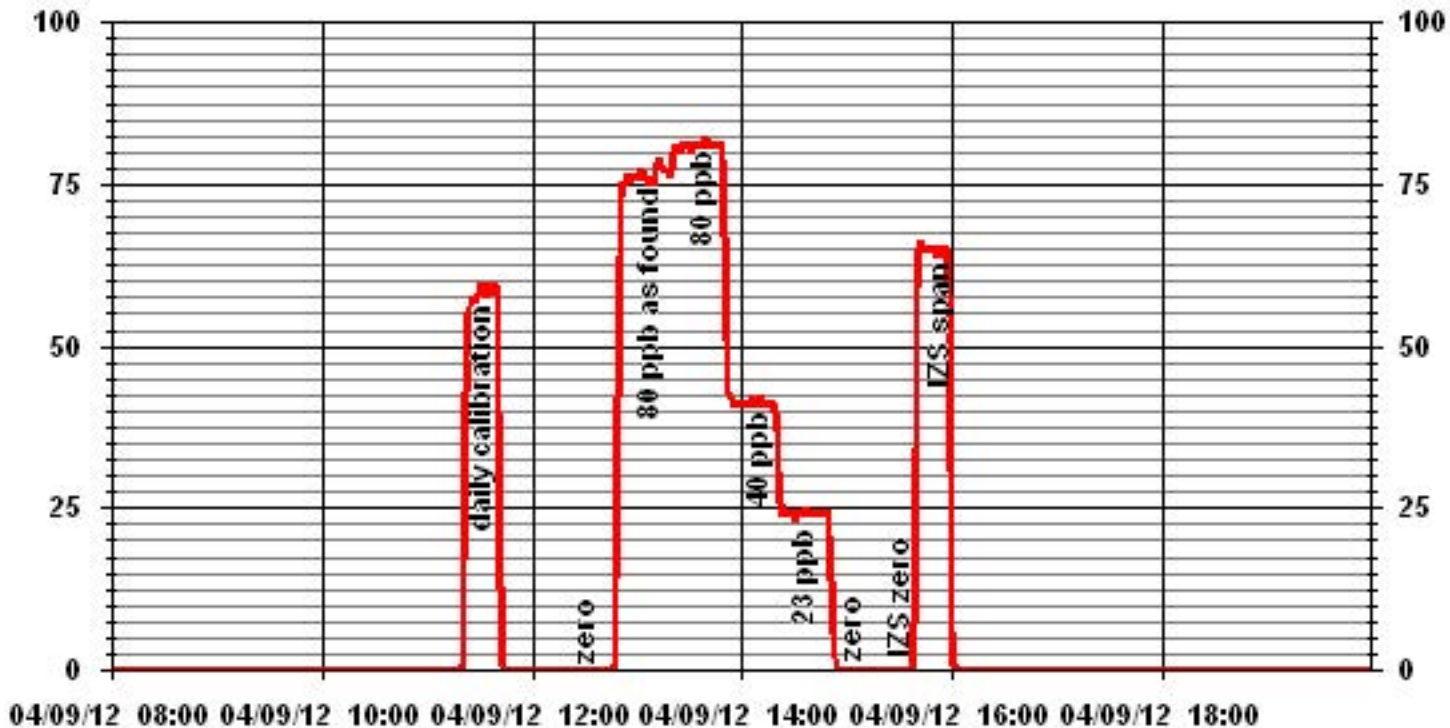
Calibration Date	April 9, 2012
Company	Lakeland Industry & Community Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	12:16
End Time (MST)	16:02

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	n/a		0.999901
23	24	0.0000		1.010697
40	41	0.5614		0.359445
80	81	0.4942		



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	April 9, 2012	Previous Calibration	March 19, 2012
Company:	Lakeland Industry and Community Association		
Plant / Location:	LICA1/Cold Lake		
Start Time (MST)	15:21	End Time (MST)	19:04
Reason:	Monthly Calibration		
Barometric Pressure:	0.938 atm	Station Temperature:	23 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	CH4 980 PPM	C3H8 304 PPM	
	TOTAL CH4 1816.0 PPM	Gas Cyl. # LL84144	Cal Gas Expiry Date: December 3, 2013
DAS make & Model:	ESC 8832	S/N :	3485
Chart Recorder:	NA	S/N:	NA
Output Voltage Range:	0 - 10 VDC	Chart Speed:	NA mm/hr

Analyzer Information

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

Analyzer Settings

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

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
3000	0.0	0.0	-0.5	NA
3000	0.0	0.0	0.0	NA
3000	70.0	41.4	42.1	0.9835
3000	70.0	41.4	41.6	0.9954
3000	35.0	20.9	20.7	1.0117
3000	20.0	12.0	11.8	1.0192
3000	0.0	0.0	0.0	NA
New Correction Factor:				0.9954

Percent Change

Previous Calibration Correction Factor:	0.9954
Current Correction Factor Before Span Adjust:	0.9835
Percent Change:	1.2%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-0.3	0.1
Auto Span	35.6	35.2
Sample Lines Connected	YES	

Cylinder Pressures			
Span	800 psi	Hydrogen 800 psi	Zero Air 32 psi

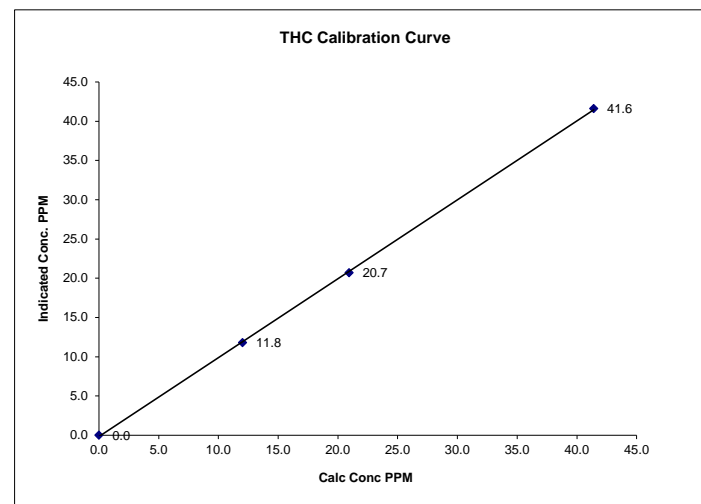
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

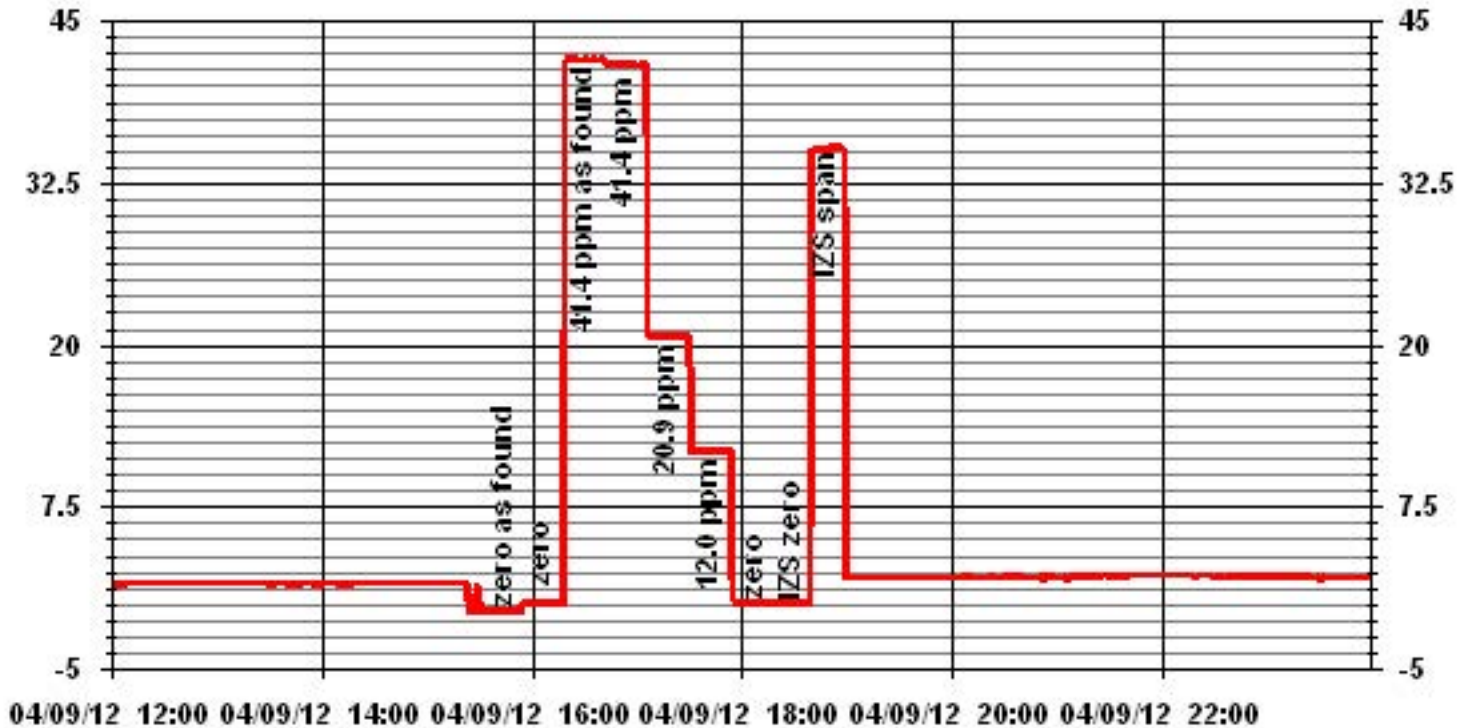
Calibration Date	April 9, 2012		
Company	Lakeland Industry and Community Association		
Plant / Location	LICA1/Cold Lake		
Start Time (MST)	15:21	End Time (MST)	19:04

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	NA	0.999895	1.005813	-0.17708
12.0	11.8	1.0192			
20.9	20.7	1.0117			
41.4	41.6	0.9954			



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOM 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	April 9, 2012	Make/Model:	Streamline FTS
Station Name:	LICA 1	Serial Number:	Hi 091001, Lo 091099
Location:	Cold Lake South	Cell s/n:	NA
Operator:	LICA	Thermometer s/n:	Station Temp Sensor

	<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 (%)	31.9%
Firmware Ver.	1.52	K _o Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	4.7
		Press (ATM)	0.939

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	0.008	Warnings	None
Pump Vacuum < 0.40 atm	0.36		
Temperature/Pressure			
Measured Temp (± 2 °C)	3.9	Δ °C	0.8
Measured Press (± 0.01atm)	0.942	DATM	-0.003
Flow Audit			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	0.63%
Measured Main Flow (l/min)	2.99	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	1.38%
Measured Bypass Flow (l/min)	13.70	Flow Adjusted to Measured?	Yes
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	NA	Flow Control = Active	
Aux (< 0.6 l/min)	NA	Report Conditions = Actual	
K_o Factor			
Measured	NA		
K _o Difference (± 2.5%)	NA		

Start Time: 15:27 **Finish Time:** 16:48

Sample Inlet Cleaned: Yes **New Filters Installed:** YES
New Filter Loading %: 27.2%

Comments:

Nitrogen Dioxide

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	April 9, 2012		Previous Calibration		March 19, 2012	
Company	LICA		Plant/Location		Cold Lake South	
Start Time (MST)	12:16		End Time (MST)		18:54	
Reason:	Monthly Calibration					
Barometric Pressure	0.958 atm	Station Temperature	23 Deg C	MFCF	0	
Cal Gas Concentration	NOx 49.6 ppm	NO	49.5 ppm	Cal Gas Expiry date	January 16, 2014	
Cal Gas Cylinder #	LL42496					
DAS Output Voltage	0 - 10 Volts	Chart Rec. Output	NA Volts			

Equipment Information

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

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 500			ppb			
Sample Flow/Conv. Temp	742 ccm	317 Deg C		732 ccm	317 Deg C		
Ozone Flow / Vacuum	OK ccm	179.0 *Hg-A		OK ccm	177 *Hg-A		
HVPS / A ZERO	-821 Volts	NA MV		-821 Volts	NA MV		
Rx/ Temp / PMT Temp	49.6 Deg C	-2.5 Deg C		49.9 Deg C	-2.5 Deg C		
Box Temp / IZS Temp	28.7 Deg C	OK Deg C		29.4 Deg C	OK Deg C		
Offset	3.9 NOx	3.6 NO		3.8 NOx	3.5 NO		
Slope	1.004 NOx	0.921 NO		1.004 NOx	0.908 NO		
NO2 COEF / Conv Efficiency	0.998 NO2	NA		0.998 NO2	NA		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4995	0.0	NA	0	0	NA	0	0	0	NA	NA
	No Zero Adj									
4954	40.3	NA	400	399	NA	406	405	1	0.9858	0.9862
4954	40.3	NA	400	399	NA	401	400	1	0.9981	0.9986
4974	20.2	NA	201	200	NA	201	200	1	1.0000	1.0000
4985	10.1	NA	100	100	NA	102	101	0	0.9832	0.9910
4996	0.0	NA	0	0	NA	0	0	0	NA	NA

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4954	40.3	NA	400	399	NA	400	399	1	NA	NA
4954	40.3	350	400	NA	333	401	67	334	0.9970	100.30%
	No NO2 Adj.									
4954	40.3	150	400	NA	146	400	254	146	1.0000	100.00%
4954	40.3	75	400	NA	72	400	328	73	0.9863	101.41%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 0.997	NO= 0.999	NO2= 0.997
				NOx= 0.9981	NO= 0.9986	NO2= 0.9970
			Average Converter Efficiency=	100.57%		

IZS Calibration Data

Before Calibration				After Calibration				
Auto Zero	0.1 NOx	0.2 NO2		0.1 NOx	0.2 NO2			
Auto Span	349 NOx	347 NO2		344 NOx	342 NO2			
	Sample Lines Connected				YES			
Percent Change from Previous Calibration	NOx	1.2%	NO	1.3%	NO2	0.3%		

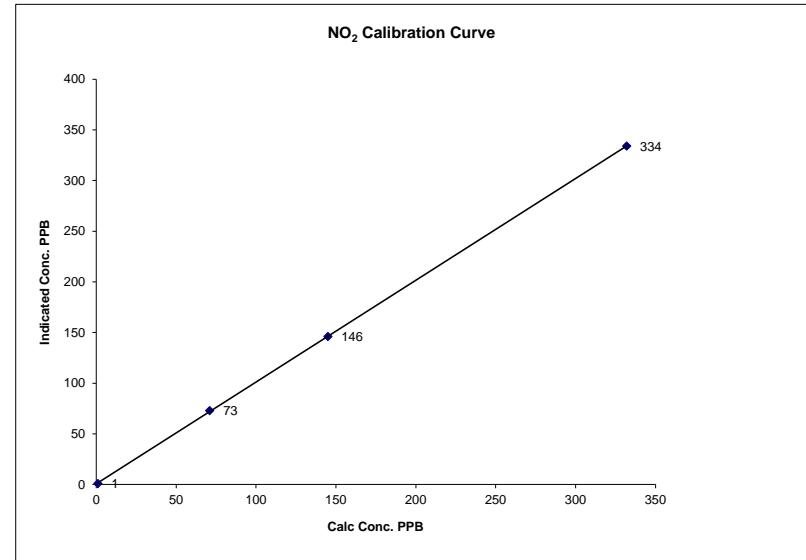
Notes: **NA : Not Applicable**
 During the first GPT, there was a dilution gas alarm. Re-did the point.

Calibration Performed by: Ting Xu

NO2 Calibration Curve

Calibration Date	April 9, 2012		LICA	
Company	LICA			
Plant / Location	Cold Lake South			
Start Time (MST)	12:16	End Time (MST)	18:54	

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(± 0.995) (0.85 to 1.15)	0.999974
1	1	N/A	Intercept	(± 3% F.S.)	1.004344
71	73	0.9726			0.65373
145	146	0.9932			
332	334	0.9940			

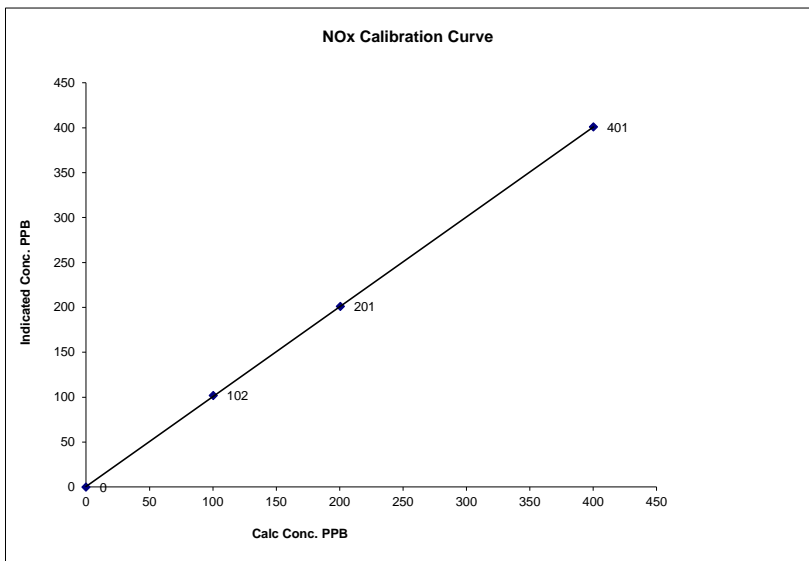


Notes:

NOx Calibration Curve

Calibration Date	April 9, 2012	
Company	LICA	
Plant / Location	Cold Lake South	
Start Time (MST)	12:16	End Time (MST) 18:54

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999982
0	0	N/A	Slope	(0.85 to 1.15)	1.000619
100	102	0.9832	Intercept	(± 3% F.S.)	0.60674
201	201	0.9981			
400	401	0.9981			

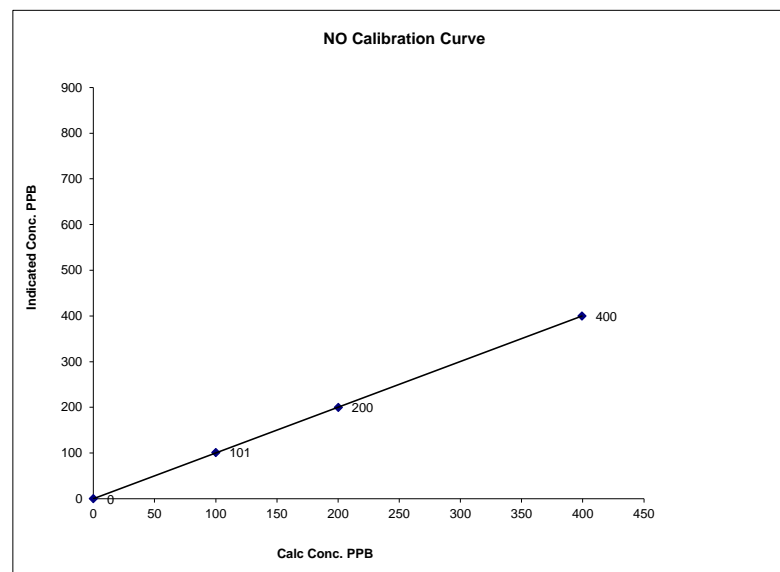


Notes:

NO Calibration Curve

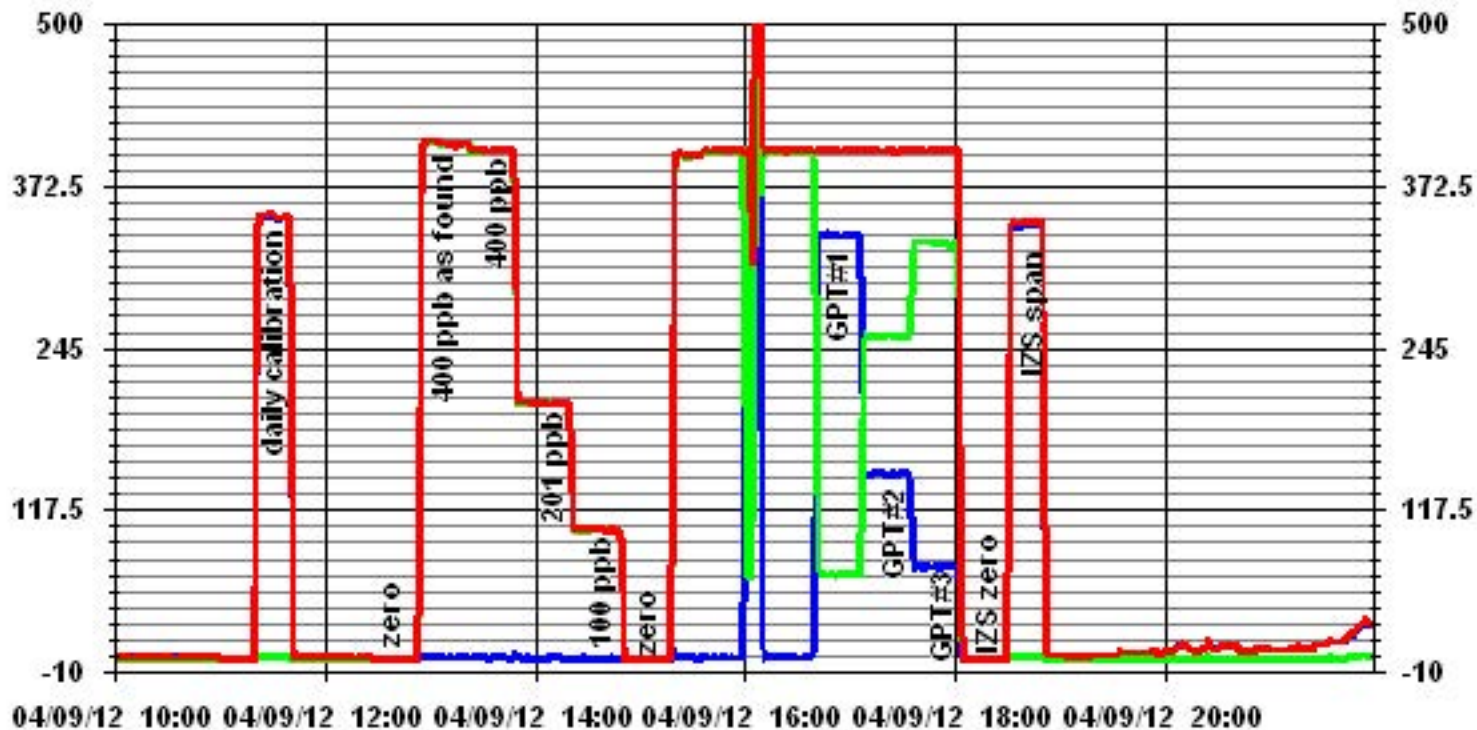
Calibration Date	April 9, 2012	
Company	LICA	
Plant / Location	Cold Lake South	
Start Time (MST)	12:16	End Time (MST) 18:54

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999991
0	0	N/A	Slope	(0.85 to 1.15)	0.999593
100	101	0.9910	Intercept	(± 3% F.S.)	-1.0031
200	200	1.0011			
399	400	0.9986			



Notes:

01 Minute Averages



NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	April 20, 2012		Previous Calibration		April 9, 2012	
Company	LICA		Plant/Location		Cold Lake South	
Start Time (MST)	14:17		End Time (MST)		17:54	
Reason:	As Found					
Barometric Pressure	0.941 atm	Station Temperature	23 Deg C	MFCF	0	
Cal Gas Concentration	NOx 49.6 ppm	NO 49.5 ppm	Cal Gas Expiry date	January 16, 2014		
Cal Gas Cylinder #	LL42496					
DAS Output Voltage	0 - 10 Volts	Chart Rec. Output	NA Volts			

Equipment Information

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

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 500			ppb			
Sample Flow/Conv. Temp	733 ccm	317 Deg C		735 ccm	317 Deg C		
Ozone Flow / Vacuum	OK ccm	175.0 *Hg-A		OK ccm	174 *Hg-A		
HVPS / A ZERO	-821 Volts	NA MV		-821 Volts	NA MV		
Rx/ Temp / PMT Temp	49.6 Deg C	-2.4 Deg C		49.6 Deg C	-2.5 Deg C		
Box Temp / IZS Temp	29.1 Deg C	OK Deg C		29.5 Deg C	OK Deg C		
Offset	3.8 NOx	3.5 NO		3.8 NOx	3.5 NO		
Slope	1.004 NOx	0.908 NO		1.004 NOx	0.908 NO		
NO2 COEF / Conv Efficiency	0.998 NO2	NA		0.998 NO2	NA		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4995	0.0	NA	0	0	NA	0	0	0	NA	NA
	No Zero Adj									
4954	40.3	NA	400	399	NA	396	395	2	1.0107	1.0112

