

Lakeland Industry & Community Association

Maskwa Monitoring Site
Ambient Air Monitoring
Data Report
For
May 2012

Prepared By:



June 19, 2012

Lakeland Industry & Community Association Ambient Air Monitoring Maskwa

Table of Contents

	Page		Page
Introduction	3	Calibration Reports	84
Calibration Procedure	4	• Sulphur Dioxide	85
Monthly Continuous Summary	5	• Hydrogen Sulphide	88
General Monthly Summary	6	• Total Hydrocarbons	91
Continuous Monitoring	10	• Nitrogen Dioxide	95
• Monthly Summaries, Graphs & Wind Roses	11		
• Sulphur Dioxide	12		
• Hydrogen Sulphide	20		
• Total Hydrocarbons	28		
• Nitrogen Dioxide	36		
• Nitric Oxide	44		
• Oxides of Nitrogen	51		
• Temperature	59		
• Precipitation	62		
• Relative Humidity	65		
• Barometric Pressure	68		
• Vector Wind Speed	71		
• Vector Wind Direction	78		
• Standard Deviation Wind Direction	81		

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: May 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 – May 2012

LICA MASKWA SITE						MAXIMUM VALUES						OPERATIONAL TIME (PERCENT)	
						OBJECTIVES			EXCEEDENCES		MONTHLY AVERAGE		1-HOUR
PARAMETER	1-HR	24-HR	1-HR	24-HR	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING			DAY
SO2 (PPB)	172	48	0	0	0.63	19	14	5	10.5	304(WNW)	2.7	14	99.9
H2S (PPB)	10	3	0	0	0.21	2	27	6	2.6	28(NNE)	0.7	VAR	99.9
THC (PPM)	-	-	-	-	2.06	2.7	31	5	4.6	210(SSW)	2.2	VAR	99.7
NOx (PPB)	-	-	-	-	2.20	26	13	6	3.7	294WNW)	5.2	10, 13	100.0
NO (PPB)	-	-	-	-	0.28	9	20	6	3.8	319(NW)	0.9	VAR	100.0
NO ₂ (PPB)	159	-	0	-	1.60	20	13, 14	6, 5	3.7, 10.5	294(WNW), 304(WNW)	4.3	13	100.0
VECTOR WS (KPH)	-	-	-	-	6.52	18.3	11	12	-	290(WNW)	9.1	11	100.0
VECTOR WD (DEGREES)	-	-	-	-	0(N)	-	-	-	-	-	-	-	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	50.67	92	4, 5	VAR	VAR	VAR	82.7	4	100.0
TEMPERATURE (DEG C)	-	-	-	-	10.82	24.1	13	14	14.3	283(W)	16.6	13	100.0
BAROMETRIC PRESSURE (MILIBAR)	-	-	-	-	941	952	7	VAR	VAR	VAR	949	6, 7	100.0
PRECIPITATION (MM)	-	-	-	-	0.06	3.8	16	23	1.6	161(SSE)	14.9	22	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 May 11th. A new cool fan in the analyzer was replaced on May 11th. 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 May 11th. 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. Following the as found points check on May 11th, the inside pump was rebuilt. A post-repair calibration was then performed. The inlet filter was changed before the monthly calibration was started on May 11th. 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 May 11th. 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. The sensor was checked and audited on May 16th; the reading on the datalogger was 28.24%, the reading on the Brunton meter was 27.8%.

Precipitation (MM)

- System make / model - Met One 387

No operational issues were observed during the month.

General Monthly Summary

AQM STATION – LICA – Maskwa

Barometric Pressure (MILLIBAR)

- System make / model - Met One 092

No operation issues were observed during the month. The sensor was checked and audited on May 16th; the reading on the datalogger was 936.7 mBar, the reading on the Brunton meter was 934.54 mBar.

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. The sensor was checked and audited on May 16th; the reading on the datalogger was 21.58 °C, the reading on the FLUKE 1551A thermometer was 21.15°C.

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 May 11th. A throw-away filter for the HVAV heating/cooling system was replaced on May 11th. A field camera was installed and mounted on the wind tower on May 16th. The motor for the fan on the pump was replaced on May 31st.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 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	24-HOUR							
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.						
DAY 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0.0	24			
DAY 2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	IZS	8	5	8	0.7	24		
DAY 3	0	0	0	0	0	0	0	0	0	0	1	2	2	1	0	0	0	0	1	8	0	0	0	0	0	IZS	6	0	8	0.9	24		
DAY 4	0	10	4	11	6	8	2	0	2	1	1	1	0	0	1	1	2	1	0	0	0	0	0	0	0	IZS	0	0	0	11	2.2	24	
DAY 5	0	0	0	0	0	0	0	1	1	0	1	3	0	0	0	2	2	0	0	0	0	0	0	0	0	IZS	2	7	5	0	7	1.0	24
DAY 6	1	0	0	2	0	2	0	0	1	3	2	1	0	0	5	2	0	0	0	0	0	0	0	1	1	IZS	0	0	0	1	5	0.9	24
DAY 7	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	IZS	0	0	0	0	1	0.0	24
DAY 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	IZS	0	0	0	0	0	0.0	24
DAY 9	0	0	0	0	0	4	0	1	0	0	0	0	2	2	0	0	5	7	3	2	1	10	1	7	IZS	10	1	7	10	2.0	24		
DAY 10	5	4	3	5	10	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	IZS	0	0	0	10	1.4	24	
DAY 11	0	0	0	0	0	0	0	C	C	C	C	C	0	0	M	0	0	0	0	0	0	0	1	1	1	IZS	1	1	1	1	0.1	23	
DAY 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	IZS	0	0	0	0	0.0	24	
DAY 13	0	0	0	0	2	0	7	3	0	0	0	0	0	0	0	0	0	2	2	5	0	0	0	0	0	IZS	6	3	0	0	7	1.3	24
DAY 14	0	0	0	0	1	19	8	10	8	0	0	2	2	0	1	1	5	1	0	0	0	0	5	0	0	IZS	2	2	0	19	2.7	24	
DAY 15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	3	2	7	2	0	0	0	IZS	0	0	0	7	0.7	24	
DAY 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	IZS	3	4	1	3	0.9	24	
DAY 17	0	0	0	0	0	0	0	0	0	0	3	0	2	1	3	1	1	2	2	0	0	0	0	0	0	IZS	0	0	0	3	0.7	24	
DAY 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	IZS	0	0	0	0	0.0	24	
DAY 19	0	0	0	0	0	0	0	2	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0.3	24	
DAY 20	0	0	0	0	0	0	10	7	2	1	2	0	1	1	2	0	1	1	0	0	0	0	1	0	0	IZS	0	0	10	1.3	24		
DAY 21	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	2	2	1	0	0	0	0	IZS	0	0	0	2	0.5	24	
DAY 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	IZS	0	0	0	0	0.0	24	
DAY 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	IZS	0	0	0	0	0.0	24	
DAY 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	IZS	0	0	0	0	0.0	24	
DAY 25	0	0	0	0	0	0	3	4	2	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	IZS	0	0	0	4	0.5	24	
DAY 26	0	0	0	0	0	0	0	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	0	2	0.3	24	
DAY 27	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	IZS	0	0	0	1	0.1	24	
DAY 28	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0.2	24	
DAY 29	0	0	0	0	0	0	0	1	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0.2	24	
DAY 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	IZS	0	0	0	0	0.0	24	
DAY 31	0	0	0	0	0	1	2	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	2	0.3	24	
HOURLY MAX	5	10	4	11	10	19	10	10	8	4	3	6	3	3	5	5	5	7	3	8	7	10	8	7	7								
HOURLY AVG	0.2	0.5	0.2	0.6	0.6	1.2	1.1	1.3	0.9	0.4	0.5	0.6	0.5	0.4	0.5	0.5	0.5	0.6	0.5	0.8	0.6	0.9	0.6	0.5	0.5								

STATUS FLAG CODES

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

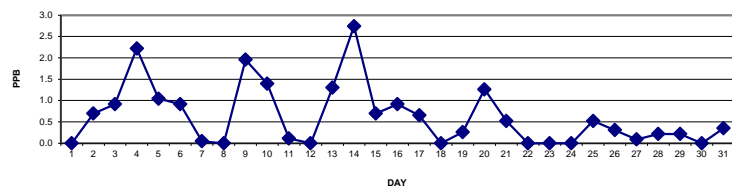
OBJECTIVE LIMIT:

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

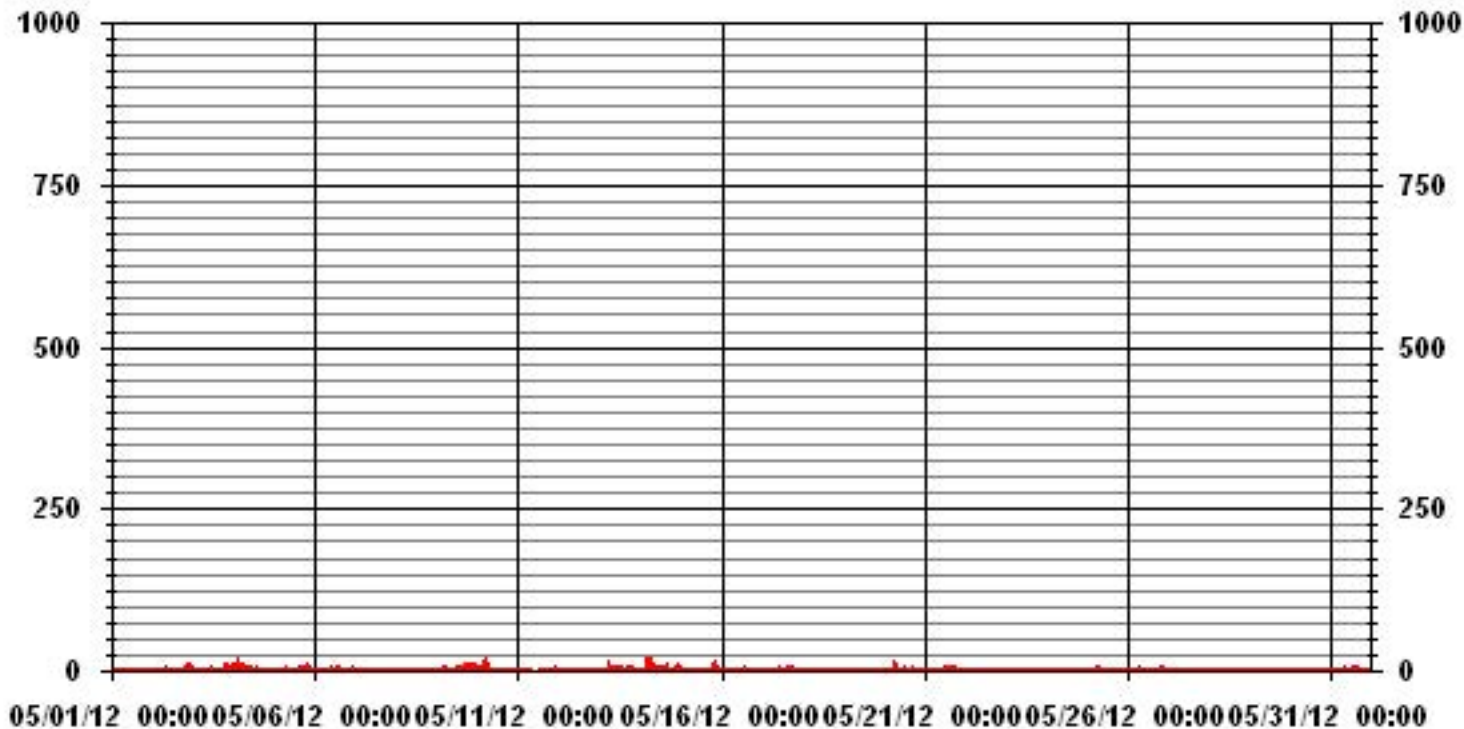
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	163		
MAXIMUM 1-HR AVERAGE:	19 PPB @ HOUR(S) 5 ON DAY(S) 14		
MAXIMUM 24-HR AVERAGE:	2.7 PPB ON DAY(S) 14		
IZS CALIBRATION TIME:	31 HRS	OPERATIONAL TIME:	743 HRS
MONTHLY CALIBRATION TIME:	5 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	1.72	MONTHLY AVERAGE:	0.63 PPB

24 HOUR AVERAGES FOR MAY 2012



01 Hour Averages



— LICA30 SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 2012

SULPHUR DIOXIDE MAX instantaneous maximum 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	IZS	0	1	0.1	24	
2	0	0	0	0	0	0	0	1	5	5	3	2	1	1	1	2	1	2	6	0	1	IZS	16	11	16	2.5	24	
3	0	0	0	0	0	0	2	1	2	1	4	6	6	5	0	0	0	2	6	13	IZS	16	1	0	16	2.8	24	
4	7	15	12	17	14	11	5	2	3	3	4	2	2	2	4	3	6	3	3	IZS	0	1	1	1	17	5.3	24	
5	0	0	0	0	0	0	0	3	3	1	5	9	3	1	0	13	13	0	IZS	10	18	13	1	0	18	4.0	24	
6	3	1	0	14	1	7	2	1	5	13	8	10	0	6	17	11	5	IZS	0	0	1	0	2	2	17	4.7	24	
7	2	1	0	0	0	1	2	3	1	1	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	3	0.5	24	
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	1	1	1	2	1	1	2	0.3	24
9	1	1	1	1	2	26	1	4	1	1	1	5	11	12	IZS	1	37	25	31	10	5	28	9	22	37	10.3	24	
10	8	7	8	13	20	7	0	0	0	0	0	1	0	IZS	0	0	0	18	2	1	1	0	0	0	20	3.7	24	
11	0	0	0	0	1	1	0	C	C	C	C	C	0	M	0	1	0	0	0	0	0	1	3	1	3	0.4	23	
12	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	2	0	0	0	0	0	0	0	2	0.1	24	
13	0	2	2	2	4	1	17	10	1	0	IZS	13	24	2	0	1	2	8	17	25	0	1	1	0	25	5.8	24	
14	2	1	1	0	6	31	19	22	17	IZS	10	14	4	7	14	17	9	2	0	0	0	3	10	2	31	8.3	24	
15	0	0	0	0	0	0	1	0	IZS	0	0	0	3	0	0	1	0	3	7	4	15	5	1	0	15	1.7	24	
16	1	0	0	0	1	0	0	IZS	9	11	2	10	5	1	9	10	6	2	1	1	11	11	1	0	11	4.0	24	
17	2	1	1	1	1	1	IZS	1	1	1	12	5	8	7	9	4	4	6	4	3	0	0	0	0	12	3.1	24	
18	0	0	0	0	0	IZS	0	1	0	0	0	0	0	2	0	1	1	1	1	1	1	1	0	2	0.5	24		
19	0	0	0	3	IZS	1	1	13	1	0	1	0	13	13	0	0	0	0	1	0	0	0	0	0	13	2.0	24	
20	0	0	0	IZS	0	0	17	17	8	10	8	3	6	8	13	0	3	7	0	2	0	0	4	0	17	4.6	24	
21	0	0	IZS	0	0	0	0	0	1	2	3	2	3	3	2	3	3	3	3	5	3	1	1	1	5	1.7	24	
22	2	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1	24	
23	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	IZS	0	0.0	24
25	0	0	0	0	0	1	6	12	6	2	1	1	7	1	1	2	3	3	1	1	1	0	IZS	0	12	2.1	24	
26	0	0	1	1	1	1	1	4	4	1	0	0	0	1	0	1	1	0	0	0	IZS	4	4	1	4	1.1	24	
27	1	0	0	0	1	0	1	2	1	0	1	2	2	1	2	1	1	1	2	IZS	0	1	0	1	2	0.9	24	
28	1	1	1	1	0	0	4	7	1	1	2	1	1	2	1	2	1	1	IZS	5	1	1	1	1	7	1.6	24	
29	1	1	1	0	1	0	1	4	3	3	1	2	2	3	1	1	1	IZS	0	0	0	0	0	0	4	1.1	24	
30	0	0	0	0	0	0	4	2	1	1	0	0	0	0	0	0	0	IZS	0	1	1	1	1	1	4	0.6	24	
31	1	1	1	1	1	2	2	2	1	1	1	1	6	6	4	IZS	0	0	3	4	0	1	0	0	6	1.7	24	
HOURLY MAX	8	15	12	17	20	31	19	22	17	13	12	14	24	13	17	17	37	25	31	25	18	28	16	22				
HOURLY AVG	1.1	1.1	1.0	1.8	1.8	3.0	2.9	3.9	2.6	2.0	2.3	3.1	3.5	2.9	2.6	2.6	3.4	3.1	3.1	3.0	2.1	3.1	2.0	1.5				

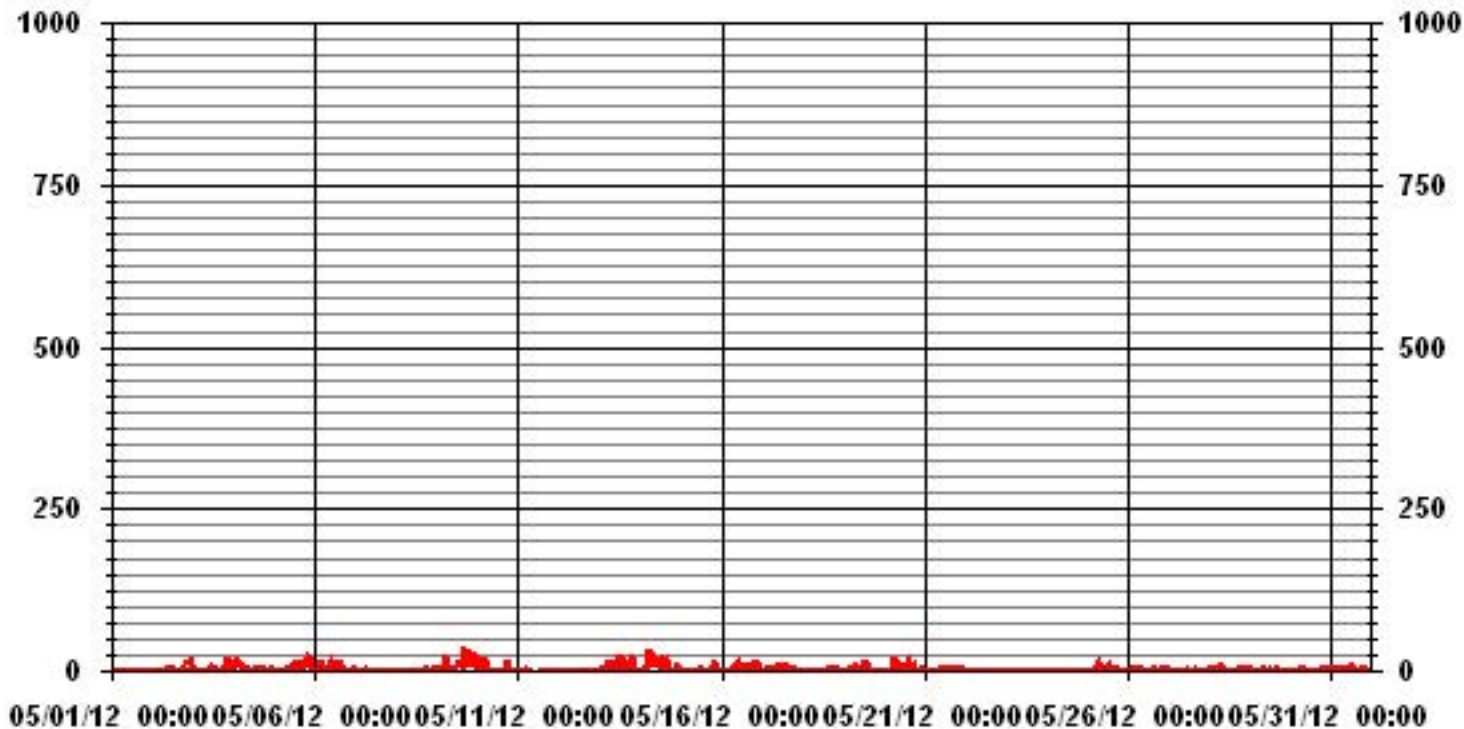
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	379					
MAXIMUM INSTANTANEOUS VALUE:	37	PPB	@ HOUR(S)	16	ON DAY(S)	9
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743 HRS		
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	4.79					

01 Hour Averages



— LICA30 SO2MAX PPB

LICA30
 SO2_ / WDR Joint Frequency Distribution (Percent)

May 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	2.97	4.10	12.72	7.63	8.62	6.78	4.95	2.82	5.51	7.21	3.67	4.95	9.05	9.75	4.38	4.80	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.97	4.10	12.72	7.63	8.62	6.78	4.95	2.82	5.51	7.21	3.67	4.95	9.05	9.75	4.38	4.80	

Calm : .00 %

Total # Operational Hours : 707

Distribution By Samples

Limit	Direction																Freq
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
< 20	21	29	90	54	61	48	35	20	39	51	26	35	64	69	31	34	707
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	21	29	90	54	61	48	35	20	39	51	26	35	64	69	31	34	

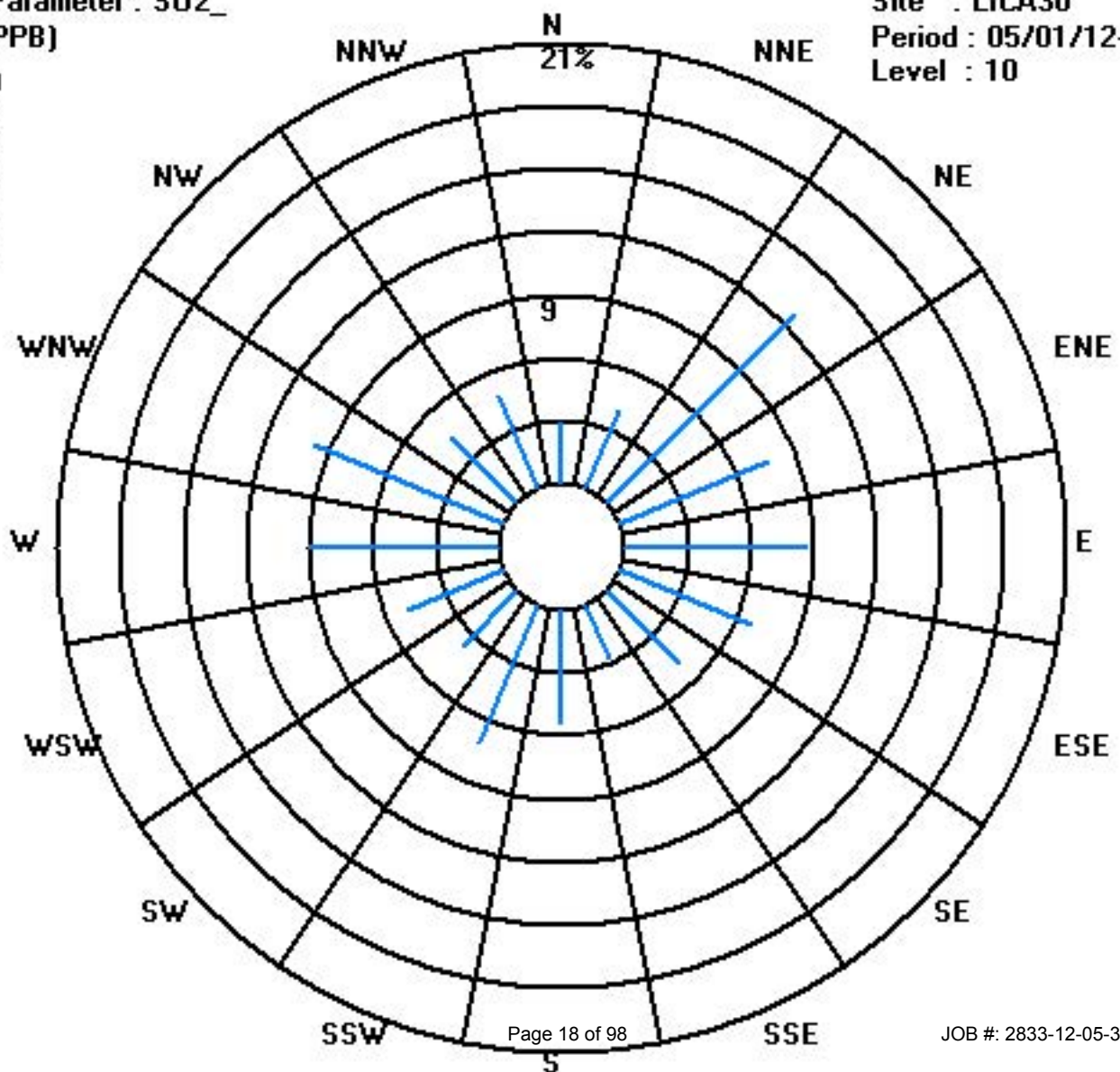
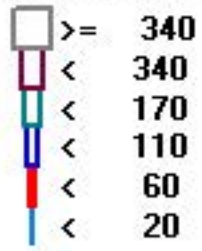
Calm : .00 %

Total # Operational Hours : 707

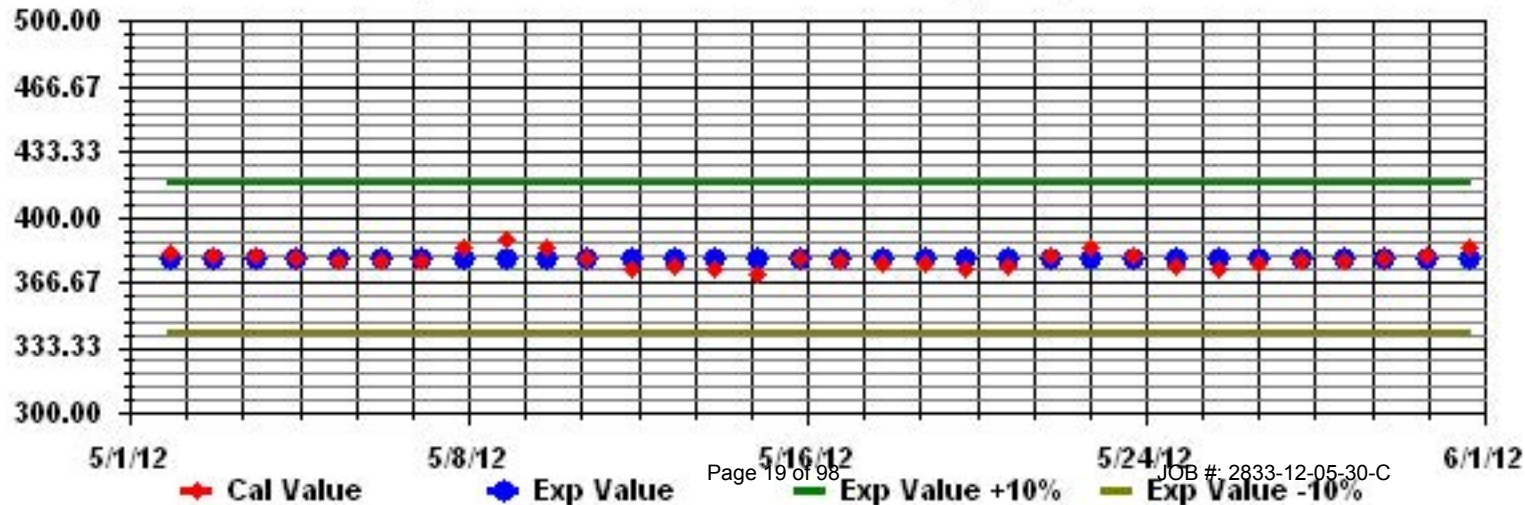
Class Limits (PPB)

Period : 05/01/12-05/31/12

Level : 10



Calibration Graph for Site: LICA30 Parameter: SO2_ Sequence: S02 Phase: SPAN



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 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	24:00	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	1	0	1	1	1	0	0	0	0	0	1	1	1	1	1	0	1	0	0	0	1	IZS	0	1	0.5	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	1	1	0.0	24			
3	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	IZS	1	1	1	0.7	24			
4	1	1	1	0	1	1	0	0	1	0	0	1	0	1	1	0	0	0	1	IZS	0	0	0	0	0	1	0.4	24		
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24		
6	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	IZS	0	0	0	0	0	0	0	1	0.2	24	
7	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	1	0.2	24	
8	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	IZS	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
9	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
11	0	0	0	0	0	0	0	0	0	0	C	C	C	0	M	0	0	0	0	0	1	1	1	1	1	1	0.4	23		
12	0	1	1	0	0	0	0	0	0	0	0	0	IZS	0	0	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	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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
15	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
16	0	0	0	0	0	0	0	0	IZS	1	1	1	1	0	1	1	0	1	0	0	1	1	1	1	1	1	1	0.5	24	
17	1	1	1	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
18	0	0	0	0	0	0	IZS	0	1	0	0	0	1	0	1	0	0	0	1	1	0	1	1	0	0	0	1	0.3	24	
19	1	0	0	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	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	0.0	24	
21	0	0	0	IZS	0	0	1	1	0	0	0	1	1	0	0	0	0	1	0	0	1	1	0	1	0	1	0	1	0.3	24
22	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
23	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	1	1	1	1	0	1	1	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.5	24	
27	0	0	1	1	1	1	1	2	1	1	0	0	0	1	0	1	0	1	1	0	0	IZS	1	0	1	1	2	0.7	24	
28	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	IZS	1	1	1	1	1	0.7	24	
29	0	1	1	0	0	1	1	1	1	1	1	0	1	1	0	0	0	1	IZS	0	0	0	0	0	0	0	1	0.4	24	
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0.0	24	
HOURLY MAX		1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
HOURLY AVG		0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2			