Gas Phase Titration Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			NO2 Correction Factor	NO2 Conv Efficiency
			NOx	NO	NO2	NOx	NO	NO2		
4954	40.3	NA	400	399	NA	396	395	2	NA	NA
4954	40.3	350	400	NA	328	397	69	328	1.0000	100.00%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= #VALUE!	NO= #VALUE!	NO2= #VALUE!
				NOx= 1.0107	NO= 1.0112	NO2= 1.0000
				Average Converter Efficiency= 100.00%		

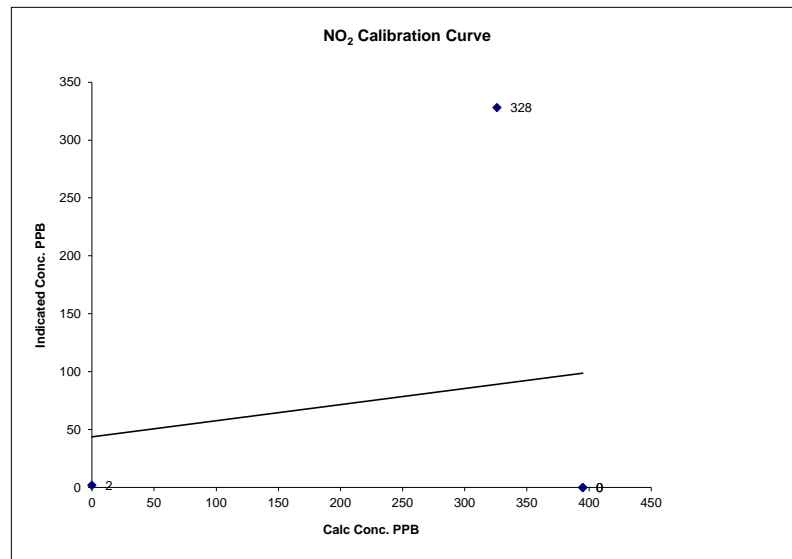
IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	0.1 NOx	0.2 NO2		0.1 NOx	0.2 NO2		
Auto Span	500 NOx	500 NO2		370 NOx	367 NO2		
				Sample Lines Connected YES			
Percent Change from Previous Calibration				NOx -1.2%	NO -1.3%	NO2 -0.3%	
Notes	NA : Not Applicable						
	Daily calibration span went above +10% of limited range on April 19th. Performed A/F check; result was good.						
	Rebuilt the pump for the daily calibration system.						
Calibration Performed by:	Ting Xu						

NO2 Calibration Curve

Calibration Date	April 20, 2012	
Company	LICA	
Plant / Location	Cold Lake South	
Start Time (MST)	14:17	End Time (MST) 17:54

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.025682
0	2	N/A	Intercept	(± 3% F.S.)	0.138909
395	0	#DIV/0!			
395	0	#DIV/0!			
326	328	0.9939			

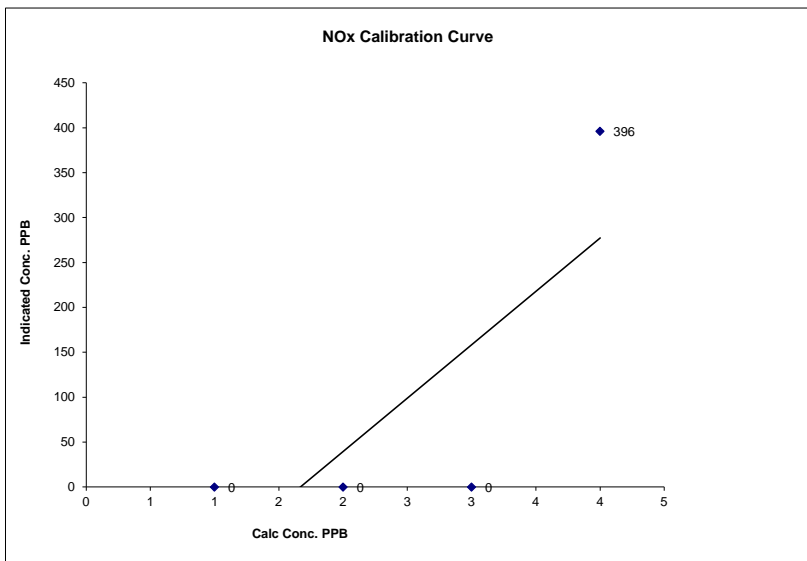


Notes:

NOx Calibration Curve

Calibration Date	April 20, 2012	
Company	LICA	
Plant / Location	Cold Lake South	
Start Time (MST)	14:17	End Time (MST) 17:54

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	#DIV/0!
	0	N/A	Slope (0.85 to 1.15)	#DIV/0!
	0	#VALUE!	Intercept (± 3% F.S.)	#DIV/0!
	0	#VALUE!		
400	396	1.0107		

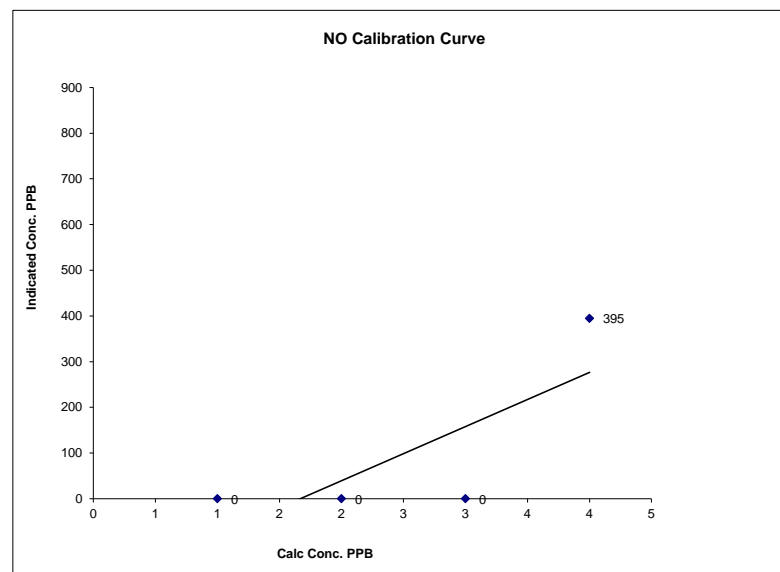


Notes:

NO Calibration Curve

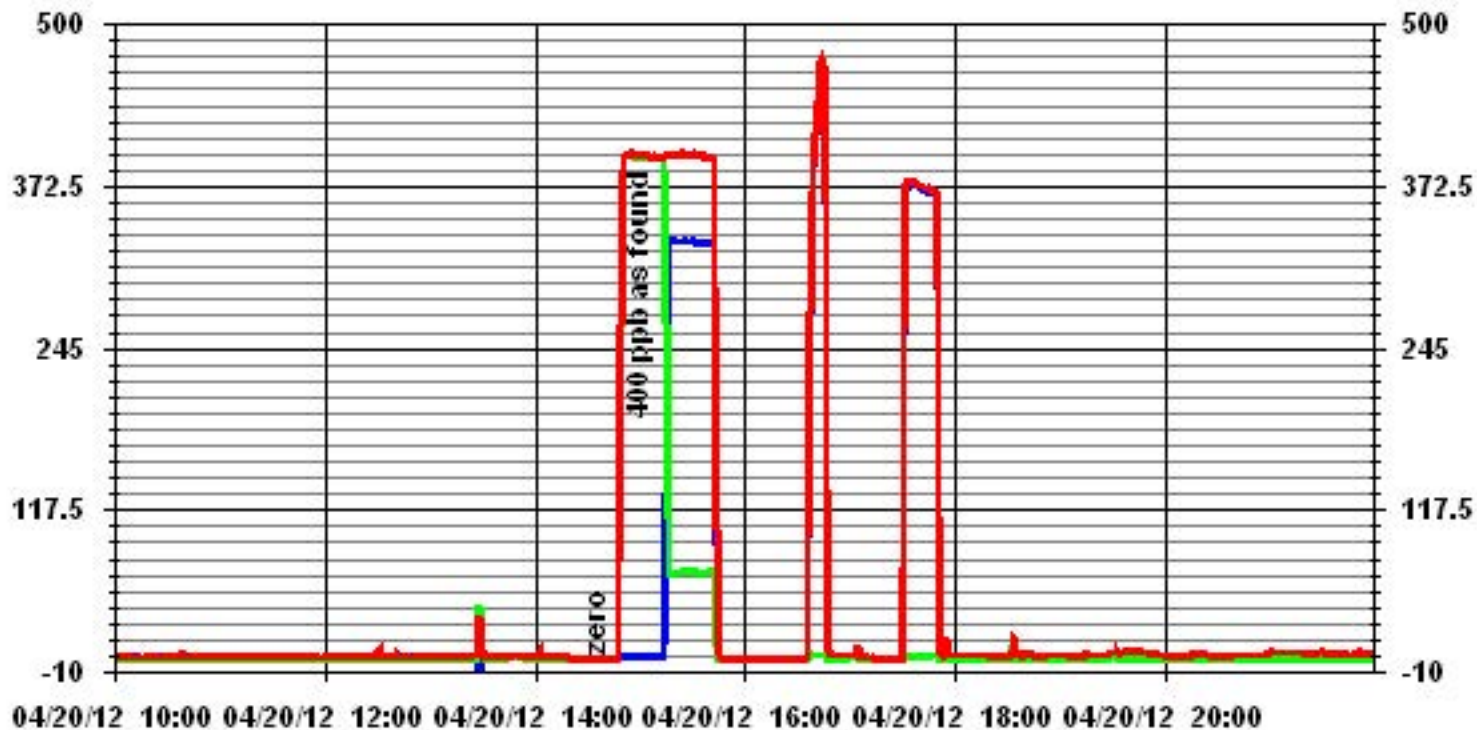
Calibration Date	April 20, 2012	
Company	LICA	
Plant / Location	Cold Lake South	
Start Time (MST)	14:17	End Time (MST) 17:54

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	#DIV/0!
	0	N/A	Slope (0.85 to 1.15)	#DIV/0!
	0	#VALUE!	Intercept (± 3% F.S.)	#DIV/0!
	0	#VALUE!		
399	395	1.0112		



Notes:

01 Minute Averages



— LICA

NOX_

PPB

— LICA

NO_

PPB

— LICA

NO2_

PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	April 10, 2012	Previous Calibration	March 19, 2012
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	7:34	End Time (MST)	10:54
Reason:	Monthly Calibration		
Barometric Pressure	0.958 atm	Station Temperature	23 Deg C
DAS Output Voltage	0 - 10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	700419951	Method:	Photometric
Calibrator Make / Model:	Envionics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	3485		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 500			ppb			
Cell A Flow / Cell B Flow	715 LPM	757 LPM		714 LPM	756 LPM		
O ₃ Set Level	713	mmHg		711	mmHg		
Bench Lamp	53.5	Deg C		53.6	Deg C		
O ₃ Lamp / Box Temp	67.5 Deg	28.9 Deg C		67.6 Deg C	29.8 Deg C		
Offset / Slope	-0.1	1.038		-0.1	1.038		

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4495	0	0	0	NA
	No Zero Adj			
4994	350	332	333	0.9970
	No Span Adj.			
4994	150	144	144	1.0000
4994	75	71	72	0.9861
4994	0	0	0	NA
Sum of Least Squares				0.9970
New Correction Factor				0.9970

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	0.2	Auto Zero	0.2
Auto Span	291	Auto Span	291
Sample Lines Connected		Sample Lines Connected	YES
Previous Calibration Correction Factor:		Previous Calibration Correction Factor:	1.0000
Current Correctio Factor Before Span Adjust:		Current Correctio Factor Before Span Adjust:	0.9970
Percent Change:		Percent Change:	0.3%

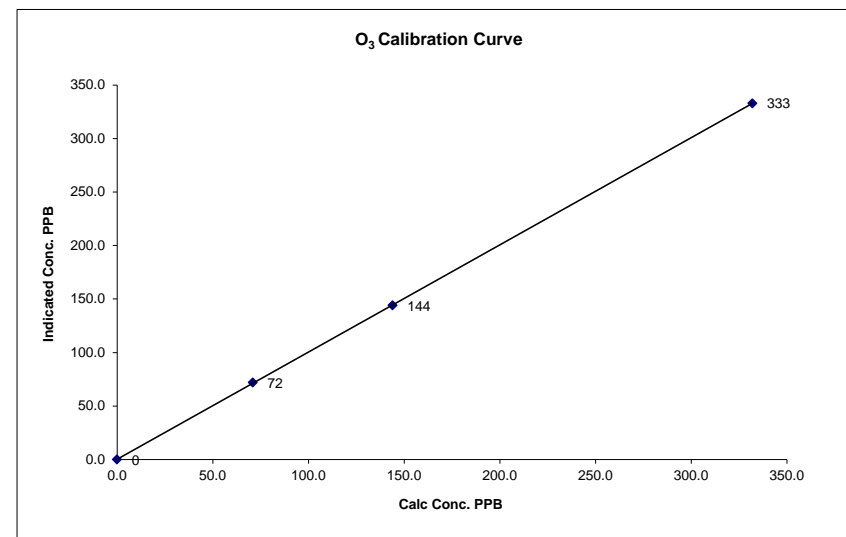
Note: NA : Not Applicable

Calibration Performed by: Ting Xu

O₃ Calibration Curve

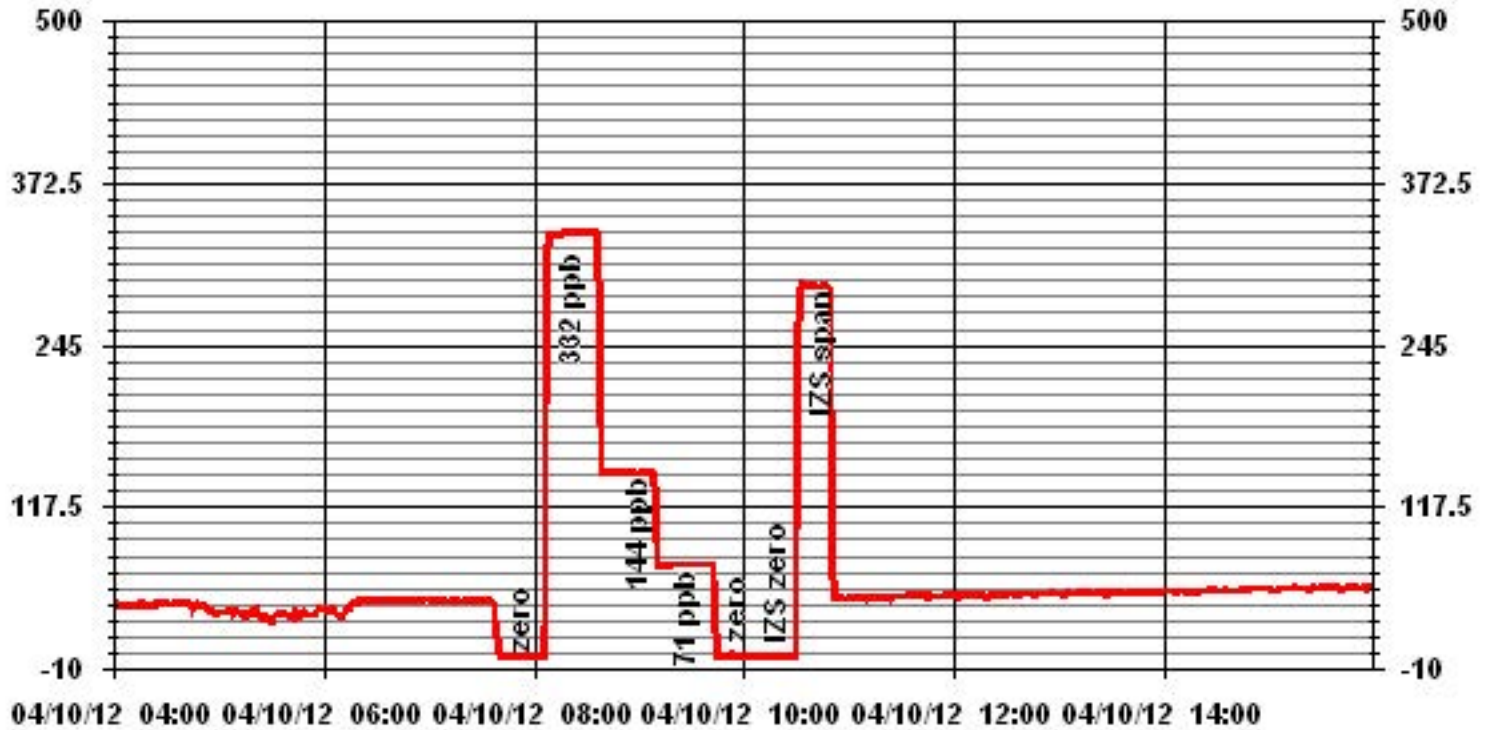
Calibration Date	April 10, 2012
Company	Lakeland Industry & Community Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	7:34
End Time (MST)	10:54

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999988
0	0	n/a	Slope (0.85 to 1.15)	1.002116
71	72	0.9861	Intercept (± 3% F.S.)	0.210629
144	144	1.0000		
332	333	0.9970		



Notes:

01 Minute Averages



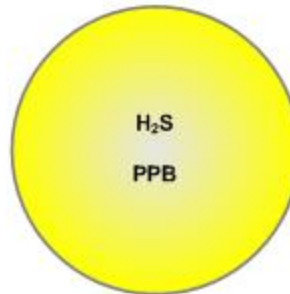
Passive Bubble Maps

Lakeland Industry & Community Association H₂S Passive Bubble Map

APRIL 2012

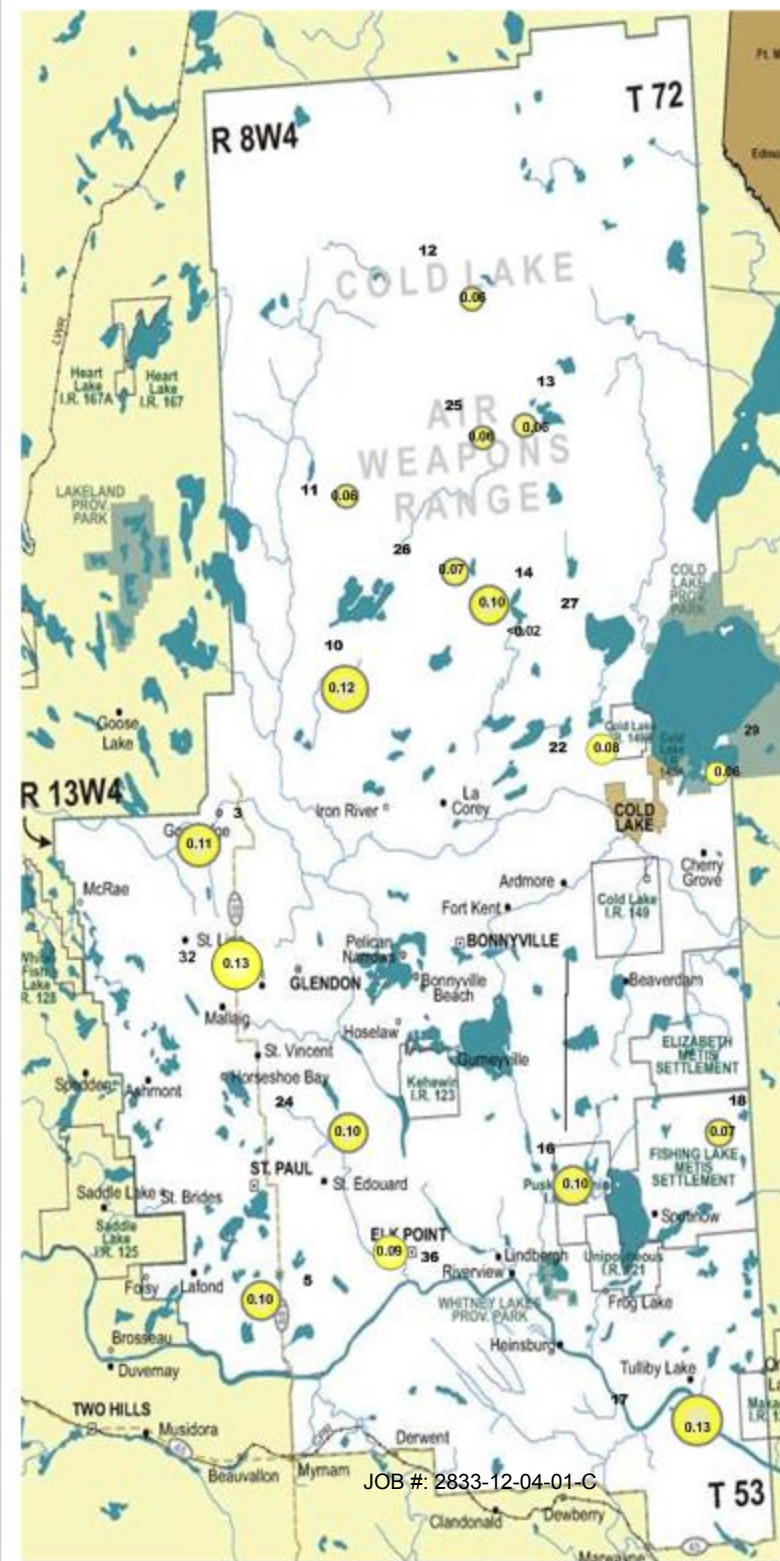
PASSIVE STATIONS

Station	Reading	Duplicate
3 – Therien	0.11 PPB	NA
5 – Lake Eliza	0.10 PPB	NA
10 – La Corey	0.12 PPB	NA
11 – Wolf Lake	0.06 PPB	NA
12 – Foster Creek	0.06 PPB	NA
13 – Primrose	0.06 PPB	NA
14 – Maskwa	0.10 PPB	NA
16 – Frog Lake	0.10 PPB	NA
17 – Clear Range	0.13 PPB	NA
18 – Fishing Lake	0.07 PPB	NA
22 – Cold Lake South	0.08 PPB	0.08 PPB
24 – Fort George	0.09 PPB	0.10 PPB
25 – Burnt Lake	0.06 PPB	NA
26 – Mahihkan	0.07 PPB	NA
27 – Mahkeses	<0.02 PPB	NA
29 – Cold Lake South 2	0.06 PPB	NA
32 – St. Lina	0.13 PPB	NA
36 – Portable	0.09 PPB	NA



Summary

Minimum : <0.02 PPB – Mahkeses
Maximum: 0.13 PPB – Clear Range and St. Lina
Average: 0.08 PPB *Includes Duplicates