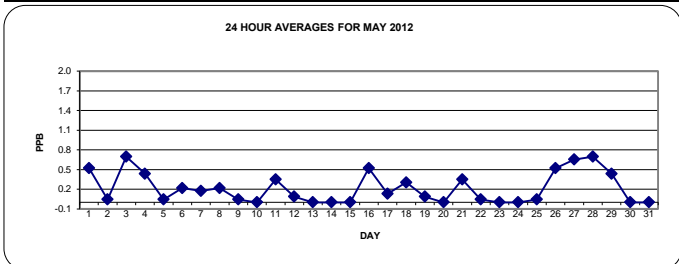
STATUS FLAG CODES

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

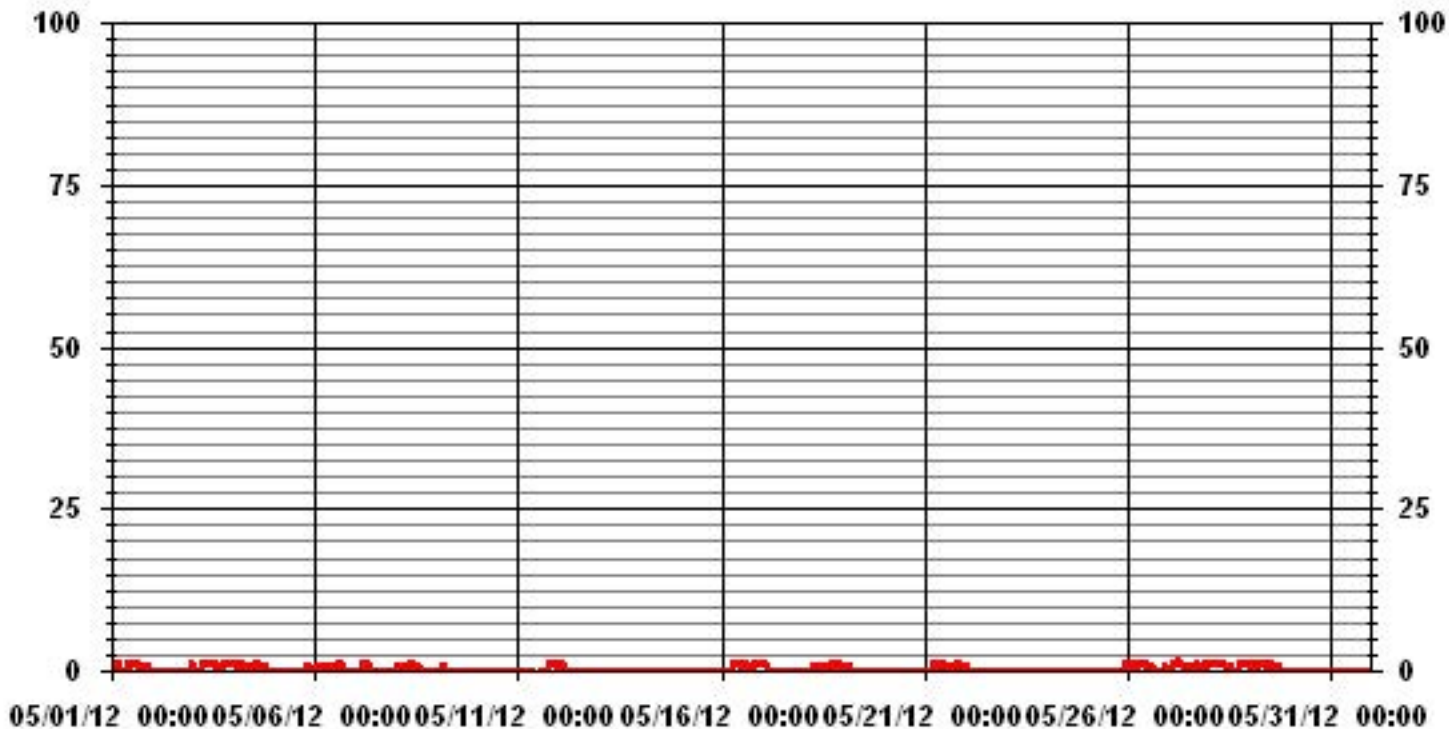
OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 1-HR 10 PPB 24-HR 3 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	150
MAXIMUM 1-HR AVERAGE:	2 PPB @ HOUR(S) 6 ON DAY(S) 27
MAXIMUM 24-HR AVERAGE:	0.7 PPB ON DAY(S) VAR
	VAR-VARIOUS
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	3 HRS
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.41
MONTHLY AVERAGE:	0.21 PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 2012

HYDROGEN SULPHIDE MAX instantaneous maximum in ppb

MST																									DAILY	24-HOUR				
HOURLY MAX	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
HOURLY AVG	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00						
DAY																														
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
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	0.1	24	
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	24	
4	2	2	2	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	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	0.2	24	
6	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0.8	24	
7	1	1	1	1	2	2	1	2	0	1	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
8	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	24		
9	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	24	
10	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	24	
11	0	0	0	0	0	0	0	0	C	C	C	C	1	M	1	1	1	1	0	1	1	1	1	1	1	1	0.5	23		
12	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.4	24	
13	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	24	
14	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	24	
15	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	24	
16	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.1	24	
17	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	24	
18	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0.7	24	
19	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0	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	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	24	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
24	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	24	
25	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	0.1	24	
26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
27	1	0	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	24	
28	2	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.2	24	
29	1	2	2	1	1	2	3	2	2	2	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
30	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	24	
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
HOURLY MAX	2	2	3	1	2	2	3	2	2	2	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
HOURLY AVG	0.5	0.5	0.6	0.5	0.6	0.8	0.6	0.6	0.5	0.4	0.7	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.6	0.6					

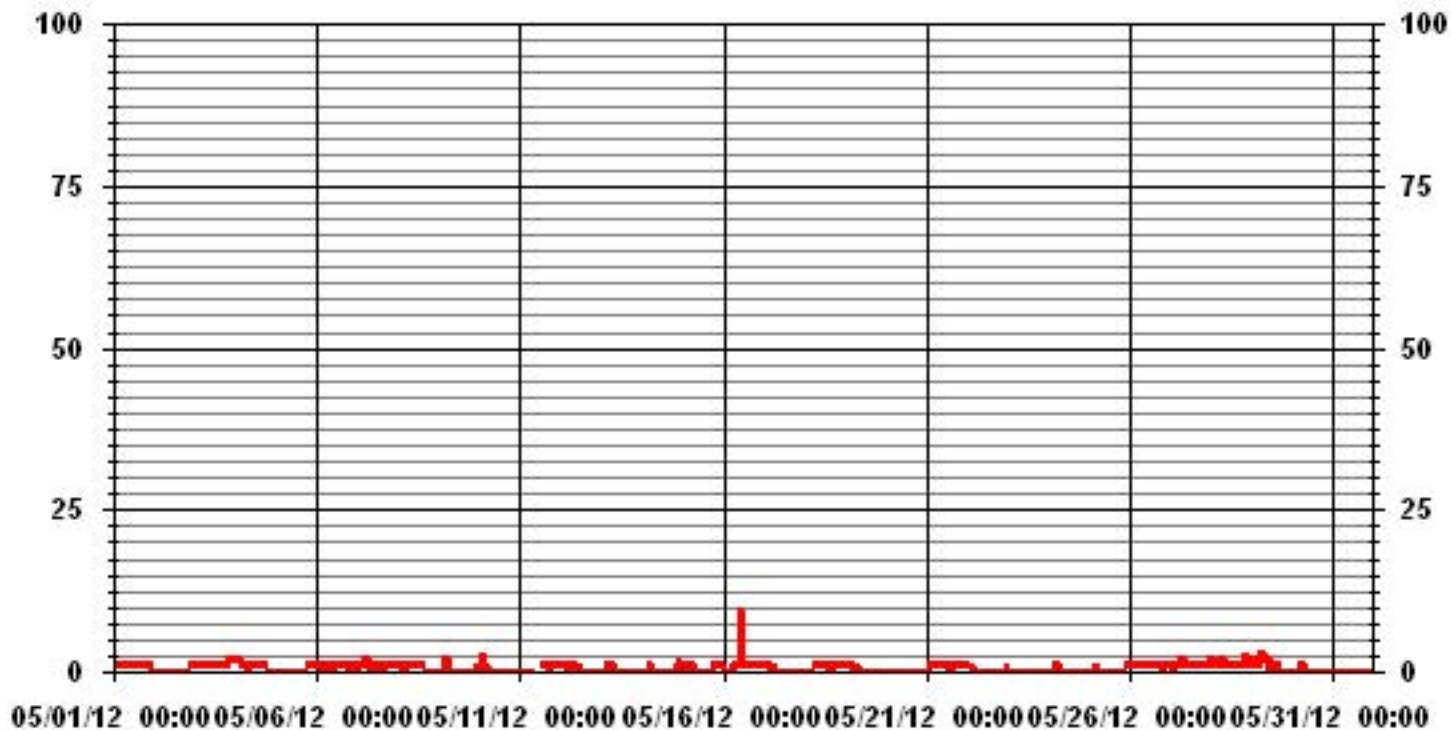
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	321					
MAXIMUM INSTANTANEOUS VALUE:	10	PPB	@ HOUR(S)	10	ON DAY(S)	16
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	0.69					

01 Hour Averages



LICA30
H2S_ / WDR Joint Frequency Distribution (Percent)

May 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	2.96	4.09	12.69	7.61	8.60	6.77	4.93	2.82	5.50	7.19	3.66	4.93	9.16	9.87	4.37	4.79	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.96	4.09	12.69	7.61	8.60	6.77	4.93	2.82	5.50	7.19	3.66	4.93	9.16	9.87	4.37	4.79	

Calm : .00 %

Total # Operational Hours : 709

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	21	29	90	54	61	48	35	20	39	51	26	35	65	70	31	34	709
< 10																	
< 50																	
>= 50																	
Totals	21	29	90	54	61	48	35	20	39	51	26	35	65	70	31	34	

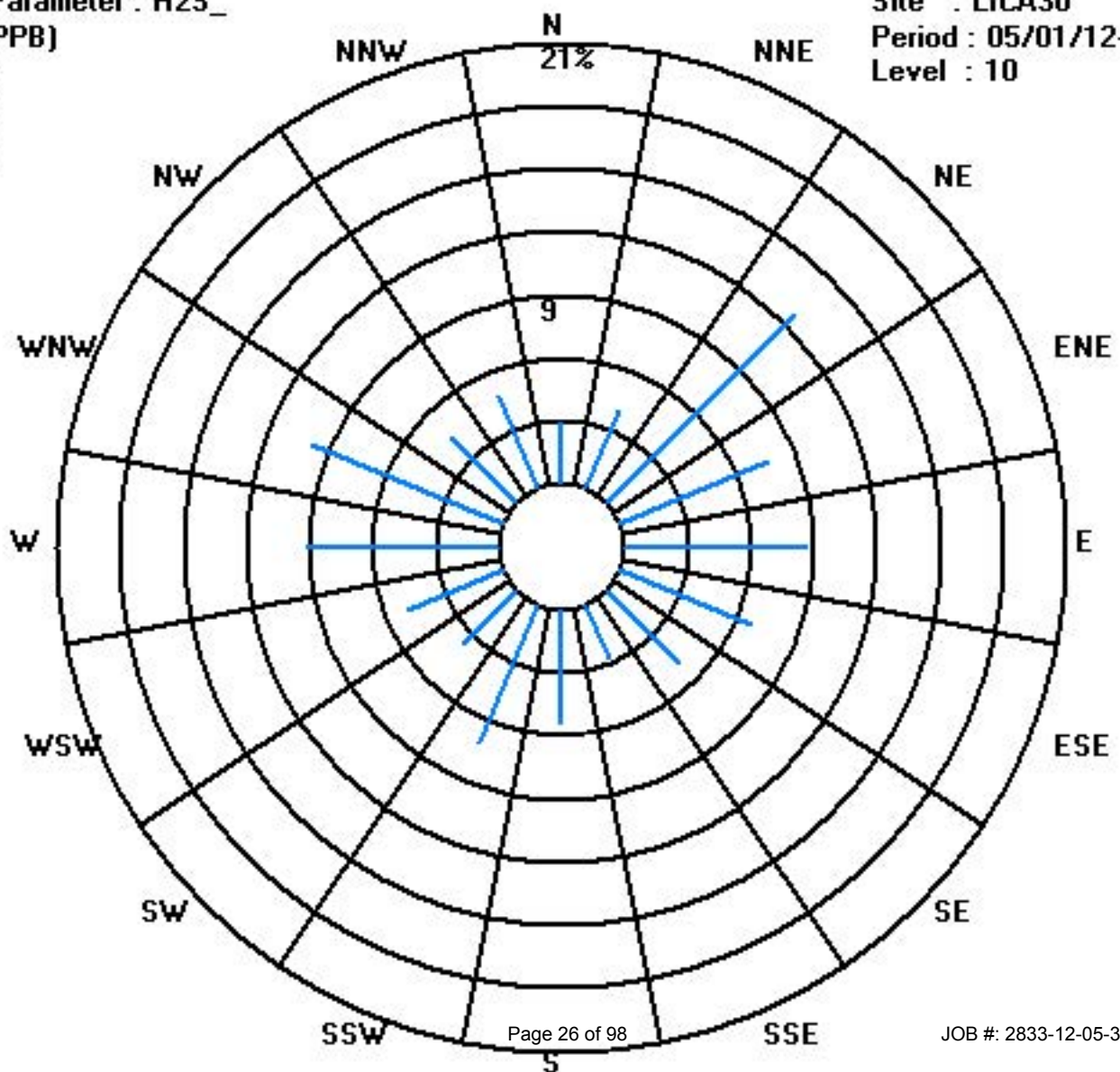
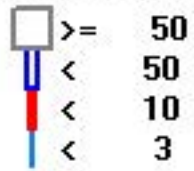
Calm : .00 %

Total # Operational Hours : 709

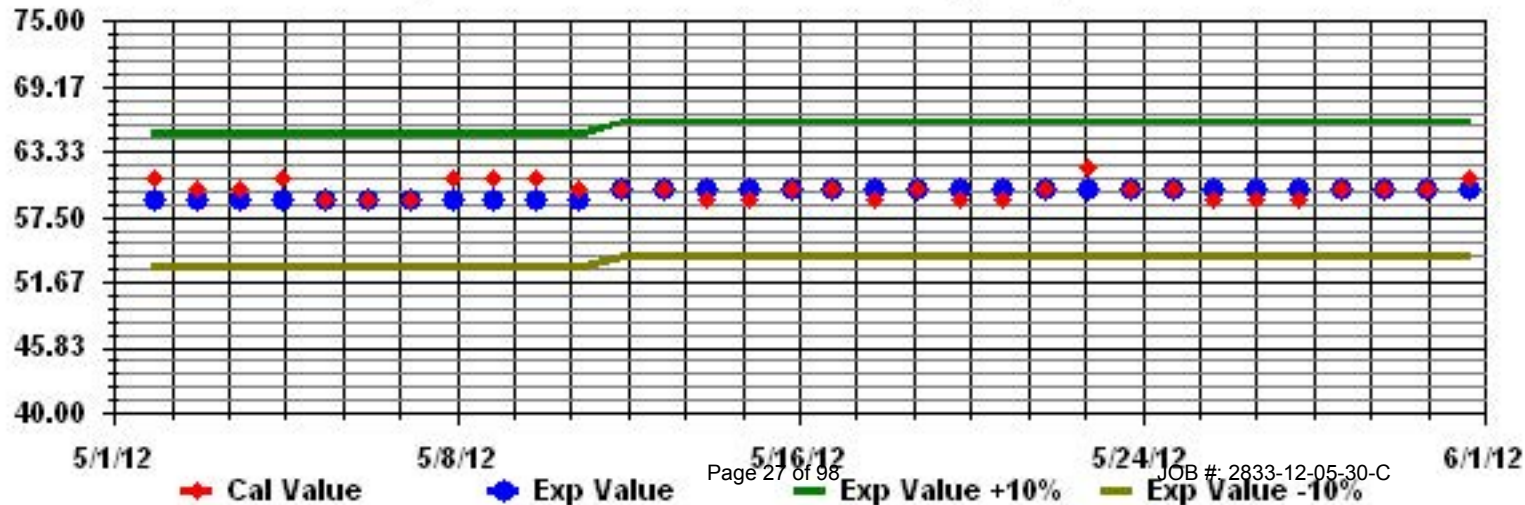
Class Limits (PPB)

Period : 05/01/12-05/31/12

Level : 10



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION -MASKWA

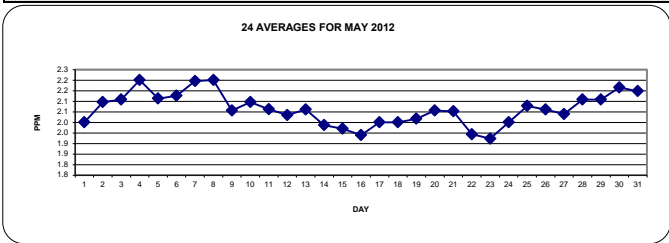
MAY 2012

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

STATUS FLAG CODES

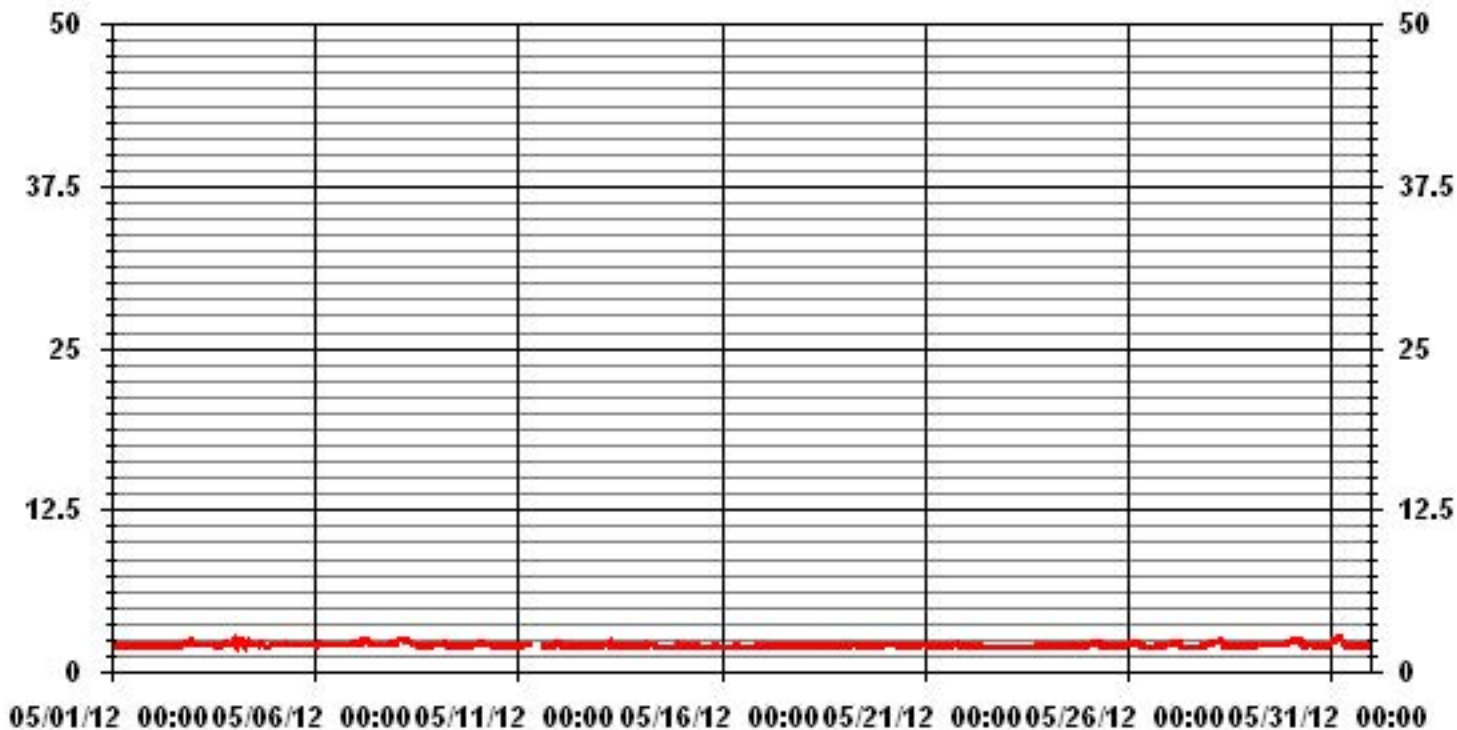
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705
MAXIMUM 1-HR AVERAGE:	2.7 PPM @ HOUR(S) 5 ON DAY(S) 31
MAXIMUM 24-HR AVERAGE:	2.2 PPM ON DAY(S) VAR
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	0.13
OPERATIONAL TIME:	742 HRS
AMD OPERATION UPTIME:	99.7 %
MONTHLY AVERAGE:	2.06 PPM

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

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

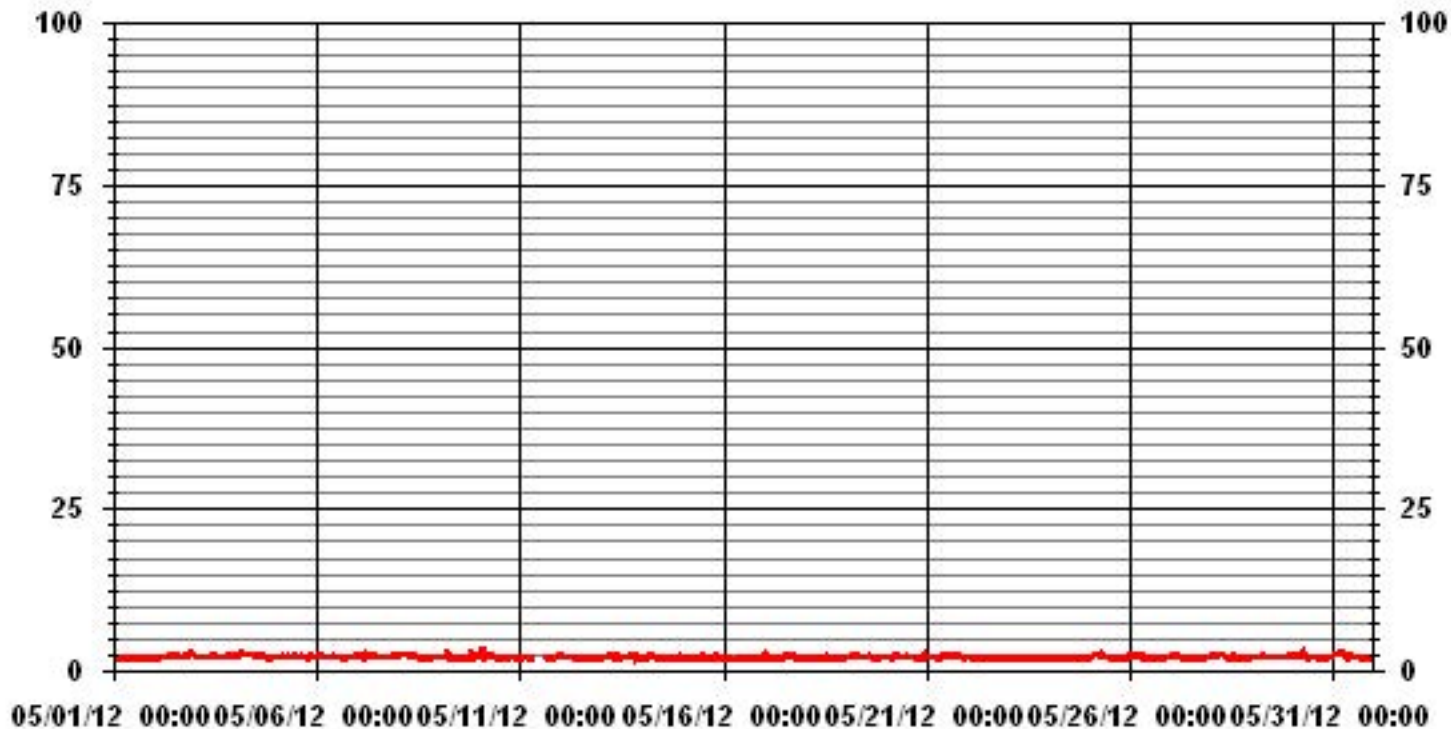
STATUS FLAG CODES

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
BB - BELOW BACKGROUND OF 1.5 PPM	

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705					
MAXIMUM INSTANTANEOUS VALUE:	3.7	PPM	@ HOUR(S)	2	ON DAY(S)	10
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	742 HRS		
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.20					

01 Hour Averages



— LICA30 THCMAX PPM

LICA30
 THC / WDR Joint Frequency Distribution (Percent)

May 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	2.97	4.11	12.76	7.65	8.65	6.80	4.96	2.83	5.53	7.23	3.68	4.96	9.07	9.50	4.39	4.82	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	2.97	4.11	12.76	7.65	8.65	6.80	4.96	2.83	5.53	7.23	3.68	4.96	9.07	9.50	4.39	4.82	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	21	29	90	54	61	48	35	20	39	51	26	35	64	67	31	34	705
< 10.0																	
< 50.0																	
>= 50.0																	
Totals	21	29	90	54	61	48	35	20	39	51	26	35	64	67	31	34	

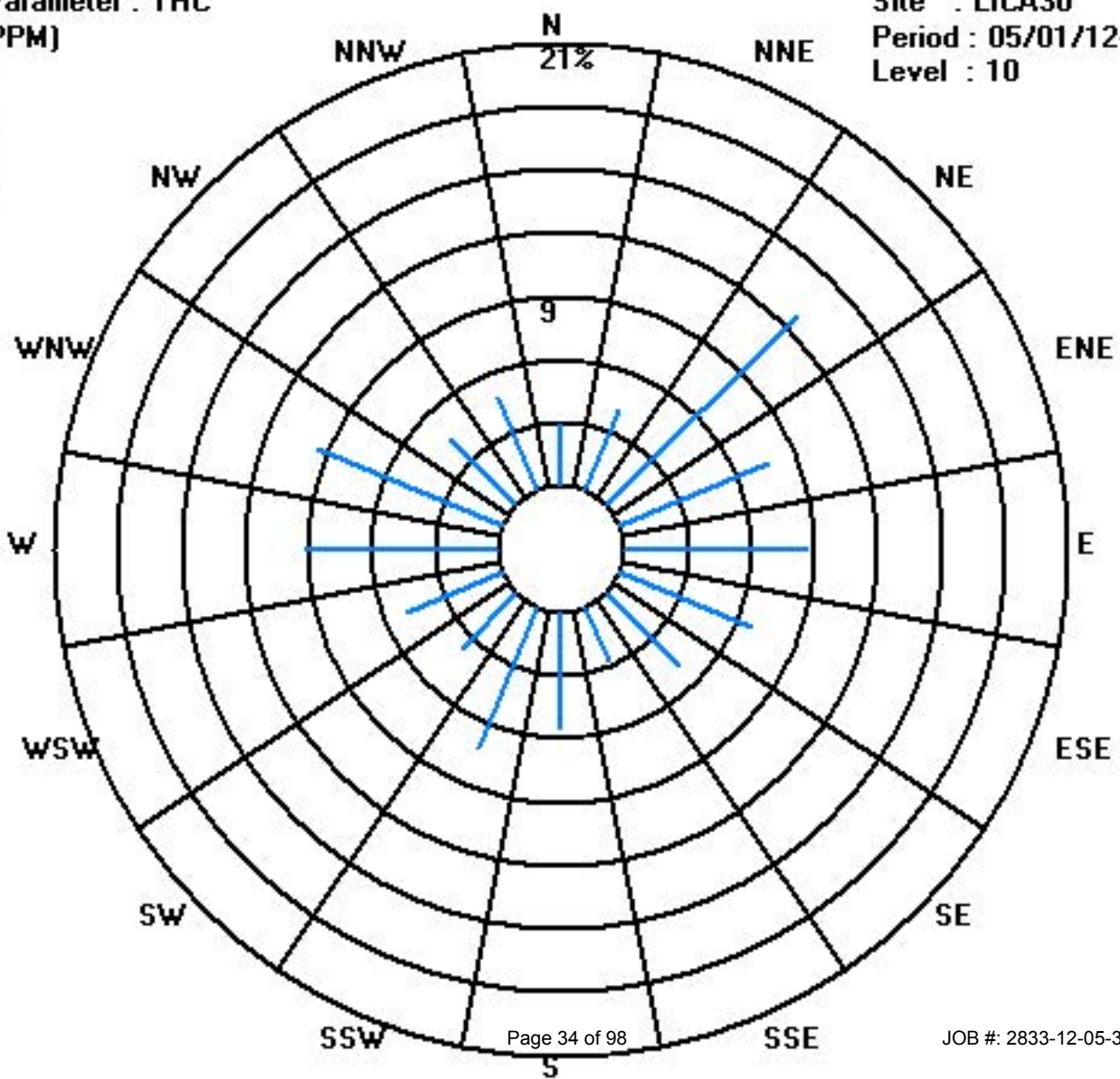
Calm : .00 %

Total # Operational Hours : 705

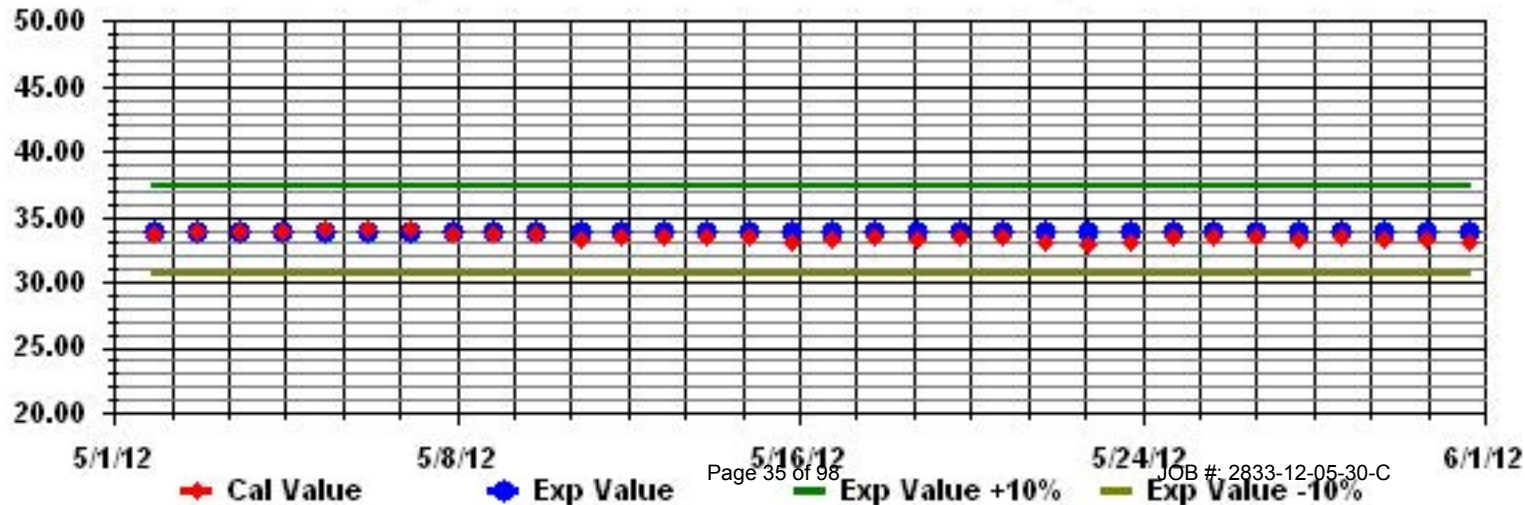
Class Limits (PPM)