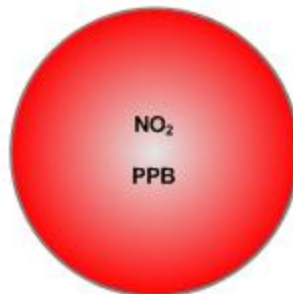


Lakeland Industry & Community Association NO₂ Passive Bubble Map

APRIL 2012

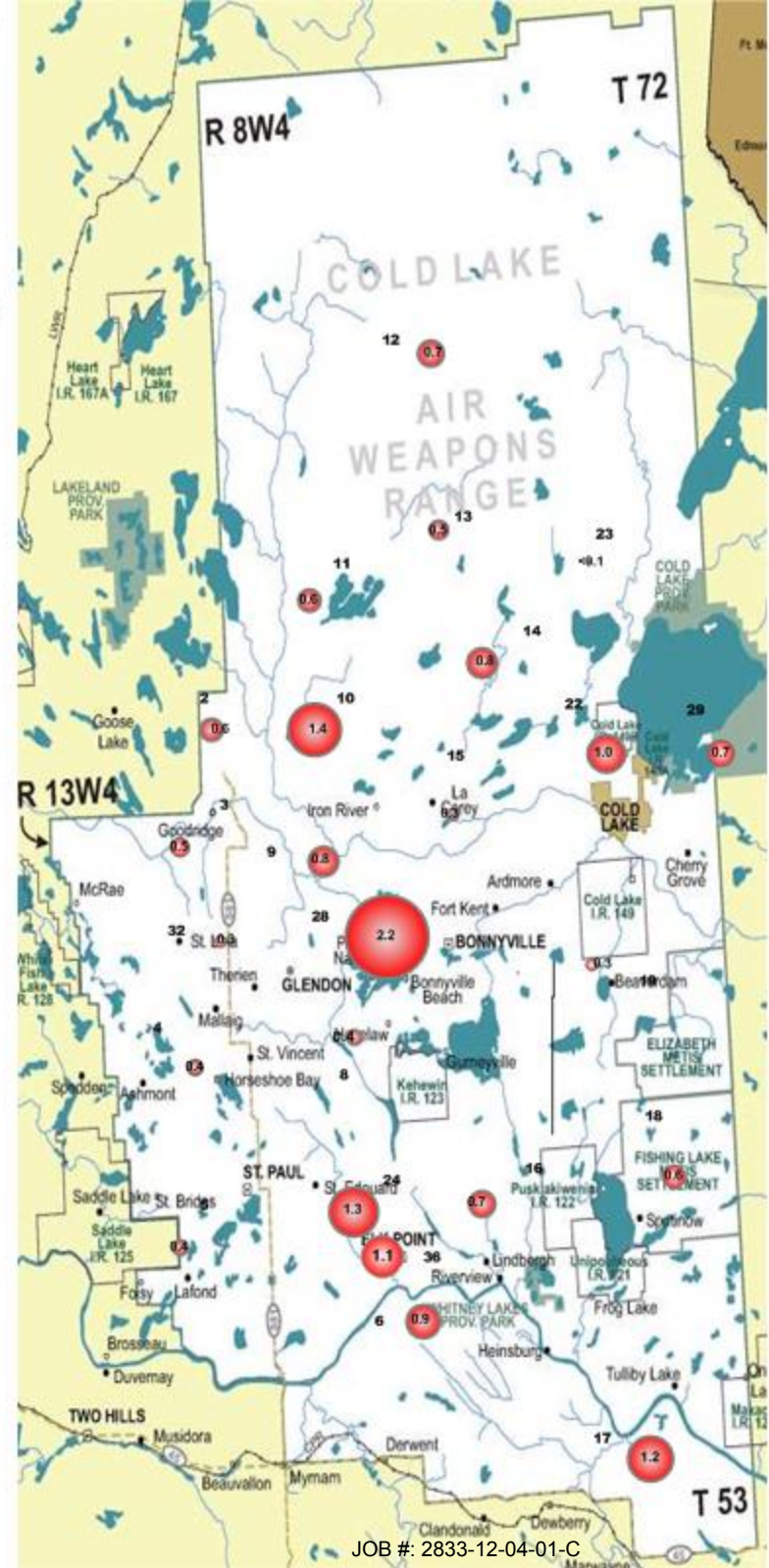
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	0.6 PPB	NA
3 – Therien	0.5 PPB	NA
4 – Flat Lake	0.4 PPB	NA
5 – Lake Eliza	0.4 PPB	NA
6 – Telegraph Creek	0.9 PPB	NA
8 – Muriel-Kehewin	0.4 PPB	NA
9 – Dupre	0.8 PPB	NA
10 – La Corey	1.4 PPB	NA
11 – Wolf Lake	0.6 PPB	NA
12 – Foster Creek	0.7 PPB	NA
13 – Primrose	0.5 PPB	0.5 PPB
14 – Maskwa	0.8 PPB	0.8 PPB
15 – Ardmore	0.3 PPB	NA
16 – Frog Lake	0.7 PPB	NA
17 – Clear Range	1.2 PPB	NA
18 – Fishing Lake	0.6 PPB	NA
19 – Beaverdam	0.3 PPB	NA
22 – Cold Lake South	1.0 PPB	NA
23 – Medley-Martineau	<0.1 PPB	NA
24 – Fort George	1.3 PPB	NA
28 – Town of Bonnyville	2.2 PPB	NA
29 – Cold Lake South 2	0.7 PPB	NA
32 – St. Lina	0.3 PPB	NA
36 – Portable	1.1 PPB	NA



Summary

Minimum : <0.1 PPB – Medley-Martineau
Maximum: 2.2 PPB – Town of Bonnyville
Average: 0.7 PPB *Includes Duplicates

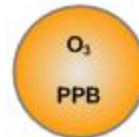


Lakeland Industry & Community Association O₃ Passive Bubble Map

APRIL 2012

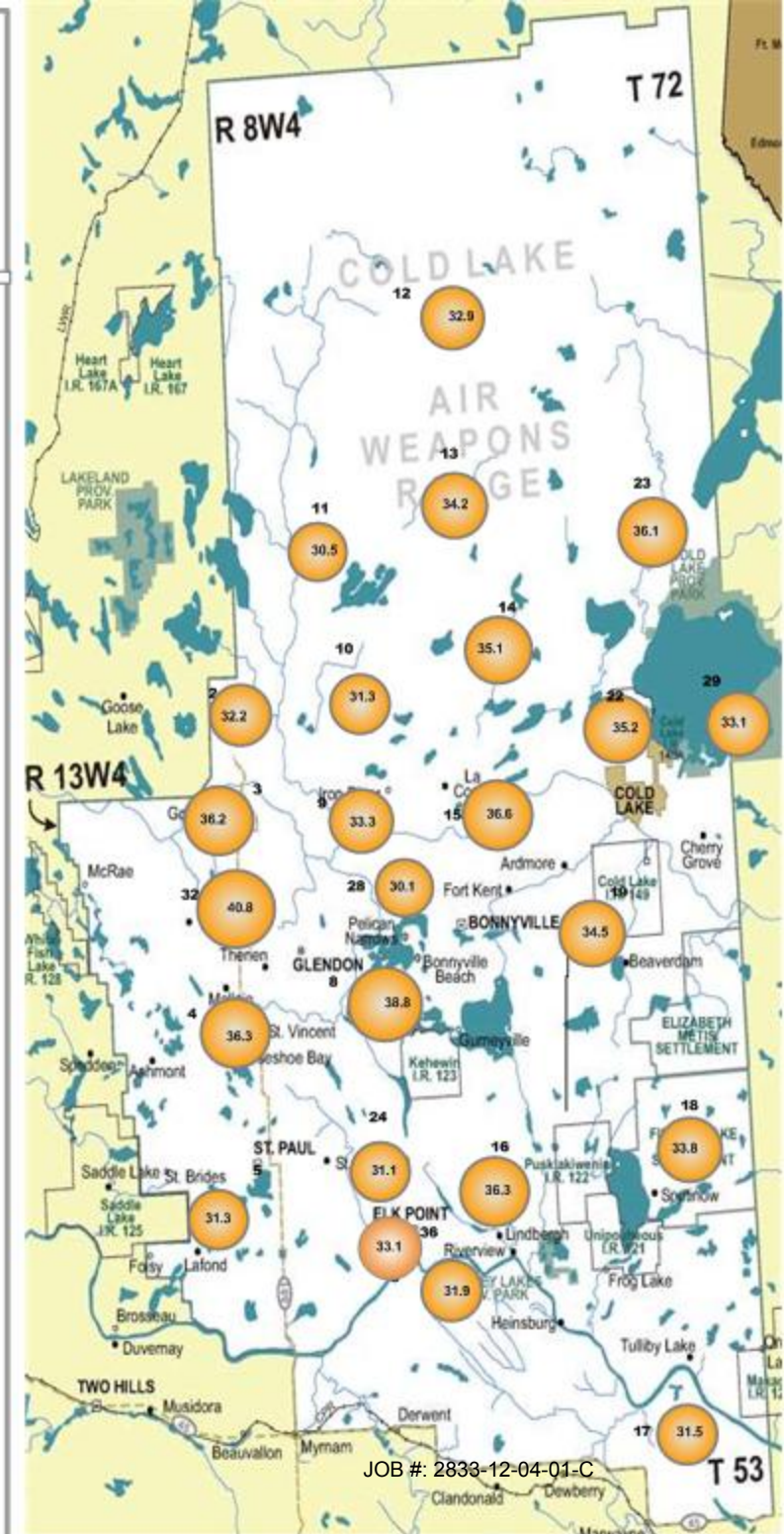
PASSIVE STATIONS

Station Number	Location	O ₃ Concentration (PPB)	Status
2	Sand River	32.2	PPB
3	Therien	36.2	PPB
4	Flat Lake	36.3	PPB
5	Lake Eliza	31.3	PPB
6	Telegraph Creek	31.9	PPB
8	Muriel-Kehewin	38.8	PPB
9	Dupre	33.3	PPB
10	La Corey	31.3	PPB
11	Wolf Lake	30.5	PPB
12	Foster Creek	32.9	PPB
13	Primrose	34.2	PPB
14	Maskwa	35.5	PPB
15	Ardmore	36.6	PPB
16	Frog Lake	36.3	PPB
17	Clear Range	31.5	PPB
18	Fishing Lake	33.8	PPB
19	Beaverdam	34.5	PPB
22	Cold Lake South	35.2	PPB
23	Medley-Martineau	36.1	PPB
24	Fort George	31.1	PPB
28	Town of Bonnyville	30.1	PPB
29	Cold Lake South 2	33.1	PPB
32	St. Lina	40.8	PPB
36	Portable	33.1	PPB
34.6	Maskwa	34.6	DAMAGED



Summary

Minimum : 30.1 PPB – Town of Bonnyville
 Maximum: 40.8 PPB – St. Lina
 Average: 34.0 PPB *Includes Duplicates



Lakeland Industry & Community Association SO₂ Passive Bubble Map

APRIL 2012

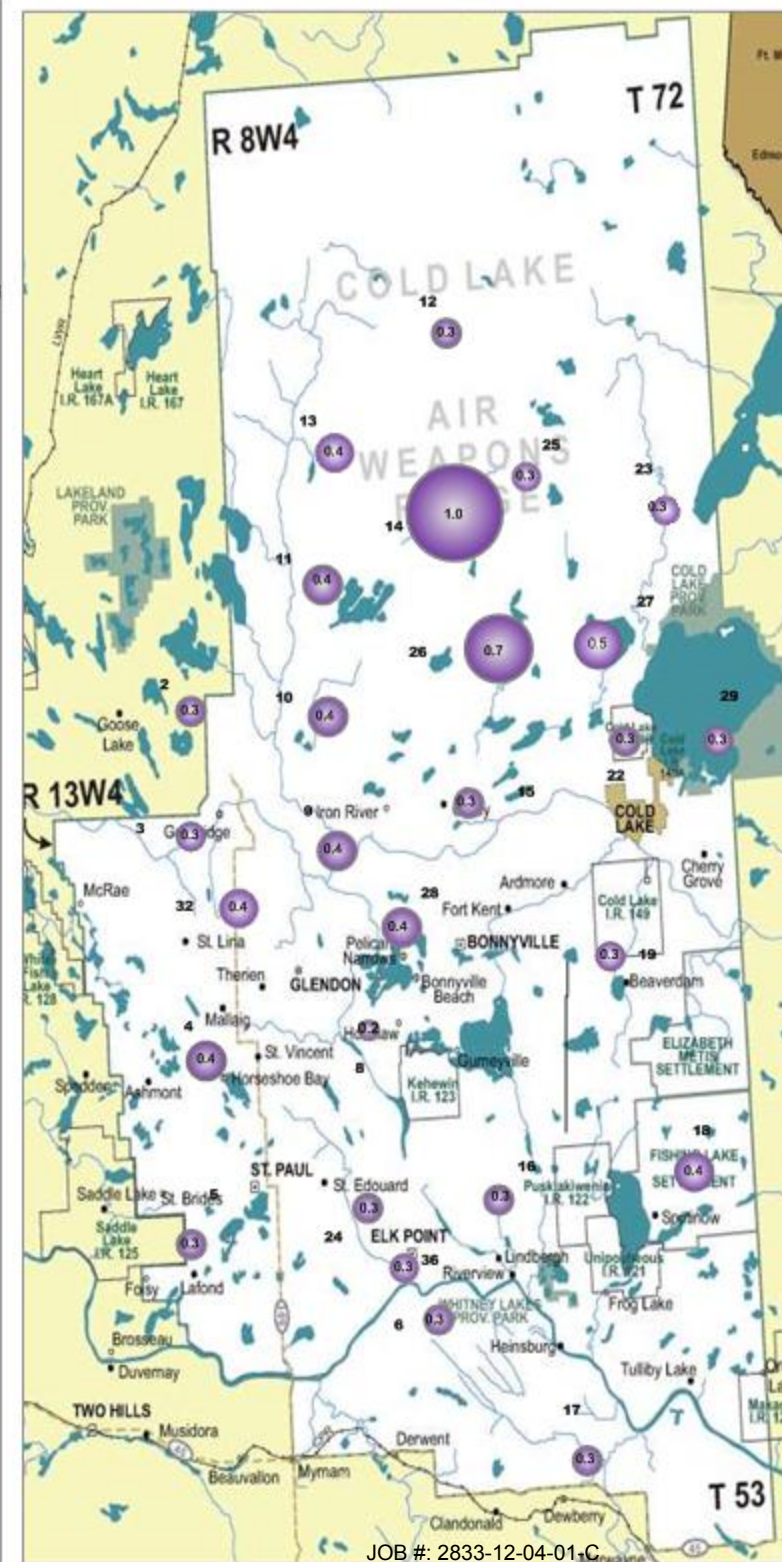
PASSIVE STATIONS

Station Number	Location	SO ₂ Concentration (PPB)	Duplicate
2	Sand River	0.3 PPB	NA
3	Therien	0.3 PPB	NA
4	Flat Lake	0.4 PPB	NA
5	Lake Eliza	0.3 PPB	NA
6	Telegraph Creek	0.3 PPB	NA
8	Muriel-Kehewin	0.2 PPB	NA
9	Dupre	0.4 PPB	NA
10	La Corey	0.4 PPB	NA
11	Wolf Lake	0.4 PPB	NA
12	Foster Creek	0.3 PPB	NA
13	Primrose	0.4 PPB	NA
14	Maskwa	1.0 PPB	NA
15	Ardmore	0.3 PPB	NA
16	Frog Lake	0.3 PPB	NA
17	Clear Range	0.3 PPB	NA
18	Fishing Lake	0.4 PPB	0.3 PPB
19	Beaverdam	0.3 PPB	0.3 PPB
22	Cold Lake South	0.3 PPB	NA
23	Medley-Martineau	0.3 PPB	NA
24	Fort George	0.3 PPB	NA
25	Burnt Lake	0.3 PPB	NA
26	Mahikan	0.7 PPB	NA
27	Mahkeses	0.5 PPB	NA
28	Town of Bonnyville	0.4 PPB	NA
29	Cold Lake South 2	0.3 PPB	NA
32	St. Lina	0.4 PPB	NA
36	Portable	0.3 PPB	NA



Summary

Minimum : 0.2 PPB –Muriel-Kehewin
Maximum: 1.0 PPB –Maskwa
Average: 0.37 PPB *Includes Duplicates



Passive Field Data

Field Notes

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
2	SO ₂ /NO ₂ /O ₃	03/29/2012	12:11	04/27/2012	16:20	
3	H ₂ S/SO ₂ /NO ₂ /O ₃	03/29/2012	11:30	04/27/2012	15:20	
4	SO ₂ /NO ₂ /O ₃	03/30/2012	14:02	04/27/2012	14:02	
5	H ₂ S/SO ₂ /NO ₂ /O ₃	03/30/2012	13:18	04/27/2012	13:10	
6	SO ₂ /NO ₂ /O ₃	03/30/2012	11:36	04/27/2012	11:50	
8	SO ₂ /NO ₂ /O ₃	03/30/2012	15:00	02/26/2012	16:00	
9	SO ₂ /NO ₂ /O ₃	03/29/2012	09:32	04/26/2012	18:20	
10	H ₂ S/SO ₂ /NO ₂ /O ₃	03/28/2012	19:00	04/26/2012	12:45	
11	H ₂ S/SO ₂ /NO ₂ /O ₃	03/28/2012	14:00	04/26/2012	14:25	
12	H ₂ S/SO ₂ /NO ₂ /O ₃	03/28/2012	16:00	04/30/2010	16:20	
13	H ₂ S/SO ₂ /NO ₂ /O ₃	03/28/2012	19:00	04/26/2012	11:40	
14	H ₂ S/SO ₂ /NO ₂ /O ₃	03/28/2012	19:50	04/26/2012	0:20	
15	SO ₂ /NO ₂ /O ₃	03/28/2012	09:00	04/26/2012	19:00	
16	H ₂ S/SO ₂ /NO ₂ /O ₃	03/30/2012	09:50	04/27/2012	10:18	
17	H ₂ S/SO ₂ /NO ₂ /O ₃	03/30/2012	10:45	04/27/2012	11:15	
18	H ₂ S/SO ₂ /NO ₂ /O ₃	03/30/2012	09:10	04/27/2012	09:34	
19	SO ₂ /NO ₂ /O ₃	03/30/2012	08:15	04/27/2012	08:25	
22	H ₂ S/SO ₂ /NO ₂ /O ₃	03/29/2012	08:00	04/30/2012	08:19	
23	SO ₂ /NO ₂ /O ₃	03/29/2012	13:35	04/26/2012	09:25	
24	H ₂ S/SO ₂ /NO ₂ /O ₃	03/30/2012	12:12	04/30/2012	17:00	
25	H ₂ S/SO ₂	03/28/2012	10:00	04/26/2012	17:40	
26	H ₂ S/SO ₂	03/28/2012	19:30	04/26/2012	11:00	
27	H ₂ S/SO ₂	03/28/2012	20:10	04/26/2012	13:00	
28	SO ₂ /NO ₂ /O ₃	03/29/2012	09:50	04/26/2012	15:20	
29	H ₂ S/SO ₂ /NO ₂ /O ₃	03/29/2012	08:00	04/26/2012	0835	
32	H ₂ S/SO ₂ /NO ₂ /O ₃	03/29/2012	10:50	04/26/2012	14:40	
34	H ₂ S/SO ₂ /NO ₂ /O ₃	03/30/2012	12:30	04/26/2012	17:25	

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
Duplicate # 17	SO ₂	03/30/2012	09:00	04/27/2012	11:15	
Duplicate # 18	SO ₂	03/30/2012	09:50	04/27/2012	09:34	
Duplicate # 19	SO ₂	03/30/2012	10:45	04/27/2012	08:25	
Duplicate # 22	H ₂ S	03/29/2012	10:45	04/26/2012	08:19	
Duplicate # 24	H ₂ S	03/30/2012	09:10	04/26/2012	17:00	
Duplicate # 13	NO ₂	03/28/2012	14:00	04/26/2012	10:20	
Duplicate # 14	NO ₂	03/28/2012	16:00	04/26/2012	11:40	
Duplicate # 13	O ₃	03/28/2012	14:40	04/26/2012	10:20	
Duplicate # 14	O ₃	03/28/2012	16:00	04/26/2012	11:40	

Passive Network Laboratory Analysis



Your Project #: 2012/03/29 - 2012/04/26
Site Location: LICA

Attention: MICHAEL BISAGA

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

Report Date: 2012/05/11

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B237568

Received: 2012/05/09, 08:32

Sample Matrix: Air
Samples Received: 33

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis (1)	20	2012/05/11	2012/05/11	EINDSOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (1)	26	2012/05/11	2012/05/11	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	26	2012/05/11	2012/05/11	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	29	2012/05/11	2012/05/11	EINDSOP-00149	Tang Passive SO2 in

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

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

Encryption Key

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

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

=====

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

Total cover pages: 1



Maxxam Job #: B237568
 Report Date: 2012/05/11

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2012/03/29 - 2012/04/26
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		DJ1564	DJ1565	DJ1566	DJ1567	DJ1568		
Sampling Date		2012/03/29 12:11	2012/03/29 11:30	2012/03/30 14:02	2012/03/30 13:18	2012/03/30 11:36		
	Units	2	3	4	5	6	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb		0.11		0.10		0.02	5832612
Calculated NO2	ppb	0.6	0.5	0.4	0.4	0.9	0.1	5832802
Calculated O3	ppb	32.2	36.2	36.3	31.3	31.9	0.1	5832199
Calculated SO2	ppb	0.3	0.3	0.4	0.3	0.3	0.1	5832845

RDL = Reportable Detection Limit

Maxxam ID		DJ1569		DJ1570	DJ1571	DJ1572		
Sampling Date		2012/03/30 15:00		2012/03/29 09:32	2012/03/28 19:00	2012/03/28 16:00		
	Units	8	QC Batch	9	10	11	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb		5832612		0.12	0.06	0.02	5832612
Calculated NO2	ppb	0.4	5832802	0.8	1.4	0.6	0.1	5832814
Calculated O3	ppb	38.8	5832199	33.3	31.3	30.5	0.1	5832199
Calculated SO2	ppb	0.2	5832845	0.4	0.4	0.4	0.1	5832845

RDL = Reportable Detection Limit

Maxxam ID		DJ1573	DJ1574	DJ1575	DJ1576	DJ1577		
Sampling Date		2012/03/28 16:00	2012/03/28 19:00	2012/03/28 19:50	2012/03/29 09:00	2012/03/30 09:50		
	Units	12	13	14	15	16	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.06	0.06	0.10		0.10	0.02	5832612
Calculated NO2	ppb	0.7	0.5	0.8	0.3	0.7	0.1	5832814
Calculated O3	ppb	32.9	34.2	35.5	36.6	36.3	0.1	5832199
Calculated SO2	ppb	0.3	0.4	1.0	0.3	0.3	0.1	5832849

RDL = Reportable Detection Limit



Maxxam Job #: B237568
 Report Date: 2012/05/11

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2012/03/29 - 2012/04/26
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		DJ1578	DJ1579	DJ1580	DJ1581	DJ1582		
Sampling Date		2012/03/30 10:45	2012/03/30 09:10	2012/03/30 08:15	2012/03/29 08:00	2012/03/29 13:35		
	Units	17	18	19	22	23	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.13	0.07		0.08		0.02	5832612
Calculated NO2	ppb	1.2	0.6	0.3	1.0	<0.1	0.1	5832814
Calculated O3	ppb	31.5	33.8	34.5	35.2	36.1	0.1	5832211
Calculated SO2	ppb	0.3	0.4	0.3	0.3	0.3	0.1	5832849
RDL = Reportable Detection Limit								

Maxxam ID		DJ1583	DJ1584	DJ1585	DJ1586	DJ1587		
Sampling Date		2012/03/30 12:12	2012/03/28 17:00	2012/03/28 19:30	2012/03/28 10:10	2012/03/29 09:50		
	Units	24	25	26	27	28	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.09	0.06	0.07	<0.02		0.02	5832612
Calculated NO2	ppb	1.3				2.2	0.1	5832814
Calculated O3	ppb	31.1				30.1	0.1	5832211
Calculated SO2	ppb	0.3	0.3	0.7	0.5	0.4	0.1	5832849
RDL = Reportable Detection Limit								

Maxxam ID		DJ1588	DJ1589	DJ1590	DJ1593	DJ1594		
Sampling Date		2012/03/29 08:00	2012/03/29 10:50	2012/03/30 12:30	2012/03/28 19:00	2012/03/28 19:50		
	Units	29	32	36	13 DUP	14 DUP	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.06	0.13	0.09			0.02	5832612
Calculated NO2	ppb	0.7	0.3	1.1	0.5	0.8	0.1	5832814
Calculated O3	ppb	33.1	40.8	33.1	DAMAGED	34.6	0.1	5832211
Calculated SO2	ppb	0.3	0.4	0.3			0.1	5832849
RDL = Reportable Detection Limit								



Maxxam Job #: B237568
Report Date: 2012/05/11

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2012/03/29 - 2012/04/26
Site Location: LICA
Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		DJ1596	DJ1597	DJ1598	DJ1599		
Sampling Date		2012/03/30 09:10	2012/03/30 08:15	2012/03/29 08:00	2012/03/30 12:12		
	Units	18 DUP	19 DUP	22 DUP	24 DUP	RDL	QC Batch

Passive Monitoring							
Calculated H2S	ppb			0.08	0.10	0.02	5832612
Calculated SO2	ppb	0.3	0.3			0.1	5832849

RDL = Reportable Detection Limit



Maxxam Job #: B237568
Report Date: 2012/05/11

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2012/03/29 - 2012/04/26
Site Location: LICA
Sampler Initials: SB

General Comments

Results relate only to the items tested.



LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Attention: MICHAEL BISAGA
 Client Project #: 2012/03/29 - 2012/04/26
 P.O. #:
 Site Location: LICA

Quality Assurance Report
 Maxxam Job Number: PB237568

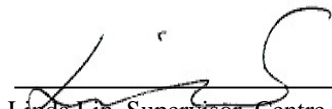
QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
5832199 OZ	Calibration Check	Calculated O3	2012/05/11		99	%	91 - 107
	Spiked Blank	Calculated O3	2012/05/11		100	%	N/A
	Method Blank	Calculated O3	2012/05/11	<0.1		ppb	
5832211 OZ	Calibration Check	Calculated O3	2012/05/11		99	%	91 - 107
	Spiked Blank	Calculated O3	2012/05/11		100	%	N/A
	Method Blank	Calculated O3	2012/05/11	<0.1		ppb	
5832612 WC6	Calibration Check	Calculated H2S	2012/05/11		102	%	80 - 120
	Spiked Blank	Calculated H2S	2012/05/11		99	%	N/A
5832802 DF4	Calibration Check	Calculated NO2	2012/05/11		99	%	76 - 118
	Spiked Blank	Calculated NO2	2012/05/11		96	%	N/A
	Method Blank	Calculated NO2	2012/05/11	<0.1		ppb	
5832814 DF4	Calibration Check	Calculated NO2	2012/05/11		99	%	76 - 118
	Spiked Blank	Calculated NO2	2012/05/11		99	%	N/A
	Method Blank	Calculated NO2	2012/05/11	<0.1		ppb	
5832845 DF4	Calibration Check	Calculated SO2	2012/05/11		100	%	95 - 105
	Spiked Blank	Calculated SO2	2012/05/11		100	%	N/A
	Method Blank	Calculated SO2	2012/05/11	<0.1		ppb	
5832849 DF4	Calibration Check	Calculated SO2	2012/05/11		100	%	95 - 105
	Spiked Blank	Calculated SO2	2012/05/11		101	%	N/A
	Method Blank	Calculated SO2	2012/05/11	<0.1		ppb	

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

Validation Signature Page

Maxxam Job #: B237568

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

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

Linda Lin, Supervisor, Centre for Passive Sampling Technology

=====

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

Volatile Organics Laboratory Analysis

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 7859
Station ID: Lica 1 Canister Installation Date/Time: Mar 30, 2012 @ 08:10 mst
Field Sample ID: LICA VOC/ CLS /Apr 03, 2012 Canister Removal Date/Time: Apr 09, 2012 @ 14:31 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
03-Apr-12	04/03/2012 0:00	04/04/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	646	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 # 10961

Technician Signiture: Ting Xu

Your C.O.C. #: 10961

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

Report Date: 2012/04/13

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B250895****Received: 2012/04/12, 10:45**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/04/12	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/04/12	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

Page 1 of 14

Maxxam Job #: B250895
 Report Date: 2012/04/13

RESULTS OF ANALYSES OF AIR

Maxxam ID		NB8059	NB8060	
Sampling Date		2012/04/03	2012/04/03	
COC Number		10961	10961	
	Units	LICAVOC\CLS\APR	LICAVOC\PORT\APR	QC Batch
		03,12 - 7859	03,12 - 135	

Volatile Organics				
Pressure on Receipt	psig	23	22	2818164

QC Batch = Quality Control Batch

Maxxam Job #: B250895
 Report Date: 2012/04/13

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NB8059				
Sampling Date		2012/04/03				
COC Number		10961				
	Units	LICAVOC\CLSI\APR	RDL	ug/m3	DL (ug/m3)	QC Batch
		03,12 - 7859				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2818193
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2818193
Propene	ppbv	<0.30	0.30	<0.516	0.516	2818193
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2818193
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2818193
Dichlorodifluoromethane (FREON 12)	ppbv	0.68	0.20	3.38	0.989	2818193
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2818193
Chloromethane	ppbv	0.61	0.30	1.27	0.620	2818193
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2818193
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2818193
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2818193
Trichlorofluoromethane (FREON 11)	ppbv	0.31	0.20	1.74	1.12	2818193
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2818193
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2818193
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2818193
2-Propanone	ppbv	2.43	0.80	5.77	1.90	2818193
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2818193
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2818193
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2818193
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2818193
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2818193
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2818193
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2818193
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2818193
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2818193
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2818193
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2818193
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2818193
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2818193
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2818193
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2818193
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2818193
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B250895
 Report Date: 2012/04/13

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NB8059				
Sampling Date		2012/04/03				
COC Number		10961				
	Units	LICAVOC\CLSI\APR	RDL	ug/m3	DL (ug/m3)	QC Batch
		03,12 - 7859				

1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2818193
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2818193
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2818193
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2818193
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2818193
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2818193
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2818193
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2818193
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2818193
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2818193
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2818193
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2818193
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2818193
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2818193
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2818193
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2818193
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2818193
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2818193
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2818193
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2818193
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2818193
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2818193
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2818193
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2818193
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2818193
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2818193
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2818193
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2818193
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2818193
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2818193
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2818193
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2818193
Surrogate Recovery (%)						
Bromochloromethane	%	97		N/A	N/A	2818193

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

Maxxam Job #: B250895
 Report Date: 2012/04/13

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NB8059				
Sampling Date		2012/04/03				
COC Number		10961				
	Units	LICAVOC\CLSI\APR	RDL	ug/m3	DL (ug/m3)	QC Batch
		03,12 - 7859				

D5-Chlorobenzene	%	98		N/A	N/A	2818193
Difluorobenzene	%	99		N/A	N/A	2818193

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

Maxxam Job #: B250895
 Report Date: 2012/04/13

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NB8060				
Sampling Date		2012/04/03				
COC Number		10961				
	Units	LICAVOCIPORTVAPR 03,12 - 135	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2818193
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2818193
Propene	ppbv	<0.30	0.30	<0.516	0.516	2818193
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2818193
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2818193
Dichlorodifluoromethane (FREON 12)	ppbv	0.68	0.20	3.34	0.989	2818193
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2818193
Chloromethane	ppbv	0.60	0.30	1.23	0.620	2818193
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2818193
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2818193
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2818193
Trichlorofluoromethane (FREON 11)	ppbv	0.32	0.20	1.81	1.12	2818193
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2818193
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2818193
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2818193
2-Propanone	ppbv	2.26	0.80	5.37	1.90	2818193
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2818193
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2818193
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2818193
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2818193
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2818193
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2818193
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2818193
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2818193
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2818193
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2818193
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2818193
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2818193
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2818193
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2818193
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2818193
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2818193

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B250895
 Report Date: 2012/04/13

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NB8060				
Sampling Date		2012/04/03				
COC Number		10961				
	Units	LICAVOCIPORTVAPR	RDL	ug/m3	DL (ug/m3)	QC Batch
		03,12 - 135				
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2818193
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2818193
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2818193
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2818193
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2818193
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2818193
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2818193
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2818193
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2818193
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2818193
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2818193
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2818193
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2818193
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2818193
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2818193
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2818193
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2818193
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2818193
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2818193
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2818193
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2818193
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2818193
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2818193
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2818193
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2818193
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2818193
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2818193
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2818193
Cyclohexane	ppbv	0.25	0.20	0.847	0.688	2818193
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2818193
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2818193
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2818193
Surrogate Recovery (%)						
Bromochloromethane	%	94		N/A	N/A	2818193
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B250895
 Report Date: 2012/04/13

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NB8060				
Sampling Date		2012/04/03				
COC Number		10961				
	Units	LICAVOC PORT APR	RDL	ug/m3	DL (ug/m3)	QC Batch
		03,12 - 135				

D5-Chlorobenzene	%	94		N/A	N/A	2818193
Difluorobenzene	%	95		N/A	N/A	2818193

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

Maxxam Job #: B250895
 Report Date: 2012/04/13

Test Summary

Maxxam ID NB8059
Sample ID LICAVOC\CLS\APR 03,12 - 7859
Matrix AIR

Collected 2012/04/03
Shipped
Received 2012/04/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2818164	N/A	2012/04/12	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2818193	N/A	2012/04/12	YAO LIANG SUN

Maxxam ID NB8060
Sample ID LICAVOC\PORT\APR 03,12 - 135
Matrix AIR

Collected 2012/04/03
Shipped
Received 2012/04/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2818164	N/A	2012/04/12	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2818193	N/A	2012/04/12	YAO LIANG SUN

Maxxam Job #: B250895
Report Date: 2012/04/13

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB250895

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2818193 LSY	Spiked Blank	Bromochloromethane	2012/04/12		106	%	60 - 140
		D5-Chlorobenzene	2012/04/12		114	%	60 - 140
		Difluorobenzene	2012/04/12		111	%	60 - 140
		2,2,4-Trimethylpentane	2012/04/12		95	%	70 - 130
		Carbon Disulfide	2012/04/12		99	%	70 - 130
		Propene	2012/04/12		92	%	70 - 130
		Vinyl Acetate	2012/04/12		100	%	70 - 130
		Vinyl Bromide	2012/04/12		103	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/04/12		93	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/04/12		110	%	70 - 130
		Chloromethane	2012/04/12		98	%	70 - 130
		Vinyl Chloride	2012/04/12		101	%	70 - 130
		Chloroethane	2012/04/12		97	%	70 - 130
		1,3-Butadiene	2012/04/12		81	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/04/12		95	%	70 - 130
		Trichlorotrifluoroethane	2012/04/12		98	%	70 - 130
		Ethanol (ethyl alcohol)	2012/04/12		74	%	70 - 130
		2-propanol	2012/04/12		96	%	70 - 130
		2-Propanone	2012/04/12		99	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/04/12		90	%	70 - 130
		Methyl Isobutyl Ketone	2012/04/12		92	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/04/12		94	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/04/12		101	%	70 - 130
		Ethyl Acetate	2012/04/12		96	%	70 - 130
		1,1-Dichloroethylene	2012/04/12		98	%	70 - 130
		cis-1,2-Dichloroethylene	2012/04/12		98	%	70 - 130
		trans-1,2-Dichloroethylene	2012/04/12		97	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/04/12		83	%	70 - 130
		Chloroform	2012/04/12		94	%	70 - 130
		Carbon Tetrachloride	2012/04/12		92	%	70 - 130
		1,1-Dichloroethane	2012/04/12		95	%	70 - 130
		1,2-Dichloroethane	2012/04/12		96	%	70 - 130
		Ethylene Dibromide	2012/04/12		98	%	70 - 130
		1,1,1-Trichloroethane	2012/04/12		92	%	70 - 130
		1,1,2-Trichloroethane	2012/04/12		96	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/04/12		89	%	70 - 130
		cis-1,3-Dichloropropene	2012/04/12		96	%	70 - 130
		trans-1,3-Dichloropropene	2012/04/12		100	%	70 - 130
		1,2-Dichloropropane	2012/04/12		93	%	70 - 130
		Bromomethane	2012/04/12		102	%	70 - 130
		Bromoform	2012/04/12		101	%	70 - 130
		Bromodichloromethane	2012/04/12		95	%	70 - 130
		Dibromochloromethane	2012/04/12		100	%	70 - 130
		Heptane	2012/04/12		92	%	70 - 130
		Trichloroethylene	2012/04/12		97	%	70 - 130
		Tetrachloroethylene	2012/04/12		101	%	70 - 130
		Benzene	2012/04/12		96	%	70 - 130
		Toluene	2012/04/12		96	%	70 - 130
		Ethylbenzene	2012/04/12		99	%	70 - 130
		p+m-Xylene	2012/04/12		96	%	70 - 130
		o-Xylene	2012/04/12		97	%	70 - 130
		Styrene	2012/04/12		87	%	70 - 130
		1,3,5-Trimethylbenzene	2012/04/12		92	%	70 - 130
		1,2,4-Trimethylbenzene	2012/04/12		90	%	70 - 130
		4-ethyltoluene	2012/04/12		96	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB250895

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2818193 LSY	Spiked Blank	Chlorobenzene	2012/04/12		99	%	70 - 130
		Benzyl chloride	2012/04/12		84	%	70 - 130
		1,3-Dichlorobenzene	2012/04/12		92	%	70 - 130
		1,4-Dichlorobenzene	2012/04/12		91	%	70 - 130
		1,2-Dichlorobenzene	2012/04/12		85	%	70 - 130
		1,2,4-Trichlorobenzene	2012/04/12		93	%	70 - 130
		Hexachlorobutadiene	2012/04/12		90	%	70 - 130
		Hexane	2012/04/12		101	%	70 - 130
		Cyclohexane	2012/04/12		96	%	70 - 130
		Tetrahydrofuran	2012/04/12		96	%	70 - 130
		1,4-Dioxane	2012/04/12		93	%	70 - 130
		Xylene (Total)	2012/04/12		97	%	70 - 130
	Method Blank	Bromochloromethane	2012/04/12		98	%	60 - 140
		D5-Chlorobenzene	2012/04/12		98	%	60 - 140
		Difluorobenzene	2012/04/12		99	%	60 - 140
		2,2,4-Trimethylpentane	2012/04/12	<0.20		ppbv	
		Carbon Disulfide	2012/04/12	<0.50		ppbv	
		Propene	2012/04/12	<0.30		ppbv	
		Vinyl Acetate	2012/04/12	<0.20		ppbv	
		Vinyl Bromide	2012/04/12	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/04/12	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/04/12	<0.17		ppbv	
		Chloromethane	2012/04/12	<0.30		ppbv	
		Vinyl Chloride	2012/04/12	<0.18		ppbv	
		Chloroethane	2012/04/12	<0.30		ppbv	
		1,3-Butadiene	2012/04/12	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/04/12	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/04/12	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/04/12	<2.3		ppbv	
		2-propanol	2012/04/12	<3.0		ppbv	
		2-Propanone	2012/04/12	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/04/12	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/04/12	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/04/12	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/04/12	<0.20		ppbv	
		Ethyl Acetate	2012/04/12	<2.2		ppbv	
		1,1-Dichloroethylene	2012/04/12	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/04/12	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/04/12	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/04/12	<0.80		ppbv	
		Chloroform	2012/04/12	<0.15		ppbv	
		Carbon Tetrachloride	2012/04/12	<0.30		ppbv	
		1,1-Dichloroethane	2012/04/12	<0.20		ppbv	
		1,2-Dichloroethane	2012/04/12	<0.20		ppbv	
		Ethylene Dibromide	2012/04/12	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/04/12	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/04/12	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/04/12	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/04/12	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/04/12	<0.17		ppbv	
		1,2-Dichloropropane	2012/04/12	<0.40		ppbv	
		Bromomethane	2012/04/12	<0.18		ppbv	
		Bromoform	2012/04/12	<0.20		ppbv	
		Bromodichloromethane	2012/04/12	<0.20		ppbv	
		Dibromochloromethane	2012/04/12	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB250895

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2818193 LSY	Method Blank	Heptane	2012/04/12	<0.30		ppbv	
		Trichloroethylene	2012/04/12	<0.30		ppbv	
		Tetrachloroethylene	2012/04/12	<0.20		ppbv	
		Benzene	2012/04/12	<0.18		ppbv	
		Toluene	2012/04/12	<0.20		ppbv	
		Ethylbenzene	2012/04/12	<0.20		ppbv	
		p+m-Xylene	2012/04/12	<0.37		ppbv	
		o-Xylene	2012/04/12	<0.20		ppbv	
		Styrene	2012/04/12	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/04/12	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/04/12	<0.50		ppbv	
		4-ethyltoluene	2012/04/12	<2.2		ppbv	
		Chlorobenzene	2012/04/12	<0.20		ppbv	
		Benzyl chloride	2012/04/12	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/04/12	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/04/12	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/04/12	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/04/12	<2.0		ppbv	
		Hexachlorobutadiene	2012/04/12	<3.0		ppbv	
		Hexane	2012/04/12	<0.30		ppbv	
		Cyclohexane	2012/04/12	<0.20		ppbv	
		Tetrahydrofuran	2012/04/12	<0.40		ppbv	
		1,4-Dioxane	2012/04/12	<2.0		ppbv	
		Xylene (Total)	2012/04/12	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2012/04/12	0.5		%	25
		Carbon Disulfide	2012/04/12	NC		%	25
		Propene	2012/04/12	NC		%	25
		Vinyl Acetate	2012/04/12	NC		%	25
		Vinyl Bromide	2012/04/12	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2012/04/12	NC		%	25
		1,2-Dichlorotetrafluoroethane	2012/04/12	NC		%	25
		Chloromethane	2012/04/12	NC		%	25
		Vinyl Chloride	2012/04/12	NC		%	25
		Chloroethane	2012/04/12	NC		%	25
		1,3-Butadiene	2012/04/12	NC		%	25
		Trichlorofluoromethane (FREON 11)	2012/04/12	4.4		%	25
		Trichlorotrifluoroethane	2012/04/12	NC		%	25
		Ethanol (ethyl alcohol)	2012/04/12	NC		%	25
		2-propanol	2012/04/12	NC		%	25
		2-Propanone	2012/04/12	NC		%	25
		Methyl Ethyl Ketone (2-Butanone)	2012/04/12	NC		%	25
		Methyl Isobutyl Ketone	2012/04/12	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2012/04/12	NC		%	25
		Methyl t-butyl ether (MTBE)	2012/04/12	NC		%	25
		Ethyl Acetate	2012/04/12	NC		%	25
		1,1-Dichloroethylene	2012/04/12	NC		%	25
		cis-1,2-Dichloroethylene	2012/04/12	NC		%	25
		trans-1,2-Dichloroethylene	2012/04/12	NC		%	25
		Methylene Chloride(Dichloromethane)	2012/04/12	NC		%	25
		Chloroform	2012/04/12	NC		%	25
		Carbon Tetrachloride	2012/04/12	NC		%	25
		1,1-Dichloroethane	2012/04/12	NC		%	25
		1,2-Dichloroethane	2012/04/12	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB250895

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2818193 LSY	RPD - Sample/Sample Dup	Ethylene Dibromide	2012/04/12	NC		%	25
		1,1,1-Trichloroethane	2012/04/12	NC		%	25
		1,1,2-Trichloroethane	2012/04/12	NC		%	25
		1,1,2,2-Tetrachloroethane	2012/04/12	NC		%	25
		cis-1,3-Dichloropropene	2012/04/12	NC		%	25
		trans-1,3-Dichloropropene	2012/04/12	NC		%	25
		1,2-Dichloropropane	2012/04/12	NC		%	25
		Bromomethane	2012/04/12	NC		%	25
		Bromoform	2012/04/12	NC		%	25
		Bromodichloromethane	2012/04/12	NC		%	25
		Dibromochloromethane	2012/04/12	NC		%	25
		Heptane	2012/04/12	0.9		%	25
		Trichloroethylene	2012/04/12	NC		%	25
		Tetrachloroethylene	2012/04/12	NC		%	25
		Benzene	2012/04/12	NC		%	25
		Toluene	2012/04/12	2.4		%	25
		Ethylbenzene	2012/04/12	0.5		%	25
		p+m-Xylene	2012/04/12	3.0		%	25
		o-Xylene	2012/04/12	2.4		%	25
		Styrene	2012/04/12	NC		%	25
		1,3,5-Trimethylbenzene	2012/04/12	3.4		%	25
		1,2,4-Trimethylbenzene	2012/04/12	3.3		%	25
		4-ethyltoluene	2012/04/12	2.2		%	25
		Chlorobenzene	2012/04/12	NC		%	25
		Benzyl chloride	2012/04/12	NC		%	25
		1,3-Dichlorobenzene	2012/04/12	NC		%	25
		1,4-Dichlorobenzene	2012/04/12	NC		%	25
		1,2-Dichlorobenzene	2012/04/12	NC		%	25
		1,2,4-Trichlorobenzene	2012/04/12	NC		%	25
		Hexachlorobutadiene	2012/04/12	NC		%	25
		Hexane	2012/04/12	NC		%	25
		Cyclohexane	2012/04/12	2.7		%	25
		Tetrahydrofuran	2012/04/12	NC		%	25
		1,4-Dioxane	2012/04/12	NC		%	25
		Xylene (Total)	2012/04/12	2.9		%	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: 7850
Station ID: Lica 1 Canister Installation Date/Time: Apr 09, 2012 @ 14:37 mst
Field Sample ID: LICA VOC/ CLS /Apr 10, 2012 Canister Removal Date/Time: Apr 11, 2012 @ 14:50 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
10-Apr-12	04/10/2012 0:00	04/11/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	646	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 #

Technician Signature: Ting Xu / Jacob Roch

Your C.O.C. #: 08591

Attention: Michael BisagaMaxxam Analytics
2608 6A Ave.
Cold Lake, AB
CANADA T9M 2C7**Report Date: 2012/04/24****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: B254100****Received: 2012/04/18, 09:55**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/04/19	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/04/19	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 #: B254100
 Report Date: 2012/04/24

RESULTS OF ANALYSES OF AIR

Maxxam ID		ND3323	ND3324	
Sampling Date		2012/04/10	2012/04/10	
COC Number		08591	08591	
	Units	LICA VOC\CLSIAPRIL 10,12	LICA VOC\PORTAPRIL 10,12	QC Batch

Volatile Organics				
Pressure on Receipt	psig	21	22	2825340

QC Batch = Quality Control Batch

Maxxam Job #: B254100
 Report Date: 2012/04/24

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		ND3323				
Sampling Date		2012/04/10				
COC Number		08591				
	Units	LICA VOC\CLS\APRIL 10,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2827212
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2827212
Propene	ppbv	<0.30	0.30	<0.516	0.516	2827212
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2827212
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2827212
Dichlorodifluoromethane (FREON 12)	ppbv	0.71	0.20	3.49	0.989	2827212
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2827212
Chloromethane	ppbv	0.39	0.30	0.800	0.620	2827212
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2827212
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2827212
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2827212
Trichlorofluoromethane (FREON 11)	ppbv	0.38	0.20	2.14	1.12	2827212
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2827212
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2827212
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2827212
2-Propanone	ppbv	1.68	0.80	3.98	1.90	2827212
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2827212
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2827212
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2827212
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2827212
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2827212
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2827212
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2827212
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2827212
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2827212
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2827212
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2827212
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2827212
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2827212
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2827212
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2827212

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B254100
 Report Date: 2012/04/24

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		ND3323				
Sampling Date		2012/04/10				
COC Number		08591				
	Units	LICA VOC\CLS\APRIL 10,12	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2827212
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2827212
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2827212
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2827212
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2827212
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2827212
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2827212
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2827212
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2827212
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2827212
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2827212
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2827212
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2827212
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2827212
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2827212
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2827212
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2827212
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2827212
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2827212
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2827212
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2827212
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2827212
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2827212
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2827212
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2827212
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2827212
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2827212
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2827212
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2827212
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2827212
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2827212
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2827212
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2827212
QC Batch = Quality Control Batch						

Maxxam Job #: B254100
 Report Date: 2012/04/24

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		ND3323				
Sampling Date		2012/04/10				
COC Number		08591				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\CLSIAPRIL				
		10,12				

Surrogate Recovery (%)						
Bromochloromethane	%	70		N/A	N/A	2827212
D5-Chlorobenzene	%	66		N/A	N/A	2827212
Difluorobenzene	%	73		N/A	N/A	2827212

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

Maxxam Job #: B254100
 Report Date: 2012/04/24

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		ND3324				
Sampling Date		2012/04/10				
COC Number		08591				
	Units	LICA VOC\PORT\APRIL 10,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2827212
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2827212
Propene	ppbv	<0.30	0.30	<0.516	0.516	2827212
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2827212
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2827212
Dichlorodifluoromethane (FREON 12)	ppbv	0.71	0.20	3.51	0.989	2827212
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2827212
Chloromethane	ppbv	0.40	0.30	0.835	0.620	2827212
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2827212
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2827212
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2827212
Trichlorofluoromethane (FREON 11)	ppbv	0.37	0.20	2.07	1.12	2827212
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2827212
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2827212
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2827212
2-Propanone	ppbv	1.24	0.80	2.94	1.90	2827212
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2827212
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2827212
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2827212
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2827212
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2827212
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2827212
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2827212
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2827212
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2827212
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2827212
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2827212
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2827212
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2827212
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2827212
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2827212

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B254100
 Report Date: 2012/04/24

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		ND3324				
Sampling Date		2012/04/10				
COC Number		08591				
	Units	LICA VOC\PORT\APRIL 10,12	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2827212
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2827212
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2827212
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2827212
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2827212
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2827212
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2827212
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2827212
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2827212
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2827212
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2827212
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2827212
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2827212
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2827212
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2827212
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2827212
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2827212
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2827212
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2827212
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2827212
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2827212
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2827212
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2827212
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2827212
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2827212
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2827212
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2827212
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2827212
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2827212
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2827212
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2827212
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2827212
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2827212
QC Batch = Quality Control Batch						

Maxxam Job #: B254100
 Report Date: 2012/04/24

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		ND3324				
Sampling Date		2012/04/10				
COC Number		08591				
	Units	LICA VOC\PORT\APRIL 10,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	70		N/A	N/A	2827212
D5-Chlorobenzene	%	68		N/A	N/A	2827212
Difluorobenzene	%	74		N/A	N/A	2827212

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

Maxxam Job #: B254100
 Report Date: 2012/04/24

Test Summary

Maxxam ID ND3323
Sample ID LICA VOC\CLS\APRIL 10,12
Matrix AIR

Collected 2012/04/10
Shipped
Received 2012/04/18

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2825340	N/A	2012/04/19	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2827212	N/A	2012/04/19	SPOMENKA SMILJANIC

Maxxam ID ND3324
Sample ID LICA VOC\PORT\APRIL 10,12
Matrix AIR

Collected 2012/04/10
Shipped
Received 2012/04/18

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2825340	N/A	2012/04/19	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2827212	N/A	2012/04/19	SPOMENKA SMILJANIC