Period : 05/01/12-05/31/12

Level : 10



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



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 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 24-HOUR	RDGS.		
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	2	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	2	0	1	0	1	12	8	12	1.2	24	
3	3	0	0	0	0	0	0	1	1	2	1	1	2	2	0	0	0	1	1	8	0	7	1	1	1	8	1.3	24	
4	4	1	12	9	10	7	11	4	1	6	3	4	3	1	1	2	3	2	1	0	1	1	1	1	1	12	3.7	24	
5	5	0	0	0	0	0	0	1	4	5	2	6	6	2	1	1	3	2	0	0	0	0	0	0	0	9	2.3	24	
6	6	3	2	1	6	1	2	1	2	2	3	2	2	0	0	5	3	0	0	0	0	1	1	3	3	6	1.9	24	
7	7	4	4	3	2	2	6	8	8	2	1	1	0	1	0	0	0	0	0	0	0	0	0	1	1	8	1.9	24	
8	8	1	1	1	2	2	2	2	2	2	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0.8	24	
9	9	0	0	0	0	1	5	1	1	1	0	0	1	2	2	0	3	6	4	3	1	9	3	12	12	2.4	24		
10	10	19	17	11	8	13	14	0	1	0	0	1	0	0	0	0	0	4	0	2	2	0	0	0	0	19	4.0	24	
11	11	0	1	0	0	2	4	1	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	4	6	6	1.1	24	
12	12	4	3	1	1	1	3	2	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	4	0.8	24	
13	13	0	2	6	6	17	9	20	9	1	1	0	8	4	1	0	0	2	4	3	6	0	0	0	0	20	4.3	24	
14	14	2	0	0	0	7	20	11	10	7	0	3	2	1	2	2	6	2	1	1	1	1	10	2	20	4.0	24		
15	15	1	1	1	1	1	2	2	2	0	0	0	2	0	0	1	0	2	5	4	9	3	0	0	0	9	1.7	24	
16	16	0	1	0	0	0	1	1	0	0	0	0	0	0	0	2	2	1	0	0	1	1	6	2	1	6	1.6	24	
17	17	2	4	1	1	2	1	0	0	0	3	1	2	1	3	2	1	2	2	0	0	0	0	0	0	4	1.3	24	
18	18	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	1	1	1	0	0	1	3	0	3	0.4	24	
19	19	0	0	1	2	0	5	5	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	5	0.8	24	
20	20	0	0	0	0	0	1	12	6	3	1	2	1	1	1	2	0	1	1	0	0	0	0	2	0	12	1.5	24	
21	21	1	0	0	0	0	0	0	0	0	1	2	0	1	1	1	2	1	3	4	1	0	0	0	0	4	0.8	24	
22	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
23	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
24	24	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1.0	24
25	25	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
26	26	0	0	0	2	3	3	10	12	7	2	0	0	4	0	0	1	0	1	0	1	0	0	0	0	1	12	2.1	24
27	27	2	2	2	1	1	1	6	9	6	3	0	0	0	1	1	0	0	0	0	0	0	0	0	0	3	4	1.9	24
28	28	1	1	1	2	2	1	2	2	1	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	2	0.7	24	
29	29	0	1	1	1	1	2	5	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1.2	24	
30	30	2	2	3	2	2	2	5	4	2	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	2	4	1.3	24
31	31	2	2	3	2	2	2	5	4	2	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	5	1.3	24	
	31	3	4	4	5	7	9	6	3	2	0	0	0	1	1	1	0	0	1	1	0	1	2	1	9	2.3	24		
	HOURLY MAX	19	17	11	10	17	20	20	12	7	6	6	8	4	3	5	6	3	6	5	8	9	9	12	12				
	HOURLY AVG	1.6	2.0	1.7	1.8	2.5	3.4	3.7	3.3	2.2	1.1	1.1	1.1	0.9	0.7	0.7	0.9	0.7	0.9	0.9	1.2	1.0	1.5	1.8	1.4				

STATUS FLAG CODES

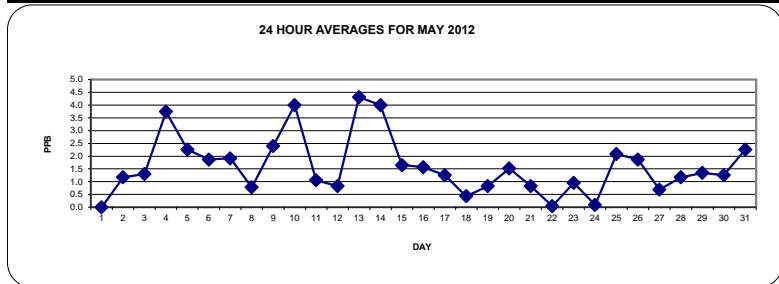
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

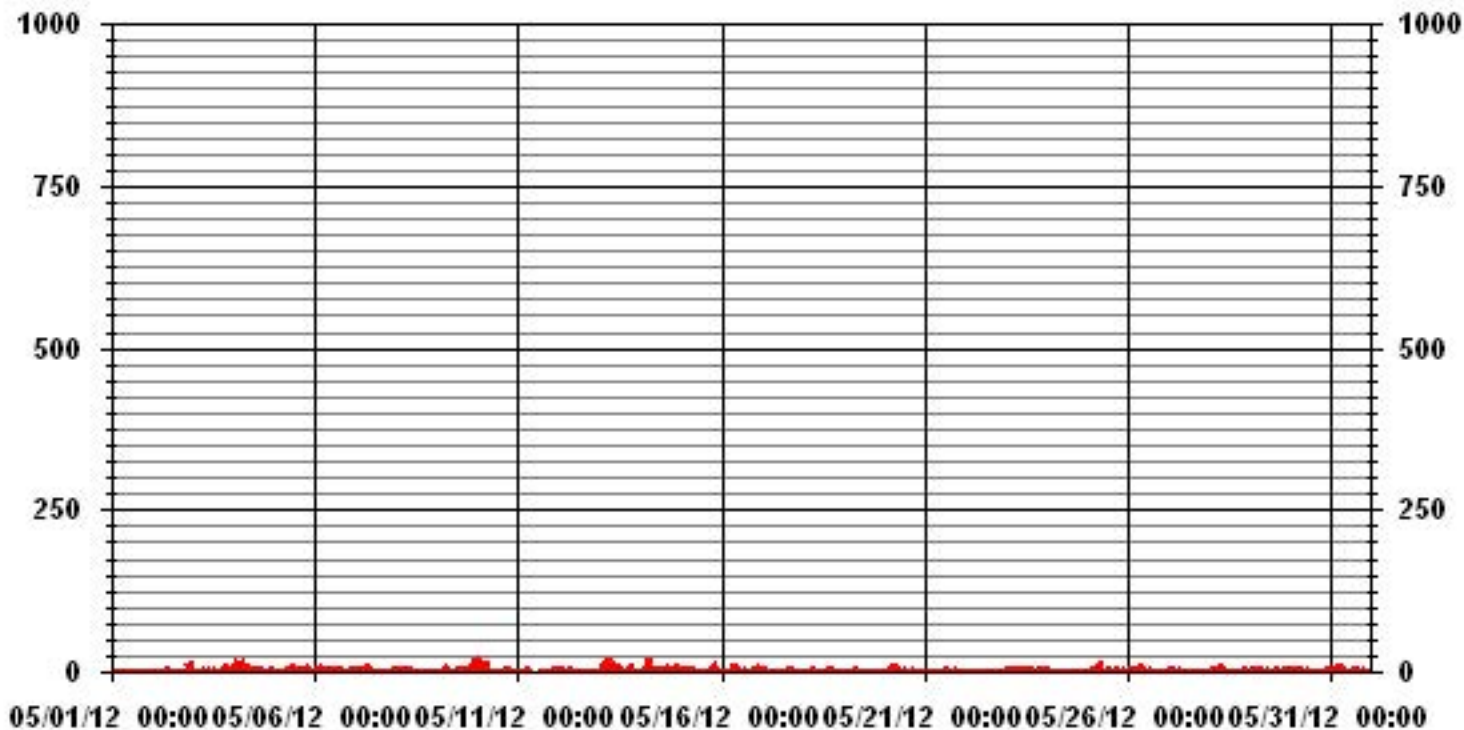
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	400				
MAXIMUM 1-HR AVERAGE:	20	PPB	@ HOUR(S)	6, 5	ON DAY(S) 13, 14
MAXIMUM 24-HR AVERAGE:	4.3	PPB			ON DAY(S) 13
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	2.73		MONTHLY AVERAGE:	1.60	PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 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 MAX.	24-HOUR AVG.	RDGS.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	1	1	IZS	0	1	0.5	24	
2	1	0	1	1	1	1	1	1	1	5	4	4	3	1	1	1	1	4	7	1	2	IZS	22	17	22	3.5	24	
3	0	1	1	1	1	1	2	2	4	2	3	4	5	5	1	1	1	3	5	12	IZS	13	2	1	13	3.1	24	
4	10	14	13	13	11	13	10	4	9	5	8	5	4	2	5	4	7	5	5	IZS	1	2	3	3	14	6.8	24	
5	2	1	1	1	1	1	3	8	7	3	10	11	4	2	2	11	13	0	IZS	9	22	14	1	1	22	5.6	24	
6	4	5	2	19	2	7	3	3	13	11	6	9	1	5	14	10	4	IZS	1	1	2	2	5	4	19	5.8	24	
7	5	6	4	3	5	8	15	14	3	2	2	1	10	2	2	1	IZS	1	1	1	1	1	1	2	15	4.0	24	
8	2	2	2	2	2	5	3	3	3	3	1	1	1	1	1	IZS	1	1	1	1	2	1	1	1	5	1.8	24	
9	1	1	1	1	4	22	3	4	13	1	1	3	10	10	IZS	1	13	17	13	13	4	24	11	25	25	8.5	24	
10	31	27	24	17	23	26	2	10	1	1	9	1	1	IZS	3	3	1	22	6	9	11	1	1	1	31	10.0	24	
11	1	1	1	3	5	6	7	C	C	C	C	C	C	C	5	2	1	1	1	1	3	8	7	8	8	3.2	24	
12	5	4	2	1	2	28	3	2	1	1	1	IZS	1	1	1	2	4	1	1	1	1	1	1	1	28	2.9	24	
13	1	14	18	14	23	19	28	13	2	2	IZS	15	11	3	0	2	4	10	17	23	1	2	0	0	28	9.7	24	
14	11	2	2	2	13	28	20	21	15	IZS	8	10	3	5	13	17	7	2	2	1	1	5	16	4	28	9.0	24	
15	2	2	2	2	2	3	3	3	IZS	2	1	1	5	1	1	2	1	4	8	7	17	8	1	1	17	3.4	24	
16	1	1	1	1	1	4	2	IZS	13	13	2	8	4	1	7	7	4	1	2	2	14	18	6	2	18	5.0	24	
17	9	12	3	2	3	1	IZS	2	1	1	21	6	7	7	7	3	3	6	5	3	0	0	1	1	21	4.5	24	
18	0	1	1	1	1	IZS	18	2	0	0	1	1	0	4	1	4	2	2	2	1	1	3	4	2	18	2.3	24	
19	1	1	3	13	IZS	11	12	22	1	0	1	1	11	12	2	0	0	0	1	0	1	1	1	2	22	4.2	24	
20	1	1	1	IZS	3	2	21	13	7	8	7	3	6	6	9	1	4	7	1	1	1	1	10	1	21	5.0	24	
21	1	1	IZS	0	0	1	1	1	1	3	6	2	4	4	3	4	4	5	6	8	6	0	0	1	8	2.7	24	
22	3	IZS	4	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	4	0.9	24	
23	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	IZS	2	1.1	24	
24	1	2	2	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	2	0.3	24
25	0	0	2	4	5	5	17	17	17	7	2	1	18	1	9	3	4	5	1	1	1	IZS	1	2	18	5.3	24	
26	2	2	2	2	2	3	9	20	9	4	2	1	1	19	2	1	1	1	1	1	IZS	7	6	2	20	4.3	24	
27	2	2	2	3	4	3	3	3	1	1	2	3	3	1	3	2	2	1	3	IZS	0	0	0	1	4	2.0	24	
28	1	1	2	1	2	3	14	16	4	1	2	0	0	2	2	2	0	0	IZS	6	2	2	1	1	16	2.8	24	
29	3	2	2	2	2	3	3	6	6	5	2	3	3	5	2	2	2	0	IZS	1	1	2	2	2	4	6	2.8	24
30	2	3	3	3	4	2	12	8	3	2	1	1	1	1	1	1	IZS	1	1	1	1	2	2	2	12	2.5	24	
31	5	4	5	7	9	13	8	5	3	2	0	1	9	7	6	IZS	0	0	7	11	1	3	3	2	13	4.8	24	
HOURLY MAX	31	27	24	19	23	28	28	22	17	13	21	15	18	19	14	17	13	22	17	23	22	24	22	25				
HOURLY AVG	3.6	3.8	3.6	4.1	4.4	7.3	7.5	7.1	5.0	3.0	3.7	3.4	4.2	3.8	3.5	3.1	3.0	3.6	3.5	4.1	3.4	4.1	3.9	3.0				

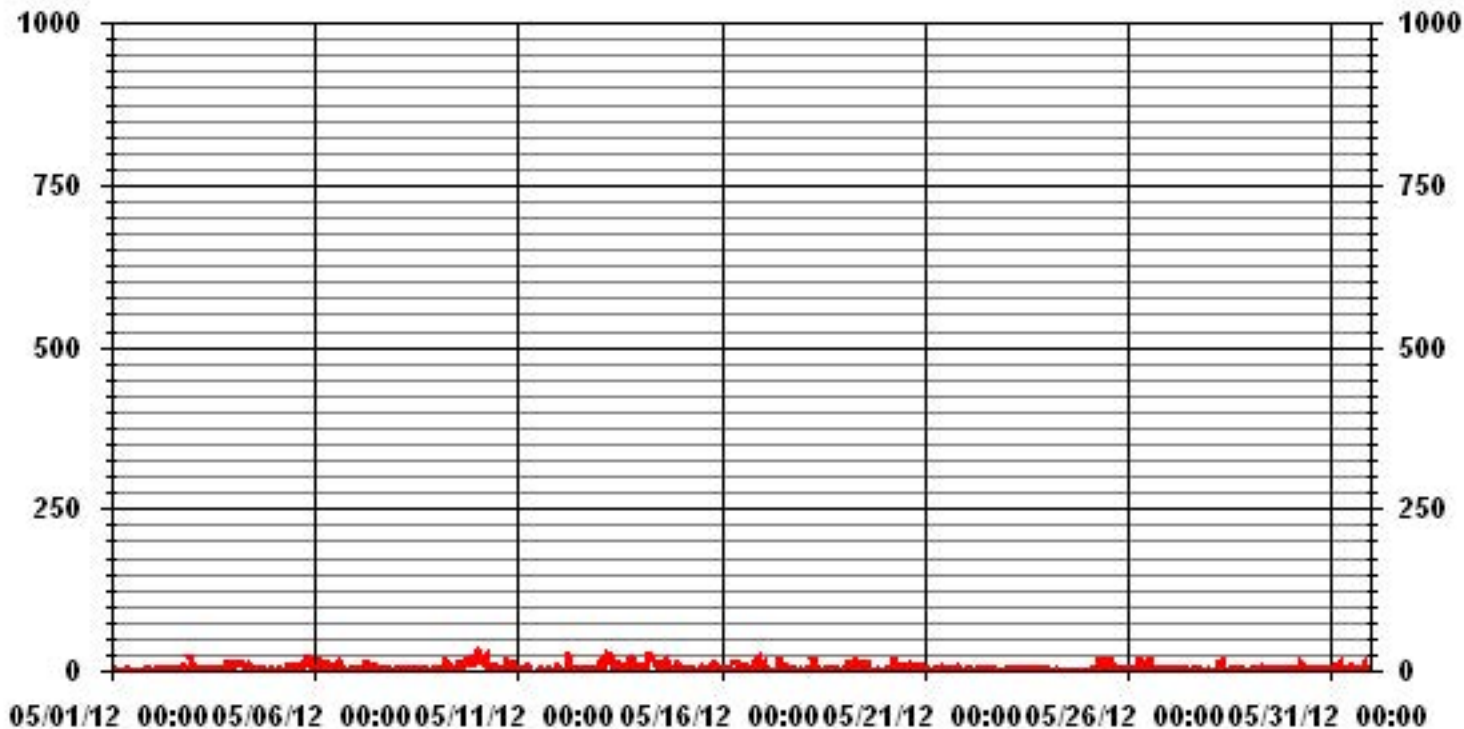
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	637					
MAXIMUM INSTANTANEOUS VALUE:	31	PPB	@ HOUR(S)	0	ON DAY(S)	10
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	5.38					

01 Hour Averages



— LICA30 NO2MAX PPB

LICA30
 NO2_ / WDR Joint Frequency Distribution (Percent)

May 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	2.97	4.10	12.74	7.64	8.64	6.79	4.95	2.83	5.52	7.22	3.68	4.95	9.06	9.63	4.39	4.81	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.97	4.10	12.74	7.64	8.64	6.79	4.95	2.83	5.52	7.22	3.68	4.95	9.06	9.63	4.39	4.81	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	21	29	90	54	61	48	35	20	39	51	26	35	64	68	31	34	706
< 110																	
< 210																	
>= 210																	
Totals	21	29	90	54	61	48	35	20	39	51	26	35	64	68	31	34	

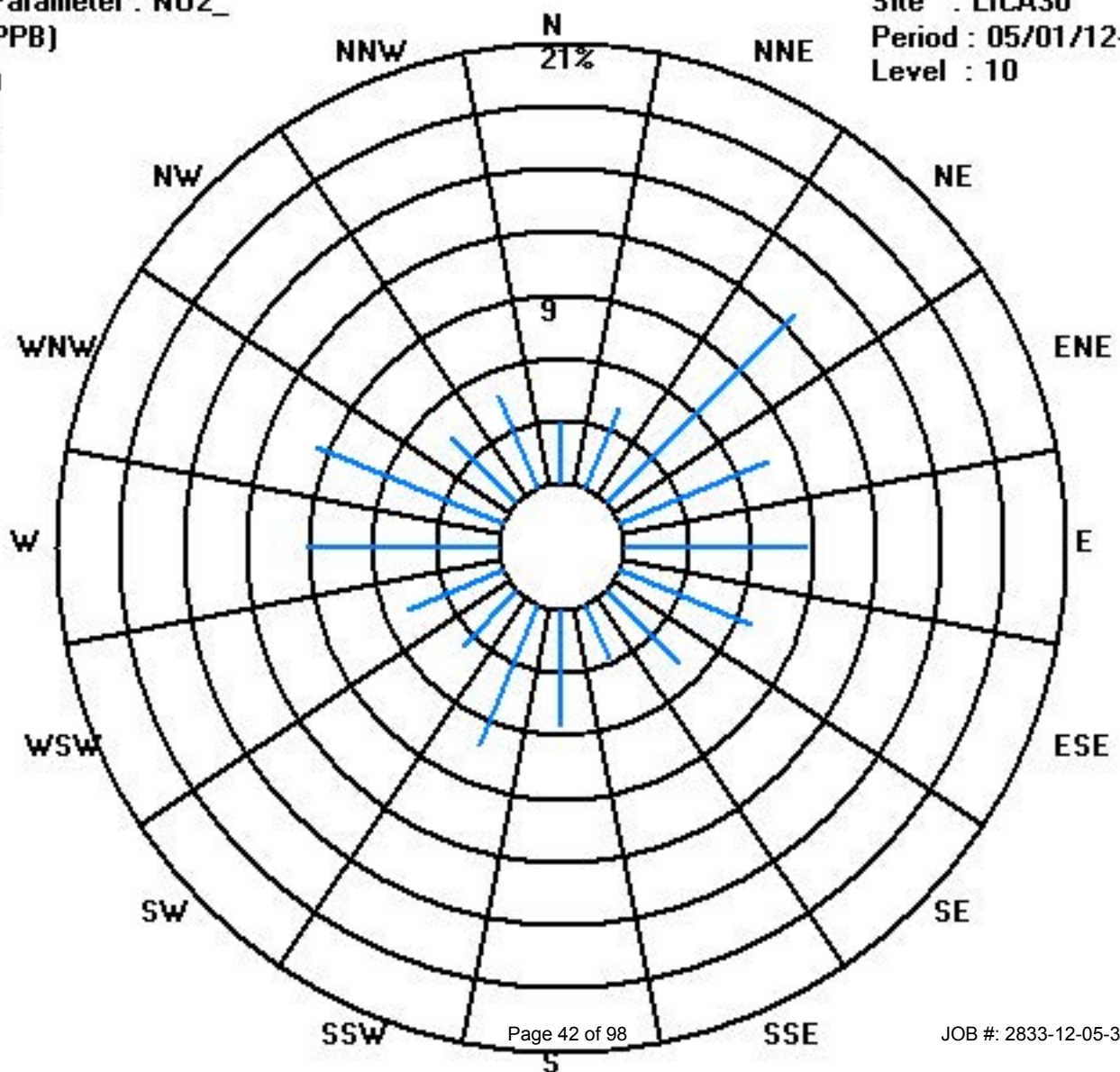
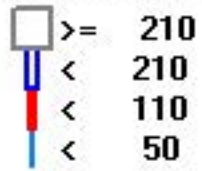
Calm : .00 %

Total # Operational Hours : 706

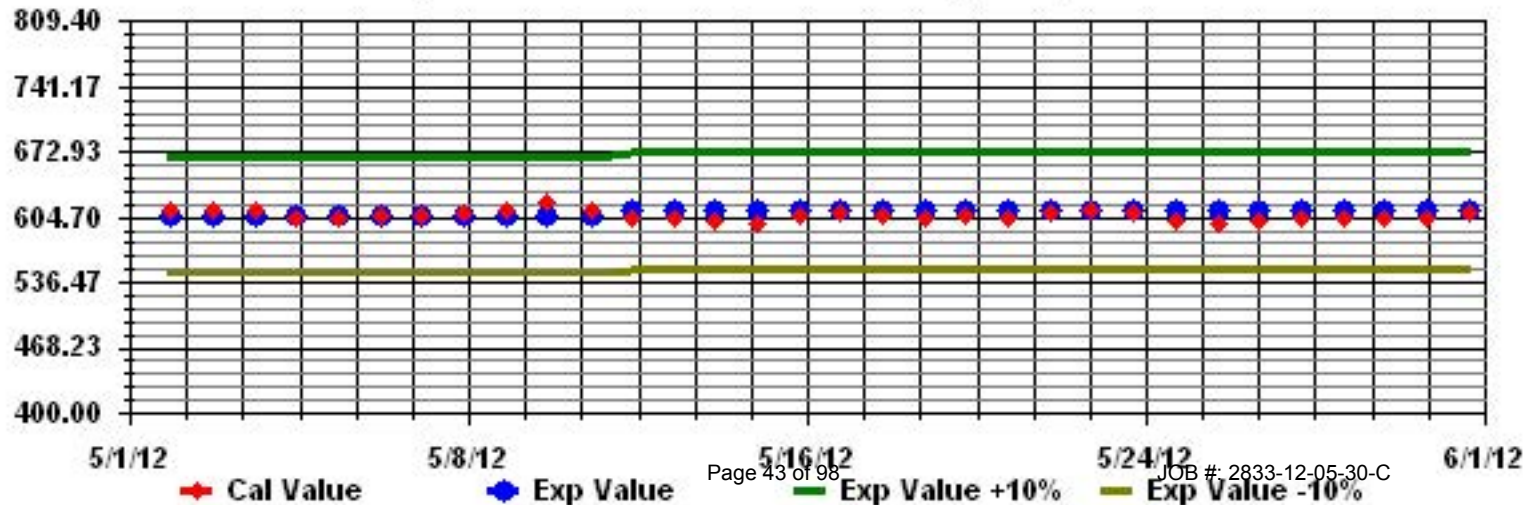
Class Limits (PPB)

Period : 05/01/12-05/31/12

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOICATION - MASKWA

MAY 2012

NITRIC OXIDE hourly averages in ppb

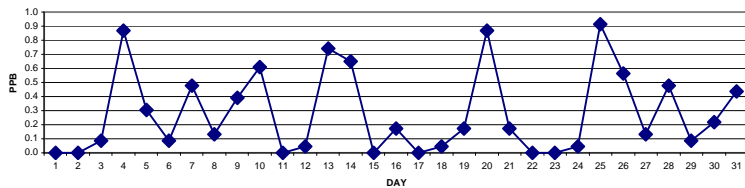
MST

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 24-HOUR 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	0.1	24	
4	1	1	1	1	1	2	1	0	2	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	2	0.9	24
5	0	0	0	0	0	0	0	0	1	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.3	24
6	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
7	0	0	0	1	0	1	3	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.5	24	
8	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
9	0	0	0	0	1	2	1	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	1	0	1	2	0.4	24	
10	1	1	1	1	2	3	1	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0.6	24	
11	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
12	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	0.0	24	
13	0	0	0	0	1	2	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0.7	24	
14	0	0	0	0	0	4	2	4	3	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	4	0.7	24	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	2	0.2	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	1	0.0	24	
19	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0.2	24	
20	0	0	0	0	0	1	9	4	2	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	9	0.9	24	
21	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0.2	24	
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23	0	0	0	0	0	0	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	1	1	0.0	24
25	0	0	0	0	1	1	6	8	3	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	8	0.9	24	
26	0	0	0	0	0	1	3	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.6	24	
27	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
28	0	0	0	0	0	1	3	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0.5	24	
29	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
30	0	0	0	0	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24	
31	0	0	0	0	1	2	3	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	3	0.4	24	
HOURLY MAX	1	1	1	1	2	4	9	8	3	2	2	4	1	1	1	2	1	1	1	0	0	1	1	1	1				
HOURLY AVG	0.1	0.1	0.1	0.1	0.2	0.7	1.5	1.5	0.8	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1				

STATUS FLAG CODES

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

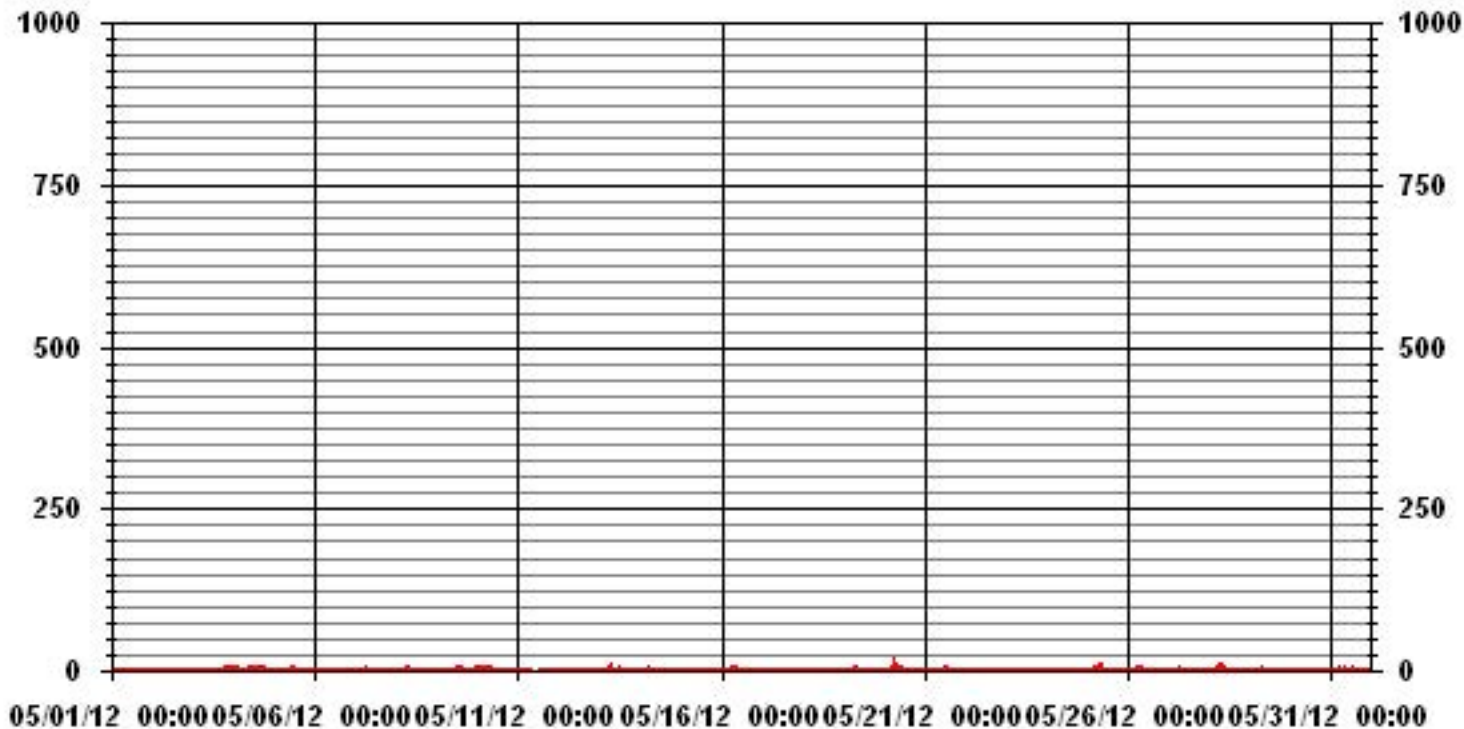
24 HOUR AVERAGES FOR MAY 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	115
MAXIMUM 1-HR AVERAGE:	9 PPB @ HOUR(S) 6 ON DAY(S) 20
MAXIMUM 24-HR AVERAGE:	0.9 PPB ON DAY(S) VAR
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	0.88
OPERATIONAL TIME:	744 HRS
AMD OPERATION UPTIME:	100.0 %
MONTHLY AVERAGE:	0.28 PPB