Maxxam Job #: B254100
Report Date: 2012/04/24

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB254100

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2827212 S_S	Spiked Blank	Bromochloromethane	2012/04/19		122	%	60 - 140
		D5-Chlorobenzene	2012/04/19		128	%	60 - 140
		Difluorobenzene	2012/04/19		129	%	60 - 140
		2,2,4-Trimethylpentane	2012/04/19		73	%	70 - 130
		Carbon Disulfide	2012/04/19		79	%	70 - 130
		Propene	2012/04/19		66 (1)	%	70 - 130
		Vinyl Acetate	2012/04/19		83	%	70 - 130
		Vinyl Bromide	2012/04/19		84	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/04/19		97	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/04/19		107	%	70 - 130
		Chloromethane	2012/04/19		91	%	70 - 130
		Vinyl Chloride	2012/04/19		85	%	70 - 130
		Chloroethane	2012/04/19		84	%	70 - 130
		1,3-Butadiene	2012/04/19		82	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/04/19		101	%	70 - 130
		Trichlorotrifluoroethane	2012/04/19		83	%	70 - 130
		Ethanol (ethyl alcohol)	2012/04/19		73	%	70 - 130
		2-propanol	2012/04/19		76	%	70 - 130
		2-Propanone	2012/04/19		95	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/04/19		73	%	70 - 130
		Methyl Isobutyl Ketone	2012/04/19		81	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/04/19		84	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/04/19		89	%	70 - 130
		Ethyl Acetate	2012/04/19		79	%	70 - 130
		1,1-Dichloroethylene	2012/04/19		86	%	70 - 130
		cis-1,2-Dichloroethylene	2012/04/19		84	%	70 - 130
		trans-1,2-Dichloroethylene	2012/04/19		82	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/04/19		75	%	70 - 130
		Chloroform	2012/04/19		87	%	70 - 130
		Carbon Tetrachloride	2012/04/19		96	%	70 - 130
		1,1-Dichloroethane	2012/04/19		83	%	70 - 130
		1,2-Dichloroethane	2012/04/19		97	%	70 - 130
		Ethylene Dibromide	2012/04/19		85	%	70 - 130
		1,1,1-Trichloroethane	2012/04/19		96	%	70 - 130
		1,1,2-Trichloroethane	2012/04/19		80	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/04/19		78	%	70 - 130
		cis-1,3-Dichloropropene	2012/04/19		91	%	70 - 130
		trans-1,3-Dichloropropene	2012/04/19		99	%	70 - 130
		1,2-Dichloropropane	2012/04/19		76	%	70 - 130
		Bromomethane	2012/04/19		86	%	70 - 130
		Bromoform	2012/04/19		99	%	70 - 130
		Bromodichloromethane	2012/04/19		99	%	70 - 130
		Dibromochloromethane	2012/04/19		99	%	70 - 130
		Heptane	2012/04/19		77	%	70 - 130
		Trichloroethylene	2012/04/19		75	%	70 - 130
		Tetrachloroethylene	2012/04/19		81	%	70 - 130
		Benzene	2012/04/19		78	%	70 - 130
		Toluene	2012/04/19		81	%	70 - 130
		Ethylbenzene	2012/04/19		82	%	70 - 130
		p+m-Xylene	2012/04/19		83	%	70 - 130
		o-Xylene	2012/04/19		84	%	70 - 130
		Styrene	2012/04/19		65 (1)	%	70 - 130
		1,3,5-Trimethylbenzene	2012/04/19		84	%	70 - 130
		1,2,4-Trimethylbenzene	2012/04/19		82	%	70 - 130
		4-ethyltoluene	2012/04/19		88	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB254100

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2827212 S_S	Spiked Blank	Chlorobenzene	2012/04/19		73	%	70 - 130
		Benzyl chloride	2012/04/19		102	%	70 - 130
		1,3-Dichlorobenzene	2012/04/19		77	%	70 - 130
		1,4-Dichlorobenzene	2012/04/19		78	%	70 - 130
		1,2-Dichlorobenzene	2012/04/19		75	%	70 - 130
		1,2,4-Trichlorobenzene	2012/04/19		82	%	70 - 130
		Hexachlorobutadiene	2012/04/19		85	%	70 - 130
		Hexane	2012/04/19		81	%	70 - 130
		Cyclohexane	2012/04/19		75	%	70 - 130
		Tetrahydrofuran	2012/04/19		74	%	70 - 130
		1,4-Dioxane	2012/04/19		81	%	70 - 130
		Xylene (Total)	2012/04/19		84	%	70 - 130
	Method Blank	Bromochloromethane	2012/04/19		90	%	60 - 140
		D5-Chlorobenzene	2012/04/19		83	%	60 - 140
		Difluorobenzene	2012/04/19		95	%	60 - 140
		2,2,4-Trimethylpentane	2012/04/19	<0.20		ppbv	
		Carbon Disulfide	2012/04/19	<0.50		ppbv	
		Propene	2012/04/19	<0.30		ppbv	
		Vinyl Acetate	2012/04/19	<0.20		ppbv	
		Vinyl Bromide	2012/04/19	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/04/19	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/04/19	<0.17		ppbv	
		Chloromethane	2012/04/19	<0.30		ppbv	
		Vinyl Chloride	2012/04/19	<0.18		ppbv	
		Chloroethane	2012/04/19	<0.30		ppbv	
		1,3-Butadiene	2012/04/19	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/04/19	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/04/19	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/04/19	<2.3		ppbv	
		2-propanol	2012/04/19	<3.0		ppbv	
		2-Propanone	2012/04/19	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/04/19	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/04/19	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/04/19	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/04/19	<0.20		ppbv	
		Ethyl Acetate	2012/04/19	<2.2		ppbv	
		1,1-Dichloroethylene	2012/04/19	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/04/19	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/04/19	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/04/19	<0.80		ppbv	
		Chloroform	2012/04/19	<0.15		ppbv	
		Carbon Tetrachloride	2012/04/19	<0.30		ppbv	
		1,1-Dichloroethane	2012/04/19	<0.20		ppbv	
		1,2-Dichloroethane	2012/04/19	<0.20		ppbv	
		Ethylene Dibromide	2012/04/19	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/04/19	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/04/19	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/04/19	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/04/19	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/04/19	<0.17		ppbv	
		1,2-Dichloropropane	2012/04/19	<0.40		ppbv	
		Bromomethane	2012/04/19	<0.18		ppbv	
		Bromoform	2012/04/19	<0.20		ppbv	
		Bromodichloromethane	2012/04/19	<0.20		ppbv	
		Dibromochloromethane	2012/04/19	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB254100

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2827212 S_S	Method Blank	Heptane	2012/04/19	<0.30		ppbv	
		Trichloroethylene	2012/04/19	<0.30		ppbv	
		Tetrachloroethylene	2012/04/19	<0.20		ppbv	
		Benzene	2012/04/19	<0.18		ppbv	
		Toluene	2012/04/19	<0.20		ppbv	
		Ethylbenzene	2012/04/19	<0.20		ppbv	
		p+m-Xylene	2012/04/19	<0.37		ppbv	
		o-Xylene	2012/04/19	<0.20		ppbv	
		Styrene	2012/04/19	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/04/19	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/04/19	<0.50		ppbv	
		4-ethyltoluene	2012/04/19	<2.2		ppbv	
		Chlorobenzene	2012/04/19	<0.20		ppbv	
		Benzyl chloride	2012/04/19	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/04/19	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/04/19	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/04/19	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/04/19	<2.0		ppbv	
		Hexachlorobutadiene	2012/04/19	<3.0		ppbv	
		Hexane	2012/04/19	<0.30		ppbv	
		Cyclohexane	2012/04/19	<0.20		ppbv	
		Tetrahydrofuran	2012/04/19	<0.40		ppbv	
		1,4-Dioxane	2012/04/19	<2.0		ppbv	
		Xylene (Total)	2012/04/19	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2012/04/19	NC		%	25
		Carbon Disulfide	2012/04/19	NC		%	25
		Propene	2012/04/19	NC		%	25
		Vinyl Acetate	2012/04/19	NC		%	25
		Vinyl Bromide	2012/04/19	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2012/04/19	NC		%	25
		1,2-Dichlorotetrafluoroethane	2012/04/19	NC		%	25
		Chloromethane	2012/04/19	NC		%	25
		Vinyl Chloride	2012/04/19	NC		%	25
		Chloroethane	2012/04/19	NC		%	25
		1,3-Butadiene	2012/04/19	NC		%	25
		Trichlorofluoromethane (FREON 11)	2012/04/19	NC		%	25
		Trichlorotrifluoroethane	2012/04/19	NC		%	25
		Ethanol (ethyl alcohol)	2012/04/19	NC		%	25
		2-propanol	2012/04/19	NC		%	25
		2-Propanone	2012/04/19	4.0		%	25
		Methyl Ethyl Ketone (2-Butanone)	2012/04/19	NC		%	25
		Methyl Isobutyl Ketone	2012/04/19	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2012/04/19	NC		%	25
		Methyl t-butyl ether (MTBE)	2012/04/19	NC		%	25
		Ethyl Acetate	2012/04/19	NC		%	25
		1,1-Dichloroethylene	2012/04/19	NC		%	25
		cis-1,2-Dichloroethylene	2012/04/19	NC		%	25
		trans-1,2-Dichloroethylene	2012/04/19	NC		%	25
		Methylene Chloride(Dichloromethane)	2012/04/19	NC		%	25
		Chloroform	2012/04/19	NC		%	25
		Carbon Tetrachloride	2012/04/19	NC		%	25
		1,1-Dichloroethane	2012/04/19	NC		%	25
		1,2-Dichloroethane	2012/04/19	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB254100

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2827212 S_S	RPD - Sample/Sample Dup	Ethylene Dibromide	2012/04/19	NC		%	25
		1,1,1-Trichloroethane	2012/04/19	NC		%	25
		1,1,2-Trichloroethane	2012/04/19	NC		%	25
		1,1,2,2-Tetrachloroethane	2012/04/19	NC		%	25
		cis-1,3-Dichloropropene	2012/04/19	NC		%	25
		trans-1,3-Dichloropropene	2012/04/19	NC		%	25
		1,2-Dichloropropane	2012/04/19	NC		%	25
		Bromomethane	2012/04/19	NC		%	25
		Bromoform	2012/04/19	NC		%	25
		Bromodichloromethane	2012/04/19	NC		%	25
		Dibromochloromethane	2012/04/19	NC		%	25
		Heptane	2012/04/19	NC		%	25
		Trichloroethylene	2012/04/19	NC		%	25
		Tetrachloroethylene	2012/04/19	NC		%	25
		Benzene	2012/04/19	NC		%	25
		Toluene	2012/04/19	NC		%	25
		Ethylbenzene	2012/04/19	NC		%	25
		p+m-Xylene	2012/04/19	NC		%	25
		o-Xylene	2012/04/19	NC		%	25
		Styrene	2012/04/19	NC		%	25
		1,3,5-Trimethylbenzene	2012/04/19	NC		%	25
		1,2,4-Trimethylbenzene	2012/04/19	NC		%	25
		4-ethyltoluene	2012/04/19	NC		%	25
		Chlorobenzene	2012/04/19	NC		%	25
		Benzyl chloride	2012/04/19	NC		%	25
		1,3-Dichlorobenzene	2012/04/19	NC		%	25
		1,4-Dichlorobenzene	2012/04/19	NC		%	25
		1,2-Dichlorobenzene	2012/04/19	NC		%	25
		1,2,4-Trichlorobenzene	2012/04/19	NC		%	25
		Hexachlorobutadiene	2012/04/19	NC		%	25
		Hexane	2012/04/19	NC		%	25
		Cyclohexane	2012/04/19	NC		%	25
		Tetrahydrofuran	2012/04/19	NC		%	25
		1,4-Dioxane	2012/04/19	NC		%	25
		Xylene (Total)	2012/04/19	NC		%	25

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

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 275
Station ID: Lica 1 Canister Installation Date/Time: Apr 11, 2012 @ 15:00 mst
Field Sample ID: LICA VOC/ CLS /Apr 15, 2012 Canister Removal Date/Time: Apr 20, 2012 @ 14:41 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
15-Apr-12	04/15/2012 0:00	04/16/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	646	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 #10740

Technician Signature: Jacob Roch / Ting Xu



Your C.O.C. #: 10740

Attention: Michael Bisaga

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

Report Date: 2012/05/04

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B257935

Received: 2012/04/25, 10:30

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/04/26	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/02	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 #: B257935
 Report Date: 2012/05/04

RESULTS OF ANALYSES OF AIR

Maxxam ID		NF3079	NF3080	
Sampling Date		2012/04/15	2012/04/15	
COC Number		10740	10740	
	Units	LICA VOC/CLS/ APRIL 15,12 - 275	LICA VOC/ PORT/ APRIL 15,12 - 7856	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2837795
QC Batch = Quality Control Batch				

Maxxam Job #: B257935
 Report Date: 2012/05/04

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NF3079			NF3080				
Sampling Date		2012/04/15			2012/04/15				
COC Number		10740			10740				
	Units	LICA VOC/CLS/ APRIL 15,12 - 275	ug/m3	DL (ug/m3)	LICA VOC/ PORT/ APRIL 15,12 - 7856	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	2839167
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2839167
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2839167
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2839167
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2839167
Dichlorodifluoromethane (FREON 12)	ppbv	0.81	3.99	0.989	0.79	0.20	3.91	0.989	2839167
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2839167
Chloromethane	ppbv	0.62	1.27	0.620	0.59	0.30	1.21	0.620	2839167
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2839167
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2839167
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2839167
Trichlorofluoromethane (FREON 11)	ppbv	0.37	2.09	1.12	0.37	0.20	2.08	1.12	2839167
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2839167
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2839167
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2839167
2-Propanone	ppbv	1.74	4.12	1.90	1.63	0.80	3.88	1.90	2839167
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2839167
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2839167
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2839167
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2839167
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2839167
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2839167
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2839167
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2839167
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2839167
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2839167
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2839167
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2839167
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2839167
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2839167

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B257935
 Report Date: 2012/05/04

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NF3079			NF3080				
Sampling Date		2012/04/15			2012/04/15				
COC Number		10740			10740				
	Units	LICA VOC/CLS/ APRIL 15,12 - 275	ug/m3	DL (ug/m3)	LICA VOC/ PORT/ APRIL 15,12 - 7856	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	2839167
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2839167
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2839167
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2839167
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2839167
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2839167
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2839167
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2839167
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2839167
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2839167
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2839167
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2839167
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2839167
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2839167
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2839167
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2839167
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2839167
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2839167
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2839167
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2839167
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2839167
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2839167
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2839167
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2839167
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2839167
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2839167
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2839167
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2839167
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2839167
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2839167
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2839167
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2839167

QC Batch = Quality Control Batch

Maxxam Job #: B257935
 Report Date: 2012/05/04

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NF3079			NF3080				
Sampling Date		2012/04/15			2012/04/15				
COC Number		10740			10740				
	Units	LICA VOC/CLS/ APRIL 15,12 - 275	ug/m3	DL (ug/m3)	LICA VOC/ PORT/ APRIL 15,12 - 7856	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	2839167
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2839167
Surrogate Recovery (%)									
Bromochloromethane	%	93	N/A	N/A	93		N/A	N/A	2839167
D5-Chlorobenzene	%	95	N/A	N/A	94		N/A	N/A	2839167
Difluorobenzene	%	97	N/A	N/A	95		N/A	N/A	2839167

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

Maxxam Job #: B257935
 Report Date: 2012/05/04

Test Summary

Maxxam ID NF3079
Sample ID LICA VOC/CLS/ APRIL 15,12 - 275
Matrix AIR

Collected 2012/04/15
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2837795	N/A	2012/04/26	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2839167	N/A	2012/05/02	YAO LIANG SUN

Maxxam ID NF3080
Sample ID LICA VOC/ PORT/ APRIL 15,12 - 7856
Matrix AIR

Collected 2012/04/15
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2837795	N/A	2012/04/26	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2839167	N/A	2012/05/02	YAO LIANG SUN

Maxxam Job #: B257935
Report Date: 2012/05/04

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB257935

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2839167 LSY	Spiked Blank	Bromochloromethane	2012/05/02		102	%	60 - 140
		D5-Chlorobenzene	2012/05/02		105	%	60 - 140
		Difluorobenzene	2012/05/02		105	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/02		101	%	70 - 130
		Carbon Disulfide	2012/05/02		103	%	70 - 130
		Propene	2012/05/02		89	%	70 - 130
		Vinyl Acetate	2012/05/02		91	%	70 - 130
		Vinyl Bromide	2012/05/02		116	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/02		102	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/02		121	%	70 - 130
		Chloromethane	2012/05/02		98	%	70 - 130
		Vinyl Chloride	2012/05/02		99	%	70 - 130
		Chloroethane	2012/05/02		101	%	70 - 130
		1,3-Butadiene	2012/05/02		97	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/02		112	%	70 - 130
		Trichlorotrifluoroethane	2012/05/02		108	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/02		72	%	70 - 130
		2-propanol	2012/05/02		90	%	70 - 130
		2-Propanone	2012/05/02		86	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/02		85	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/02		90	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/02		90	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/02		103	%	70 - 130
		Ethyl Acetate	2012/05/02		93	%	70 - 130
		1,1-Dichloroethylene	2012/05/02		98	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/02		98	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/02		100	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/02		84	%	70 - 130
		Chloroform	2012/05/02		105	%	70 - 130
		Carbon Tetrachloride	2012/05/02		116	%	70 - 130
		1,1-Dichloroethane	2012/05/02		96	%	70 - 130
		1,2-Dichloroethane	2012/05/02		103	%	70 - 130
		Ethylene Dibromide	2012/05/02		114	%	70 - 130
		1,1,1-Trichloroethane	2012/05/02		110	%	70 - 130
		1,1,2-Trichloroethane	2012/05/02		110	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/02		103	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/02		104	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/02		106	%	70 - 130
		1,2-Dichloropropane	2012/05/02		98	%	70 - 130
		Bromomethane	2012/05/02		108	%	70 - 130
		Bromoform	2012/05/02		127	%	70 - 130
		Bromodichloromethane	2012/05/02		116	%	70 - 130
		Dibromochloromethane	2012/05/02		124	%	70 - 130
		Heptane	2012/05/02		92	%	70 - 130
		Trichloroethylene	2012/05/02		111	%	70 - 130
		Tetrachloroethylene	2012/05/02		117	%	70 - 130
		Benzene	2012/05/02		103	%	70 - 130
		Toluene	2012/05/02		108	%	70 - 130
		Ethylbenzene	2012/05/02		109	%	70 - 130
		p+m-Xylene	2012/05/02		107	%	70 - 130
		o-Xylene	2012/05/02		109	%	70 - 130
		Styrene	2012/05/02		98	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/02		103	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/02		101	%	70 - 130
		4-ethyltoluene	2012/05/02		111	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB257935

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2839167 LSY	Spiked Blank	Chlorobenzene	2012/05/02		111	%	70 - 130
		Benzyl chloride	2012/05/02		103	%	70 - 130
		1,3-Dichlorobenzene	2012/05/02		108	%	70 - 130
		1,4-Dichlorobenzene	2012/05/02		110	%	70 - 130
		1,2-Dichlorobenzene	2012/05/02		101	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/02		119	%	70 - 130
		Hexachlorobutadiene	2012/05/02		106	%	70 - 130
		Hexane	2012/05/02		96	%	70 - 130
		Cyclohexane	2012/05/02		97	%	70 - 130
		Tetrahydrofuran	2012/05/02		90	%	70 - 130
		1,4-Dioxane	2012/05/02		101	%	70 - 130
		Xylene (Total)	2012/05/02		108	%	70 - 130
	Method Blank	Bromochloromethane	2012/05/02		99	%	60 - 140
		D5-Chlorobenzene	2012/05/02		101	%	60 - 140
		Difluorobenzene	2012/05/02		102	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/02	<0.20		ppbv	
		Carbon Disulfide	2012/05/02	<0.50		ppbv	
		Propene	2012/05/02	<0.30		ppbv	
		Vinyl Acetate	2012/05/02	<0.20		ppbv	
		Vinyl Bromide	2012/05/02	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/02	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/02	<0.17		ppbv	
		Chloromethane	2012/05/02	<0.30		ppbv	
		Vinyl Chloride	2012/05/02	<0.18		ppbv	
		Chloroethane	2012/05/02	<0.30		ppbv	
		1,3-Butadiene	2012/05/02	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/02	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/02	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/02	<2.3		ppbv	
		2-propanol	2012/05/02	<3.0		ppbv	
		2-Propanone	2012/05/02	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/02	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/02	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/02	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/02	<0.20		ppbv	
		Ethyl Acetate	2012/05/02	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/02	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/02	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/02	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/02	<0.80		ppbv	
		Chloroform	2012/05/02	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/02	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/02	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/02	<0.20		ppbv	
		Ethylene Dibromide	2012/05/02	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/02	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/02	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/02	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/02	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/02	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/02	<0.40		ppbv	
		Bromomethane	2012/05/02	<0.18		ppbv	
		Bromoform	2012/05/02	<0.20		ppbv	
		Bromodichloromethane	2012/05/02	<0.20		ppbv	
		Dibromochloromethane	2012/05/02	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB257935

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2839167 LSY	Method Blank	Heptane	2012/05/02	<0.30		ppbv	
		Trichloroethylene	2012/05/02	<0.30		ppbv	
		Tetrachloroethylene	2012/05/02	<0.20		ppbv	
		Benzene	2012/05/02	<0.18		ppbv	
		Toluene	2012/05/02	<0.20		ppbv	
		Ethylbenzene	2012/05/02	<0.20		ppbv	
		p+m-Xylene	2012/05/02	<0.37		ppbv	
		o-Xylene	2012/05/02	<0.20		ppbv	
		Styrene	2012/05/02	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/02	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/02	<0.50		ppbv	
		4-ethyltoluene	2012/05/02	<2.2		ppbv	
		Chlorobenzene	2012/05/02	<0.20		ppbv	
		Benzyl chloride	2012/05/02	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/02	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/02	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/02	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/02	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/02	<3.0		ppbv	
		Hexane	2012/05/02	<0.30		ppbv	
		Cyclohexane	2012/05/02	<0.20		ppbv	
		Tetrahydrofuran	2012/05/02	<0.40		ppbv	
		1,4-Dioxane	2012/05/02	<2.0		ppbv	
		Xylene (Total)	2012/05/02	<0.60		ppbv	

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 7800
Station ID: Lica 1 Canister Installation Date/Time: Apr 20, 2012 @ 14:45 mst
Field Sample ID: LICA VOC/ CLS /Apr 21, 2012 Canister Removal Date/Time: Apr 26, 2012 @ 06:47 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
21-Apr-12	04/21/2012 0:00	04/22/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	646	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 #10739

Technician Signiture: Ting Xu_____



Your C.O.C. #: 10739

Attention: Michael Bisaga

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

Report Date: 2012/05/10

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B262020

Received: 2012/05/02, 10:00

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/05/08	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/08	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Maxxam Job #: B262020
 Report Date: 2012/05/10

RESULTS OF ANALYSES OF AIR

Maxxam ID		NH5347	NH5348	
Sampling Date		2012/04/21	2012/04/21	
COC Number		10739	10739	
	Units	LICA	LICA	QC Batch
		VOC\CLSIAPR	VOC\PORTAPR	
		21,12 - 7800	21,12 - 7807	

Volatile Organics				
Pressure on Receipt	psig	23	21	2844935

QC Batch = Quality Control Batch

Maxxam Job #: B262020
 Report Date: 2012/05/10

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH5347			NH5348				
Sampling Date		2012/04/21			2012/04/21				
COC Number		10739			10739				
	Units	LICA VOC\CLS\APR 21,12 - 7800	ug/m3	DL (ug/m3)	LICA VOC\PORT\APR 21,12 - 7807	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics									
2,2,4-Trimethylpentane	ppbv	<0.20	<0.934	0.934	0.31	0.20	1.44	0.934	2845477
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	1.70	0.50	5.31	1.56	2845477
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2845477
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2845477
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2845477
Dichlorodifluoromethane (FREON 12)	ppbv	0.86	4.24	0.989	0.82	0.20	4.07	0.989	2845477
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2845477
Chloromethane	ppbv	0.71	1.47	0.620	0.70	0.30	1.45	0.620	2845477
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2845477
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2845477
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2845477
Trichlorofluoromethane (FREON 11)	ppbv	0.40	2.27	1.12	0.50	0.20	2.78	1.12	2845477
Trichlorotrifluoroethane	ppbv	0.16	1.24	1.15	0.18	0.15	1.35	1.15	2845477
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2845477
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2845477
2-Propanone	ppbv	2.74	6.50	1.90	6.65	0.80	15.8	1.90	2845477
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2845477
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2845477
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2845477
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2845477
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2845477
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2845477
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2845477
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2845477
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	2.07	0.80	7.20	2.78	2845477
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2845477
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2845477
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2845477
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2845477
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2845477
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2845477

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B262020
 Report Date: 2012/05/10

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH5347			NH5348				
Sampling Date		2012/04/21			2012/04/21				
COC Number		10739			10739				
	Units	LICA VOC\CLS\APR 21,12 - 7800	ug/m3	DL (ug/m3)	LICA VOC\PORT\APR 21,12 - 7807	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	<0.818	0.818	<0.15	0.15	<0.818	0.818	2845477
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2845477
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2845477
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2845477
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2845477
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2845477
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2845477
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2845477
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2845477
Heptane	ppbv	<0.30	<1.23	1.23	0.60	0.30	2.44	1.23	2845477
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2845477
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2845477
Benzene	ppbv	0.23	0.719	0.575	0.42	0.18	1.33	0.575	2845477
Toluene	ppbv	0.31	1.18	0.753	0.60	0.20	2.25	0.753	2845477
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2845477
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2845477
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2845477
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2845477
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2845477
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2845477
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2845477
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2845477
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2845477
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2845477
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2845477
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2845477
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2845477
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2845477
Hexane	ppbv	0.31	1.08	1.06	1.36	0.30	4.79	1.06	2845477
Cyclohexane	ppbv	0.22	0.766	0.688	0.38	0.20	1.30	0.688	2845477
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2845477
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2845477
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2845477
QC Batch = Quality Control Batch									

Maxxam Job #: B262020
 Report Date: 2012/05/10

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH5347			NH5348				
Sampling Date		2012/04/21			2012/04/21				
COC Number		10739			10739				
	Units	LICA VOC\CLS\APR 21,12 - 7800	ug/m3	DL (ug/m3)	LICA VOC\PORT\APR 21,12 - 7807	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	85	N/A	N/A	85		N/A	N/A	2845477
D5-Chlorobenzene	%	87	N/A	N/A	84		N/A	N/A	2845477
Difluorobenzene	%	85	N/A	N/A	85		N/A	N/A	2845477

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

Maxxam Job #: B262020
 Report Date: 2012/05/10

Test Summary

Maxxam ID NH5347
Sample ID LICA VOC\CLSVAPR 21,12 - 7800
Matrix AIR

Collected 2012/04/21
Shipped
Received 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2844935	N/A	2012/05/08	JIE WU
Volatile Organics in Air (TO-15)	GC/MS	2845477	N/A	2012/05/08	JIE WU

Maxxam ID NH5348
Sample ID LICA VOC\PORTVAPR 21,12 - 7807
Matrix AIR

Collected 2012/04/21
Shipped
Received 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2844935	N/A	2012/05/08	JIE WU
Volatile Organics in Air (TO-15)	GC/MS	2845477	N/A	2012/05/08	JIE WU

Maxxam Job #: B262020
Report Date: 2012/05/10

GENERAL COMMENTS

Sample NH5347-01: TO15:
In continuing calibration std., response deviation for methyl-t-butyl ether exceeds 40% acceptance limit. None detected in sample.