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 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	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	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	24
3	0	0	0	0	0	0	0	0	2	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0.5	24	
4	1	2	2	2	2	3	2	2	3	2	3	2	2	2	2	2	3	2	2	2	0	0	0	0	0	0	1.8	24	
5	0	0	0	0	0	0	0	2	2	0	5	7	2	0	0	3	3	0	0	0	0	0	0	0	0	0	1.3	24	
6	0	0	0	3	0	1	0	2	11	5	2	3	0	1	5	3	0	0	0	0	0	0	0	0	0	0	1.8	24	
7	1	1	1	1	1	3	9	6	2	2	2	1	3	1	1	0	0	0	0	0	0	0	0	0	0	0	1.8	24	
8	1	1	1	1	1	2	1	2	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1.0	24	
9	1	1	1	1	1	11	1	2	5	1	1	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	2.2	24	
10	2	2	2	3	6	5	3	16	1	1	7	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2.7	24	
11	0	0	0	0	0	4	11	C	C	C	C	C	C	C	3	1	1	1	1	1	1	0	0	0	0	0	1.5	24	
12	1	1	1	1	1	21	1	1	1	1	1	0	0	0	0	1	1	1	0	0	0	1	1	1	0	0	1.7	24	
13	1	1	1	1	3	6	12	5	1	1	0	6	4	1	1	1	1	1	2	3	1	1	1	1	1	0	2.4	24	
14	1	1	1	1	1	8	6	9	7	0	3	4	1	2	4	7	1	0	0	0	0	0	0	0	0	0	2.5	24	
15	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	24	
16	0	0	0	0	0	0	1	0	0	0	0	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0.8	24	
17	0	0	0	0	0	0	0	0	0	0	19	1	2	2	2	1	1	1	0	0	0	0	0	0	0	0	1.3	24	
18	0	0	0	0	0	0	14	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.4	24	
19	1	1	1	3	0	3	3	19	0	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0	0	0	2.0	24	
20	0	0	0	0	0	2	1	20	10	4	5	4	2	3	3	5	1	1	2	1	1	1	1	1	1	1	3.0	24	
21	1	1	0	1	1	1	1	1	1	2	3	1	2	2	1	2	1	2	1	2	1	2	1	1	1	1	1.3	24	
22	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
23	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24	
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1.0	24	
25	1	1	1	1	1	1	14	15	9	4	1	1	6	1	13	1	1	1	1	1	1	1	0	1	1	1	3.4	24	
26	1	1	1	1	1	2	6	24	6	2	1	1	1	10	1	1	1	1	1	1	1	0	1	1	1	1	2.9	24	
27	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1.1	24	
28	1	1	1	1	1	2	14	3	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	2.3	24	
29	1	1	1	1	1	1	1	3	3	2	1	1	1	2	1	1	1	0	0	0	0	0	0	0	0	0	1.2	24	
30	1	1	1	1	1	2	5	3	2	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1.3	24	
31	1	1	1	1	1	5	4	2	2	2	1	1	4	3	2	0	0	0	0	0	0	0	0	0	0	0	1.7	24	
HOURLY MAX	2	2	2	3	6	21	20	24	11	6	19	7	6	10	13	7	3	7	2	3	3	3	2	5					
HOURLY AVG	0.7	0.7	0.7	0.9	1.0	2.9	4.4	5.0	2.7	1.7	2.2	1.6	1.7	1.7	1.8	1.2	0.9	1.1	0.8	0.8	0.6	0.8	0.8	0.8					

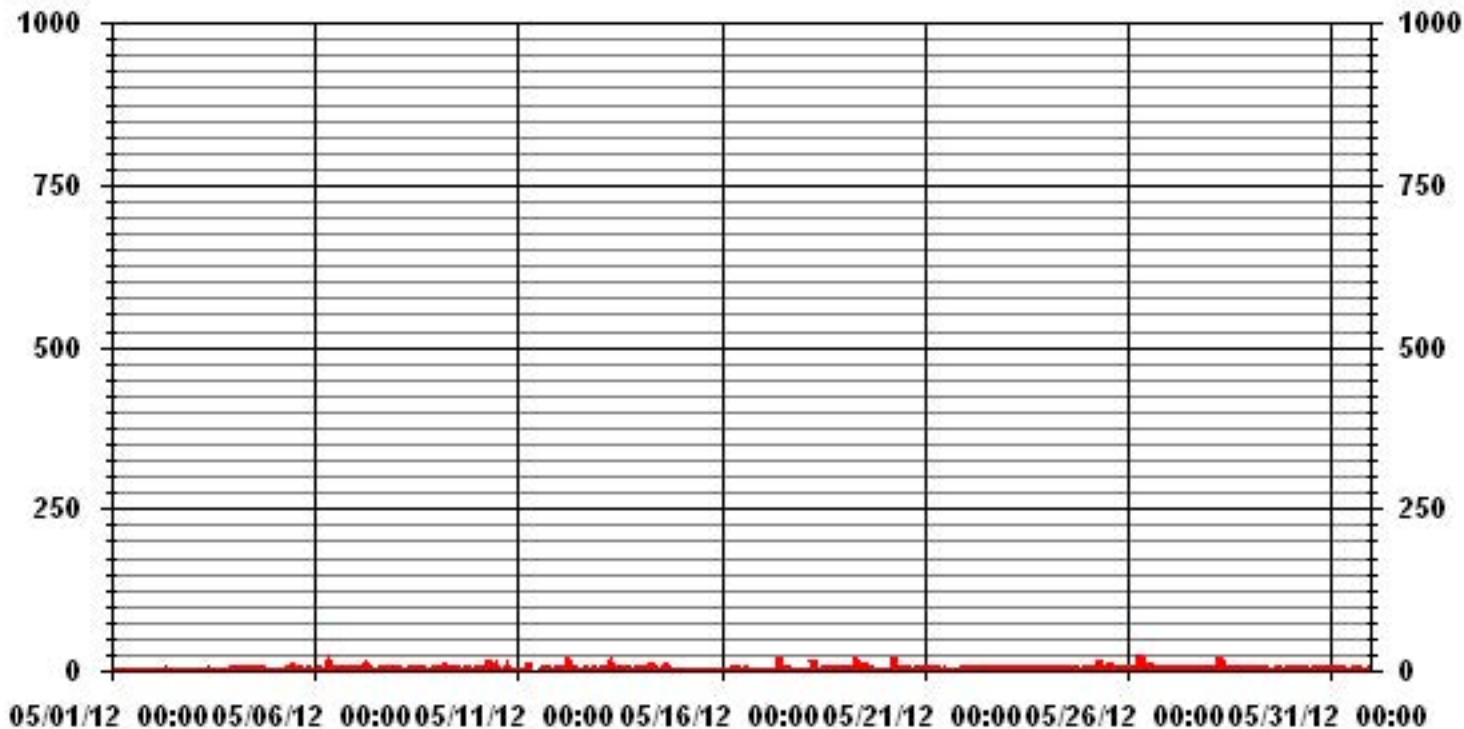
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	523					
MAXIMUM INSTANTANEOUS VALUE:	24	PPB	@ HOUR(S)	7	ON DAY(S)	26
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	2.63					

01 Hour Averages



LICA30
 NO_ / WDR Joint Frequency Distribution (Percent)

May 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	2.97	4.10	12.74	7.64	8.64	6.79	4.95	2.83	5.52	7.22	3.68	4.95	9.06	9.63	4.39	4.81	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.97	4.10	12.74	7.64	8.64	6.79	4.95	2.83	5.52	7.22	3.68	4.95	9.06	9.63	4.39	4.81	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	21	29	90	54	61	48	35	20	39	51	26	35	64	68	31	34	706
< 110																	
< 210																	
>= 210																	
Totals	21	29	90	54	61	48	35	20	39	51	26	35	64	68	31	34	

Calm : .00 %

Total # Operational Hours : 706

Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
MAY 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	1	1	1	1	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	IZS	0	1	0.4	24	
2	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	2	0	1	IZS	13	8	13	1.2	24	
3	0	0	0	0	0	0	0	0	2	0	2	2	2	2	0	0	0	0	1	8	IZS	8	2	1	8	1.3	24	
4	2	13	10	12	8	14	6	2	9	4	5	4	2	2	4	3	4	4	2	2	IZS	1	1	2	2	14	5.0	24
5	1	1	1	1	1	1	2	6	7	3	9	11	3	2	2	4	3	0	IZS	3	11	9	1	1	11	3.6	24	
6	3	3	2	7	2	3	2	3	4	5	4	3	1	1	8	4	1	IZS	1	1	2	1	4	3	8	3.0	24	
7	4	5	4	3	3	7	12	12	3	2	2	1	1	1	1	1	IZS	1	1	1	1	1	1	2	12	3.0	24	
8	2	2	2	2	2	3	3	3	3	2	2	1	1	1	1	IZS	0	0	0	0	1	0	0	0	0	3	1.3	24
9	0	0	0	0	1	7	1	1	1	0	0	0	2	2	IZS	1	4	8	5	4	2	11	4	14	14	3.0	24	
10	20	18	12	10	16	17	2	1	1	1	1	1	1	IZS	2	1	1	6	1	2	3	1	1	1	20	5.2	24	
11	1	1	1	1	3	5	2	C	C	C	C	C	C	C	1	0	0	0	0	0	0	0	4	6	6	1.5	24	
12	4	3	1	1	1	3	2	1	1	0	1	IZS	1	0	0	0	1	0	0	0	0	0	0	0	0	4	0.9	24
13	0	2	5	5	18	11	26	11	1	1	IZS	12	5	1	0	1	2	5	4	7	1	1	0	0	26	5.2	24	
14	3	0	1	1	7	25	14	14	11	IZS	4	3	1	2	2	9	2	1	0	0	1	10	1	25	4.9	24		
15	0	0	1	1	0	1	2	2	IZS	0	0	0	2	0	0	1	0	1	5	4	8	2	0	0	8	1.3	24	
16	0	0	0	0	0	0	1	IZS	9	9	3	5	1	1	3	3	2	1	1	1	2	6	3	2	9	2.3	24	
17	3	4	2	1	2	1	IZS	2	1	1	5	1	3	2	4	3	2	3	2	0	0	0	0	0	5	1.8	24	
18	0	0	1	0	1	IZS	3	2	0	0	0	0	0	1	1	2	1	2	1	0	1	1	4	1	4	1.0	24	
19	1	1	1	2	IZS	2	5	8	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	8	1.1	24	
20	0	0	0	IZS	2	2	21	10	5	2	3	2	1	2	4	0	2	2	1	1	1	1	3	1	21	2.9	24	
21	1	1	IZS	1	0	0	1	0	1	2	3	1	3	2	2	2	3	2	4	5	1	0	0	0	5	1.5	24	
22	1	IZS	2	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
23	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
24	1	1	1	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	
25	0	0	1	2	4	4	16	20	11	3	1	1	5	1	1	1	1	2	1	1	1	1	IZS	1	1	20	3.4	24
26	2	2	2	2	2	2	9	15	9	4	1	1	1	2	1	1	1	0	1	1	IZS	3	4	2	15	3.0	24	
27	1	2	2	2	2	2	3	3	1	0	1	1	1	1	1	1	1	1	2	IZS	1	1	0	1	3	1.3	24	
28	1	1	1	1	1	2	8	14	3	1	1	0	0	1	0	0	0	0	IZS	2	0	0	0	0	14	1.6	24	
29	1	1	1	1	0	1	1	4	4	2	1	1	1	2	1	1	1	IZS	1	1	1	2	1	2	4	1.4	24	
30	2	3	3	3	3	2	7	6	4	1	1	1	1	1	1	1	IZS	1	0	1	1	2	2	2	7	2.1	24	
31	4	4	5	6	8	11	9	4	3	1	0	1	2	3	2	IZS	0	0	2	2	0	1	2	1	11	3.1	24	
HOURLY MAX	20	18	12	12	18	25	26	20	11	9	9	12	5	5	8	9	4	8	5	8	11	11	13	14				
HOURLY AVG	2.0	2.3	2.1	2.2	2.9	4.2	5.3	5.1	3.3	1.6	1.8	1.9	1.4	1.3	1.4	1.4	1.1	1.4	1.3	1.6	1.4	1.8	2.1	1.7				

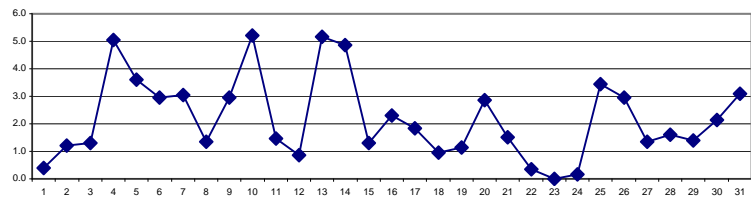
STATUS FLAG CODES

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

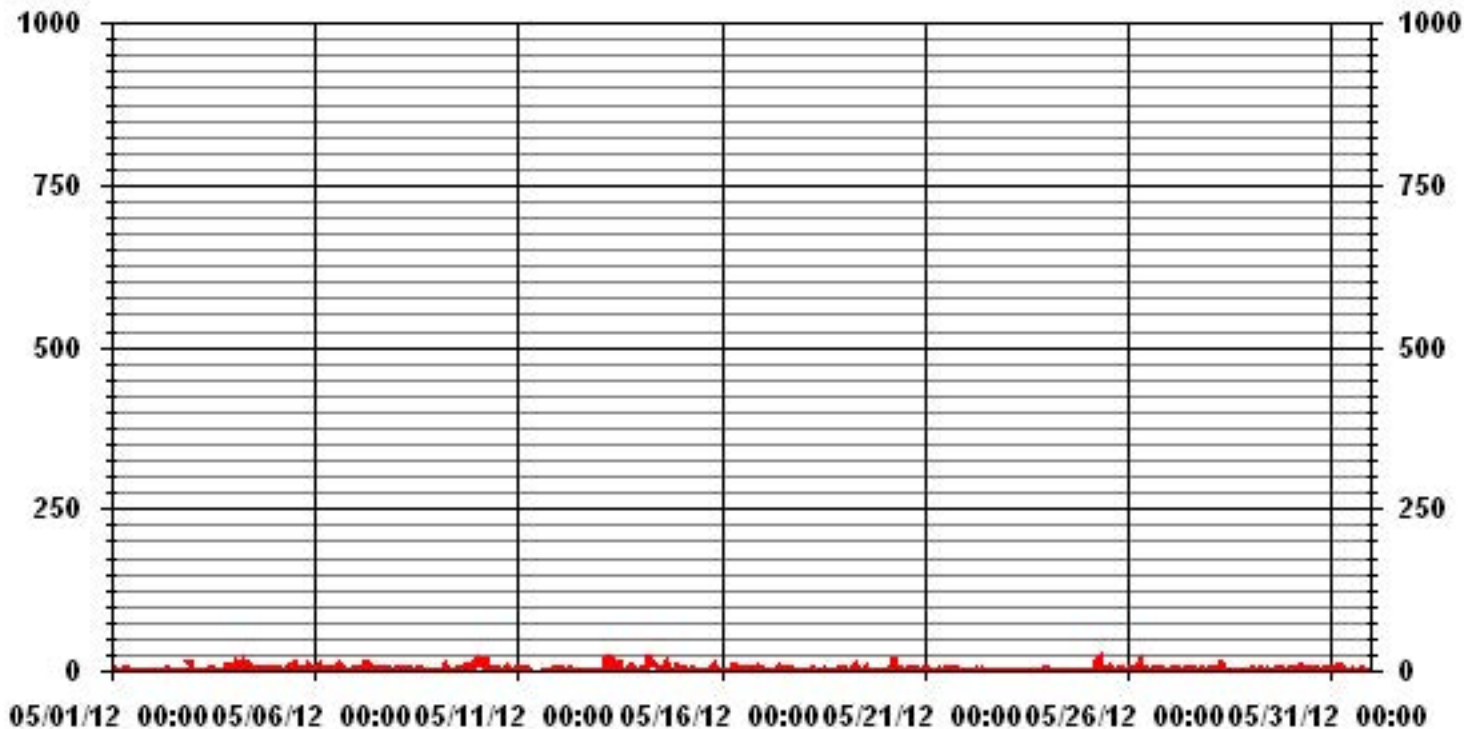
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	490					
MAXIMUM 1-HR AVERAGE:	26	PPB	@ HOUR(S)	6	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	5.2	PPB			ON DAY(S)	10, 13
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	3.42		MONTHLY AVERAGE:	2.20	PPB	

24 HOUR AVERAGES FOR MAY 2012



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 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	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	IZS	0	2	1.1	24																						
2	0	0	0	0	0	0	0	1	8	6	4	4	2	1	2	1	1	3	7	0	2	IZS	24	17	24	3.6	24																						
3	0	1	0	0	0	0	2	2	6	2	4	5	6	6	1	1	0	2	5	12	IZS	15	3	2	15	3.3	24																						
4	11	15	15	14	13	16	11	6	13	7	11	7	5	4	7	6	10	7	7	IZS	2	2	4	4	16	8.6	24																						
5	2	2	1	2	2	2	4	11	10	4	16	19	7	3	3	16	18	1	IZS	11	26	16	2	1	26	7.8	24																						
6	5	5	3	22	3	9	4	6	24	17	9	13	2	7	21	14	5	IZS	2	1	3	3	5	5	24	8.2	24																						
7	6	7	5	4	5	10	23	20	4	4	5	3	13	4	4	2	IZS	1	1	2	2	2	2	2	23	5.7	24																						
8	3	3	3	3	3	6	3	4	5	4	2	2	2	2	2	IZS	1	1	0	1	1	1	1	1	1	6	2.3	24																					
9	1	0	1	1	4	32	3	5	18	1	1	4	12	12	IZS	2	17	20	14	15	5	27	12	30	32	10.3	24																						
10	32	29	26	20	29	31	5	25	2	2	14	2	1	IZS	6	5	2	30	9	10	12	1	2	2	32	12.9	24																						
11	1	2	2	3	6	9	19	C	C	C	C	C	C	C	8	3	1	1	1	1	1	3	9	7	19	4.5	24																						
12	6	4	2	1	2	49	3	3	2	1	1	IZS	2	1	1	3	4	1	1	0	1	1	1	1	49	4.0	24																						
13	1	14	18	13	24	23	39	16	2	3	IZS	22	15	5	1	2	5	12	19	26	1	3	1	1	39	11.6	24																						
14	11	2	2	2	14	36	27	29	21	IZS	11	14	4	7	17	24	8	2	1	1	1	4	16	3	36	11.2	24																						
15	1	1	2	2	1	3	3	2	IZS	1	1	0	7	1	2	1	1	4	9	7	17	8	1	0	17	3.3	24																						
16	0	1	0	0	1	5	2	IZS	18	21	4	11	6	2	11	11	5	2	2	15	19	7	3	21	6.4	24																							
17	9	13	4	3	4	2	IZS	2	2	2	40	9	9	10	10	6	5	8	6	4	1	1	1	1	40	6.6	24																						
18	1	1	1	1	2	IZS	32	3	1	2	1	1	1	5	1	5	2	3	3	1	2	4	5	3	32	3.5	24																						
19	1	1	3	16	IZS	14	15	41	1	0	0	0	17	18	2	0	0	1	1	0	1	0	0	1	41	5.8	24																						
20	0	1	1	IZS	5	4	41	22	11	12	12	5	9	9	14	1	4	9	1	1	1	1	11	1	41	7.7	24																						
21	2	1	IZS	1	1	1	1	1	1	6	8	4	6	5	4	6	6	7	7	9	7	1	1	1	9	3.8	24																						
22	3	IZS	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1.3	24																						
23	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	IZS	1	0.0	24																					
24	1	2	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	IZS	1	2	1.0	24																					
25	1	1	3	4	5	6	31	30	26	11	3	3	24	2	19	4	5	7	2	1	2	IZS	2	2	31	8.4	24																						
26	3	3	3	2	3	5	15	43	14	6	3	1	2	29	3	1	2	1	1	1	IZS	7	7	3	43	6.9	24																						
27	2	2	3	3	5	3	4	5	2	1	3	5	5	3	4	3	3	2	4	IZS	1	1	1	2	5	2.9	24																						
28	1	2	2	2	3	4	28	29	6	2	3	1	1	3	2	2	1	1	IZS	5	1	1	1	1	29	4.4	24																						
29	3	2	1	1	1	2	2	8	8	6	1	3	3	6	2	2	2	IZS	2	2	2	3	2	4	8	3.0	24																						
30	3	4	4	4	4	5	16	12	5	4	2	2	2	2	2	2	IZS	1	1	2	2	2	3	3	16	3.8	24																						
31	5	5	6	8	10	18	11	8	5	3	1	2	13	10	10	IZS	1	1	9	13	1	3	3	2	18	6.4	24																						
HOURLY MAX	32	29	26	22	29	49	41	43	26	21	40	22	24	29	21	24	18	30	19	26	26	27	24	30																									
HOURLY AVG	3.9	4.2	4.0	4.5	5.1	9.9	11.6	11.7	7.5	4.5	5.6	5.0	6.0	5.5	5.4	4.3	3.9	4.6	4.1	4.5	3.9	4.5	4.4	3.5																									

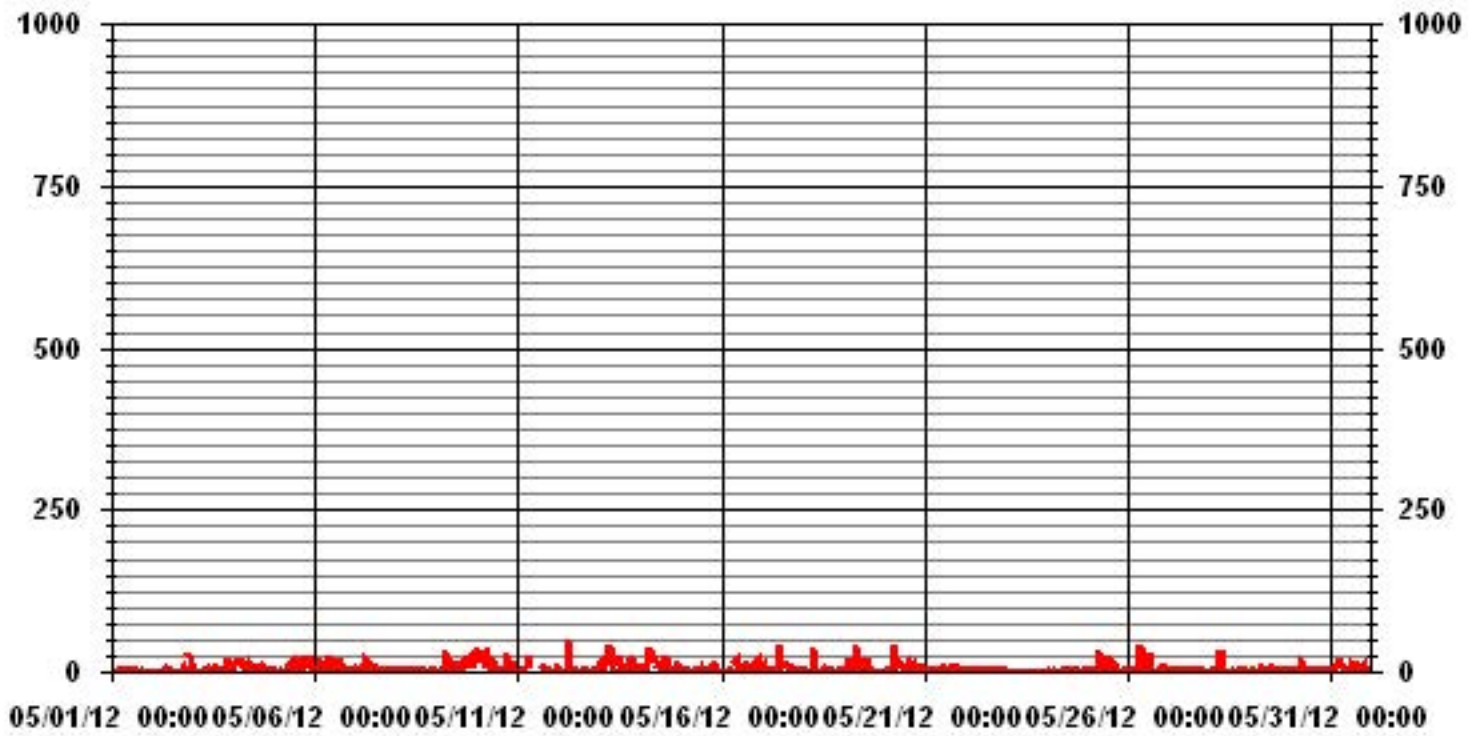
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	651					
MAXIMUM INSTANTANEOUS VALUE:	49	PPB	@ HOUR(S)	5	ON DAY(S)	12
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	7.45					

01 Hour Averages



— LICA30 NOXMAX PPB

LICA30
 NOX_ / WDR Joint Frequency Distribution (Percent)

May 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	2.97	4.10	12.74	7.64	8.64	6.79	4.95	2.83	5.52	7.22	3.68	4.95	9.06	9.63	4.39	4.81	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.97	4.10	12.74	7.64	8.64	6.79	4.95	2.83	5.52	7.22	3.68	4.95	9.06	9.63	4.39	4.81	

Calm : .00 %

Total # Operational Hours : 706

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	21	29	90	54	61	48	35	20	39	51	26	35	64	68	31	34	706
< 110																	
< 210																	
>= 210																	
Totals	21	29	90	54	61	48	35	20	39	51	26	35	64	68	31	34	

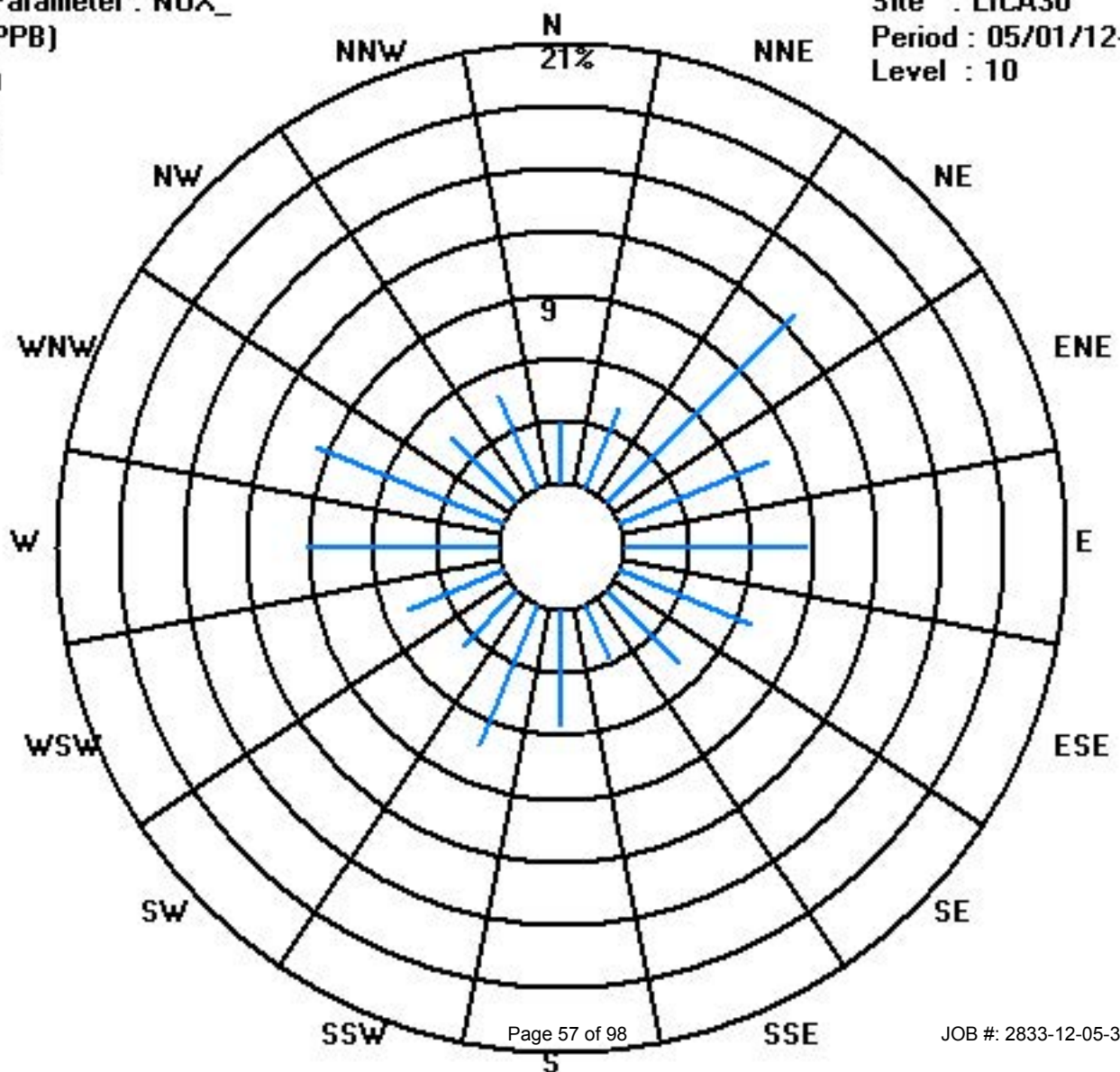
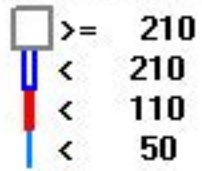
Calm : .00 %

Total # Operational Hours : 706

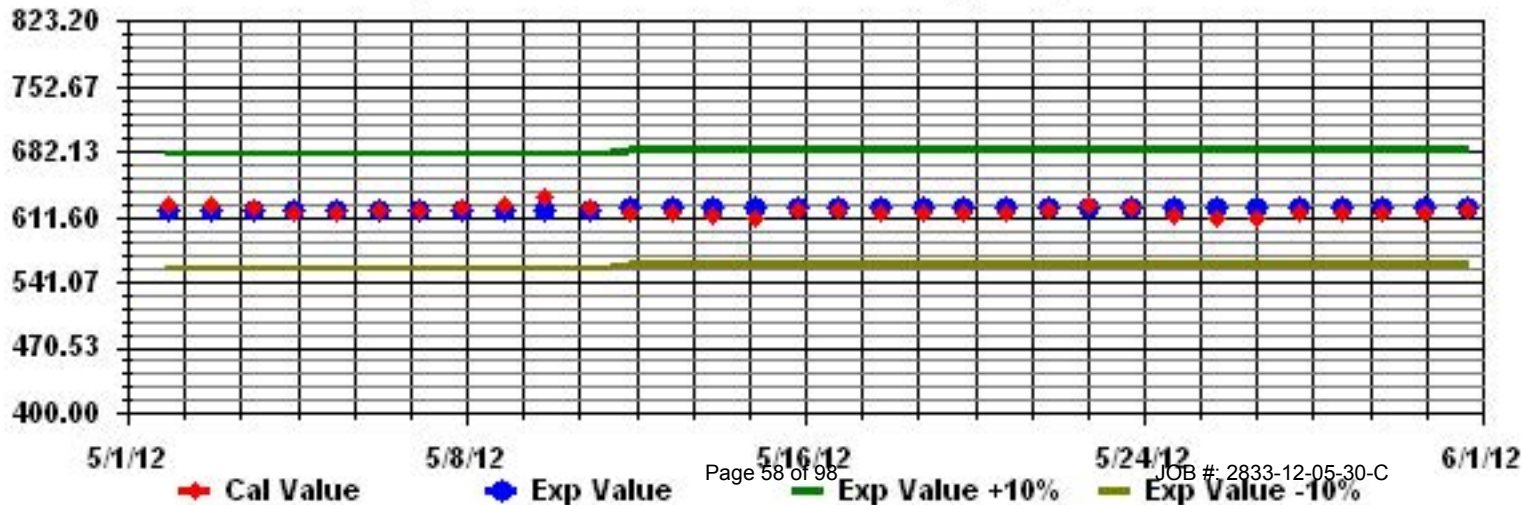
Class Limits (PPB)