Sample NH5348-01: TO15:
In continuing calibration std., response deviation for methyl-t-butyl ether exceeds 40% acceptance limit. None detected in sample.

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB262020

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2845477 JIW	Spiked Blank	Bromochloromethane	2012/05/08		100	%	60 - 140
		D5-Chlorobenzene	2012/05/08		100	%	60 - 140
		Difluorobenzene	2012/05/08		98	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/08		102	%	70 - 130
		Carbon Disulfide	2012/05/08		110	%	70 - 130
		Propene	2012/05/08		86	%	70 - 130
		Vinyl Acetate	2012/05/08		92	%	70 - 130
		Vinyl Bromide	2012/05/08		117	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/08		99	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/08		112	%	70 - 130
		Chloromethane	2012/05/08		97	%	70 - 130
		Vinyl Chloride	2012/05/08		104	%	70 - 130
		Chloroethane	2012/05/08		100	%	70 - 130
		1,3-Butadiene	2012/05/08		108	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/08		96	%	70 - 130
		Trichlorotrifluoroethane	2012/05/08		102	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/08		81	%	70 - 130
		2-propanol	2012/05/08		98	%	70 - 130
		2-Propanone	2012/05/08		96	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/08		109	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/08		87	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/08		86	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/08		68 (1)	%	70 - 130
		Ethyl Acetate	2012/05/08		94	%	70 - 130
		1,1-Dichloroethylene	2012/05/08		107	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/08		101	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/08		80	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/08		90	%	70 - 130
		Chloroform	2012/05/08		101	%	70 - 130
		Carbon Tetrachloride	2012/05/08		111	%	70 - 130
		1,1-Dichloroethane	2012/05/08		90	%	70 - 130
		1,2-Dichloroethane	2012/05/08		99	%	70 - 130
		Ethylene Dibromide	2012/05/08		110	%	70 - 130
		1,1,1-Trichloroethane	2012/05/08		107	%	70 - 130
		1,1,2-Trichloroethane	2012/05/08		107	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/08		101	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/08		111	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/08		117	%	70 - 130
		1,2-Dichloropropane	2012/05/08		101	%	70 - 130
		Bromomethane	2012/05/08		104	%	70 - 130
		Bromoform	2012/05/08		115	%	70 - 130
		Bromodichloromethane	2012/05/08		103	%	70 - 130
		Dibromochloromethane	2012/05/08		109	%	70 - 130
		Heptane	2012/05/08		84	%	70 - 130
		Trichloroethylene	2012/05/08		115	%	70 - 130
		Tetrachloroethylene	2012/05/08		120	%	70 - 130
		Benzene	2012/05/08		107	%	70 - 130
		Toluene	2012/05/08		109	%	70 - 130
		Ethylbenzene	2012/05/08		107	%	70 - 130
		p+m-Xylene	2012/05/08		104	%	70 - 130
		o-Xylene	2012/05/08		103	%	70 - 130
		Styrene	2012/05/08		94	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/08		105	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/08		108	%	70 - 130
		4-ethyltoluene	2012/05/08		101	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB262020

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2845477 JIW	Spiked Blank	Chlorobenzene	2012/05/08		110	%	70 - 130
		Benzyl chloride	2012/05/08		129	%	70 - 130
		1,3-Dichlorobenzene	2012/05/08		120	%	70 - 130
		1,4-Dichlorobenzene	2012/05/08		118	%	70 - 130
		1,2-Dichlorobenzene	2012/05/08		119	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/08		136 (1)	%	70 - 130
		Hexachlorobutadiene	2012/05/08		124	%	70 - 130
		Hexane	2012/05/08		95	%	70 - 130
		Cyclohexane	2012/05/08		107	%	70 - 130
		Tetrahydrofuran	2012/05/08		106	%	70 - 130
		1,4-Dioxane	2012/05/08		98	%	70 - 130
		Xylene (Total)	2012/05/08		104	%	70 - 130
	Method Blank	Bromochloromethane	2012/05/08		98	%	60 - 140
		D5-Chlorobenzene	2012/05/08		93	%	60 - 140
		Difluorobenzene	2012/05/08		97	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/08	<0.20		ppbv	
		Carbon Disulfide	2012/05/08	<0.50		ppbv	
		Propene	2012/05/08	<0.30		ppbv	
		Vinyl Acetate	2012/05/08	<0.20		ppbv	
		Vinyl Bromide	2012/05/08	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/08	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/08	<0.17		ppbv	
		Chloromethane	2012/05/08	<0.30		ppbv	
		Vinyl Chloride	2012/05/08	<0.18		ppbv	
		Chloroethane	2012/05/08	<0.30		ppbv	
		1,3-Butadiene	2012/05/08	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/08	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/08	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/08	<2.3		ppbv	
		2-propanol	2012/05/08	<3.0		ppbv	
		2-Propanone	2012/05/08	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/08	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/08	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/08	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/08	<0.20		ppbv	
		Ethyl Acetate	2012/05/08	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/08	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/08	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/08	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/08	<0.80		ppbv	
		Chloroform	2012/05/08	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/08	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/08	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/08	<0.20		ppbv	
		Ethylene Dibromide	2012/05/08	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/08	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/08	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/08	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/08	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/08	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/08	<0.40		ppbv	
		Bromomethane	2012/05/08	<0.18		ppbv	
		Bromoform	2012/05/08	<0.20		ppbv	
		Bromodichloromethane	2012/05/08	<0.20		ppbv	
		Dibromochloromethane	2012/05/08	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB262020

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2845477	JIW	Method Blank					
		Heptane	2012/05/08	<0.30		ppbv	
		Trichloroethylene	2012/05/08	<0.30		ppbv	
		Tetrachloroethylene	2012/05/08	<0.20		ppbv	
		Benzene	2012/05/08	<0.18		ppbv	
		Toluene	2012/05/08	<0.20		ppbv	
		Ethylbenzene	2012/05/08	<0.20		ppbv	
		p+m-Xylene	2012/05/08	<0.37		ppbv	
		o-Xylene	2012/05/08	<0.20		ppbv	
		Styrene	2012/05/08	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/08	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/08	<0.50		ppbv	
		4-ethyltoluene	2012/05/08	<2.2		ppbv	
		Chlorobenzene	2012/05/08	<0.20		ppbv	
		Benzyl chloride	2012/05/08	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/08	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/08	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/08	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/08	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/08	<3.0		ppbv	
		Hexane	2012/05/08	<0.30		ppbv	
		Cyclohexane	2012/05/08	<0.20		ppbv	
		Tetrahydrofuran	2012/05/08	<0.40		ppbv	
		1,4-Dioxane	2012/05/08	<2.0		ppbv	
		Xylene (Total)	2012/05/08	<0.60		ppbv	

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 322
Station ID: Lica 1 Canister Installation Date/Time: Apr 26, 2012 @ 06:52 mst
Field Sample ID: LICA VOC/ CLS /Apr 27, 2012 Canister Removal Date/Time: Apr 30, 2012 @ 08:06 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
27-Apr-12	04/27/2012 0:00	04/28/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	646	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 #10642

Technician Signiture: Ting Xu_____

Your C.O.C. #: 10642

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

Report Date: 2012/05/11

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B262743****Received: 2012/05/03, 09:25**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/05/09	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/09	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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Total cover pages: 1

Page 1 of 13

Maxxam Job #: B262743
 Report Date: 2012/05/11

RESULTS OF ANALYSES OF AIR

Maxxam ID		NH8998	NH8999	
Sampling Date		2012/04/27 00:00	2012/04/27 00:00	
COC Number		10642	10642	
	Units	LICA VOC\CLS\APRIL 27,2012 - 322	LICA VOC\PORT\APRIL 27,2012 - 316	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2844798
QC Batch = Quality Control Batch				

Maxxam Job #: B262743
 Report Date: 2012/05/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH8998				
Sampling Date		2012/04/27 00:00				
COC Number		10642				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOCCLSAPRIL				
		27,2012 - 322				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2844961
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2844961
Propene	ppbv	<0.30	0.30	<0.516	0.516	2844961
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2844961
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2844961
Dichlorodifluoromethane (FREON 12)	ppbv	0.77	0.20	3.82	0.989	2844961
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2844961
Chloromethane	ppbv	0.60	0.30	1.24	0.620	2844961
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2844961
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2844961
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2844961
Trichlorofluoromethane (FREON 11)	ppbv	0.38	0.20	2.13	1.12	2844961
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2844961
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2844961
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2844961
2-Propanone	ppbv	1.85	0.80	4.39	1.90	2844961
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2844961
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2844961
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2844961
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2844961
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2844961
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2844961
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2844961
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2844961
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2844961
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2844961
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2844961
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2844961
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2844961
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2844961
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B262743
 Report Date: 2012/05/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH8998				
Sampling Date		2012/04/27 00:00				
COC Number		10642				
	Units	LICA VOCCLSAPRIL 27,2012 - 322	RDL	ug/m3	DL (ug/m3)	QC Batch

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2844961
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2844961
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2844961
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2844961
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2844961
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2844961
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2844961
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2844961
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2844961
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2844961
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2844961
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2844961
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2844961
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2844961
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2844961
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2844961
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2844961
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2844961
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2844961
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2844961
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2844961
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2844961
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2844961
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2844961
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2844961
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2844961
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2844961
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2844961
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2844961
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2844961
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2844961
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2844961
QC Batch = Quality Control Batch						

Maxxam Job #: B262743
 Report Date: 2012/05/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH8998				
Sampling Date		2012/04/27 00:00				
COC Number		10642				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\CLS\APRIL				
		27,2012 - 322				
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2844961
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2844961
Surrogate Recovery (%)						
Bromochloromethane	%	104		N/A	N/A	2844961
D5-Chlorobenzene	%	106		N/A	N/A	2844961
Difluorobenzene	%	105		N/A	N/A	2844961
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B262743
 Report Date: 2012/05/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH8999				
Sampling Date		2012/04/27 00:00				
COC Number		10642				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/APRIL				
		27,2012 - 316				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2844961
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2844961
Propene	ppbv	<0.30	0.30	<0.516	0.516	2844961
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2844961
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2844961
Dichlorodifluoromethane (FREON 12)	ppbv	0.78	0.20	3.84	0.989	2844961
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2844961
Chloromethane	ppbv	0.56	0.30	1.15	0.620	2844961
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2844961
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2844961
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2844961
Trichlorofluoromethane (FREON 11)	ppbv	0.38	0.20	2.12	1.12	2844961
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2844961
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2844961
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2844961
2-Propanone	ppbv	1.82	0.80	4.33	1.90	2844961
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2844961
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2844961
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2844961
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2844961
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2844961
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2844961
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2844961
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2844961
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2844961
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2844961
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2844961
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2844961
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2844961
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2844961

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B262743
 Report Date: 2012/05/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH8999				
Sampling Date		2012/04/27 00:00				
COC Number		10642				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/APRIL				
		27,2012 - 316				

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2844961
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2844961
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2844961
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2844961
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2844961
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2844961
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2844961
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2844961
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2844961
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2844961
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2844961
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2844961
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2844961
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2844961
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2844961
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2844961
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2844961
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2844961
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2844961
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2844961
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2844961
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2844961
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2844961
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2844961
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2844961
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2844961
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2844961
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2844961
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2844961
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2844961
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2844961
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2844961

QC Batch = Quality Control Batch

Maxxam Job #: B262743
 Report Date: 2012/05/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NH8999				
Sampling Date		2012/04/27 00:00				
COC Number		10642				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC/PORT/APRIL				
		27,2012 - 316				
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2844961
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2844961
Surrogate Recovery (%)						
Bromochloromethane	%	96		N/A	N/A	2844961
D5-Chlorobenzene	%	97		N/A	N/A	2844961
Difluorobenzene	%	97		N/A	N/A	2844961
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B262743
 Report Date: 2012/05/11

Test Summary

Maxxam ID NH8998
Sample ID LICA VOC\CLS\APRIL 27,2012 - 322
Matrix AIR

Collected 2012/04/27
Shipped
Received 2012/05/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2844798	N/A	2012/05/09	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2844961	N/A	2012/05/09	YAO LIANG SUN

Maxxam ID NH8999
Sample ID LICA VOC\PORT\APRIL 27,2012 - 316
Matrix AIR

Collected 2012/04/27
Shipped
Received 2012/05/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2844798	N/A	2012/05/09	YAO LIANG SUN
Volatile Organics in Air (TO-15)	GC/MS	2844961	N/A	2012/05/09	YAO LIANG SUN

Maxxam Job #: B262743
Report Date: 2012/05/11

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB262743

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2844961 LSY	Spiked Blank	Bromochloromethane	2012/05/09		107	%	60 - 140
		D5-Chlorobenzene	2012/05/09		113	%	60 - 140
		Difluorobenzene	2012/05/09		110	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/09		91	%	70 - 130
		Carbon Disulfide	2012/05/09		94	%	70 - 130
		Propene	2012/05/09		78	%	70 - 130
		Vinyl Acetate	2012/05/09		80	%	70 - 130
		Vinyl Bromide	2012/05/09		112	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/09		99	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/09		111	%	70 - 130
		Chloromethane	2012/05/09		89	%	70 - 130
		Vinyl Chloride	2012/05/09		90	%	70 - 130
		Chloroethane	2012/05/09		93	%	70 - 130
		1,3-Butadiene	2012/05/09		88	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/09		107	%	70 - 130
		Trichlorotrifluoroethane	2012/05/09		101	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/09		65 (1)	%	70 - 130
		2-propanol	2012/05/09		81	%	70 - 130
		2-Propanone	2012/05/09		80	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/09		76	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/09		81	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/09		80	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/09		95	%	70 - 130
		Ethyl Acetate	2012/05/09		82	%	70 - 130
		1,1-Dichloroethylene	2012/05/09		90	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/09		89	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/09		91	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/09		76	%	70 - 130
		Chloroform	2012/05/09		98	%	70 - 130
		Carbon Tetrachloride	2012/05/09		111	%	70 - 130
		1,1-Dichloroethane	2012/05/09		88	%	70 - 130
		1,2-Dichloroethane	2012/05/09		97	%	70 - 130
		Ethylene Dibromide	2012/05/09		107	%	70 - 130
		1,1,1-Trichloroethane	2012/05/09		105	%	70 - 130
		1,1,2-Trichloroethane	2012/05/09		102	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/09		94	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/09		96	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/09		98	%	70 - 130
		1,2-Dichloropropane	2012/05/09		88	%	70 - 130
		Bromomethane	2012/05/09		102	%	70 - 130
		Bromoform	2012/05/09		121	%	70 - 130
		Bromodichloromethane	2012/05/09		109	%	70 - 130
		Dibromochloromethane	2012/05/09		117	%	70 - 130
		Heptane	2012/05/09		81	%	70 - 130
		Trichloroethylene	2012/05/09		105	%	70 - 130
		Tetrachloroethylene	2012/05/09		112	%	70 - 130
		Benzene	2012/05/09		95	%	70 - 130
		Toluene	2012/05/09		100	%	70 - 130
		Ethylbenzene	2012/05/09		100	%	70 - 130
		p+m-Xylene	2012/05/09		99	%	70 - 130
		o-Xylene	2012/05/09		101	%	70 - 130
		Styrene	2012/05/09		86	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/09		95	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/09		93	%	70 - 130
		4-ethyltoluene	2012/05/09		103	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB262743

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2844961 LSY	Spiked Blank	Chlorobenzene	2012/05/09		103	%	70 - 130
		Benzyl chloride	2012/05/09		93	%	70 - 130
		1,3-Dichlorobenzene	2012/05/09		102	%	70 - 130
		1,4-Dichlorobenzene	2012/05/09		102	%	70 - 130
		1,2-Dichlorobenzene	2012/05/09		95	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/09		114	%	70 - 130
		Hexachlorobutadiene	2012/05/09		107	%	70 - 130
		Hexane	2012/05/09		86	%	70 - 130
		Cyclohexane	2012/05/09		87	%	70 - 130
		Tetrahydrofuran	2012/05/09		80	%	70 - 130
		1,4-Dioxane	2012/05/09		93	%	70 - 130
		Xylene (Total)	2012/05/09		100	%	70 - 130
	Method Blank	Bromochloromethane	2012/05/09		97	%	60 - 140
		D5-Chlorobenzene	2012/05/09		98	%	60 - 140
		Difluorobenzene	2012/05/09		98	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/09	<0.20		ppbv	
		Carbon Disulfide	2012/05/09	<0.50		ppbv	
		Propene	2012/05/09	<0.30		ppbv	
		Vinyl Acetate	2012/05/09	<0.20		ppbv	
		Vinyl Bromide	2012/05/09	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/09	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/09	<0.17		ppbv	
		Chloromethane	2012/05/09	<0.30		ppbv	
		Vinyl Chloride	2012/05/09	<0.18		ppbv	
		Chloroethane	2012/05/09	<0.30		ppbv	
		1,3-Butadiene	2012/05/09	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/09	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/09	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/09	<2.3		ppbv	
		2-propanol	2012/05/09	<3.0		ppbv	
		2-Propanone	2012/05/09	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/09	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/09	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/09	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/09	<0.20		ppbv	
		Ethyl Acetate	2012/05/09	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/09	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/09	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/09	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/09	<0.80		ppbv	
		Chloroform	2012/05/09	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/09	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/09	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/09	<0.20		ppbv	
		Ethylene Dibromide	2012/05/09	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/09	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/09	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/09	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/09	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/09	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/09	<0.40		ppbv	
		Bromomethane	2012/05/09	<0.18		ppbv	
		Bromoform	2012/05/09	<0.20		ppbv	
		Bromodichloromethane	2012/05/09	<0.20		ppbv	
		Dibromochloromethane	2012/05/09	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB262743

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2844961 LSY	Method Blank	Heptane	2012/05/09	<0.30		ppbv	
		Trichloroethylene	2012/05/09	<0.30		ppbv	
		Tetrachloroethylene	2012/05/09	<0.20		ppbv	
		Benzene	2012/05/09	<0.18		ppbv	
		Toluene	2012/05/09	<0.20		ppbv	
		Ethylbenzene	2012/05/09	<0.20		ppbv	
		p+m-Xylene	2012/05/09	<0.37		ppbv	
		o-Xylene	2012/05/09	<0.20		ppbv	
		Styrene	2012/05/09	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/09	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/09	<0.50		ppbv	
		4-ethyltoluene	2012/05/09	<2.2		ppbv	
		Chlorobenzene	2012/05/09	<0.20		ppbv	
		Benzyl chloride	2012/05/09	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/09	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/09	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/09	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/09	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/09	<3.0		ppbv	
		Hexane	2012/05/09	<0.30		ppbv	
		Cyclohexane	2012/05/09	<0.20		ppbv	
		Tetrahydrofuran	2012/05/09	<0.40		ppbv	
		1,4-Dioxane	2012/05/09	<2.0		ppbv	
		Xylene (Total)	2012/05/09	<0.60		ppbv	

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

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

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

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

Polycyclic Aromatic Hydrocarbons Laboratory Analysis

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Apr 03, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Mar 30, 2011 @ 08:34 mst
 Removal Date/Time: Apr 09, 2012 @ 14:47 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
03-Apr-12	04/03/2012 0:00	04/04/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
29-Mar-12	09-Apr-12	10-Apr-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
709	229	9.0	330.33

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

Comments: COC# 10962
GB234610 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Apr 03, 2012

Technician Signature: Ting Xu

Your C.O.C. #: 10962

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

Report Date: 2012/04/18

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B250878****Received: 2012/04/12, 09:51**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/04/14	2012/04/16	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B250878
 Report Date: 2012/04/18

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

Maxxam ID		NB7950	NB7951		
Sampling Date		2012/04/03	2012/04/03		
COC Number		10962	10962		
	Units	LICA PUFF+QFF/CLS/APR 03,12	LICA PUFF+QFF/PORT/APR 03,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2819295
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2819295
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2819295
2-Methylantracene	ug	<0.10	<0.10	0.10	2819295
2-Methylnaphthalene	ug	<0.10	0.19	0.10	2819295
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2819295
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2819295
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2819295
Acenaphthene	ug	<0.050	<0.050	0.050	2819295
Acenaphthylene	ug	<0.050	<0.050	0.050	2819295
Anthracene	ug	<0.050	<0.050	0.050	2819295
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2819295
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2819295
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2819295
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2819295
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2819295
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2819295
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2819295
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2819295
Biphenyl	ug	<0.10	<0.10	0.10	2819295
Chrysene	ug	<0.050	<0.050	0.050	2819295
Coronene	ug	<0.10	<0.10	0.10	2819295
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2819295
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2819295
Fluoranthene	ug	<0.050	<0.050	0.050	2819295
Fluorene	ug	0.064	0.080	0.050	2819295
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2819295
m-Terphenyl	ug	<0.10	<0.10	0.10	2819295
Naphthalene	ug	0.096	0.084	0.072	2819295
o-Terphenyl	ug	<0.10	<0.10	0.10	2819295
Perylene	ug	<0.10	<0.10	0.10	2819295

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B250878
 Report Date: 2012/04/18

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

Maxxam ID		NB7950	NB7951		
Sampling Date		2012/04/03	2012/04/03		
COC Number		10962	10962		
	Units	LICA PUFF+QFF/CLS/APR 03,12	LICA PUFF+QFF/PORT/APR 03,12	RDL	QC Batch

Phenanthrene	ug	0.182	0.126	0.050	2819295
p-Terphenyl	ug	<0.10	<0.10	0.10	2819295
Pyrene	ug	<0.050	<0.050	0.050	2819295
Quinoline	ug	<0.40	<0.40	0.40	2819295
Tetralin	ug	<0.10	<0.10	0.10	2819295
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	74	76		2819295
D10-Fluoranthene	%	100	108		2819295
D10-Fluorene (FS)	%	21 (1)	19 (1)		2819295
D10-Phenanthrene	%	92	98		2819295
D12-Benzo(a)anthracene	%	100	102		2819295
D12-Benzo(a)pyrene	%	94	96		2819295
D12-Benzo(b)fluoranthene	%	96	98		2819295
D12-Benzo(ghi)perylene	%	100	100		2819295
D12-Benzo(k)fluoranthene	%	86	86		2819295
D12-Chrysene	%	84	84		2819295
D12-Indeno(1,2,3-cd)pyrene	%	98	102		2819295
D12-Perylene	%	92	92		2819295
D14-Dibenzo(a,h)anthracene	%	100	106		2819295
D14-Terphenyl (FS)	%	97	106		2819295
D8-Acenaphthylene	%	80	86		2819295
D8-Naphthalene	%	68	74		2819295

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 #: B250878
Report Date: 2012/04/18

Test Summary

Maxxam ID NB7950
Sample ID LICA PUFF+QFF/CLS/APR 03,12
Matrix PUF AND FILTER

Collected 2012/04/03
Shipped
Received 2012/04/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2819295	2012/04/14	2012/04/16	WENDY ZHAO

Maxxam ID NB7951
Sample ID LICA PUFF+QFF/PORT/APR 03,12
Matrix PUF AND FILTER

Collected 2012/04/03
Shipped
Received 2012/04/12

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2819295	2012/04/14	2012/04/16	WENDY ZHAO

Maxxam Job #: B250878
Report Date: 2012/04/18

GENERAL COMMENTS

PAHMS-F

Sample received past the holding time .