Period : 05/01/12-05/31/12

Level : 10



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



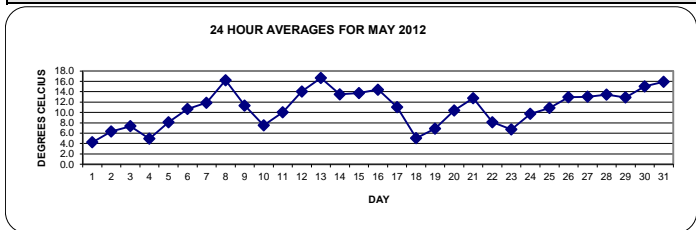
Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA
MAY 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		
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
1	1	-0.2	-1	-1.4	-1.4	-1.4	-0.6	0.8	1.5	2.3	4.4	6.4	8.2	8.8	9.4	10.5	10.3	10.2	9.6	8.8	6.9	5.5	2.8	1.8	0	10.5	4.3	24
2	2	-0.9	-1.4	-1.3	-1.3	-2	-1.4	1.3	4.8	7.4	8.8	10.2	11.3	12.3	12.7	13.6	13.7	13.6	13.3	11.9	8.5	5.5	3.3	4.1	4	13.7	6.3	24
3	3	0.9	0.3	-1.3	-2.6	-2.2	-1.4	3	7.7	10	11.6	12.2	13.2	13.7	13.6	13.5	11.9	11.6	11.7	10.7	9.9	8.3	7.2	6.3	6.4	13.7	7.3	24
4	4	6.6	6.2	5.8	5.5	5.2	4.4	3.7	3.3	3.6	4	4.6	4.8	5.2	5.4	5.6	5.8	5.9	5.5	5	4.6	4.3	4.2	4.5	4.5	6.6	4.9	24
5	5	4.3	4.1	4.1	4.2	4.1	4.4	4.9	5.3	6.2	6.8	8.2	10.4	13.6	13	13.2	11.9	10.8	10.5	10.2	9.8	9.1	8.1	8.6	8.6	13.6	8.1	24
6	6	7.3	6.4	6.2	5.9	5.4	5.1	7	10.4	13.3	14.6	15.3	15.8	16.4	16.8	17	16.8	15.3	15.3	13.9	11.8	8.4	5.3	4	2.4	17.0	10.7	24
7	7	1.4	-0.6	-1	-1.2	-1.4	1.2	7.1	12.4	14.5	16	17	18	19	19.1	19.6	19.8	19.5	19.3	18.1	15.9	13.7	12.9	12.8	11.9	19.8	11.9	24
8	8	11.1	10.2	9.3	8.7	8.7	9.9	10.7	12.7	14.6	17.7	20.1	21.2	22	22.4	21.9	22.8	22.4	23.1	22.4	20.7	17.6	16.4	12.9	9	23.1	16.2	24
9	9	8.1	8.8	8.8	7.5	7	10	12.8	13.1	13.7	14.8	15.2	15.9	14.7	15	16.8	15.2	13.6	11.6	10.1	10	9.7	7.9	6	5.1	16.8	11.3	24
10	10	5.3	3.9	3.2	2.9	2.6	3.2	5.4	7.1	8.2	9.9	11.2	11.7	12	10	9.2	10.2	10.1	10.4	10.4	8.4	6.1	6.5	6.5	5.9	12.0	7.5	24
11	11	5.4	4.2	3.8	3.2	3	4.3	6.9	9.2	10.2	12.4	14.1	14.3	14.7	14.8	15.3	15	15.6	15.3	14.3	12.2	9.5	8.4	7.6	7.1	15.6	10.0	24
12	12	6.5	6.5	7.1	6.1	5.6	7.4	10.1	12.4	14.4	15.8	16.8	17.8	18.6	19.9	20.2	20.2	20.2	20.4	19.7	17.9	15	13.6	12.8	12.2	20.4	14.1	24
13	13	11.2	10	8.9	8.3	6.6	8.9	12.9	15.7	18.3	20.1	21.2	22.1	23.2	23.4	24.1	23.4	21.8	22.3	21.9	19.3	15.2	12.7	13.8	13.6	24.1	16.6	24
14	14	13.5	12.9	11.7	11.8	11.3	12.1	12.6	13.4	13.6	13.5	14.2	13.8	15.6	16.3	16.7	17.6	17.5	16.8	16.3	13	10.9	10.4	9.4	8.4	17.6	13.5	24
15	15	7.5	6.9	4.9	3.6	2.8	4.5	8.8	12.4	14.4	15.6	16.5	18.9	20.6	21.5	21.4	21.6	20.3	20.5	18.7	17.5	15.7	13.8	11.4	9.9	21.6	13.7	24
16	16	8.9	8.3	7.5	6.4	6.8	7.1	10.8	14	17.9	20.4	22	21.6	21.6	21	20.8	20.6	19	17.4	15.6	14.4	13.4	11.3	10	8.7	22.0	14.4	24
17	17	8.5	8.3	8.1	6.8	6.3	6.5	7.6	9.6	12	14	15.5	16	17	17.3	18.1	16	15.3	14.4	12.9	10.5	8.4	7.1	4.9	3.5	18.1	11.0	24
18	18	2.2	1.3	-0.2	0.4	2.1	3.1	3.9	4.7	5.7	7.1	7.6	9.2	9.4	9.3	7.6	6.5	6.8	6.3	5.6	5.3	5	4.6	4.2	3.4	9.4	5.0	24
19	19	3.8	3.6	3.4	3	2	2	3.2	4.8	7.1	6.6	7.4	8.6	10.3	9.6	10.2	11.7	12.1	12.7	11.6	9.6	7.4	5.4	4.5	4.1	12.7	6.9	24
20	20	2.7	1.4	0.1	0	-0.2	2.6	7.7	11.1	13.5	14.9	15.8	16.8	17.9	17.9	17.6	18.3	17.7	17.9	15.5	13.1	9.8	7.1	5.8	4.5	18.3	10.4	24
21	21	3.8	2.3	0.8	0.9	1.6	3	6.4	10.5	13.5	17	18.6	19.4	20.6	20.6	20.7	20.7	20.1	19.1	18.3	16.2	14.5	13.6	12.5	11	20.7	12.7	24
22	22	10.1	9.9	9.5	8.9	8.6	9	9.9	8.9	8.3	8.6	8.3	8.4	8.5	8.2	8.1	8.3	8.4	7.5	7	6.5	6.1	5.9	5.8	5.7	10.1	8.1	24
23	23	5.5	5.3	5	4.7	4.4	4.4	4.4	4.2	4.3	5.8	7	8.2	8.8	9.4	10.5	10.6	10.9	11	10.8	9.4	6.2	4.6	3.3	2.1	11.0	6.7	24
24	24	1.2	0.6	0.4	1.4	1.5	3.5	6.7	9.6	11.4	13.3	14.9	14.7	15.2	15.7	16.8	16.6	15.7	15.3	14.9	13.6	10.4	8.4	6.4	5.8	16.8	9.8	24
25	25	6	5.2	4.6	4.3	4.7	6.1	8.9	11.9	13.7	14.9	16.5	16	14.5	16.1	16.7	15.5	13.8	14.4	13.5	12.6	9.1	8.2	7.4	6.2	16.7	10.9	24
26	26	6	4.4	2.8	1.6	1.6	4.8	10.2	13	14.9	17.1	19.2	20.2	18.1	18.8	20.3	19	19.9	19.5	18	15.8	12.9	11.3	10.8	10.9	20.3	13.0	24
27	27	9.1	5.7	3	2	1.7	6	10.6	14.9	16.5	17.7	18.7	19.3	19.9	20.5	21	21.2	21	19.6	19	15.7	10.7	7.4	6	5.4	21.2	13.0	24
28	28	4.4	2.9	1.8	1.1	1.1	3.5	7.9	12.7	17.5	18.9	20	18.5	21.2	20.6	22.3	21.8	21.3	20	20.3	17.2	13.6	12	11.7	10.4	22.3	13.4	24
29	29	5.6	2.6	1	0.7	0.7	4.9	10.1	14.6	17.2	18.4	19.3	20.6	21.5	21.9	21.8	20	20.8	19.8	18.5	15.2	11.5	8.6	6.8	7.3	21.9	12.9	24
30	30	8.1	8.4	7.2	4.2	2.8	7.1	11.7	15.3	17.7	19.3	19.9	21.2	21.1	22.1	22.5	22.5	22	21.7	20.8	18.1	15	10.6	9.8	11.2	22.5	15.0	24
31	31	11.5	10.5	9.2	8.4	8.3	10.5	13.1	16.3	18.5	20	21	21.8	21.8	22	22.4	22.4	21.5	21.1	19.2	15.3	14.1	12.2	10.9	9.9	22.4	15.9	24
HOURLY MAX		13.5	12.9	11.7	11.8	11.3	12.1	13.1	16.3	18.5	20.4	22.0	22.1	23.2	23.4	24.1	23.4	22.4	23.1	22.4	20.7	17.6	16.4	13.8	13.6			
HOURLY AVG		6.0	5.1	4.3	3.7	3.5	5.0	7.8	10.2	12.1	13.5	14.7	15.4	16.1	16.3	16.6	16.4	16.0	15.6	14.6	12.7	10.4	8.8	7.8	7.1			

STATUS FLAG CODES

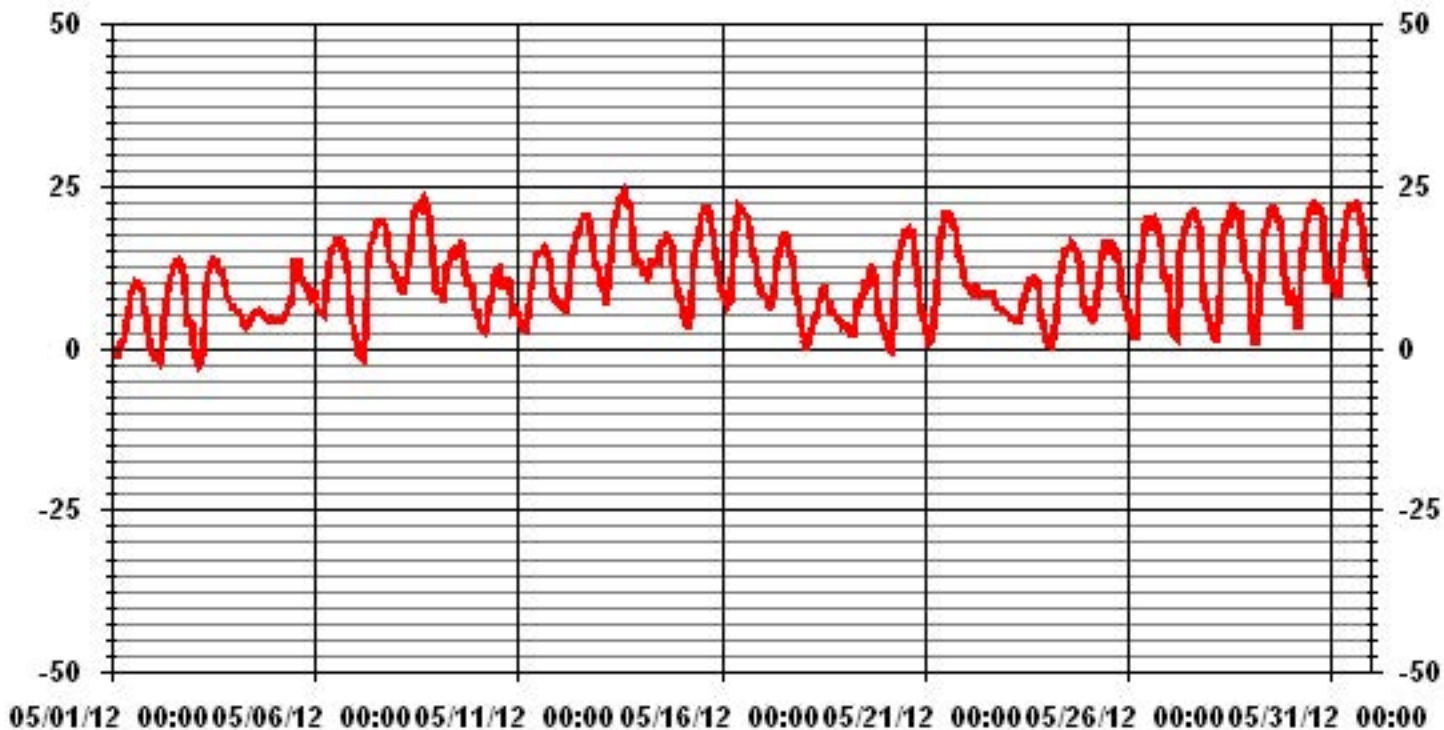
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-2.6 °C	@ HOUR(S)	3	ON DAY(S)	3
MAXIMUM 1-HR AVERAGE:	24.1 °C	@ HOUR(S)	14	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	16.6 °C			ON DAY(S)	13
CALIBRATION TIME:	0	HRS		OPERATIONAL TIME:	744
				AMD OPERATION UPTIME:	100.0
				MONTHLY AVERAGE:	10.82
STANDARD DEVIATION:	6.25				°C

01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 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	23:00	DAILY	DAILY	
DAY	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	TOTAL	RDGS.	
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0.1	0.9	0.9	1.1	0.7	0.3	0.7	0.1	0.1	0	0	0	0	0	0	0.1	0	0	0	1.1	5.0	24	
5		0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	24	
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
7		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
8		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
9		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
11		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
12		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
13		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
14		0	0	0	0	0	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	0.1	0	0.1	0.3	3.7	3.8	3.8	8.0	24	
17		0.3	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.8	24	
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.3	0.2	0.5	0.3	0.2	0.1	0	0	0	0.5	2.1	24	
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0.1	0	0.3	0.1	0.4	0.5	1.5	0.6	0.8	1.4	1.4	1	1.3	1.8	2.1	1.6	2.1	14.9	24		
23		1.4	1	1.6	1.8	1.9	1.5	1.6	1.3	0.5	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.9	12.8	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	0.1	0	0	0	0	0	0	0	0	0.1	0.1	24	
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
31		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	

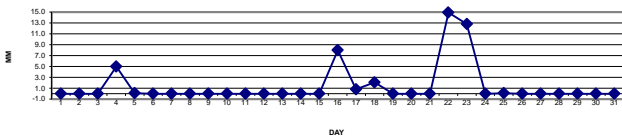
STATUS FLAG CODES

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

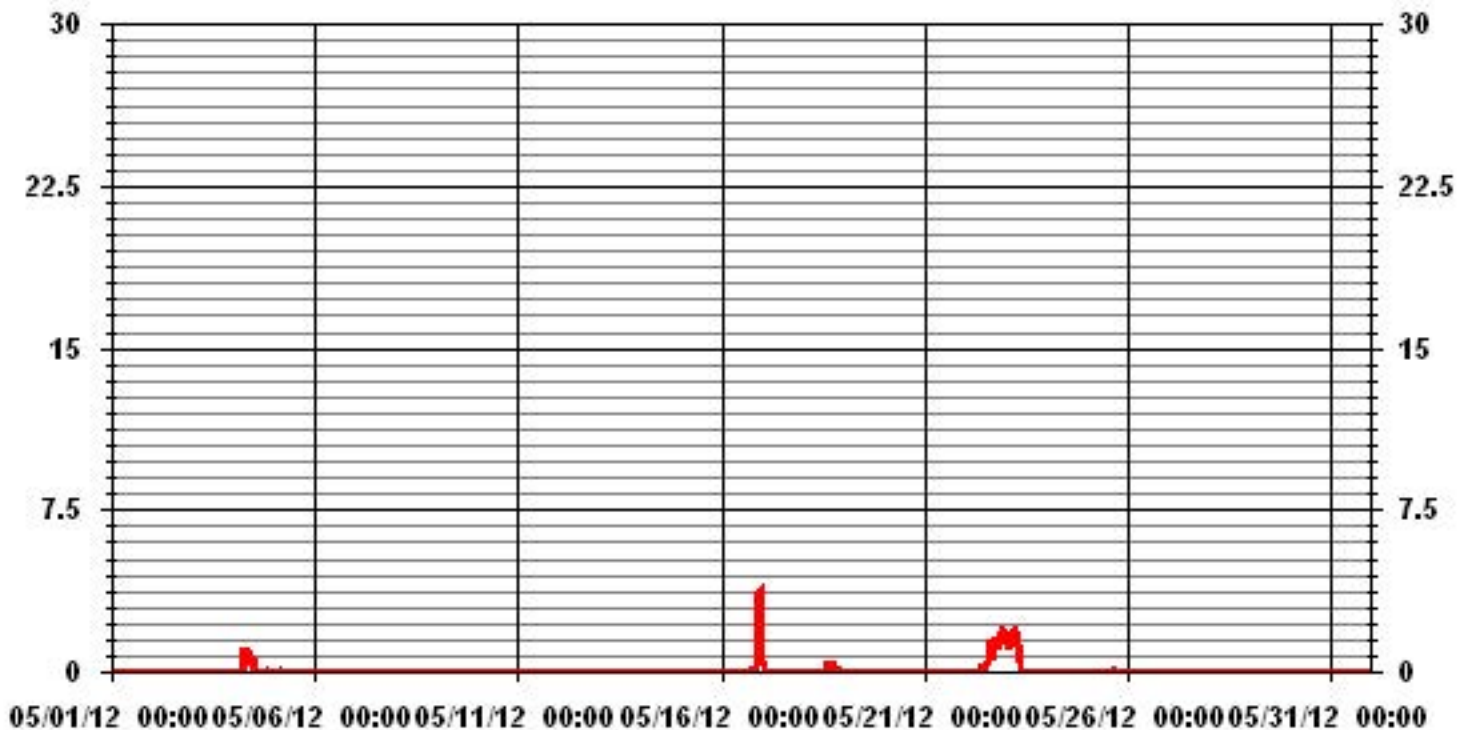
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	3.8	MM	HOUR(S)	23	ON DAY(S)	16
MAXIMUM DAILY TOTAL	14.9	MM			ON DAY(S)	22
MONTHLY TOTAL	43.8	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.31		MONTHLY AVERAGE:	0.06	MM	

DAILY TOTALS FOR MAY 2012



01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 2012

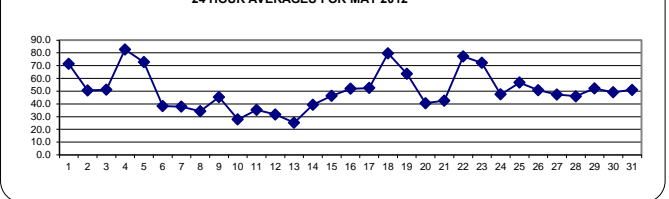
RELATIVE HUMIDITY hourly averages (%)

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		
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		79	82	85	86	88	90	90	89	85	76	67	61	58	54	50	50	50	51	54	61	67	76	79	84	90	71.3	24	
2		87	87	88	87	89	88	80	66	53	42	39	36	32	26	22	20	19	20	23	31	38	46	47	49	89	50.6	24	
3		59	61	67	72	71	71	62	56	51	45	39	33	33	34	37	43	44	43	45	47	51	53	55	57	72	51.2	24	
4		59	61	63	64	65	73	82	86	87	88	88	89	89	89	89	88	89	90	91	91	91	91	92	92	92	82.7	24	
5		92	92	92	92	92	92	91	88	84	79	70	60	64	62	59	59	56	54	52	56	61	55	52	92	92	72.8	24	
6		60	64	65	64	60	57	49	39	30	25	22	22	18	17	16	17	19	20	22	29	39	49	56	61	65	38.3	24	
7		65	75	78	78	77	68	51	37	30	24	20	17	17	18	18	18	19	20	22	27	31	32	32	35	78	37.9	24	
8		38	41	43	44	44	43	42	39	37	30	25	23	21	21	23	23	24	24	26	30	37	38	49	59	59	34.3	24	
9		62	60	61	67	70	59	42	42	46	46	44	43	46	41	33	30	33	42	46	41	35	32	34	31	70	45.3	24	
10		24	27	31	34	39	38	35	32	31	25	21	19	17	19	24	22	22	20	18	23	30	32	41	45	45	27.9	24	
11		48	52	55	59	59	53	41	34	31	26	24	23	21	22	21	22	21	22	25	29	36	38	41	43	59	35.3	24	
12		45	45	45	49	51	46	40	36	32	29	27	25	24	23	22	21	19	18	19	22	28	30	32	33	51	31.7	24	
13		35	39	43	45	49	44	35	30	25	21	20	15	12	10	9	10	13	13	14	18	25	30	26	26	49	25.3	24	
14		29	32	35	35	38	40	37	32	34	39	42	46	42	39	36	32	32	32	32	32	43	49	51	56	59	39.3	24	
15		62	64	71	76	79	76	62	49	44	42	36	32	29	25	25	26	28	29	32	35	39	44	51	55	79	46.3	24	
16		59	62	66	69	68	69	59	49	39	32	29	29	29	32	34	35	42	45	49	50	55	74	82	90	90	52.0	24	
17		87	89	83	80	72	64	59	55	42	34	25	22	20	19	19	36	36	37	43	53	63	69	74	78	89	52.5	24	
18		86	89	90	91	90	86	83	79	76	69	65	58	56	57	72	78	77	81	86	88	89	88	89	90	91	79.7	24	
19		91	91	90	89	90	90	85	80	68	66	63	60	53	54	48	43	39	36	38	41	47	54	55	56	91	63.6	24	
20		61	67	72	72	74	67	49	38	30	26	23	21	19	18	19	18	19	19	25	32	40	50	54	59	74	40.5	24	
21		62	68	74	73	72	72	66	48	40	33	29	26	23	22	20	21	23	25	27	32	37	39	42	48	74	42.6	24	
22		53	57	60	63	63	61	60	69	75	73	79	83	83	86	89	88	86	87	90	90	90	90	90	90	90	77.3	24	
23		89	89	89	90	90	89	89	88	87	86	81	76	66	63	57	51	40	37	39	48	65	71	75	78	90	72.2	24	
24		80	81	81	74	74	71	61	50	41	36	31	31	30	28	25	22	23	26	29	33	42	50	58	62	81	47.5	24	
25		63	74	77	79	79	72	66	55	45	39	35	34	44	39	38	43	48	45	50	51	66	68	72	79	79	56.7	24	
26		79	85	88	90	91	89	69	58	52	41	31	25	28	26	23	26	25	26	33	39	45	50	51	48	91	50.8	24	
27		54	68	79	84	85	72	58	41	31	29	27	26	24	23	22	22	22	25	27	36	55	70	78	77	85	47.3	24	
28		77	82	88	89	90	89	74	59	37	28	25	27	23	23	21	21	20	22	23	31	39	43	38	35	90	46.0	24	
29		54	74	83	83	78	66	58	49	43	40	36	33	30	27	27	30	30	32	36	49	63	74	81	76	83	52.2	24	
30		70	66	71	83	89	78	59	48	41	32	32	29	28	25	24	23	22	22	22	38	55	73	76	71	89	49.0	24	
31		71	76	81	85	86	79	68	53	43	34	28	24	23	24	25	26	28	29	35	49	54	63	69	72	86	51.0	24	
HOURLY MAX		92	92	92	92	92	92	91	88	88	88	89	89	89	89	89	88	89	89	90	91	91	91	91	92				
HOURLY AVG		63.9	67.7	70.8	72.5	73.0	69.4	61.4	54.1	48.2	43.2	39.7	37.4	35.4	34.5	33.9	34.4	34.5	35.3	37.9	43.2	50.2	55.8	59.0	60.9				

STATUS FLAG CODES

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

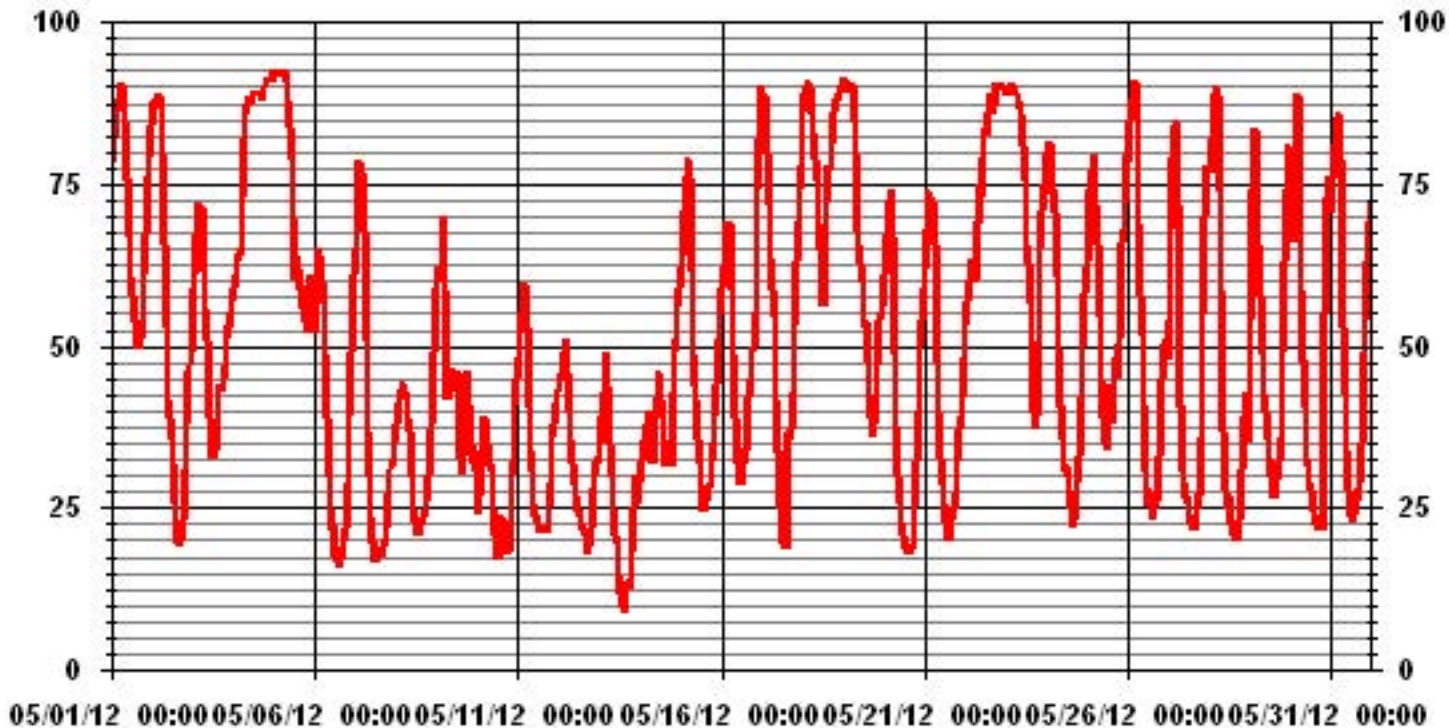
24 HOUR AVERAGES FOR MAY 2012



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	92	%	@ HOUR(S)	VAR	ON DAY(S)	4, 5
MAXIMUM 24-HR AVERAGE:	82.7	%			ON DAY(S)	4
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	23.18		MONTHLY AVERAGE:	50.67	%	

01 Hour Averages



Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 2012

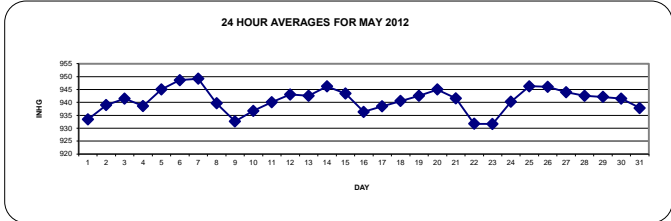
BAROMETRIC PRESSURE hourly averages (millibar)

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 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		931	931	931	932	932	932	932	933	933	933	934	934	934	934	934	934	934	934	935	935	935	935	935	936	936	933	24	
2		936	936	936	936	937	937	938	939	939	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	941	941	939	24
3		941	941	941	941	941	941	942	943	943	944	943	943	942	942	942	941	941	941	941	941	941	940	940	940	940	940	944	24
4		940	939	939	938	938	938	938	937	936	937	938	938	938	938	938	939	939	939	939	940	940	940	940	941	941	941	939	24
5		941	941	942	942	942	943	944	944	944	945	946	946	946	946	946	946	946	946	946	947	948	949	948	949	948	949	945	24
6		948	947	947	947	947	948	948	949	949	949	949	949	949	949	949	949	949	949	949	950	950	949	949	949	950	949	24	
7		949	949	949	949	950	950	951	952	952	952	952	951	951	950	949	949	948	948	948	947	947	946	946	946	952	949	24	
8		946	945	945	945	944	944	944	943	943	943	942	941	940	939	938	937	937	936	935	935	934	933	932	931	946	940	24	
9		931	930	930	929	929	930	931	932	933	933	934	933	934	934	933	933	934	934	934	934	935	935	935	935	934	935	933	24
10		935	935	936	936	936	936	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	938	938	937	24	
11		938	938	938	938	938	938	939	939	940	940	940	940	941	941	941	941	941	941	941	942	942	941	941	942	942	940	24	
12		942	943	943	943	944	944	945	945	945	945	945	945	944	944	944	943	943	942	942	941	941	941	941	941	941	945	24	
13		941	942	942	942	942	943	944	944	945	945	945	945	944	944	943	943	942	942	942	941	941	941	941	941	941	945	24	
14		941	942	942	942	943	944	944	945	945	946	947	948	948	949	949	949	948	948	948	948	948	948	948	948	948	949	946	24
15		948	948	947	947	947	947	947	947	947	947	946	945	944	943	943	942	941	940	939	938	938	938	938	937	948	944	24	
16		937	937	937	936	936	936	936	937	937	937	937	937	936	936	936	936	936	936	936	935	935	936	937	937	937	936	24	
17		937	936	937	937	937	937	938	938	939	939	939	939	939	939	939	939	939	939	939	939	939	940	940	939	940	939	24	
18		939	939	939	939	940	940	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	941	24
19		941	940	941	941	941	941	941	942	942	942	943	943	943	943	943	943	943	944	944	944	944	944	944	944	944	943	24	
20		944	944	944	944	945	945	946	946	947	947	947	947	946	946	946	945	945	945	944	944	944	943	943	943	947	945	24	
21		943	943	942	942	942	942	943	943	944	944	944	944	943	943	943	942	941	941	940	939	939	939	938	938	944	942	24	
22		937	936	936	935	935	934	933	933	931	932	931	931	930	930	930	930	930	930	930	930	930	929	929	929	937	932	24	
23		928	928	928	928	929	928	929	930	930	930	931	932	932	933	933	934	934	935	935	935	935	935	935	935	935	935	932	24
24		936	936	936	937	937	938	939	940	940	941	941	941	941	941	941	941	941	942	942	943	943	943	943	944	944	940	24	
25		944	944	945	945	945	946	947	947	948	948	948	947	947	947	947	946	946	946	946	946	946	946	946	946	946	948	946	24
26		946	945	945	945	945	946	947	947	948	948	948	947	947	946	946	946	946	946	945	945	945	945	945	945	948	946	24	
27		945	944	944	944	944	945	946	946	946	946	946	945	945	945	944	943	943	943	943	943	942	941	941	941	946	944	24	
28		941	941	941	941	941	941	942	943	944	944	944	943	943	943	943	943	943	943	943	943	943	943	943	943	942	944	943	24
29		942	942	942	942	942	943	943	944	944	944	944	943	943	943	942	942	941	941	941	941	940	940	940	940	944	942	24	
30		940	941	941	941	941	942	942	943	943	943	943	943	942	942	942	941	941	941	941	941	941	940	940	940	943	942	24	
31		940	940	940	939	939	940	940	940	940	939	938	938	937	937	936	936	936	936	936	936	936	935	935	935	940	938	24	
HOURLY MAX		949.0	949.0	949.0	949.0	950.0	950.0	951.0	952.0	952.0	952.0	951.0	951.0	950.0	949.0	949.0	949.0	949.0	949.0	950.0	950.0	949.0	949.0	949.0	949.0				
HOURLY AVG		940.3	940.1	940.2	940.1	940.3	940.6	941.2	941.5	941.8	942.0	942.1	941.7	941.5	941.4	941.2	941.0	940.8	940.8	940.7	940.6	940.6	940.4	940.5	940.4				

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

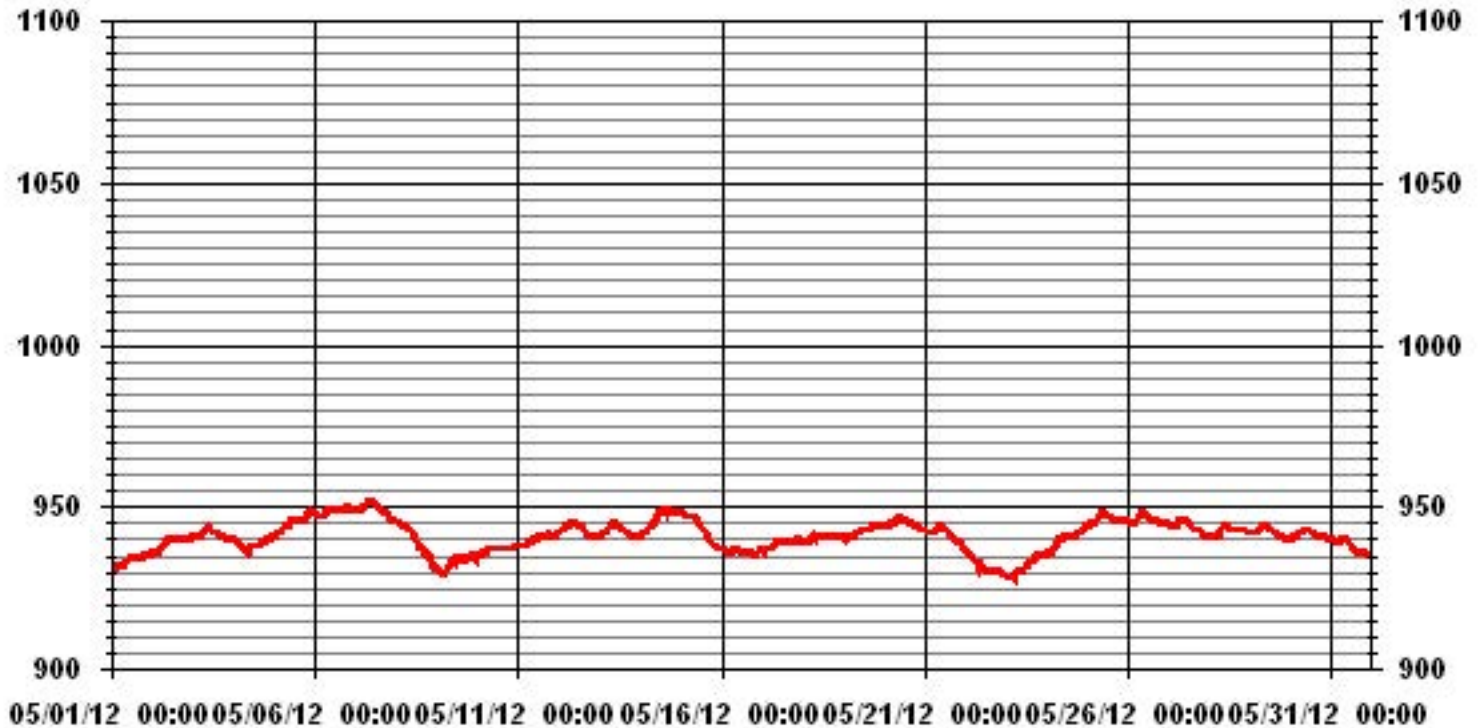
24 HOUR AVERAGES FOR MAY 2012



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	952	MB	@ HOUR(S)	VAR	ON DAY(S)	7
MAXIMUM 24-HR AVERAGE:	949	MB			ON DAY(S)	6,7
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	4.90		MONTHLY AVERAGE:	941	MB	

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 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	3.2	4	3.7	3.9	5	6.8	9.7	12	12.7	14.6	13.2	13.5	12.5	11.7	11.8	12.2	9.5	7	5.9	3.8	4.2	4.1	4.1	2.9	14.6	7.9	24	
2	3.4	3.2	3.7	3.1	3.4	2.6	4.8	6.8	9.2	9.6	8.9	8.5	6.1	7	7.1	8.3	7	7.3	5.8	4	4.1	3.6	5.8	5.3	9.6	5.4	24	
3	4.6	4.7	3.2	3.4	4.5	3.2	3.8	5.7	7.6	10.8	12.6	14.5	12.7	11.5	15.2	13.6	12.2	10.1	8.4	6.5	6.3	6.5	4.9	5.9	15.2	6.9	24	
4	7.5	8.8	7.7	9.5	8.2	7.6	7.7	9	9.9	8.3	7.4	6.7	8	9.1	6.8	6.9	6.9	6.6	5.3	3.7	3.6	3.8	2.4	2.9	9.9	6.7	24	
5	1.8	1.2	0.4	0.9	2.2	1.6	2.6	3.9	3.3	1.8	1.9	2	2.1	5.5	7	6.1	7.7	8.2	6.5	6.6	7.8	6.9	8	3.2	8.2	2.4	24	
6	1.2	2.9	3.4	3.8	4.4	5.7	6.2	6.5	7.9	9.9	10.5	9.5	10.6	10.7	11.5	10.9	10.2	9.5	8.1	5.7	3.1	1.4	1.8	1.6	11.5	6.1	24	
7	1	0.9	1.5	2	1.9	1.5	0.8	1.8	5.6	6.5	5.2	6.2	4.9	8.1	6.7	9	10.2	7.5	7.4	6.3	5.6	6.6	7.8	7.2	10.2	4.7	24	
8	7.5	6.6	6.5	5.5	6.4	7	7.2	8.8	10.3	11.2	14.6	15.5	16.7	16.1	14.5	14.5	12.1	12.2	10.9	7	6.5	7.1	3.1	3.9	16.7	9	24	
9	2.3	4.9	3.8	1	2.3	6.3	10.3	12.1	12	12	12.6	9.4	8.2	8.2	8.7	8.2	9.4	10.3	3.8	3.1	6.6	3.8	4.5	6.2	12.6	6.1	24	
10	7.7	6.6	7.3	8.3	9.3	9.5	11.3	12.6	12.3	11.2	10.6	11.3	11	12.4	10.8	8.6	9	8.1	9.1	7.3	5.4	7.4	8.3	6.2	12.6	9	24	
11	5	5.3	5.9	5	5.1	5.9	8	11.6	14.9	12	9.4	15.3	18.3	17.6	17.1	16	13.1	12.1	11.6	6.3	3.7	5	5.6	5.7	18.3	9.1	24	
12	3.5	4.5	7.7	4.6	4.9	4.8	6.1	7.8	8.6	8.9	9.6	10.6	11.1	11.7	12.6	14.6	15.8	13.5	10.9	8.2	4.5	4.6	5.5	5.9	15.8	8.1	24	
13	5.9	4.4	4.8	4.3	2.5	3.6	3.7	4.6	3.9	8.1	11.6	13.3	13.7	15.6	14.3	14.3	13	10	7.8	5.1	2.7	3.7	6.9	6.6	15.6	7.6	24	
14	9.2	8	5.8	8.7	10	10.5	14.4	14.6	16.9	16.9	15.8	13.1	12.2	10	8.7	7.1	7.1	6.7	1.9	3.4	3.9	4.4	4.6	4.6	16.9	7.3	24	
15	4.9	4.6	3.8	3.3	3.6	3.5	3.1	7.9	8.8	9.2	10.9	12.9	12.1	12.8	12.2	11.3	10.4	11.4	9.3	7.5	4.4	3.6	4.6	3.9	12.9	6.5	24	
16	3.5	2.6	2.8	3	3.4	2.4	3	1	2.1	3.6	3.1	5.1	7.5	7.8	8.4	8	8.9	7.9	6.7	6.2	3.5	3.3	3.4	1.6	8.9	3.6	24	
17	1.1	2	5.2	4.8	5.9	8.1	5.4	4.7	9.5	6.8	8.5	8.6	7.9	7.4	1	9.5	9.6	7.6	6.4	6.7	4.7	3.9	3.6	5.3	9.6	3.6	24	
18	2.9	3.1	2.3	3.1	3.8	0.5	2.2	2.5	5.3	3.8	1.2	2.9	3.4	3.5	6.9	3	1.9	2.5	2.7	1.3	2.1	1.9	2.5	1.9	6.9	0.7	24	
19	3	3.4	5.4	3.5	3.4	4.5	8.2	10	11.5	10.3	10.4	10	11.2	10	11.4	11.2	12.2	7.1	8.7	6.8	4.2	3.3	3.4	2.9	12.2	6.5	24	
20	2.9	2.2	2.8	2.5	2.1	1.1	3.8	5.3	6.2	5.8	7.5	7.4	6.3	5.9	6.2	4.9	1.1	2.8	4.3	2.9	4	2.7	2.9	4.3	7.5	2.3	24	
21	4.5	4.4	3.9	4.3	4.7	5.1	5.3	6.9	8.3	9.7	10.1	10.8	9.7	11.7	11.9	9.7	10.2	11.5	11.2	9.1	7.6	8.1	8.8	7.6	11.9	7.7	24	
22	8.1	8.3	8.5	8	9.1	11	10.8	11.6	9.2	10.6	8.6	9.9	8.8	7.4	6.1	8.7	8.3	9.7	9.4	10.6	10.2	9.9	10.1	10.8	11.6	9	24	
23	9.8	9.7	10.9	10.3	9.4	10.1	11.5	12.1	9.5	10.1	10.6	9.3	9.8	9.8	12.8	12	12.3	9.8	8.6	3.8	1.6	1.1	0.5	1.3	12.8	8.5	24	
24	1.2	1.6	2.2	3.4	2.9	2.6	3.6	6.5	7.6	10.2	7.8	8.1	9.1	8.7	9	8.3	8.2	9	7.6	7.2	3	2.8	2	2.4	10.2	5.5	24	
25	1.2	0.9	1.2	1.8	1.7	1.7	0.5	3	2.7	5.4	4.9	3.4	6.4	7.5	8.8	5.8	5.5	2.1	4.2	4.4	4	5	5.1	5.2	8.8	1.1	24	
26	4.2	3.1	1	1.6	0.2	0.3	1.7	3.5	5.1	5.7	6.1	5.5	3.2	2.7	3	7	9.5	9.1	8.3	6.2	6.2	6	6.6	7.5	9.5	4.3	24	
27	5.3	1.1	2.2	2.3	1.5	1.6	2.6	1.6	6	6.5	7.3	9	9	7.9	8	5.7	5.4	5.3	3.4	4.2	2.7	1.3	1.7	2.9	9	3.9	24	
28	1.1	0.6	1.3	0.6	1.2	1.1	0.4	1.5	4.2	8.1	7.9	5.8	4.7	7.1	6.9	6.2	6.5	4.7	4.6	4.4	4.9	6.4	7.2	4.9	8.1	3.1	24	
29	1.3	0.7	1.4	2.8	4	3.3	2.9	4.9	4.9	6.9	8.3	6.8	5.7	5.5	5.7	4.7	5.7	4.9	3.9	2.7	3.1	2.4	2.8	3.4	8.3	3.4	24	
30	4.1	5.3	3.7	1.1	0.6	0.8	0.2	3	4.1	5.5	7.3	7.3	7.4	7.8	7.7	7.2	7.8	7.7	7.1	4.4	3.1	2	3.3	4.2	7.8	4.5	24	
31	5.7	5.7	5.5	5.2	4.7	4.6	5.3	5.2	5.9	7.2	8.4	8.7	10.3	11.6	9.4	9.5	9.9	7.7	8.7	7.1	4.4	4.9	4.3	3	11.6	5.7	24	
HOURLY MAX	9.8	9.7	10.9	10.3	10.0	11.0	14.4	14.6	16.9	16.9	15.8	15.5	18.3	17.6	17.1	16.0	15.8	13.5	11.6	10.6	10.2	9.9	10.1	10.8				
HOURLY AVG	4.1	4.0	4.2	4.1	4.3	4.5	5.4	6.7	7.9	8.6	8.8	9.1	9.1	9.4	9.3	9.2	8.9	8.1	7.2	5.5	4.6	4.4	4.7	4.6				

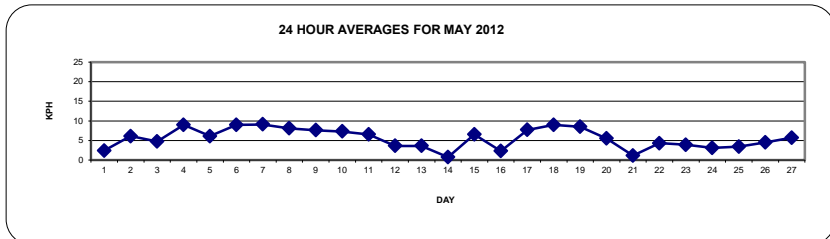
STATUS FLAG CODES

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

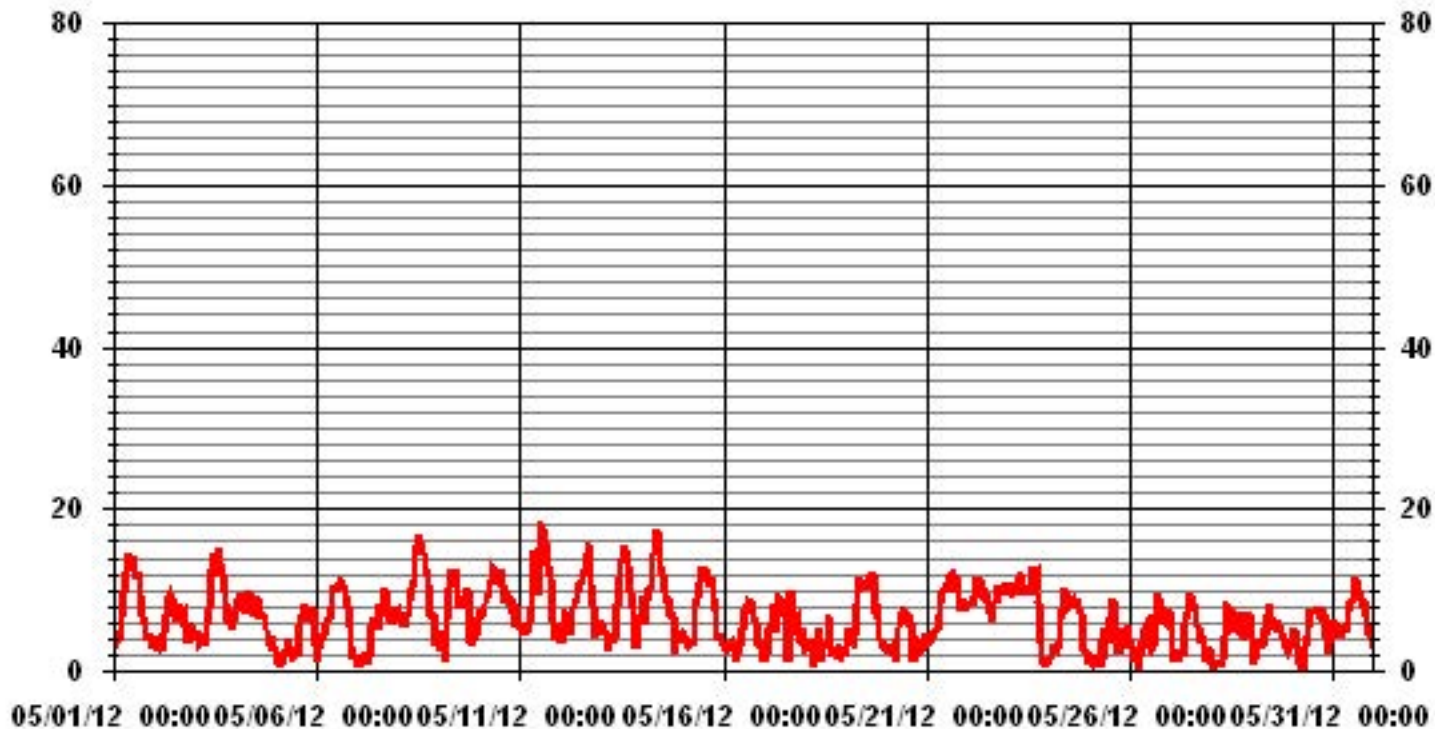
LAST CALIBRATION: December 20, 2011

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	18.3 KPH	@ HOUR(S)	12	ON DAY(S)	11
MAXIMUM 24-HR AVERAGE:	9.1 KPH			ON DAY(S)	11
CALMS (≤ 1 KPH)	1.88 %	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	0 HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	3.62	MONTHLY AVERAGE:	6.52	KPH	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 2012

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST																								DAILY	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	
DAY																									
1	11.8	13.4	13.5	14.8	17	17.7	25.8	29.1	29.7	34.3	39.6	37.6	33.9	31.7	33.1	29.1	26.5	23	18.3	12.8	15.5	12	10.9	7.6	39.6
2	11.1	13.7	13.1	13.3	10.4	12.5	14.6	28.8	30.8	33	29.1	33.4	24.9	27.9	29.7	28.2	29.3	24.2	21.4	12	9.8	10	17.2	19.6	33.4
3	15.9	10.7	11.8	12.4	16.6	12.4	9.1	21.8	29.1	34.8	47.7	55.5	41.3	40.9	40.9	49.8	32.6	30.1	28.2	22.9	20.6	17.1	13.5	22	55.5
4	20.9	26.2	28.2	33.4	29.1	23.4	26.4	29.1	29.7	28.8	28	18.6	28.7	29.6	23	24.5	28.8	24.4	20.5	13.5	12	13.1	12.8	9.6	33.4
5	5.6	5.6	4.1	5.4	5.6	6.4	8.8	8.7	10.2	9.6	9.3	14.8	16.3	16.1	17.4	26.6	26.6	24.2	28.4	27.5	36.7	27.9	31.3	19	36.7
6	8.5	11.3	12.7	16.4	14	20.1	20.1	22.9	27.1	36.5	45.9	32.1	36.3	37.6	42.6	38.7	35.1	36.9	27.9	20.7	12	5.2	6.5	7.6	45.9
7	11.5	10.7	11	5.2	10.4	5.2	5.2	9.5	19.4	19.4	21.8	23.3	19.6	34.3	32.5	30.1	31.4	29	19.6	20.5	13.5	15.7	20.9	16.6	34.3
8	17.2	14.6	13.1	12.6	16.8	16.9	19.1	33.1	28.7	30.4	40.9	49.4	47.4	45.2	37.6	46.8	37.1	40	28.1	23.1	16.3	17.4	15.2	8	49.4
9	8.2	10.7	10	8	14.6	28.8	37.6	42.4	40.2	41.7	36.1	32.6	26.2	28.8	33.9	27.9	33.4	35.8	34.7	21.9	26.5	24.1	15.3	19	42.4
10	19.2	22.5	19.6	29.3	31.9	29.9	39.8	37.6	43.7	67.2	41.5	48.1	45.1	41.6	46	32.2	35.9	34.1	39.8	29	19.2	30.4	35	28.6	67.2
11	19.4	22.7	20.1	17.2	16.1	20.3	34.5	47.2	49.5	48.2	35.3	52.7	62.1	65.8	54.2	50.5	49.6	45.2	43.9	33.4	9.3	12.6	12.4	15.7	65.8
12	13.3	19	25.1	16.4	17.9	18.1	26.6	27.9	37.4	35.4	40.3	40.1	53.4	54.9	46.9	61.1	53.7	52.2	44.1	29.9	17.9	15.9	17.9	20.1	61.1
13	16.6	13.3	13.5	16.6	10	13.9	12	13.5	19.6	30.8	43.3	42.1	48.7	46.5	55	45.9	42.8	37.1	29.5	21.8	10	13.7	21.8	27.7	55
14	26.4	24.4	24.3	31.5	31.3	39.9	46.3	54.9	69.3	62.5	60.8	52	43.3	37.6	29.3	36.5	30.3	25.8	22.9	10.2	11.3	11.8	12.6	13.9	69.3
15	13.9	14.4	10.4	8.9	8	8	14.5	25	31.5	25.6	29	33.6	35.8	37.8	37.1	34.9	34.9	37.1	30.3	33.2	14.4	14.6	11.3	11.3	37.8
16	8.7	8	9.1	8	8.9	6.9	7.6	6.1	7.8	16.1	19.8	22.7	31	24.9	27.3	31.7	32.1	28.6	28.6	22	12.3	14.4	20.4	16.4	32.1
17	15.9	15	20.7	20.5	22	32.6	22.7	15.7	25.8	30.1	31.4	34.1	28.1	31	28.4	35	30.1	25.8	25.8	24.9	14.8	11.1	14.2	15.4	35
18	13.5	12.2	5.6	17	12.6	10.9	10.4	11.3	14.6	13.5	10.4	15	15.3	14.2	25.4	15.8	9.1	11.5	11.1	7.6	11.1	8.7	9.6	8.9	25.4
19	11.5	14.2	20.9	17.2	12	25.4	30.4	34.8	43.5	37.4	44.8	44.6	61.2	37.2	43.5	56.4	38	130.4	29.9	29.3	16.6	14.1	14.6	11.5	130.4
20	11.2	9.6	11.1	8.2	8.3	7.1	21.4	19.9	26	142.9	31.9	33	30.8	31.2	27	20.3	13.7	33	12	10.2	10.4	7.8	10.9	10.7	142.9
21	10.1	10.3	11.1	12	12.4	14.4	17	22	26.8	39.1	40.6	37.8	41.9	45	40.2	105	39.1	41.3	36.7	39.8	30.1	31.9	40	38.7	105
22	27.7	30.1	32.6	32.4	35.1	36.9	42.2	40.7	34.3	36.1	35.2	32.8	27.9	27.3	20.5	22.7	33.7	33.4	28.6	29.3	26.9	26	28	26.7	42.2
23	24.2	23.8	31.9	28.4	24.7	27.5	30.8	33.2	30.6	25.6	22.7	21.4	31.7	28.4	36.1	32	36.1	27.4	21.9	15.7	5	4.3	4.1	5.8	36.1
24	3.6	9.3	10.2	12	9.8	6.3	9.1	14.8	20.4	31.3	29.8	27.4	27.4	27.9	29.9	26.8	31	23.6	29.3	17.4	11.3	6.5	6.7	7.1	31.3
25	4.5	3.6	2.8	6.5	7.4	10.2	7.8	12	12.4	22.5	24.9	21.6	28.2	26.3	23.9	26.3	33.1	14.7	15.2	12.8	9.1	11.8	12	12	33.1
26	10	8	6.1	6.5	6.7	3.4	6.7	10	14.6	16.3	20.3	23.8	14.1	12.4	20.1	24.1	27.3	26.3	23.4	20.6	14	13.1	18.5	26.8	27.3
27	19.2	7.4	7.6	6.3	6.3	6.7	5	23.6	20.1	24	31.2	33.4	34.1	35.1	28.6	25.5	32.8	24	13.9	12.6	6.1	3.2	8	13.1	35.1
28	7.2	6.1	4.1	4.1	4.1	3	3.6	6.9	25.3	27	34.1	28.6	22	33.2	31.9	29.5	22.9	24.4	20.1	16.1	13.3	19	19	14.6	34.1
29	6.1	3.9	5.5	11.4	10.5	8.9	13.9	15	15.7	27.7	29.2	27.7	22.7	24.2	25.7	24	23.1	19.6	14.8	8.9	6	4.5	6.9	9.8	29.2
30	10.6	10.9	10.2	5.4	2.5	6.3	8.1	9	14.9	20.8	22.1	24.3	31.9	27	26.6	27	22.2	21.3	20.1	22	20.9	6.3	8.7	9.3	31.9
31	12	12.6	10.9	12.2	10.7	11.5	17	17.9	29.9	27.3	42.8	38	46.5	46.8	42.6	41.7	38.9	36	34.1	47	26.8	12.6	10.9	13	47
PEAK	27.7	30.1	32.6	33.4	35.1	39.9	46.3	54.9	69.3	142.9	60.8	55.5	62.1	65.8	55.0	105.0	53.7	130.4	44.1	47.0	36.7	31.9	40.0	38.7	

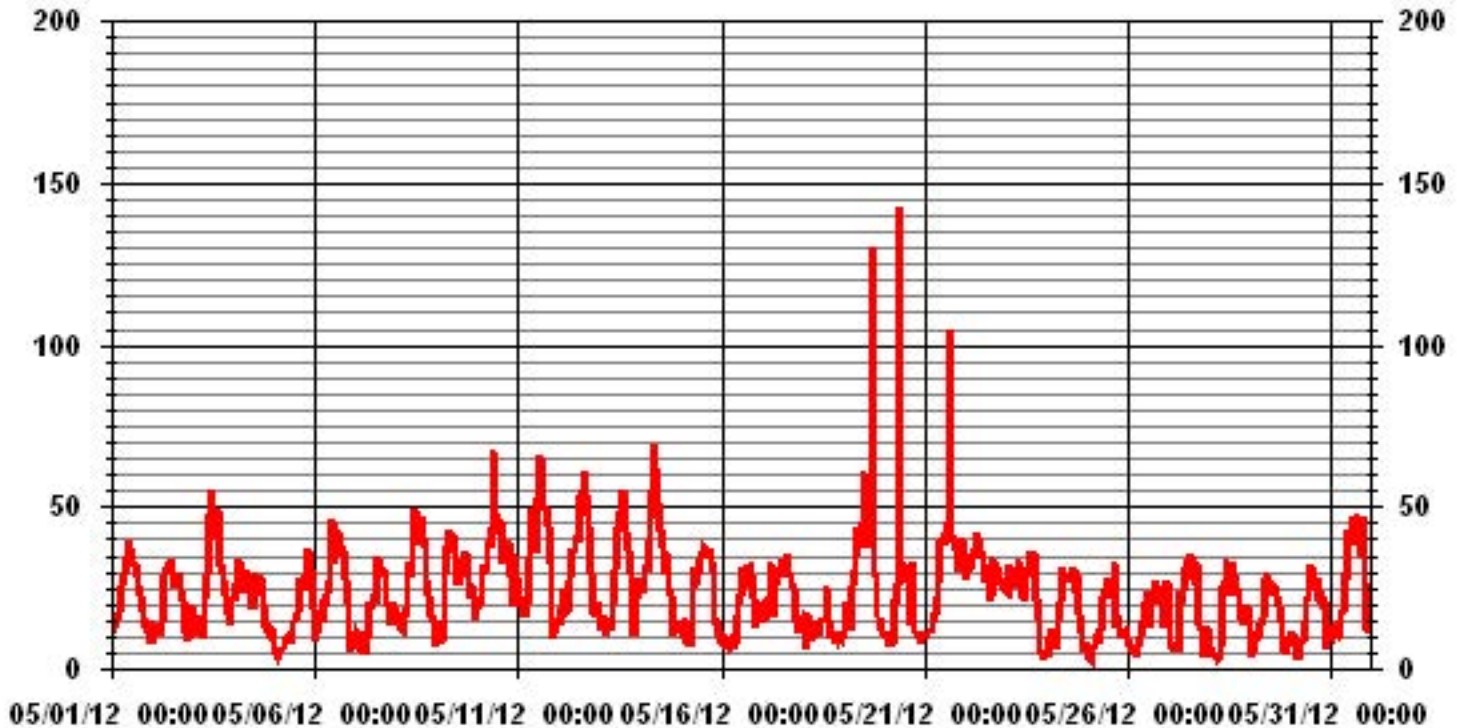
STATUS FLAG CODES

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	142.9	KPH	@ HOUR(S)	9
			ON DAY(S)	20

01 Hour Averages



LICA30
WSP / WDR Joint Frequency Distribution (Percent)

May 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	1.47	2.55	6.31	5.64	2.55	3.22	2.15	.94	2.15	4.56	3.49	3.76	4.83	1.61	1.61	1.34	48.25
< 12.0	1.34	1.34	4.70	1.88	5.91	3.09	2.55	1.47	2.41	2.41	.26	.94	3.62	5.77	2.28	3.22	43.27
< 20.0	.13	.00	1.47	.00	.13	.40	.40	.40	.94	.13	.00	.00	.80	2.55	.53	.53	8.46
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.95	3.89	12.50	7.52	8.60	6.72	5.10	2.82	5.51	7.12	3.76	4.70	9.27	9.94	4.43	5.10	

Calm : .00 %

Total # Operational Hours : 744

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	11	19	47	42	19	24	16	7	16	34	26	28	36	12	12	10	359
< 12.0	10	10	35	14	44	23	19	11	18	18	2	7	27	43	17	24	322
< 20.0	1		11		1	3	3	3	7	1			6	19	4	4	63
< 29.0																	
< 39.0																	
>= 39.0																	
Totals	22	29	93	56	64	50	38	21	41	53	28	35	69	74	33	38	