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

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

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

Sample NB7950-01: PAHMS-F

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

Sample NB7951-01: PAHMS-F

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

Internal Std area response criteria was high in Sample. Rerun with similar results. Original run reported.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB250878

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2819295 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/04/16		80	%	50 - 150	
		D10-Fluoranthene	2012/04/16		94	%	50 - 150	
		D10-Phenanthrene	2012/04/16		88	%	50 - 150	
		D12-Benzo(a)anthracene	2012/04/16		98	%	50 - 150	
		D12-Benzo(a)pyrene	2012/04/16		96	%	50 - 150	
		D12-Benzo(b)fluoranthene	2012/04/16		96	%	50 - 150	
		D12-Benzo(ghi)perylene	2012/04/16		98	%	50 - 150	
		D12-Benzo(k)fluoranthene	2012/04/16		88	%	50 - 150	
		D12-Chrysene	2012/04/16		86	%	50 - 150	
		D12-Indeno(1,2,3-cd)pyrene	2012/04/16		98	%	50 - 150	
		D12-Perylene	2012/04/16		94	%	50 - 150	
		D14-Dibenzo(a,h)anthracene	2012/04/16		100	%	50 - 150	
		RPD	Acenaphthylene	2012/04/16		84	%	50 - 150
	D8-Naphthalene		2012/04/16		80	%	50 - 150	
	Acenaphthene		2012/04/16		81	%	60 - 130	
	Acenaphthene		2012/04/16	0.6		%	50	
	Acenaphthylene		2012/04/16		80	%	60 - 130	
	Acenaphthylene		2012/04/16	1.6		%	50	
	Anthracene		2012/04/16		84	%	60 - 130	
	Anthracene		2012/04/16	0.6		%	50	
	Benzo(a)anthracene		2012/04/16		92	%	60 - 130	
	Benzo(a)anthracene		2012/04/16	1.1		%	50	
	Benzo(a)pyrene		2012/04/16		76	%	60 - 130	
	Benzo(a)pyrene		2012/04/16	2.9		%	50	
	Benzo(b)fluoranthene		2012/04/16		86	%	60 - 130	
	Benzo(b)fluoranthene		2012/04/16	1.2		%	50	
	Benzo(g,h,i)perylene		2012/04/16		89	%	60 - 130	
	Spiked Blank		Benzo(g,h,i)perylene	2012/04/16	1.7		%	50
			Benzo(k)fluoranthene	2012/04/16		94	%	60 - 130
		Benzo(k)fluoranthene	2012/04/16	0.5		%	50	
		Chrysene	2012/04/16		80	%	60 - 130	
		Chrysene	2012/04/16	0.9		%	50	
		Dibenz(a,h)anthracene	2012/04/16		95	%	60 - 130	
		Dibenz(a,h)anthracene	2012/04/16	2.8		%	50	
		Fluoranthene	2012/04/16		92	%	60 - 130	
		Fluoranthene	2012/04/16	0.5		%	50	
		Fluorene	2012/04/16		82	%	60 - 130	
		Fluorene	2012/04/16	0		%	50	
	RPD	Indeno(1,2,3-cd)pyrene	2012/04/16		90	%	60 - 130	
		Indeno(1,2,3-cd)pyrene	2012/04/16	2.2		%	50	
Naphthalene		2012/04/16		82	%	60 - 130		
Naphthalene		2012/04/16	0.3		%	50		
Phenanthrene		2012/04/16		84	%	60 - 130		
Phenanthrene		2012/04/16	1.2		%	50		
Pyrene		2012/04/16		82	%	60 - 130		
Pyrene		2012/04/16	0.9		%	50		
Method Blank		D10-2-Methylnaphthalene	2012/04/16		80	%	50 - 150	
		D10-Fluoranthene	2012/04/16		98	%	50 - 150	
	D10-Phenanthrene	2012/04/16		88	%	50 - 150		
	D12-Benzo(a)anthracene	2012/04/16		98	%	50 - 150		
	D12-Benzo(a)pyrene	2012/04/16		96	%	50 - 150		
	D12-Benzo(b)fluoranthene	2012/04/16		94	%	50 - 150		
	D12-Benzo(ghi)perylene	2012/04/16		98	%	50 - 150		
	D12-Benzo(k)fluoranthene	2012/04/16		88	%	50 - 150		
	D12-Chrysene	2012/04/16		84	%	50 - 150		

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB250878

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2819295 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/04/16		98	%	50 - 150
		D12-Perylene	2012/04/16		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/04/16		98	%	50 - 150
		D8-Acenaphthylene	2012/04/16		84	%	50 - 150
		D8-Naphthalene	2012/04/16		78	%	50 - 150
		1-Methylnaphthalene	2012/04/16	<0.10		ug	
		1-Methylphenanthrene	2012/04/16	<0.10		ug	
		2-Chloronaphthalene	2012/04/16	<0.10		ug	
		2-Methylantracene	2012/04/16	<0.10		ug	
		2-Methylnaphthalene	2012/04/16	<0.10		ug	
		3-Methylcholanthrene	2012/04/16	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/04/16	<0.10		ug	
		9,10-Dimethylantracene	2012/04/16	<0.40		ug	
		Acenaphthene	2012/04/16	<0.050		ug	
		Acenaphthylene	2012/04/16	<0.050		ug	
		Anthracene	2012/04/16	<0.050		ug	
		Benzo(a)anthracene	2012/04/16	<0.050		ug	
		Benzo(a)fluorene	2012/04/16	<0.10		ug	
		Benzo(a)pyrene	2012/04/16	<0.050		ug	
		Benzo(b)fluoranthene	2012/04/16	<0.050		ug	
		Benzo(b)fluorene	2012/04/16	<0.10		ug	
		Benzo(e)pyrene	2012/04/16	<0.10		ug	
		Benzo(g,h,i)perylene	2012/04/16	<0.050		ug	
		Benzo(k)fluoranthene	2012/04/16	<0.050		ug	
		Biphenyl	2012/04/16	<0.10		ug	
		Chrysene	2012/04/16	<0.050		ug	
		Coronene	2012/04/16	<0.10		ug	
		Dibenz(a,h)anthracene	2012/04/16	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/04/16	<0.20		ug	
		Fluoranthene	2012/04/16	<0.050		ug	
		Fluorene	2012/04/16	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/04/16	<0.050		ug	
		m-Terphenyl	2012/04/16	<0.10		ug	
		Naphthalene	2012/04/16	<0.072		ug	
		o-Terphenyl	2012/04/16	<0.10		ug	
		Perylene	2012/04/16	<0.10		ug	
		Phenanthrene	2012/04/16	<0.050		ug	
		p-Terphenyl	2012/04/16	<0.10		ug	
		Pyrene	2012/04/16	<0.050		ug	
		Quinoline	2012/04/16	<0.40		ug	
		Tetralin	2012/04/16	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Apr 10, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Apr 09, 2012 @ 15:02 mst
 Removal Date/Time: Apr 11, 2012 @ 15:10 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
10-Apr-12	04/10/2012 0:00	04/11/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
11-Apr-12	13-Apr-12	16-Apr-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
720	229	2.1	330.37

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

Comments: COC#
GB234611 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Apr 10, 2012

Technician Signature: Ting Xu / Jacob Roch

Your C.O.C. #: 08592

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

Report Date: 2012/04/25

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B254433****Received: 2012/04/18, 09:55**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/04/19	2012/04/24	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B254433
 Report Date: 2012/04/25

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

Maxxam ID		ND4478	ND4479		
Sampling Date		2012/04/10	2012/04/10		
COC Number		08592	08592		
	Units	LICA PUFF+QFF/CLS/APRIL 10,12	LICA PUFF+QFF/PORT/APRIL 10,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.11	<0.10	0.10	2823690
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2823690
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2823690
2-Methylantracene	ug	<0.10	<0.10	0.10	2823690
2-Methylnaphthalene	ug	0.19	0.18	0.10	2823690
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2823690
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2823690
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2823690
Acenaphthene	ug	<0.050	<0.050	0.050	2823690
Acenaphthylene	ug	<0.050	<0.050	0.050	2823690
Anthracene	ug	<0.050	<0.050	0.050	2823690
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2823690
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2823690
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2823690
Benzo(b)fluoranthene	ug	0.050	<0.050	0.050	2823690
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2823690
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2823690
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2823690
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2823690
Biphenyl	ug	0.20	0.16	0.10	2823690
Chrysene	ug	<0.050	<0.050	0.050	2823690
Coronene	ug	<0.10	<0.10	0.10	2823690
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2823690
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2823690
Fluoranthene	ug	0.080	<0.050	0.050	2823690
Fluorene	ug	0.114	0.146	0.050	2823690
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2823690
m-Terphenyl	ug	<0.10	<0.10	0.10	2823690
Naphthalene	ug	0.258	0.126	0.072	2823690
o-Terphenyl	ug	<0.10	<0.10	0.10	2823690
Perylene	ug	<0.10	<0.10	0.10	2823690

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B254433
 Report Date: 2012/04/25

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

Maxxam ID		ND4478	ND4479		
Sampling Date		2012/04/10	2012/04/10		
COC Number		08592	08592		
	Units	LICA PUFF+QFF/CLS/APRIL 10,12	LICA PUFF+QFF/PORT/APRIL 10,12	RDL	QC Batch

Phenanthrene	ug	0.310	0.200	0.050	2823690
p-Terphenyl	ug	<0.10	<0.10	0.10	2823690
Pyrene	ug	<0.050	<0.050	0.050	2823690
Quinoline	ug	<0.40	<0.40	0.40	2823690
Tetralin	ug	<0.10	<0.10	0.10	2823690
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	64	62		2823690
D10-Fluoranthene	%	100	98		2823690
D10-Fluorene (FS)	%	30 (1)	29 (1)		2823690
D10-Phenanthrene	%	92	90		2823690
D12-Benzo(a)anthracene	%	108	114		2823690
D12-Benzo(a)pyrene	%	100	100		2823690
D12-Benzo(b)fluoranthene	%	96	100		2823690
D12-Benzo(ghi)perylene	%	104	108		2823690
D12-Benzo(k)fluoranthene	%	88	84		2823690
D12-Chrysene	%	86	90		2823690
D12-Indeno(1,2,3-cd)pyrene	%	108	110		2823690
D12-Perylene	%	96	94		2823690
D14-Dibenzo(a,h)anthracene	%	110	114		2823690
D14-Terphenyl (FS)	%	99	99		2823690
D8-Acenaphthylene	%	76	72		2823690
D8-Naphthalene	%	62	60		2823690

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 #: B254433
Report Date: 2012/04/25

Test Summary

Maxxam ID ND4478
Sample ID LICA PUFF+QFF/CLS/APRIL 10,12
Matrix PUF AND FILTER

Collected 2012/04/10
Shipped
Received 2012/04/18

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2823690	2012/04/19	2012/04/24	WENDY ZHAO

Maxxam ID ND4479
Sample ID LICA PUFF+QFF/PORT/APRIL 10,12
Matrix PUF AND FILTER

Collected 2012/04/10
Shipped
Received 2012/04/18

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2823690	2012/04/19	2012/04/24	WENDY ZHAO

Maxxam Job #: B254433
Report Date: 2012/04/25

GENERAL COMMENTS

PAHMS-F

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

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

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

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

Samples received holding time past according to the tracking sheet

Sample ND4478-01: PAHMS-F

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

Sample ND4479-01: PAHMS-F

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

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB254433

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
2823690 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/04/24		84	%	50 - 150	
		D10-Fluoranthene	2012/04/24		104	%	50 - 150	
		D10-Phenanthrene	2012/04/24		100	%	50 - 150	
		D12-Benzo(a)anthracene	2012/04/24		108	%	50 - 150	
		D12-Benzo(a)pyrene	2012/04/24		104	%	50 - 150	
		D12-Benzo(b)fluoranthene	2012/04/24		98	%	50 - 150	
		D12-Benzo(ghi)perylene	2012/04/24		110	%	50 - 150	
		D12-Benzo(k)fluoranthene	2012/04/24		88	%	50 - 150	
		D12-Chrysene	2012/04/24		90	%	50 - 150	
		D12-Indeno(1,2,3-cd)pyrene	2012/04/24		114	%	50 - 150	
		D12-Perylene	2012/04/24		102	%	50 - 150	
		D14-Dibenzo(a,h)anthracene	2012/04/24		116	%	50 - 150	
		D8-Acenaphthylene	2012/04/24		94	%	50 - 150	
		D8-Naphthalene	2012/04/24		80	%	50 - 150	
		RPD	Acenaphthene	2012/04/24		1.8	%	60 - 130
	Spiked Blank	Acenaphthylene	2012/04/24			90	%	50
	RPD	Acenaphthylene	2012/04/24		5.1	%	60 - 130	
	Spiked Blank	Anthracene	2012/04/24			98	%	50
	RPD	Anthracene	2012/04/24		1.8	%	60 - 130	
	Spiked Blank	Benzo(a)anthracene	2012/04/24			100	%	50
	RPD	Benzo(a)anthracene	2012/04/24		1.5	%	60 - 130	
	Spiked Blank	Benzo(a)pyrene	2012/04/24			83	%	50
	RPD	Benzo(a)pyrene	2012/04/24		0.9	%	60 - 130	
	Spiked Blank	Benzo(b)fluoranthene	2012/04/24			90	%	50
	RPD	Benzo(b)fluoranthene	2012/04/24		1.4	%	60 - 130	
	Spiked Blank	Benzo(g,h,i)perylene	2012/04/24			99	%	50
	RPD	Benzo(g,h,i)perylene	2012/04/24		7.6	%	60 - 130	
	Spiked Blank	Benzo(k)fluoranthene	2012/04/24			93	%	50
	RPD	Benzo(k)fluoranthene	2012/04/24		1.4	%	60 - 130	
	Spiked Blank	Chrysene	2012/04/24			82	%	50
	RPD	Chrysene	2012/04/24		3.1	%	60 - 130	
	Spiked Blank	Dibenz(a,h)anthracene	2012/04/24			110	%	50
	RPD	Dibenz(a,h)anthracene	2012/04/24		8.3	%	60 - 130	
	Spiked Blank	Fluoranthene	2012/04/24			102	%	50
	RPD	Fluoranthene	2012/04/24		2.5	%	60 - 130	
	Spiked Blank	Fluorene	2012/04/24			90	%	50
	RPD	Fluorene	2012/04/24		3.1	%	60 - 130	
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/04/24			104	%	50
	RPD	Indeno(1,2,3-cd)pyrene	2012/04/24		6.7	%	60 - 130	
	Spiked Blank	Naphthalene	2012/04/24			83	%	50
	RPD	Naphthalene	2012/04/24		9.9	%	60 - 130	
	Spiked Blank	Phenanthrene	2012/04/24			94	%	50
	RPD	Phenanthrene	2012/04/24		2.4	%	60 - 130	
	Spiked Blank	Pyrene	2012/04/24			90	%	50
	RPD	Pyrene	2012/04/24		2.0	%	60 - 130	
Method Blank	D10-2-Methylnaphthalene	2012/04/24			78	%	50 - 150	
	D10-Fluoranthene	2012/04/24			102	%	50 - 150	
	D10-Phenanthrene	2012/04/24			100	%	50 - 150	
	D12-Benzo(a)anthracene	2012/04/24			106	%	50 - 150	
	D12-Benzo(a)pyrene	2012/04/24			104	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/04/24			100	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/04/24			106	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/04/24			88	%	50 - 150	
	D12-Chrysene	2012/04/24			86	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB254433

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2823690 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/04/24		114	%	50 - 150
		D12-Perylene	2012/04/24		100	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/04/24		114	%	50 - 150
		D8-Acenaphthylene	2012/04/24		90	%	50 - 150
		D8-Naphthalene	2012/04/24		74	%	50 - 150
		1-Methylnaphthalene	2012/04/24	<0.10		ug	
		1-Methylphenanthrene	2012/04/24	<0.10		ug	
		2-Chloronaphthalene	2012/04/24	<0.10		ug	
		2-Methylanthracene	2012/04/24	<0.10		ug	
		2-Methylnaphthalene	2012/04/24	<0.10		ug	
		3-Methylcholanthrene	2012/04/24	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/04/24	<0.10		ug	
		9,10-Dimethylanthracene	2012/04/24	<0.40		ug	
		Acenaphthene	2012/04/24	<0.050		ug	
		Acenaphthylene	2012/04/24	<0.050		ug	
		Anthracene	2012/04/24	<0.050		ug	
		Benzo(a)anthracene	2012/04/24	<0.050		ug	
		Benzo(a)fluorene	2012/04/24	<0.10		ug	
		Benzo(a)pyrene	2012/04/24	<0.050		ug	
		Benzo(b)fluoranthene	2012/04/24	<0.050		ug	
		Benzo(b)fluorene	2012/04/24	<0.10		ug	
		Benzo(e)pyrene	2012/04/24	<0.10		ug	
		Benzo(g,h,i)perylene	2012/04/24	<0.050		ug	
		Benzo(k)fluoranthene	2012/04/24	<0.050		ug	
		Biphenyl	2012/04/24	<0.10		ug	
		Chrysene	2012/04/24	<0.050		ug	
		Coronene	2012/04/24	<0.10		ug	
		Dibenz(a,h)anthracene	2012/04/24	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/04/24	<0.20		ug	
		Fluoranthene	2012/04/24	<0.050		ug	
		Fluorene	2012/04/24	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/04/24	<0.050		ug	
		m-Terphenyl	2012/04/24	<0.10		ug	
		Naphthalene	2012/04/24	<0.072		ug	
		o-Terphenyl	2012/04/24	<0.10		ug	
		Perylene	2012/04/24	<0.10		ug	
		Phenanthrene	2012/04/24	<0.050		ug	
		p-Terphenyl	2012/04/24	<0.10		ug	
		Pyrene	2012/04/24	<0.050		ug	
		Quinoline	2012/04/24	<0.40		ug	
		Tetralin	2012/04/24	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Apr 15, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Apr 11, 2012 @ 15:20 mst
 Removal Date/Time: Apr 20, 2012 @ 14:48 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
15-Apr-12	04/15/2012 0:00	04/16/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
11-Apr-12	23-Apr-12	19-Apr-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
717	229	-1.9	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# 10741
GB234624 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Apr 15, 2012

Technician Signature: Jacob Roch / Ting Xu

Your C.O.C. #: 10741

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

Report Date: 2012/05/07

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B258456****Received: 2012/04/25, 09:45**

Sample Matrix: PUF AND FILTER

Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	1	2012/04/28	2012/05/02	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

THERESA STEPHENSON, Project Manager
Email: TStephenson@maxxam.ca
Phone# (905) 817-5763=====
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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B258456
 Report Date: 2012/05/07

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

Maxxam ID		NF5291		
Sampling Date		2012/04/15 00:00		
COC Number		10741		
	Units	LICA PUFF+QFF/CLS/APR 15,12	RDL	QC Batch

Semivolatile Organics				
1-Methylnaphthalene	ug	<0.10	0.10	2833446
1-Methylphenanthrene	ug	<0.10	0.10	2833446
2-Chloronaphthalene	ug	<0.10	0.10	2833446
2-Methylantracene	ug	<0.10	0.10	2833446
2-Methylnaphthalene	ug	<0.10	0.10	2833446
3-Methylcholanthrene	ug	<2.0	2.0	2833446
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	0.10	2833446
9,10-Dimethylantracene	ug	<0.40	0.40	2833446
Acenaphthene	ug	<0.050	0.050	2833446
Acenaphthylene	ug	<0.050	0.050	2833446
Anthracene	ug	<0.050	0.050	2833446
Benzo(a)anthracene	ug	<0.050	0.050	2833446
Benzo(a)fluorene	ug	<0.10	0.10	2833446
Benzo(a)pyrene	ug	<0.050	0.050	2833446
Benzo(b)fluoranthene	ug	<0.050	0.050	2833446
Benzo(b)fluorene	ug	<0.10	0.10	2833446
Benzo(e)pyrene	ug	<0.10	0.10	2833446
Benzo(g,h,i)perylene	ug	<0.050	0.050	2833446
Benzo(k)fluoranthene	ug	<0.050	0.050	2833446
Biphenyl	ug	<0.10	0.10	2833446
Chrysene	ug	<0.050	0.050	2833446
Coronene	ug	<0.10	0.10	2833446
Dibenz(a,h)anthracene	ug	<0.050	0.050	2833446
Dibenzo(a,e)pyrene	ug	<0.20	0.20	2833446
Fluoranthene	ug	<0.050	0.050	2833446
Fluorene	ug	0.060	0.050	2833446
Indeno(1,2,3-cd)pyrene	ug	<0.050	0.050	2833446
m-Terphenyl	ug	<0.10	0.10	2833446
Naphthalene	ug	<0.072	0.072	2833446
o-Terphenyl	ug	<0.10	0.10	2833446
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				

Maxxam Job #: B258456
 Report Date: 2012/05/07

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

Maxxam ID		NF5291		
Sampling Date		2012/04/15 00:00		
COC Number		10741		
	Units	LICA PUFF+QFF/CLS/APR 15,12	RDL	QC Batch

Perylene	ug	<0.10	0.10	2833446
Phenanthrene	ug	0.186	0.050	2833446
p-Terphenyl	ug	<0.10	0.10	2833446
Pyrene	ug	<0.050	0.050	2833446
Quinoline	ug	<0.40	0.40	2833446
Tetralin	ug	<0.10	0.10	2833446
Surrogate Recovery (%)				
D10-2-Methylnaphthalene	%	64		2833446
D10-Fluoranthene	%	94		2833446
D10-Fluorene (FS)	%	35 (1)		2833446
D10-Phenanthrene	%	86		2833446
D12-Benzo(a)anthracene	%	102		2833446
D12-Benzo(a)pyrene	%	96		2833446
D12-Benzo(b)fluoranthene	%	96		2833446
D12-Benzo(ghi)perylene	%	102		2833446
D12-Benzo(k)fluoranthene	%	84		2833446
D12-Chrysene	%	84		2833446
D12-Indeno(1,2,3-cd)pyrene	%	106		2833446
D12-Perylene	%	94		2833446
D14-Dibenzo(a,h)anthracene	%	108		2833446
D14-Terphenyl (FS)	%	93		2833446
D8-Acenaphthylene	%	72		2833446
D8-Naphthalene	%	64		2833446

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 #: B258456
Report Date: 2012/05/07

Test Summary

Maxxam ID NF5291
Sample ID LICA PUFF+QFF/CLS/APR 15,12
Matrix PUF AND FILTER

Collected 2012/04/15
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2833446	2012/04/28	2012/05/02	WENDY ZHAO