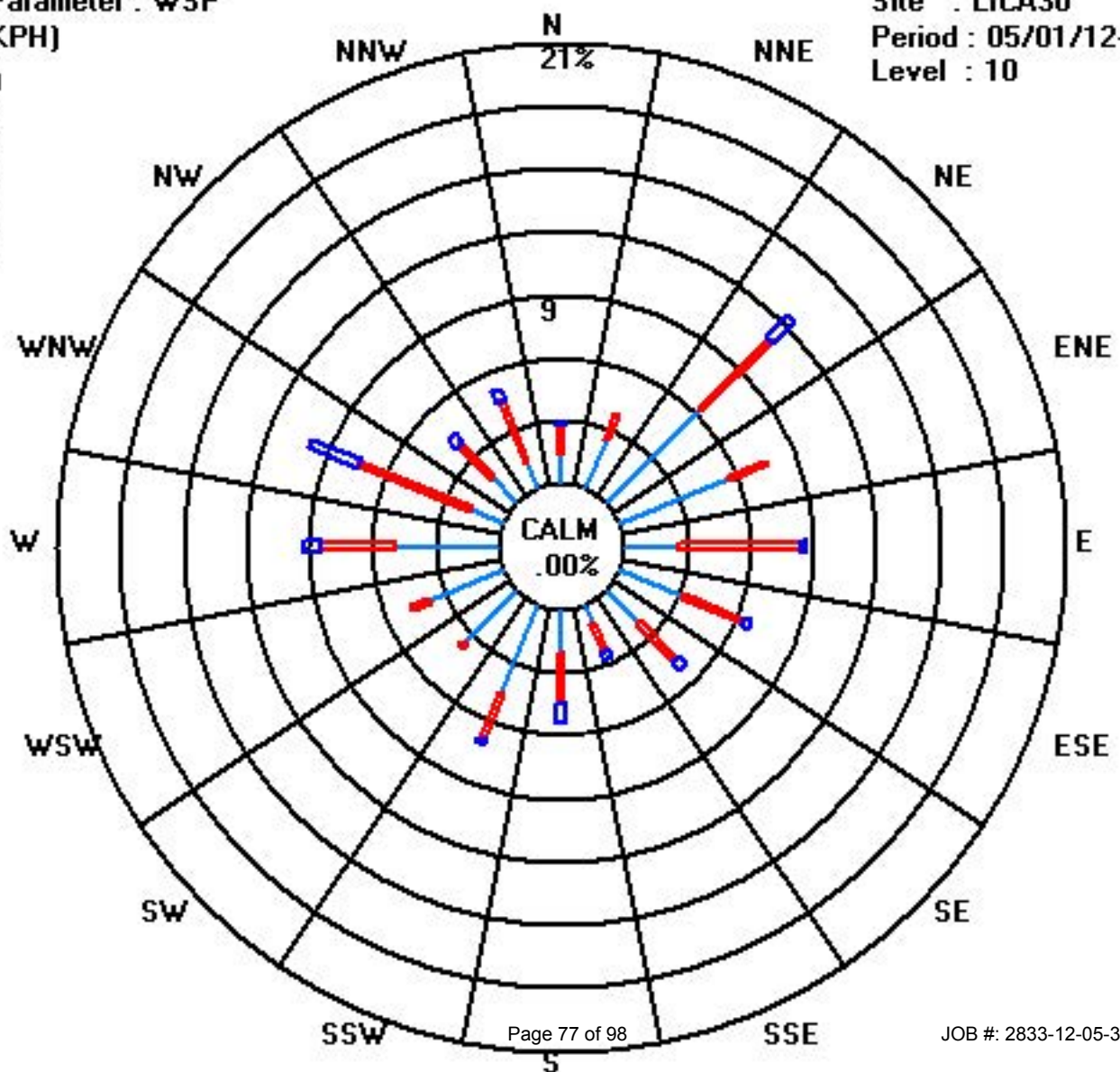
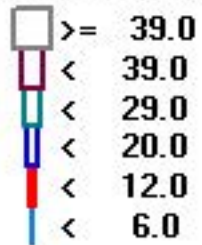
Calm : .00 %

Total # Operational Hours : 744

Class Limits (KPH)

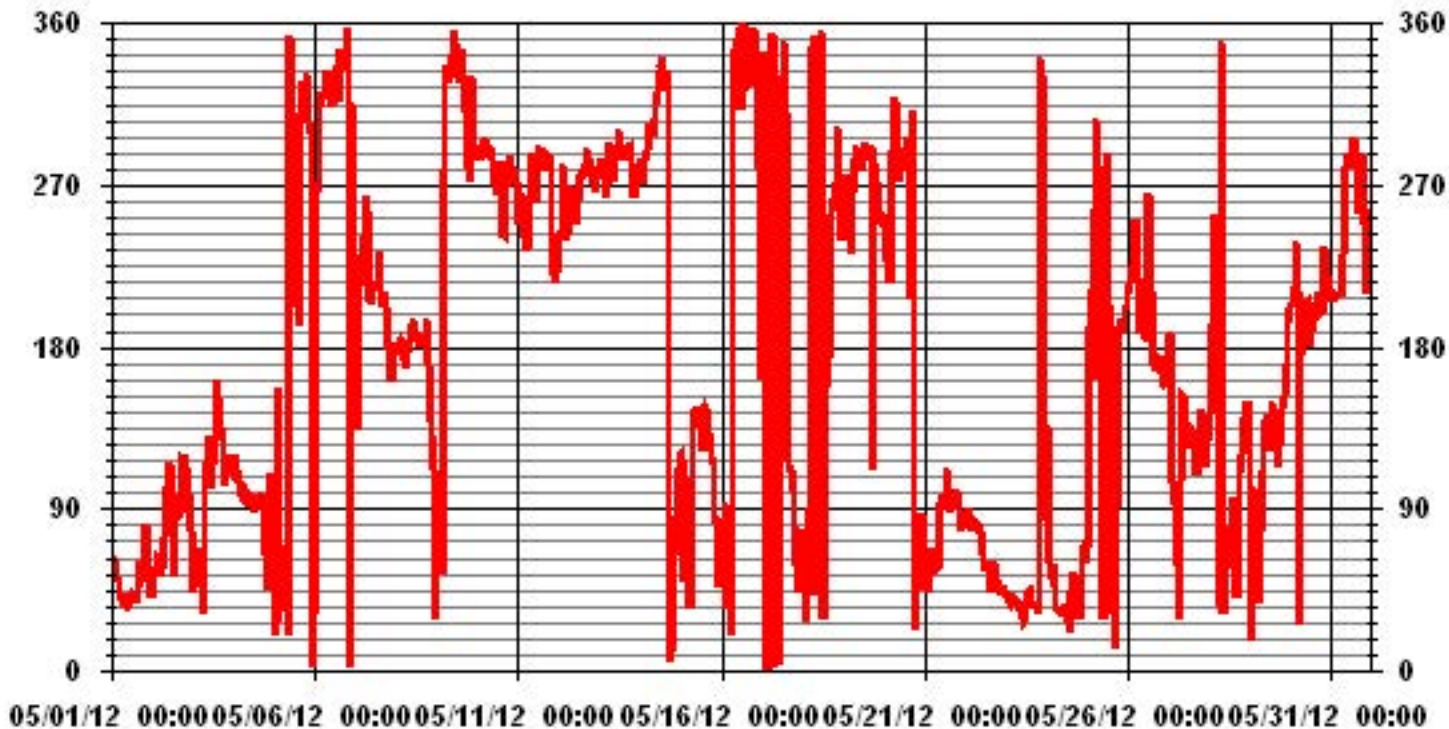
Period : 05/01/12-05/31/12

Level : 10



Vector Wind Direction

01 Hour Averages



Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - MASKWA

MAY 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	16	13	19	19	19	19	19	21	18	20	22	24	26	28	25	23	25	30	24	20	23	15	17	20
2	18	18	17	23	16	27	24	30	31	32	36	38	44	42	38	37	35	32	28	16	13	24	24	22
3	15	17	34	25	14	16	16	35	32	30	31	29	30	28	24	24	23	27	24	24	19	19	18	22
4	24	23	28	24	25	23	26	25	25	27	26	29	26	26	26	27	24	26	27	28	21	23	46	26
5	27	51	65	46	31	30	26	17	33	54	65	56	62	32	25	45	35	33	34	36	31	32	28	30
6	63	37	29	30	31	28	32	33	36	34	34	35	34	36	35	36	32	31	33	26	23	24	29	31
7	36	22	25	22	24	29	65	47	33	31	49	47	57	37	51	32	26	27	20	16	16	15	19	17
8	16	16	13	13	17	18	21	24	22	22	22	25	22	23	23	23	23	23	19	18	15	17	43	17
9	22	14	25	50	52	34	33	35	34	32	29	33	35	37	38	33	32	32	41	46	33	35	28	25
10	20	26	25	25	24	24	27	27	28	33	37	38	39	30	33	36	36	34	31	29	28	29	25	30
11	35	34	33	30	30	31	35	33	27	33	38	31	29	30	29	26	33	31	29	29	18	16	14	18
12	30	29	22	26	30	34	35	35	37	37	34	37	36	35	35	31	28	29	26	26	25	26	25	23
13	20	24	23	29	35	30	32	33	48	33	29	29	29	27	33	27	25	26	28	27	34	26	23	24
14	20	23	31	24	25	27	28	27	31	34	32	33	34	36	35	36	41	31	28	43	17	20	21	18
15	16	21	19	16	13	16	35	27	28	27	24	26	29	30	27	28	27	27	26	29	26	31	16	17
16	15	30	21	21	22	29	26	51	46	57	67	41	37	34	33	34	37	36	35	25	25	34	41	37
17	49	52	35	23	32	26	29	30	25	44	37	38	41	41	49	34	29	34	29	27	23	18	18	19
18	31	18	18	25	28	49	42	36	32	47	66	50	53	49	22	33	38	42	36	65	48	52	39	45
19	34	34	32	45	26	33	32	32	33	33	34	34	38	32	31	35	30	50	31	32	34	31	32	34
20	32	35	23	33	30	46	45	42	42	40	43	45	50	44	45	69	50	22	24	20	25	23	17	
21	17	15	14	17	18	17	24	27	25	34	33	34	36	34	34	39	35	30	29	32	31	30	30	30
22	28	30	29	30	31	27	30	28	32	31	29	25	24	25	26	21	26	24	24	22	20	21	21	20
23	19	18	17	19	20	21	20	19	18	19	16	18	22	23	23	25	20	18	18	26	22	40	57	45
24	45	22	33	20	20	18	17	23	26	33	39	34	30	33	33	44	32	22	22	15	21	19	38	24
25	27	60	33	36	39	46	70	37	47	42	53	65	43	30	33	44	38	48	27	20	10	13	14	13
26	15	17	68	26	46	54	44	34	30	34	43	51	43	43	61	32	26	25	23	22	14	13	15	21
27	17	48	32	24	43	30	21	59	39	42	42	36	37	43	40	47	53	38	43	17	13	26	27	29
28	39	50	30	52	44	35	68	56	39	38	38	51	55	34	48	44	49	40	34	24	16	16	21	20
29	41	49	34	20	18	17	27	36	42	38	36	46	52	54	48	42	34	29	27	19	11	12	15	18
30	15	12	15	35	59	33	49	35	41	41	34	37	40	34	36	40	30	22	21	31	39	33	24	20
31	13	13	12	15	15	20	22	37	44	41	43	43	41	37	41	43	41	44	36	33	40	15	22	33

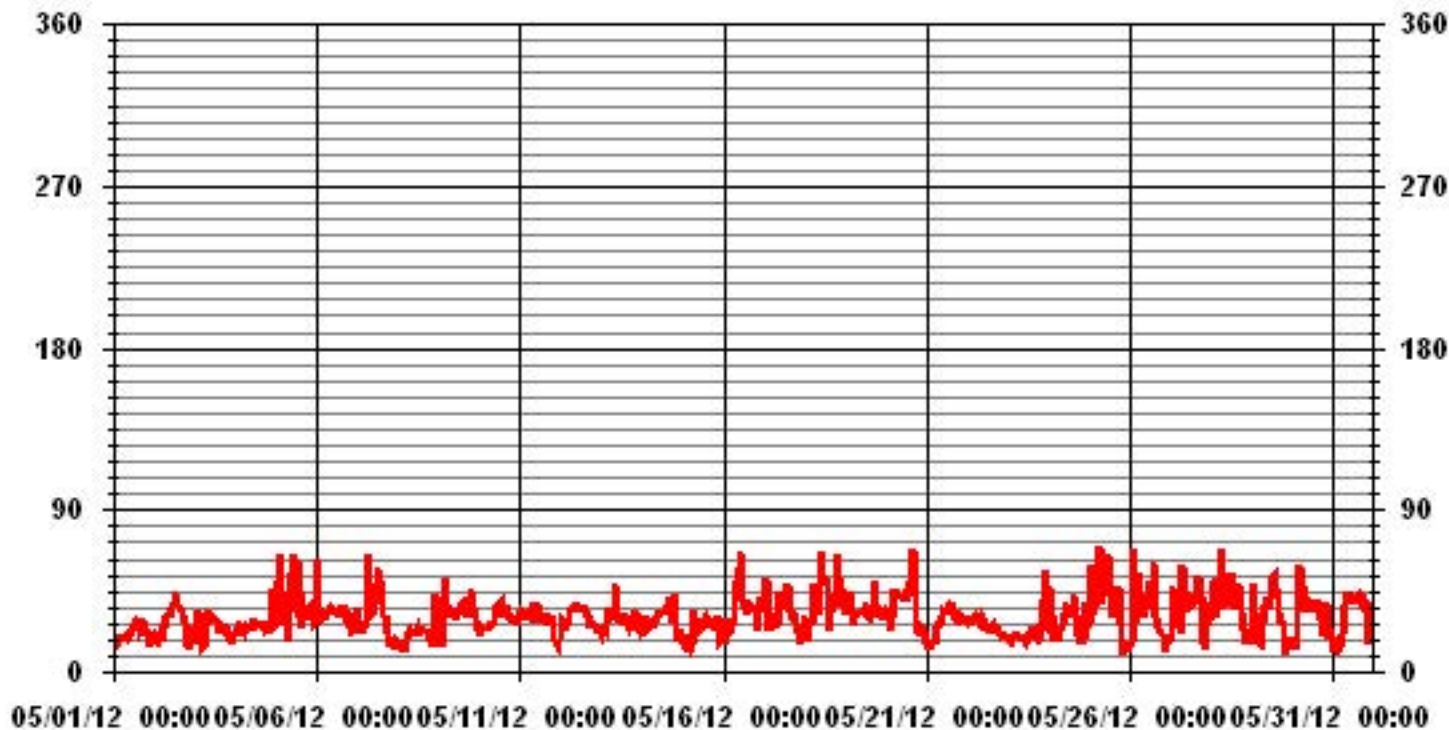
STATUS FLAG CODES

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: December 20, 2011

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 744 HRS

01 Hour Averages



Calibration Reports

Sulphur Dioxide

SO2 Calibration Report

Station Information

Calibration Date	May 11, 2012	Previous Calibration	April 25, 2012
Company	Lakeland Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	7:44	End Time (MST)	11:32
Reason:	Monthly Calibration		
Barometric Pressure	940 mmHg	Station Temperature	24 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 :	508	Method:	Fluorescent
Converter Make / Model:	NA	S/N :	NA		
Calibrator Make / Model:	EnviroNics 6000	S/N :	4760	Method:	Dilution
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Chart Recorder Make / Model:	NA	S/N :	NA		
Flow Meter:	EnviroNics 6000	S/N :	4760		

Analyzer Settings

Before Calibration			After Calibration		
Concentration Range	0 - 1000 ppb				
Sample Flow / Box Temp	592 ccm	33.8 Deg C	592 ccm	32.7 Deg C	
HVPS / Lamp Setting	494	2539	494	2542	
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	1.253	42.2	1.243	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	1	N/A
	No Zero Adj.			
4918	75.5	750	754	0.9946
4918	75.5	750	751	0.9986
4954	40.3	400	396	1.0107
4974	20.2	201	197	1.0184
5020	0	0	1	N/A
Sum of Least Squares				1.0021
New Correction Factor				0.9986

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	1.4	Auto Zero	1.0
Auto Span	385.0	Auto Span	379.0
Sample Lines Connected		Sample Lines Connected	YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9993
Current Correction Factor Before Span Adjust:	0.9946
Percent Change:	0.5%

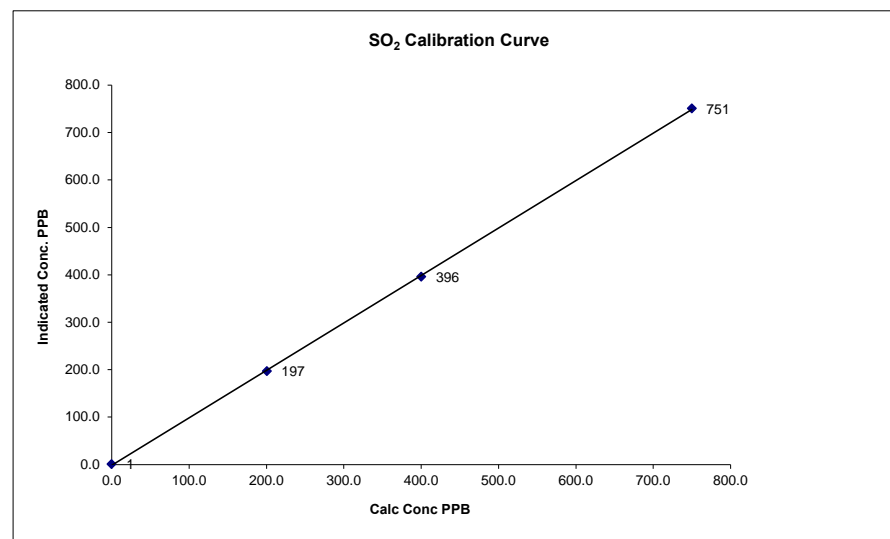
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

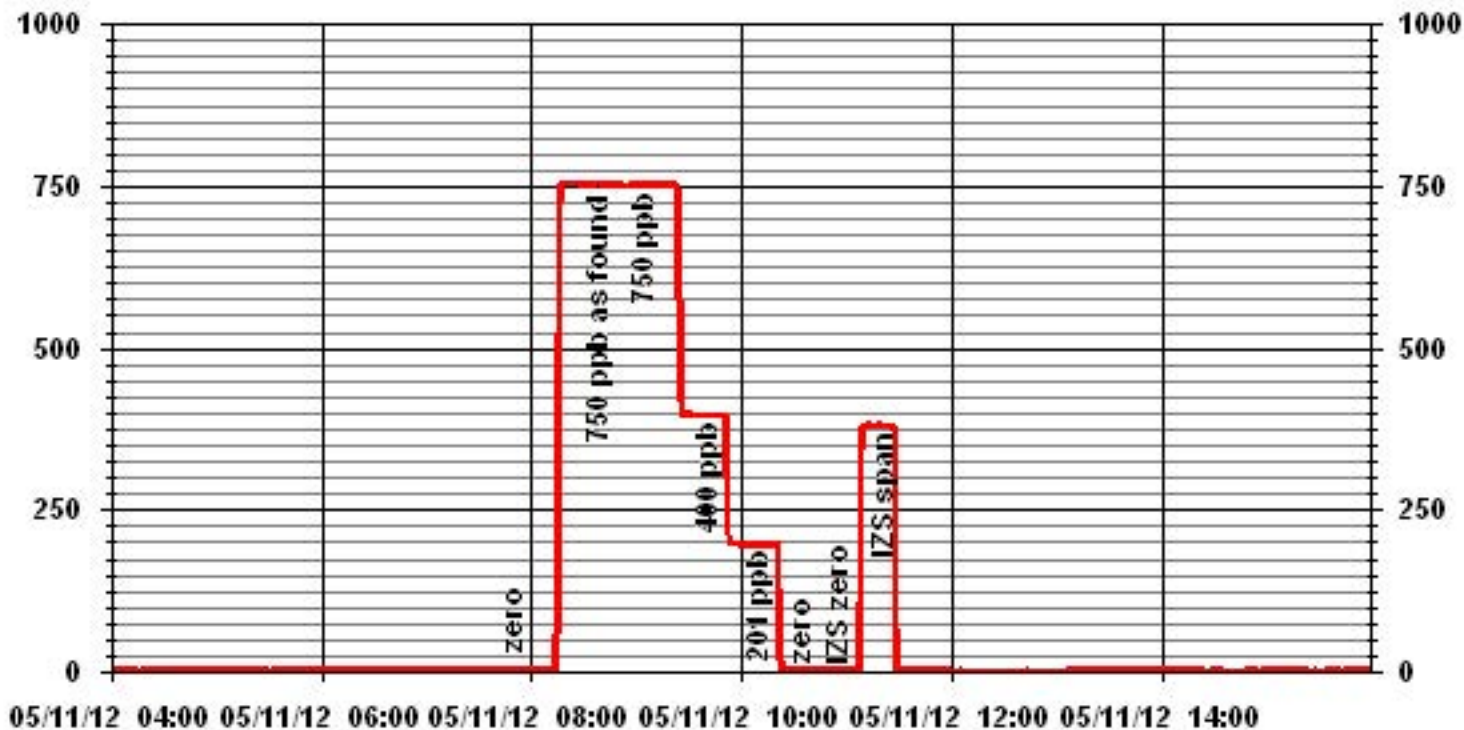
Calibration Date	May 11, 2012
Company	Lakeland Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	7:44
End Time (MST)	11:32

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		0.999921
201	197	1.0184		1.001084
400	396	1.0107		-1.812078
750	751	0.9986		



Notes:

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report
Station Information

Calibration Date	May 11, 2012	Previous Calibration	April 25, 2012
Company	Lakelnad Industry & Community Association		
Plant / Location	Cold Lake - Maskwa		
Start Time (MST)	8:46	End Time (MST)	11:52
Reason:	Monthly Calibration		
Barometric Pressure	940 mBar	Station Temperature	25 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 :	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	0 - 100 ppb	
Sample Flow / Box Temp	471 ccm 32.8 Deg C	470 ccm 34.3 Deg C	
HVPS / Lamp Setting	552 2449	552 2445	
PMT / RxCell Temp	7.9 Deg C 50 Deg C	7.9 Deg C 50 Deg C	
Converter / IZS Temp	314.5 Deg C 45 Deg C	315.3 Deg C 45.0 Deg C	
Offset / Slope	38.2 0.843	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	40.0	80	80	1.0000
	No Span Adj.			
4977	20.0	40	40	1.0000
4986	11.4	23	23	1.0000
4998	0	0	-1	NA
Sum of Least Squares New Correction Factor				0.9996

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	-0.2	Auto Zero	-0.6
Auto Span	60.7	Auto Span	59.7
Sample Lines Connected		Sample Lines Connected	YES

Percent Change

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

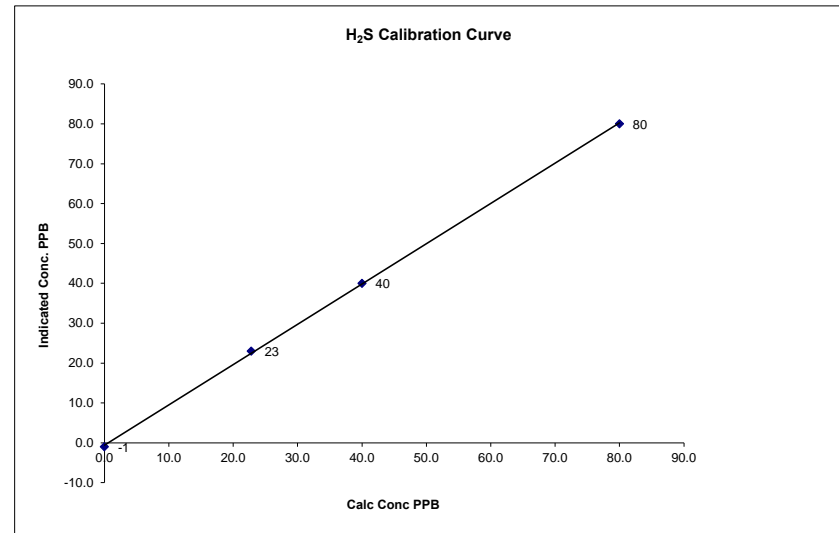
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

H₂S Calibration Curve

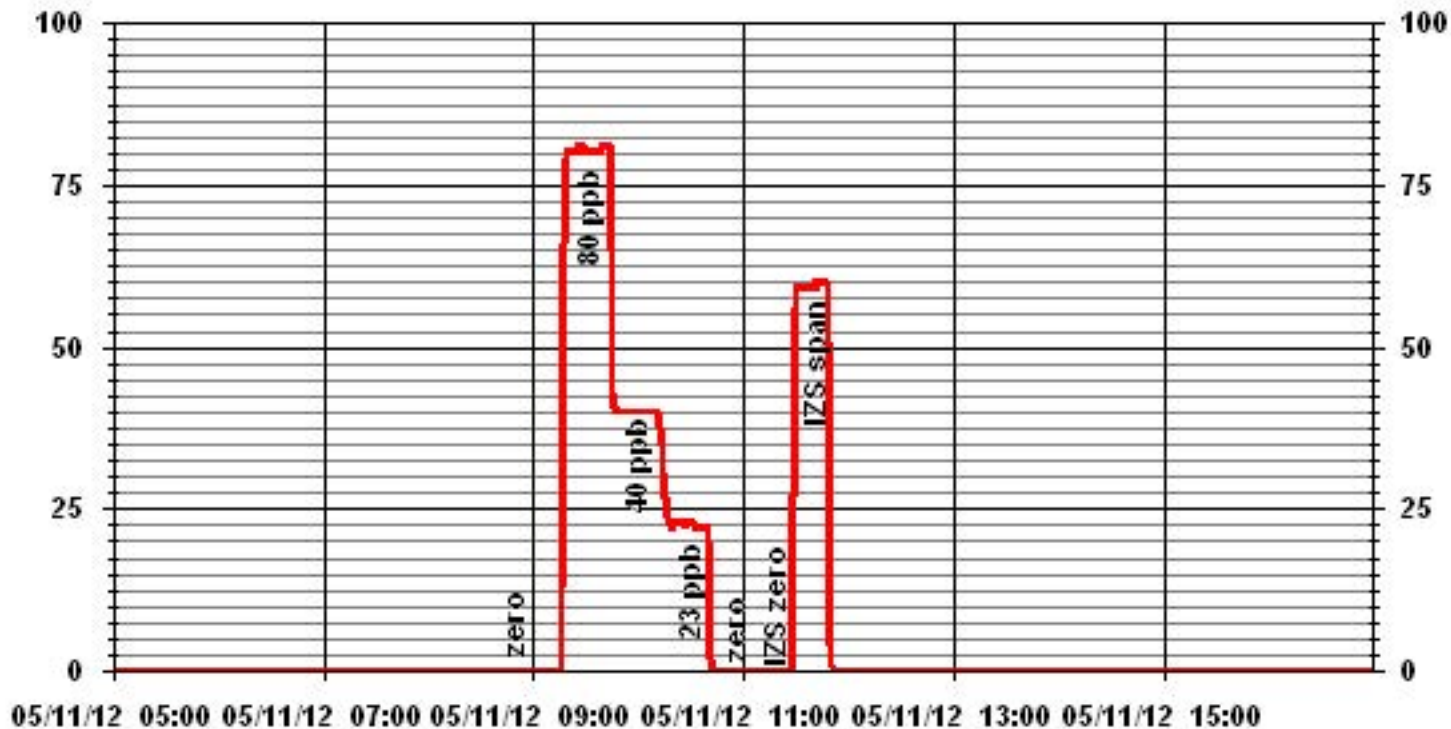
Calibration Date	May 11, 2012
Company	Lakelnad Industry & Community Association
Plant / Location	Cold Lake - Maskwa
Start Time (MST)	8:46
End Time (MST)	11:52

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999845
0	-1		Intercept	(± 3% F.S.)	-0.555217
23	23	0.9918			
40	40	1.0006			
80	80	1.0000			



Notes:

01 Minute Averages



— LICA30 H2S_ PPB

Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	May 11, 2012	Previous Calibration	May 11, 2012
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	Maskwa		
Start Time (MST)	11:16	End Time (MST)	14:32
Reason:	Post Repair Calibration		
Barometric Pressure:	940 mmHg	Station Temperature:	25 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	CH4 600 PPM TOTAL CH4 1161.0 PPM	C3H8 204 PPM Gas Cyl. # LL155310	Cal Gas Expiry Date: September 9, 2013
DAS make & Model:	ESC 8832	S/N :	AO 791
Chart Recorder:	NA	S/N:	NA
Output Voltage Range:	0 - 10 VDC	Chart Speed:	NA mm/hr

Analyzer Information

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

Analyzer Settings

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

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	0.0	NA
	No Zero Adj.			
2000	74.0	41.4	41.6	0.9958
2000	37.0	21.1	21.0	1.0042
2000	20.0	11.5	11.5	1.0000
2000		0.0	0.0	NA
New Correction Factor:				0.9958

Percent Change

Previous Calibration Correction Factor:	-
Current Correction Factor Before Span Adjust:	0.9958
Percent Change:	#VALUE!