Maxxam Job #: B258456
Report Date: 2012/05/07

GENERAL COMMENTS

PAHMS-F

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

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

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

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

Sample received holding time past

Sample NF5291-01: PAHMS-F

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

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB258456

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2833446 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/05/02		84	%	50 - 150
		D10-Fluoranthene	2012/05/02		102	%	50 - 150
		D10-Phenanthrene	2012/05/02		96	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/02		100	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/02		98	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/02		98	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/02		106	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/02		84	%	50 - 150
		D12-Chrysene	2012/05/02		84	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/05/02		110	%	50 - 150
		D12-Perylene	2012/05/02		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/02		112	%	50 - 150
		RPD	Acenaphthylene	2012/05/02		90	%
	D8-Naphthalene		2012/05/02		82	%	50 - 150
	Acenaphthene		2012/05/02		85	%	60 - 130
	Acenaphthene		2012/05/02	0.3		%	50
	Acenaphthylene		2012/05/02		87	%	60 - 130
	Acenaphthylene		2012/05/02	1.7		%	50
	Anthracene		2012/05/02		94	%	60 - 130
	Anthracene		2012/05/02	7.1		%	50
	Benzo(a)anthracene		2012/05/02		95	%	60 - 130
	Benzo(a)anthracene		2012/05/02	1.3		%	50
	Benzo(a)pyrene		2012/05/02		80	%	60 - 130
	Benzo(a)pyrene		2012/05/02	4.8		%	50
	Benzo(b)fluoranthene		2012/05/02		89	%	60 - 130
	Benzo(b)fluoranthene		2012/05/02	1.4		%	50
	Benzo(g,h,i)perylene		2012/05/02		95	%	60 - 130
	Benzo(g,h,i)perylene		2012/05/02	6.2		%	50
	Benzo(k)fluoranthene		2012/05/02		88	%	60 - 130
	Benzo(k)fluoranthene	2012/05/02	1.4		%	50	
	Spiked Blank	Chrysene	2012/05/02		78	%	60 - 130
		Chrysene	2012/05/02	1.9		%	50
		Dibenz(a,h)anthracene	2012/05/02		106	%	60 - 130
		Dibenz(a,h)anthracene	2012/05/02	6.8		%	50
		Fluoranthene	2012/05/02		100	%	60 - 130
		Fluoranthene	2012/05/02	7.5		%	50
		Fluorene	2012/05/02		89	%	60 - 130
		Fluorene	2012/05/02	2.9		%	50
		Indeno(1,2,3-cd)pyrene	2012/05/02		99	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2012/05/02	6.0		%	50
Naphthalene		2012/05/02		87	%	60 - 130	
Naphthalene		2012/05/02	2.6		%	50	
Phenanthrene		2012/05/02		91	%	60 - 130	
Phenanthrene		2012/05/02	5.1		%	50	
Pyrene		2012/05/02		89	%	60 - 130	
Pyrene		2012/05/02	7.9		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/05/02		86	%	50 - 150	
	D10-Fluoranthene	2012/05/02		94	%	50 - 150	
	D10-Phenanthrene	2012/05/02		90	%	50 - 150	
	D12-Benzo(a)anthracene	2012/05/02		102	%	50 - 150	
	D12-Benzo(a)pyrene	2012/05/02		98	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/05/02		94	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/05/02		102	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/05/02		86	%	50 - 150	
	D12-Chrysene	2012/05/02		70	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB258456

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2833446 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/05/02		106	%	50 - 150
		D12-Perylene	2012/05/02		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/02		106	%	50 - 150
		D8-Acenaphthylene	2012/05/02		92	%	50 - 150
		D8-Naphthalene	2012/05/02		86	%	50 - 150
		1-Methylnaphthalene	2012/05/02	<0.10		ug	
		1-Methylphenanthrene	2012/05/02	<0.10		ug	
		2-Chloronaphthalene	2012/05/02	<0.10		ug	
		2-Methylanthracene	2012/05/02	<0.10		ug	
		2-Methylnaphthalene	2012/05/02	<0.10		ug	
		3-Methylcholanthrene	2012/05/02	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/05/02	<0.10		ug	
		9,10-Dimethylanthracene	2012/05/02	<0.40		ug	
		Acenaphthene	2012/05/02	<0.050		ug	
		Acenaphthylene	2012/05/02	<0.050		ug	
		Anthracene	2012/05/02	<0.050		ug	
		Benzo(a)anthracene	2012/05/02	<0.050		ug	
		Benzo(a)fluorene	2012/05/02	<0.10		ug	
		Benzo(a)pyrene	2012/05/02	<0.050		ug	
		Benzo(b)fluoranthene	2012/05/02	<0.050		ug	
		Benzo(b)fluorene	2012/05/02	<0.10		ug	
		Benzo(e)pyrene	2012/05/02	<0.10		ug	
		Benzo(g,h,i)perylene	2012/05/02	<0.050		ug	
		Benzo(k)fluoranthene	2012/05/02	<0.050		ug	
		Biphenyl	2012/05/02	<0.10		ug	
		Chrysene	2012/05/02	<0.050		ug	
		Coronene	2012/05/02	<0.10		ug	
		Dibenz(a,h)anthracene	2012/05/02	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/05/02	<0.20		ug	
		Fluoranthene	2012/05/02	<0.050		ug	
		Fluorene	2012/05/02	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/05/02	<0.050		ug	
		m-Terphenyl	2012/05/02	<0.10		ug	
		Naphthalene	2012/05/02	0.076, RDL=0.072		ug	
		o-Terphenyl	2012/05/02	<0.10		ug	
		Perylene	2012/05/02	<0.10		ug	
		Phenanthrene	2012/05/02	<0.050		ug	
		p-Terphenyl	2012/05/02	<0.10		ug	
		Pyrene	2012/05/02	<0.050		ug	
		Quinoline	2012/05/02	<0.40		ug	
		Tetralin	2012/05/02	<0.10		ug	

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Apr 21, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Apr 20, 2012 @ 15:17 mst
 Removal Date/Time: Apr 26, 2012 @ 06:58 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
21-Apr-12	04/21/2012 0:00	04/22/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
18-Apr-12	30-Apr-12	25-Apr-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
713	229	7.8	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# 10844

GB234629 PUFF # 1

Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Apr 21, 2012

Technician Signature: Ting Xu

Your C.O.C. #: 10844

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

Report Date: 2012/05/08

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B262218****Received: 2012/05/02, 09:30**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/05/02	2012/05/03	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B262218
 Report Date: 2012/05/08

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

Maxxam ID		NH6742	NH6743		
Sampling Date		2012/04/21	2012/04/21		
COC Number		10844	10844		
	Units	LICA PUFF+QFF/CLS/APR 21,2012	LICA PUFF+QFF/PORT/APR 21,2012	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	0.23	<0.10	0.10	2836933
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2836933
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2836933
2-Methylantracene	ug	<0.10	<0.10	0.10	2836933
2-Methylnaphthalene	ug	0.44	<0.10	0.10	2836933
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2836933
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2836933
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2836933
Acenaphthene	ug	0.090	<0.050	0.050	2836933
Acenaphthylene	ug	<0.050	<0.050	0.050	2836933
Anthracene	ug	<0.050	<0.050	0.050	2836933
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2836933
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2836933
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2836933
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2836933
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2836933
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2836933
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2836933
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2836933
Biphenyl	ug	<0.10	<0.10	0.10	2836933
Chrysene	ug	<0.050	<0.050	0.050	2836933
Coronene	ug	<0.10	<0.10	0.10	2836933
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2836933
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2836933
Fluoranthene	ug	<0.050	<0.050	0.050	2836933
Fluorene	ug	0.148	<0.050	0.050	2836933
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2836933
m-Terphenyl	ug	<0.10	<0.10	0.10	2836933
Naphthalene	ug	0.380	<0.072	0.072	2836933
o-Terphenyl	ug	<0.10	<0.10	0.10	2836933
Perylene	ug	<0.10	<0.10	0.10	2836933

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B262218
 Report Date: 2012/05/08

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

Maxxam ID		NH6742	NH6743		
Sampling Date		2012/04/21	2012/04/21		
COC Number		10844	10844		
	Units	LICA PUFF+QFF/CLS/APR 21,2012	LICA PUFF+QFF/PORT/APR 21,2012	RDL	QC Batch

Phenanthrene	ug	0.266	0.088	0.050	2836933
p-Terphenyl	ug	<0.10	<0.10	0.10	2836933
Pyrene	ug	<0.050	<0.050	0.050	2836933
Quinoline	ug	<0.40	<0.40	0.40	2836933
Tetralin	ug	<0.10	<0.10	0.10	2836933
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	40 (1)	56		2836933
D10-Fluoranthene	%	98	98		2836933
D10-Fluorene (FS)	%	11 (1)	28 (1)		2836933
D10-Phenanthrene	%	90	94		2836933
D12-Benzo(a)anthracene	%	102	102		2836933
D12-Benzo(a)pyrene	%	98	98		2836933
D12-Benzo(b)fluoranthene	%	98	100		2836933
D12-Benzo(ghi)perylene	%	104	102		2836933
D12-Benzo(k)fluoranthene	%	86	84		2836933
D12-Chrysene	%	86	86		2836933
D12-Indeno(1,2,3-cd)pyrene	%	108	106		2836933
D12-Perylene	%	94	94		2836933
D14-Dibenzo(a,h)anthracene	%	110	108		2836933
D14-Terphenyl (FS)	%	94	95		2836933
D8-Acenaphthylene	%	60	74		2836933
D8-Naphthalene	%	32 (1)	48 (1)		2836933

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 #: B262218
Report Date: 2012/05/08

Test Summary

Maxxam ID NH6742
Sample ID LICA PUFF+QFF/CLS/APR 21,2012
Matrix PUF AND FILTER

Collected 2012/04/21
Shipped
Received 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2836933	2012/05/02	2012/05/03	WENDY ZHAO

Maxxam ID NH6743
Sample ID LICA PUFF+QFF/PORT/APR 21,2012
Matrix PUF AND FILTER

Collected 2012/04/21
Shipped
Received 2012/05/02

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2836933	2012/05/02	2012/05/03	WENDY ZHAO

Maxxam Job #: B262218
Report Date: 2012/05/08

GENERAL COMMENTS

PAHMS-F

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

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

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

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

Sample received past holding time

Sample NH6742-01: PAHMS-F

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

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

Sample NH6743-01: PAHMS-F

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

Low recovery of surrogate D8-Naphthalene in sample.

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB262218

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2836933 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/05/03		82	%	50 - 150
		D10-Fluoranthene	2012/05/03		88	%	50 - 150
		D10-Phenanthrene	2012/05/03		86	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/03		98	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/03		94	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/03		98	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/03		98	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/03		86	%	50 - 150
		D12-Chrysene	2012/05/03		86	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/05/03		102	%	50 - 150
		D12-Perylene	2012/05/03		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/03		102	%	50 - 150
		D8-Acenaphthylene	2012/05/03		84	%	50 - 150
		D8-Naphthalene	2012/05/03		84	%	50 - 150
		RPD	Acenaphthene	2012/05/03		80	%
	Spiked Blank	Acenaphthene	2012/05/03	2.2		%	50
	RPD	Acenaphthylene	2012/05/03		82	%	60 - 130
	Spiked Blank	Acenaphthylene	2012/05/03	3.0		%	50
	RPD	Anthracene	2012/05/03		82	%	60 - 130
	Spiked Blank	Anthracene	2012/05/03	6.2		%	50
	RPD	Anthracene	2012/05/03		6.2	%	50
	Spiked Blank	Benzo(a)anthracene	2012/05/03		96	%	60 - 130
	RPD	Benzo(a)anthracene	2012/05/03	0.5		%	50
	Spiked Blank	Benzo(a)pyrene	2012/05/03		77	%	60 - 130
	RPD	Benzo(a)pyrene	2012/05/03	3.2		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/05/03		83	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/05/03	3.5		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/05/03		89	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/05/03	3.0		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/05/03		94	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/05/03	0.3		%	50
	Spiked Blank	Chrysene	2012/05/03		81	%	60 - 130
	RPD	Chrysene	2012/05/03	1.6		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/05/03		98	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/05/03	5.2		%	50
	Spiked Blank	Fluoranthene	2012/05/03		86	%	60 - 130
	RPD	Fluoranthene	2012/05/03	8.1		%	50
	Spiked Blank	Fluorene	2012/05/03		81	%	60 - 130
	RPD	Fluorene	2012/05/03	3.6		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/05/03		93	%	60 - 130
RPD	Indeno(1,2,3-cd)pyrene	2012/05/03	4.7		%	50	
Spiked Blank	Naphthalene	2012/05/03		84	%	60 - 130	
RPD	Naphthalene	2012/05/03	2.7		%	50	
Spiked Blank	Phenanthrene	2012/05/03		81	%	60 - 130	
RPD	Phenanthrene	2012/05/03	5.7		%	50	
Spiked Blank	Pyrene	2012/05/03		76	%	60 - 130	
RPD	Pyrene	2012/05/03	7.6		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/05/03			76	%	50 - 150
	D10-Fluoranthene	2012/05/03			96	%	50 - 150
	D10-Phenanthrene	2012/05/03			88	%	50 - 150
	D12-Benzo(a)anthracene	2012/05/03			100	%	50 - 150
	D12-Benzo(a)pyrene	2012/05/03			98	%	50 - 150
	D12-Benzo(b)fluoranthene	2012/05/03			96	%	50 - 150
	D12-Benzo(ghi)perylene	2012/05/03			102	%	50 - 150
	D12-Benzo(k)fluoranthene	2012/05/03			88	%	50 - 150
	D12-Chrysene	2012/05/03			88	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB262218

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2836933 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/05/03		106	%	50 - 150
		D12-Perylene	2012/05/03		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/03		106	%	50 - 150
		D8-Acenaphthylene	2012/05/03		84	%	50 - 150
		D8-Naphthalene	2012/05/03		76	%	50 - 150
		1-Methylnaphthalene	2012/05/03	<0.10		ug	
		1-Methylphenanthrene	2012/05/03	<0.10		ug	
		2-Chloronaphthalene	2012/05/03	<0.10		ug	
		2-Methylanthracene	2012/05/03	<0.10		ug	
		2-Methylnaphthalene	2012/05/03	<0.10		ug	
		3-Methylcholanthrene	2012/05/03	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/05/03	<0.10		ug	
		9,10-Dimethylanthracene	2012/05/03	<0.40		ug	
		Acenaphthene	2012/05/03	<0.050		ug	
		Acenaphthylene	2012/05/03	<0.050		ug	
		Anthracene	2012/05/03	<0.050		ug	
		Benzo(a)anthracene	2012/05/03	<0.050		ug	
		Benzo(a)fluorene	2012/05/03	<0.10		ug	
		Benzo(a)pyrene	2012/05/03	<0.050		ug	
		Benzo(b)fluoranthene	2012/05/03	<0.050		ug	
		Benzo(b)fluorene	2012/05/03	<0.10		ug	
		Benzo(e)pyrene	2012/05/03	<0.10		ug	
		Benzo(g,h,i)perylene	2012/05/03	<0.050		ug	
		Benzo(k)fluoranthene	2012/05/03	<0.050		ug	
		Biphenyl	2012/05/03	<0.10		ug	
		Chrysene	2012/05/03	<0.050		ug	
		Coronene	2012/05/03	<0.10		ug	
		Dibenz(a,h)anthracene	2012/05/03	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/05/03	<0.20		ug	
		Fluoranthene	2012/05/03	<0.050		ug	
		Fluorene	2012/05/03	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/05/03	<0.050		ug	
		m-Terphenyl	2012/05/03	<0.10		ug	
		Naphthalene	2012/05/03	<0.072		ug	
		o-Terphenyl	2012/05/03	<0.10		ug	
		Perylene	2012/05/03	<0.10		ug	
		Phenanthrene	2012/05/03	<0.050		ug	
		p-Terphenyl	2012/05/03	<0.10		ug	
		Pyrene	2012/05/03	<0.050		ug	
		Quinoline	2012/05/03	<0.40		ug	
		Tetralin	2012/05/03	<0.10		ug	

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/Apr 27, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Apr 26, 2012 @ 07:11 mst
 Removal Date/Time: Apr 30, 2012 @ 08:17 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
27-Apr-12	04/27/2012 0:00	04/28/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
25-Apr-12	01-May-12	07-May-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure(mmHg)	AverageFlow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
711	229	2.4	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# 10643
GB234632 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/Apr 27, 2012

Technician Signature: Ting Xu

Your C.O.C. #: 10643

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

Report Date: 2012/05/11

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B263042****Received: 2012/05/03, 09:05**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/05/04	2012/05/07	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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

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Total cover pages: 1

Page 1 of 7

Maxxam Job #: B263042
 Report Date: 2012/05/11

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

Maxxam ID		NI0775	NI0776		
Sampling Date		2012/04/27 00:00	2012/04/27 00:00		
COC Number		10643	10643		
	Units	LICA PUFF+QFF/CLS/APR 27, 2012	LICA PUFF+QFF/PORT/APR 27,2012	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2838951
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2838951
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2838951
2-Methylantracene	ug	<0.10	<0.10	0.10	2838951
2-Methylnaphthalene	ug	0.15	<0.10	0.10	2838951
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2838951
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2838951
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2838951
Acenaphthene	ug	<0.050	<0.050	0.050	2838951
Acenaphthylene	ug	0.088	<0.050	0.050	2838951
Anthracene	ug	<0.050	<0.050	0.050	2838951
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2838951
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2838951
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2838951
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2838951
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2838951
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2838951
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2838951
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2838951
Biphenyl	ug	<0.10	<0.10	0.10	2838951
Chrysene	ug	<0.050	<0.050	0.050	2838951
Coronene	ug	<0.10	<0.10	0.10	2838951
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2838951
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2838951
Fluoranthene	ug	0.088	<0.050	0.050	2838951
Fluorene	ug	0.116	0.074	0.050	2838951
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2838951
m-Terphenyl	ug	<0.10	<0.10	0.10	2838951
Naphthalene	ug	0.136	<0.072	0.072	2838951
o-Terphenyl	ug	<0.10	<0.10	0.10	2838951

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B263042
 Report Date: 2012/05/11

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

Maxxam ID		NI0775	NI0776		
Sampling Date		2012/04/27 00:00	2012/04/27 00:00		
COC Number		10643	10643		
	Units	LICA PUFF+QFF/CLS/APR 27, 2012	LICA PUFF+QFF/PORT/APR 27,2012	RDL	QC Batch

Perylene	ug	<0.10	<0.10	0.10	2838951
Phenanthrene	ug	0.348	0.082	0.050	2838951
p-Terphenyl	ug	<0.10	<0.10	0.10	2838951
Pyrene	ug	0.070	<0.050	0.050	2838951
Quinoline	ug	<0.40	<0.40	0.40	2838951
Tetralin	ug	<0.10	<0.10	0.10	2838951
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	60	76		2838951
D10-Fluoranthene	%	94	94		2838951
D10-Fluorene (FS)	%	18 (1)	16 (1)		2838951
D10-Phenanthrene	%	82	88		2838951
D12-Benzo(a)anthracene	%	100	98		2838951
D12-Benzo(a)pyrene	%	94	94		2838951
D12-Benzo(b)fluoranthene	%	100	94		2838951
D12-Benzo(ghi)perylene	%	100	102		2838951
D12-Benzo(k)fluoranthene	%	86	90		2838951
D12-Chrysene	%	86	88		2838951
D12-Indeno(1,2,3-cd)pyrene	%	104	104		2838951
D12-Perylene	%	90	92		2838951
D14-Dibenzo(a,h)anthracene	%	106	106		2838951
D14-Terphenyl (FS)	%	92	93		2838951
D8-Acenaphthylene	%	64	82		2838951
D8-Naphthalene	%	58	76		2838951

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 #: B263042
 Report Date: 2012/05/11

Test Summary

Maxxam ID NI0775
Sample ID LICA PUFF+QFF/CLS/APR 27, 2012
Matrix PUF AND FILTER

Collected 2012/04/27
Shipped
Received 2012/05/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2838951	2012/05/04	2012/05/07	WENDY ZHAO

Maxxam ID NI0776
Sample ID LICA PUFF+QFF/PORT/APR 27,2012
Matrix PUF AND FILTER

Collected 2012/04/27
Shipped
Received 2012/05/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2838951	2012/05/04	2012/05/07	WENDY ZHAO

Maxxam Job #: B263042
Report Date: 2012/05/11

GENERAL COMMENTS

PAHMS-F

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

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

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

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

Sample NI0775-01: PAHMS-F

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

Sample NI0776-01: PAHMS-F

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

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB263042

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2838951 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/05/07		78	%	50 - 150
		D10-Fluoranthene	2012/05/07		84	%	50 - 150
		D10-Phenanthrene	2012/05/07		78	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/07		94	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/07		92	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/07		96	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/07		98	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/07		86	%	50 - 150
		D12-Chrysene	2012/05/07		90	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/05/07		100	%	50 - 150
		D12-Perylene	2012/05/07		88	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/07		102	%	50 - 150
		RPD	D8-Acenaphthylene	2012/05/07		78	%
	D8-Naphthalene		2012/05/07		78	%	50 - 150
	Spiked Blank	Acenaphthene	2012/05/07		75	%	60 - 130
		Acenaphthene	2012/05/07	6.5		%	50
	RPD	Acenaphthylene	2012/05/07		77	%	60 - 130
		Acenaphthylene	2012/05/07	7.1		%	50
	Spiked Blank	Anthracene	2012/05/07		73	%	60 - 130
		Anthracene	2012/05/07	4.1		%	50
	Spiked Blank	Benzo(a)anthracene	2012/05/07		94	%	60 - 130
		Benzo(a)anthracene	2012/05/07	2.9		%	50
	Spiked Blank	Benzo(a)pyrene	2012/05/07		78	%	60 - 130
		Benzo(a)pyrene	2012/05/07	8.0		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/05/07		93	%	60 - 130
		Benzo(b)fluoranthene	2012/05/07	1.6		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/05/07		92	%	60 - 130
		Benzo(g,h,i)perylene	2012/05/07	6.6		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/05/07		91	%	60 - 130
		Benzo(k)fluoranthene	2012/05/07	10.2		%	50
	Spiked Blank	Chrysene	2012/05/07		86	%	60 - 130
		Chrysene	2012/05/07	0.6		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/05/07		100	%	60 - 130
		Dibenz(a,h)anthracene	2012/05/07	8.8		%	50
	Spiked Blank	Fluoranthene	2012/05/07		84	%	60 - 130
		Fluoranthene	2012/05/07	9.1		%	50
	Spiked Blank	Fluorene	2012/05/07		77	%	60 - 130
		Fluorene	2012/05/07	4.3		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/05/07		94	%	60 - 130
		Indeno(1,2,3-cd)pyrene	2012/05/07	8.6		%	50
Spiked Blank	Naphthalene	2012/05/07		80	%	60 - 130	
	Naphthalene	2012/05/07	13.3		%	50	
Spiked Blank	Phenanthrene	2012/05/07		76	%	60 - 130	
	Phenanthrene	2012/05/07	1.3		%	50	
Spiked Blank	Pyrene	2012/05/07		74	%	60 - 130	
	Pyrene	2012/05/07	10.3		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/05/07		72	%	50 - 150	
	D10-Fluoranthene	2012/05/07		88	%	50 - 150	
	D10-Phenanthrene	2012/05/07		80	%	50 - 150	
	D12-Benzo(a)anthracene	2012/05/07		94	%	50 - 150	
	D12-Benzo(a)pyrene	2012/05/07		94	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/05/07		94	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/05/07		102	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/05/07		90	%	50 - 150	
	D12-Chrysene	2012/05/07		88	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB263042

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2838951 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/05/07		106	%	50 - 150
		D12-Perylene	2012/05/07		90	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/07		106	%	50 - 150
		D8-Acenaphthylene	2012/05/07		76	%	50 - 150
		D8-Naphthalene	2012/05/07		74	%	50 - 150
		1-Methylnaphthalene	2012/05/07	<0.10		ug	
		1-Methylphenanthrene	2012/05/07	<0.10		ug	
		2-Chloronaphthalene	2012/05/07	<0.10		ug	
		2-Methylanthracene	2012/05/07	<0.10		ug	
		2-Methylnaphthalene	2012/05/07	<0.10		ug	
		3-Methylcholanthrene	2012/05/07	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/05/07	<0.10		ug	
		9,10-Dimethylanthracene	2012/05/07	<0.40		ug	
		Acenaphthene	2012/05/07	<0.050		ug	
		Acenaphthylene	2012/05/07	<0.050		ug	
		Anthracene	2012/05/07	<0.050		ug	
		Benzo(a)anthracene	2012/05/07	<0.050		ug	
		Benzo(a)fluorene	2012/05/07	<0.10		ug	
		Benzo(a)pyrene	2012/05/07	<0.050		ug	
		Benzo(b)fluoranthene	2012/05/07	<0.050		ug	
		Benzo(b)fluorene	2012/05/07	<0.10		ug	
		Benzo(e)pyrene	2012/05/07	<0.10		ug	
		Benzo(g,h,i)perylene	2012/05/07	<0.050		ug	
		Benzo(k)fluoranthene	2012/05/07	<0.050		ug	
		Biphenyl	2012/05/07	<0.10		ug	
		Chrysene	2012/05/07	<0.050		ug	
		Coronene	2012/05/07	<0.10		ug	
		Dibenz(a,h)anthracene	2012/05/07	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/05/07	<0.20		ug	
		Fluoranthene	2012/05/07	<0.050		ug	
		Fluorene	2012/05/07	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/05/07	<0.050		ug	
		m-Terphenyl	2012/05/07	<0.10		ug	
		Naphthalene	2012/05/07	<0.072		ug	
		o-Terphenyl	2012/05/07	<0.10		ug	
		Perylene	2012/05/07	<0.10		ug	
		Phenanthrene	2012/05/07	<0.050		ug	
		p-Terphenyl	2012/05/07	<0.10		ug	
		Pyrene	2012/05/07	<0.050		ug	
		Quinoline	2012/05/07	<0.40		ug	
		Tetralin	2012/05/07	<0.10		ug	

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