IZS Calibration Data

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

Cylinder Pressures			
Span	800 psi	Hydrogen	900 psi
		Zero Air	32 psi

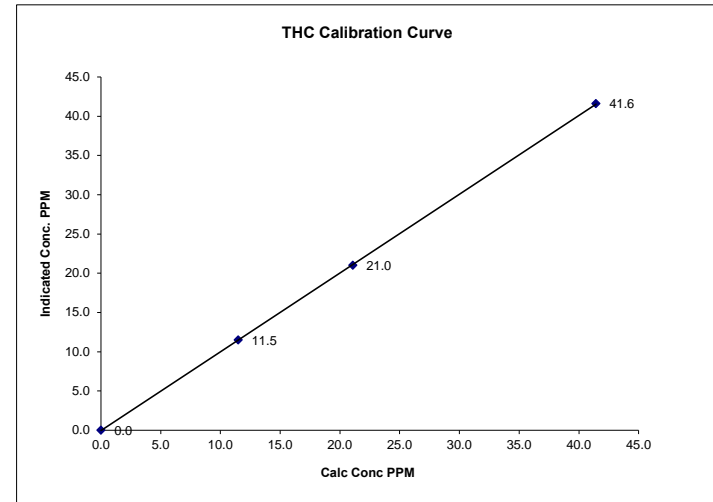
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

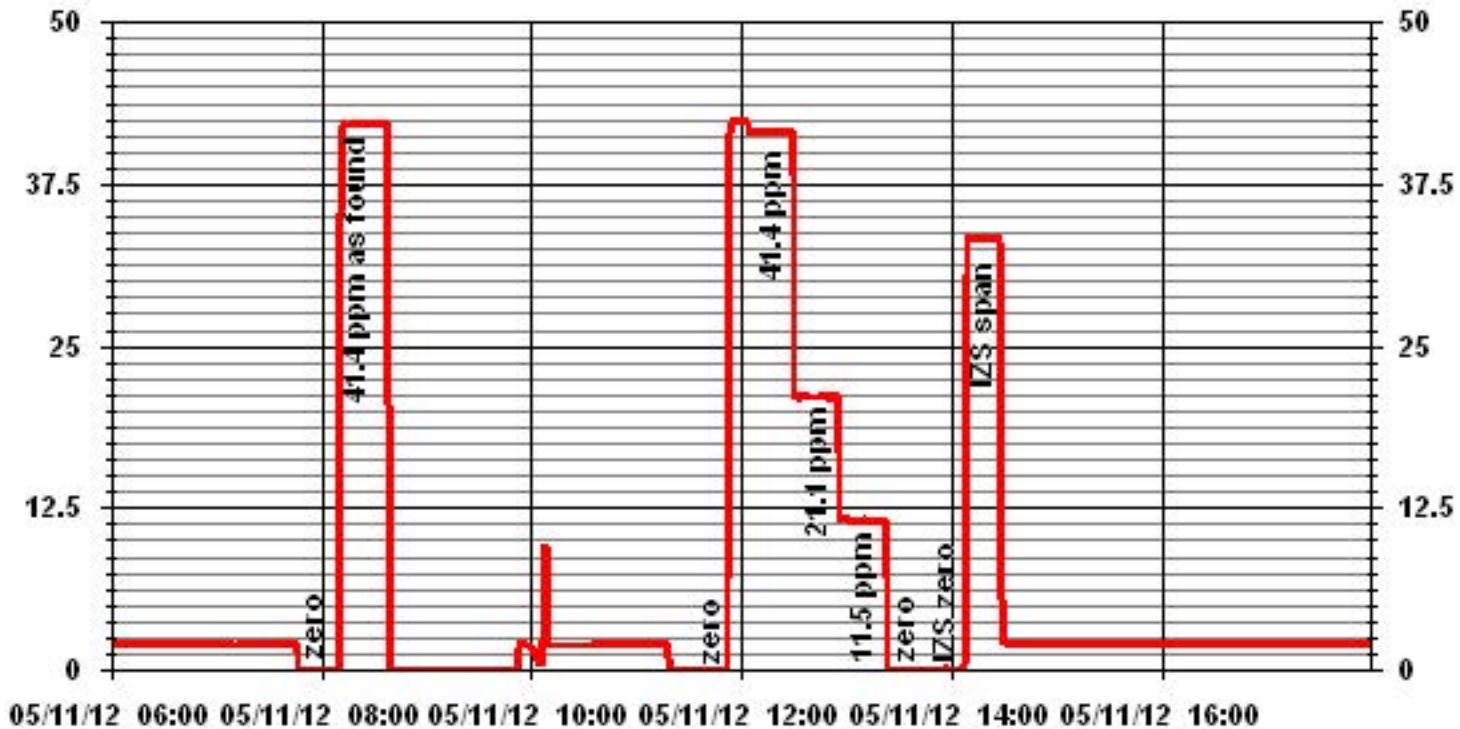
Calibration Date	May 11, 2012		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Maskwa		
Start Time (MST)	11:16	End Time (MST)	14:32

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	0.999977	1.004076	-0.05234
11.5	11.5	0.9996			
21.1	21.0	1.0042			
41.4	41.6	0.9958			



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	May 11, 2012		Previous Calibration		April 25, 2012	
Company	LICA		Plant/Location		Maskwa	
Start Time (MST)	7:44		End Time (MST)		13:49	
Reason:	Monthly Calibration					
Barometric Pressure	940 mBar	Station Temperature	24 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:	API 200E	S/N :	594	Method:	Chemiluminescent
Calibrator Make / Model:	EnviroNics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO 791		
Chart Recorder Make / Model:	Not in use		S/N:	NA	
Flow Meter:	EnviroNics 6100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 1000			ppb			
Sample Flow/Conv. Temp	459 ccm	315 Deg C		469 ccm	314 Deg C		
Ozone Flow / Vacuum	79 ccm	5.4 *Hg-A		79 ccm	5.4 *Hg-A		
HVPS / A ZERO	767 Volts	17.2 MV		767 Volts	17.3 MV		
Rx/ Temp / PMT Temp	50.0 Deg C	6.6 Deg C		50.0 Deg C	6.6 Deg C		
Box Temp / IZS Temp	31.6 Deg C	40.3 Deg C		31.9 Deg C	40.1 Deg C		
Offset	0.9 NOx	0.8 NO		0.9 NOx	0.8 NO		
Slope	1.245 NOx	1.248 NO		1.243 NOx	1.237 NO		
NO2 COEF / Conv Efficiency	NA	0.994		NA	0.994		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4944	0.0	NA	0	0	NA	0	0	0	NA	NA
	No Zero Adj.									
4920	75.5	NA	750	748	NA	752	751	1	0.9969	0.9962
4920	75.5	NA	750	748	NA	751	747	5	0.9982	1.0015
4954	40.3	NA	400	399	NA	399	396	3	1.0031	1.0086
4974	20.2	NA	201	200	NA	201	199	2	1.0000	1.0061
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		
4919	75.5	NA	750	748	NA	756	751	4	NA	NA
	No Adj.									
4919	75.5	600	750	NA	549	754	206	547	1.0037	99.63%
4919	75.5	250	750	NA	234	756	521	234	1.0000	100.00%
4919	75.5	140	750	NA	133	757	622	135	0.9852	101.55%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 0.998	NO= 0.999	NO2= 1.002
				NOx= 0.9982	NO= 1.0015	NO2= 1.0037
				Average Converter Efficiency= 100.39%		

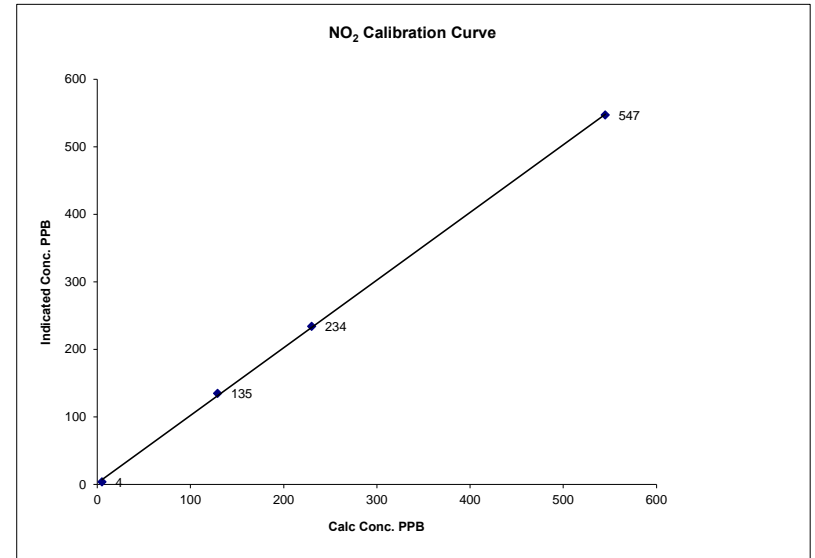
IZS Calibration Data

Before Calibration				After Calibration					
Auto Zero	0.3	NOx	0.7	NO2	-0.4	NOx	0.0	NO2	
Auto Span	633	NOx	621	NO2	623	NOx	612	NO2	
				Sample Lines Connected: YES					
Percent Change from Previous Calibration				NOx	0.2%	NO	0.4%	NO2	0.0%
Notes	NA : Not Applicable								
Calibration Performed by: Ting Xu									

NO2 Calibration Curve

Calibration Date	May 11, 2012	
Company	LICA	
Plant / Location	Maskwa	
Start Time (MST)	7:44	End Time (MST) 13:49

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)	0.999836
5	4	N/A	Intercept		1.001745
129	135	0.9556			2.35343
230	234	0.9829			
545	547	0.9963			

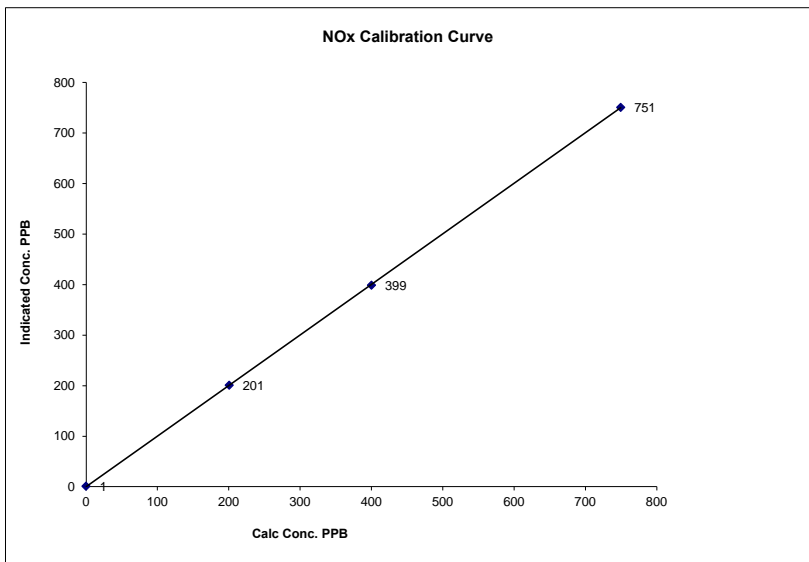


Notes:

NOx Calibration Curve

Calibration Date	May 11, 2012		
Company	LICA		
Plant / Location	Maskwa		
Start Time (MST)	7:44	End Time (MST)	13:49

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999987
0	1	N/A	Slope (0.85 to 1.15)	1.000311
201	201	0.9981	Intercept (± 3% F.S.)	0.27415
400	399	1.0031		
750	751	0.9982		

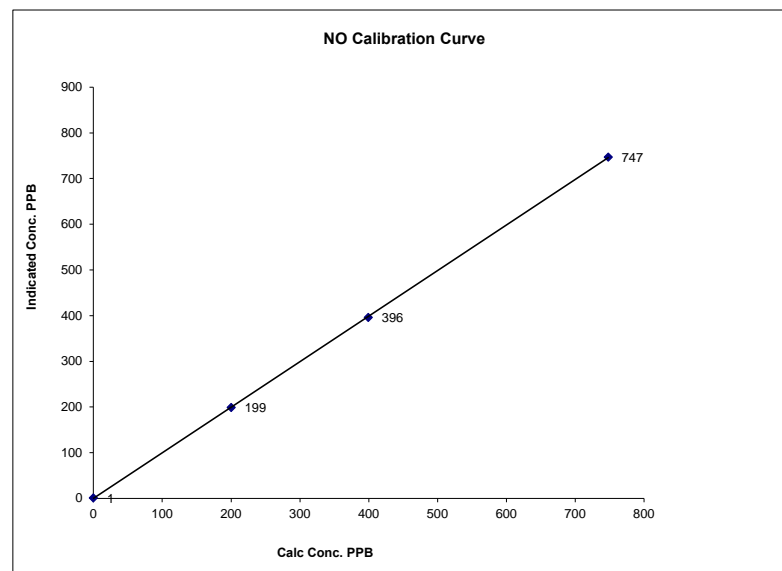


Notes:

NO Calibration Curve

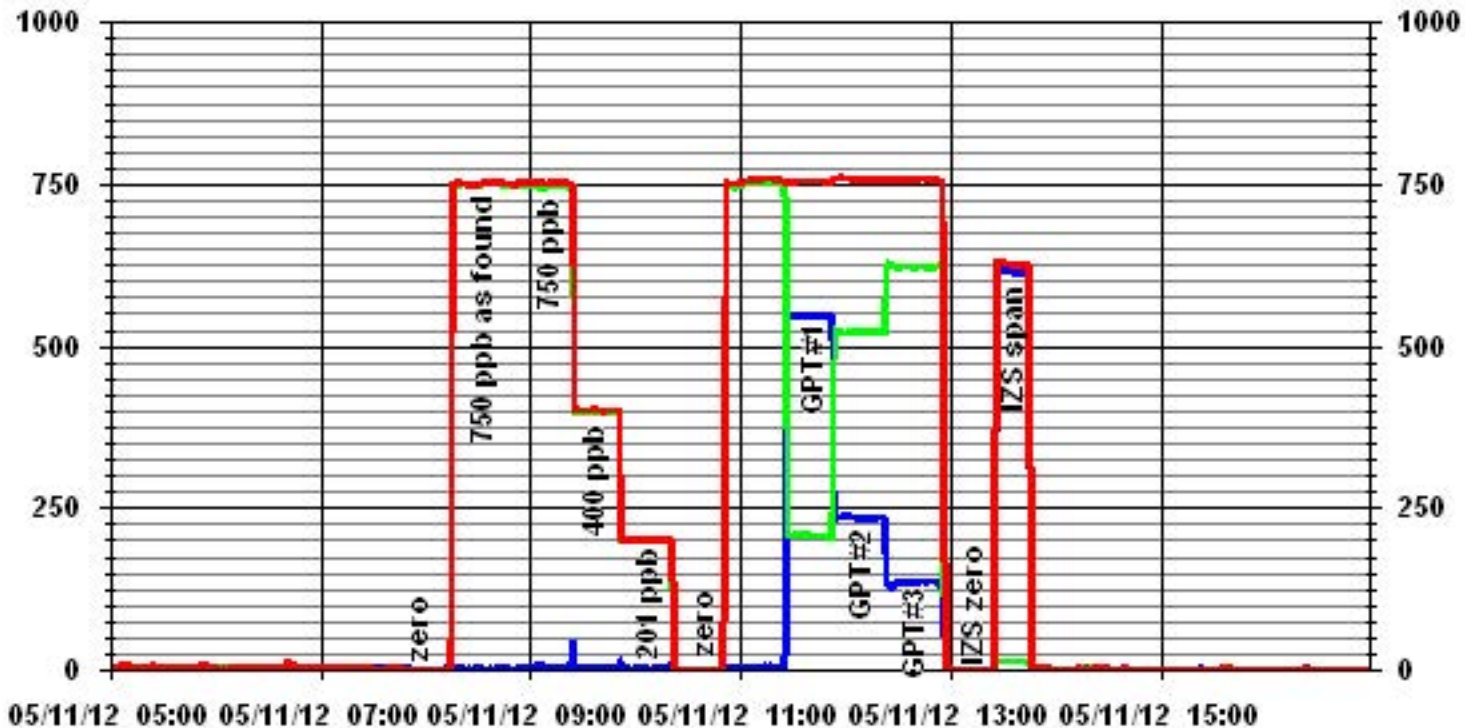
Calibration Date	May 11, 2012		
Company	LICA		
Plant / Location	Maskwa		
Start Time (MST)	7:44	End Time (MST)	13:49

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999975
0	1	N/A	Slope (0.85 to 1.15)	1.000890
200	199	1.0061	Intercept (± 3% F.S.)	-6.0623
399	396	1.0086		
748	747	1.0015		



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

May 2012

Prepared By:



June 21, 2012

Lakeland Industry & Community Association Portable / Elk Point Airport Ambient Air Monitoring

Table of Contents

	Page		Page
Introduction	3	Volatile Organics	89
Calibration Procedure	4	Polycyclic Aromatic Hydrocarbons	92
Monthly Continuous Summary	5	Calibration Reports	96
Volatile Organics Data Summary	6	• Sulphur Dioxide	97
Polycyclic Aromatic Hydrocarbons Data Summary	7	• Hydrogen Sulphid	101
General Monthly Summary	8	• Total Hydrocarbons	104
Continuous Monitoring	12	• Particulate Matter 2.5	109
• Monthly Summaries, Graphs & Wind Roses	13	• Nitrogen Dioxide	111
○ Air Quality Index	14	• Ozone	117
○ Sulphur Dioxide	16	Volatile Organics Laboratory Analysis	120
○ Hydrogen Sulphide	24	Polycyclic Aromatic Hydrocarbons Laboratory Analysis	186
○ Particulate Matter 2.5	32		
○ Nitrogen Dioxide	37		
○ Nitric Oxide	45		
○ Oxides of Nitrogen	52		
○ Ozone	60		
○ Total Hydrocarbons	68		
○ Vector Wind Speed	76		
○ Vector Wind Direction	83		
○ Standard Deviation Wind Direction	86		

Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Portable / Elk Point Airport
Data Period: May 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 – May 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	0.03	2	8, 9	22, 9	11.6, 24.7	133(SE), 342(NNW)	0.9	8	97.8
H ₂ S (PPB)	10	3	0	0	0.06	2	8	8	17.7	185(S)	0.6	8	98.1
THC (PPM)	-	-	-	-	2.46	7.0	26	4, 5	1.4, 1.4	180(S), 104(ESE)	3.4	26	99.2
NO ₂ (PPB)	159	-	0	-	3.16	15	13, 18	VAR	VAR	VAR	6.2	9	99.3
NO (PPB)	-	-	-	-	0.35	12	26	5	1.4	104(ESE)	1.4	26	99.3
NO _x (PPB)	-	-	-	-	3.52	22	26	5	1.4	104(ESE)	6.9	26	99.3
O ₃ (PPB)	82	-	0	-	37.56	62	9	10, 12	21.2, 20.2	352(N), 346(NNW)	48.8	6	98.1
PM 2.5 (UG/M ³)	-	30	-	0	6.56	35.2	19	13	30.7	300(WNW)	11.6	15	50.5
VECTOR WS (KPH)	-	-	-	-	13.34	42.6	14	9	-	318(NW)	21.7	11	99.9
VECTOR WD (DEGREES)	-	-	-	-	347(NNW)	-	-	-	-	-	-	-	99.9

VAR-VARIOUS

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

Xontech Model 910A – May 03, 2012

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

Xontech Model 910A – May 09, 2012

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

Xontech Model 910A – May 15, 2012

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

Xontech Model 910A – May21, 2012

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

Xontech Model 910A – May 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 – May 03, 2012

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

PUF cartridge – May 09, 2012

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

PUF cartridge – May 15, 2012

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

PUF cartridge – May 21, 2012

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

PUF cartridge – May 27, 2012

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

General Monthly Summary

Equipment Operation

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

AQM STATION – LICA – PORTABLE

Sulphur Dioxide (PPB)

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

The analyzer did not function properly for 12 hours after a power failure on May 8th. A daily zero/span check was run on May 9th to ensure the analyzer's functionality. The check result was within the acceptable range. The exhausting pump was rebuilt following the as found points check on May 9th. The UV lamp was also peaked on the same day. A post-repair calibration was then performed. The inlet filter was replaced before the post-repair calibration was started on May 9th. Data was corrected using daily zero information.

Hydrogen Sulphide (PPB)

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

The analyzer did not function properly for 12 hours after a power failure on May 8th. A daily zero/span check was run on May 9th to ensure the analyzer's functionality. The check result was within the acceptable range. The inlet filter was replaced before the monthly calibration was started on May 9th. Data was corrected using daily zero information.

THC (PPM)

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

Hourly data at hour 9 on May 8th was invalidated due to a power failure. Hourly data at hour 10 and 11 were also invalid because the analyzer was recovering from the power failure. A daily zero/span check was run on May 9th to ensure the analyzer's functionality. The check result was within the acceptable range. The inside pump was rebuilt following the as found points check on May 9th. A post-repair calibration was performed on May 10th. The inlet filter was replaced before the post-repair calibration was started. Data was corrected using daily zero information.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Nitrogen Dioxide (PPB)

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

No operational issues were observed this month. Hourly data at hour 9 on May 8th was invalidated due to a power failure. Hourly data at hour 10 was also invalid because the analyzer was recovering from the power failure. A daily zero/span check was run on May 9th to ensure the analyzer's functionality. The check result was within the acceptable range. The inlet filter was replaced before the monthly calibration was started on May 9th. The analyzer spanned low on May 18th due to the permeation tube depleting. The perm tube was replaced following the as found points check on May 18th. Data was corrected using daily zero information.

Ozone (PPB)

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

The analyzer did not function properly for 12 hours after a power failure on May 8th. A daily zero/span check was run on May 9th to ensure the analyzer's functionality. The check result was within the acceptable range. The inlet filter was replaced before the monthly calibration was started on May 9th. 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 between May 1st and May 15th at hour 12 as the Teom unit was removed from the trailer and sent to the manufacturer for repair on March 15th. The Teom unit was put back to the service on May 15th. A Teom audit and a leak check were performed after the unit installation. Data was corrected using Alberta air quality guideline for PM2.5 analyzer. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. 19 hours of data were invalidated as they were below –3.0 ug/m³. The operational uptime for the month was 50.5%.

General Monthly Summary

AQM STATION – LICA – PORTABLE

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.

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

A field camera was installed and mounted on the wind tower on May 15th. The manifold was cleaned on May 17th.

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. Fifty-three AQI values recorded in May 2012 were within the Fair range: Fifty-two were due to ozone and one was due to PM2.5. All others were within the Good range. The highest AQI value of Ozone was 32, on May 30th, hour 16. The highest AQI value of PM2.5 was 28 at hour 13 on March 19th.

General Monthly Summary

AQM STATION – LICA – PORTABLE

Volatile Organics (VOCs)

The volatile organics were sampled from May 3rd to May 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.

Polycyclic Aromatic Hydrocarbons (PAHs)

The PAHs scheduled to be sampled from May 3rd to May 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.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLESITE - Elk Point Airport

MAY 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																											
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		03_	NA	03_	03_	03_	PM2	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_
17		NA	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	NA	03_	NA	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	NA	03_
18		03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_
19		8	13	13	11	-	12	14	16	16	18	18	-	19	28	19	19	-	18	18	17	15	-	12	11	28	
20		03_	03_	03_	03_	NA	03_	03_	03_	03_	03_	03_	NA	03_	PM2	03_	03_	NA	03_	03_	03_	03_	03_	03_	03_	03_	PM2
21		03_	NA	NA	03_	03_	PM2	03_	03_	03_	03_	03_	NA	03_	NA	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_
22		03_	03_	03_	03_	03_	PM2	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_
23		03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_
24		8	9	8	5	6	12	16	21	22	-	22	22	-	23	-	-	24	24	24	24	24	21	18	14	16	24
25		03_	03_	03_	PM2	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_
26		8	9	6	11	10	6	6	8	18	23	24	25	25	26	-	28	28	28	28	28	24	21	19	14	13	28
27		03_	PM2	PM2	PM2	PM2	PM2	PM2	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_
28		03_	03_	03_	PM2	03_	PM2	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_
29		11	10	10	7	6	10	11	13	17	21	-	28	28	28	27	28	27	27	27	24	20	21	20	21	28	
30		03_	03_	PM2	03_	PM2	03_	PM2	03_	03_	03_	03_	NA	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_
31		03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_
PEAK		21	21	21	18	22	25	24	25	26	26	27	27	28	29	29	31	32	28	28	25	24	22	23	23	23	
		03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_	03_

STATUS FLAG CODES NA - NOT APPLICABLE

V - VARIOUS

AQI CLASS	OZONE (O ₃)					PARTICULATE MATTER 2.5 (PM2)					NITROGEN DIOXIDE (NO ₂)					SULPHUR DIOXIDE (SO ₂)					FREQUENCY	
	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	52	7.0%	32	16	30	1	0.1%	28	13	19	0	0.0%	-	-	-	0	0.0%	-	-	-	53	7.1%
GOOD (1-25)	272	36.6%	-	-	-	27	3.6%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	299	40.2%
OVERALL	324	43.5%	-	-	-	28	3.8%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	352	47.3%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	392	52.7%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE SITE

MAY 2012

SULPHUR DIOXIDE (SO₂) 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	23:00	DAILY MAX.	24-HOUR AVG.	RDGS.
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0.0	24
2	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
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0.0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
5	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
6	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
7	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.0	24
8	0	1	1	0	1	1	1	1	1	P	N	N	N	N	N	N	N	N	N	N	N	N	2	1	2	0.9	11	
9	0	0	0	0	0	0	C	0	IZS	2	C	C	M	M	1	C	C	C	C	0	0	0	0	0	0	2	0.2	22
10	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
11	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
12	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
13	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
14	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
15	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
16	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
17	IZS	0	0	0	0	0	0	0	0	0	0	M	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	23
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	IZS	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	IZS	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	IZS	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	IZS	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	IZS	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	IZS	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	IZS	0	0	0	0	0	0	0	0	0	0	0.0	24
26	0	0	0	0	0	0	0	0	1	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	1	0.0	24
27	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
28	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
29	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
30	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
31	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	0.1	24
HOURLY MAX	0	1	1	0	1	1	1	1	1	2	0	0	0	0	1	0	0	1	1	1	0	0	2	1				
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

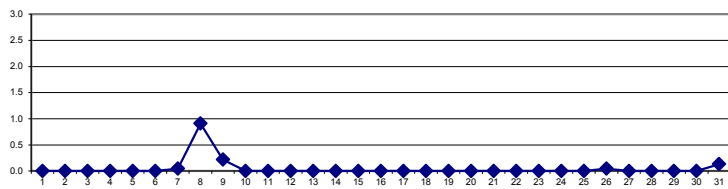
OBJECTIVE LIMIT:

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

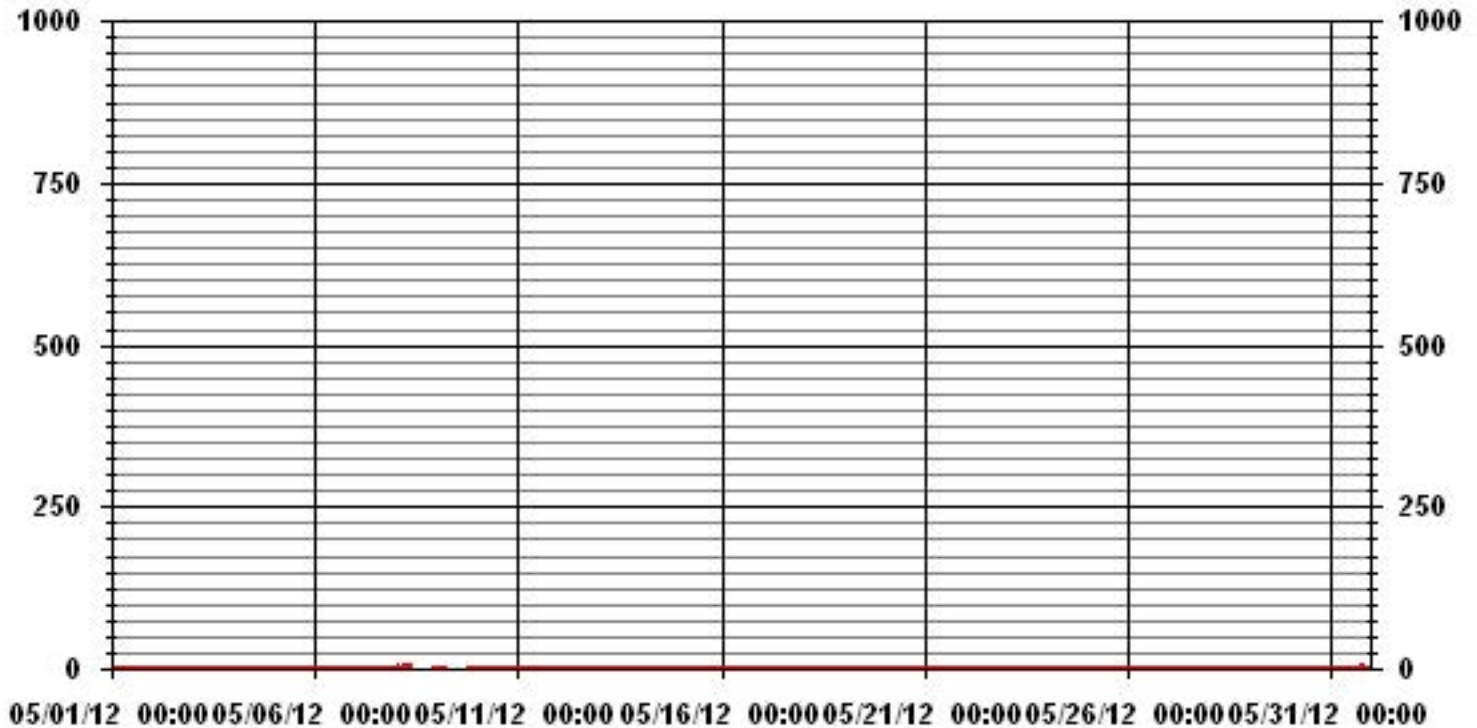
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	16
MAXIMUM 1-HR AVERAGE:	2 PPB @ HOUR(S) 22, 9 ON DAY(S) 8, 9
MAXIMUM 24-HR AVERAGE:	0.9 PPB ON DAY(S) 8
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	7 HRS
STANDARD DEVIATION:	0.18
OPERATIONAL TIME:	728 HRS
AMD OPERATION UPTIME:	97.8 %
MONTHLY AVERAGE:	0.03 PPB

24 HOUR AVERAGES FOR MAY 2012



01 Hour Averages



— LICA35 SO2_ PPB

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

MAY 2012

SULPHUR DIOXIDE MAX instantaneous maximum in ppb

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0.3	24
2	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0.6	24
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	1	1	0.3	24
4	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
5	1	1	1	0	1	1	0	0	1	0	1	0	1	0	1	0	1	1	0	0	0	0	0	0	0	1	0.4	24
6	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	24
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1.2	24
8	2	2	2	2	2	2	2	2	P	P	N	N	N	N	N	N	N	N	N	N	N	N	N	3	2	3	2.1	10
9	2	1	1	1	1	1	C	1	IZS	C	C	M	M	C	C	C	C	C	C	1	1	1	1	1	1	2	1.1	22
10	1	1	1	0	0	1	0	IZS	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0.3	24
11	0	0	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.2	24
12	0	0	0	0	0	IZS	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	0.2	24
13	0	0	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	0.3	24	
14	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
15	0	2	IZS	0	0	0	1	0	0	0	0	0	0	8	0	0	0	1	1	0	1	1	1	1	1	8	0.7	24
16	1	IZS	1	0	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0.8	24
17	IZS	1	1	1	1	0	1	3	1	0	1	M	0	0	0	1	1	1	0	1	1	1	1	1	IZS	3	0.8	23
18	1	0	1	1	1	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0.1	24
20	1	1	1	1	1	4	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	4	1.1	24
21	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	1	1	IZS	1	1	1	1	1	0.3	24
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	1	0.8	24
23	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
24	1	1	1	0	1	1	1	1	0	0	1	1	1	1	0	1	IZS	0	0	0	0	1	0	1	1	1	0.6	24
25	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	IZS	0	0	1	0	0	0	0	0	1	0.1	24
26	0	0	0	0	0	0	0	1	2	2	1	1	1	1	1	IZS	0	1	1	0	0	0	0	0	0	2	0.5	24
27	0	0	0	0	0	1	0	1	1	1	1	1	0	IZS	1	1	2	1	1	1	1	1	1	1	1	2	0.7	24
28	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	2	2	1.0	24
29	0	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4	24
30	0	0	0	0	0	0	0	3	0	0	IZS	0	1	3	1	1	1	1	1	1	1	1	1	1	1	3	0.7	24
31	1	1	1	1	1	1	2	1	2	IZS	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	2	1.3	24
HOURLY MAX	2	2	2	2	2	4	2	3	2	2	2	1	1	8	1	1	2	2	2	2	2	2	3	2				
HOURLY AVG	0.5	0.6	0.7	0.5	0.6	0.7	0.5	0.7	0.6	0.4	0.6	0.4	0.4	0.8	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.6			

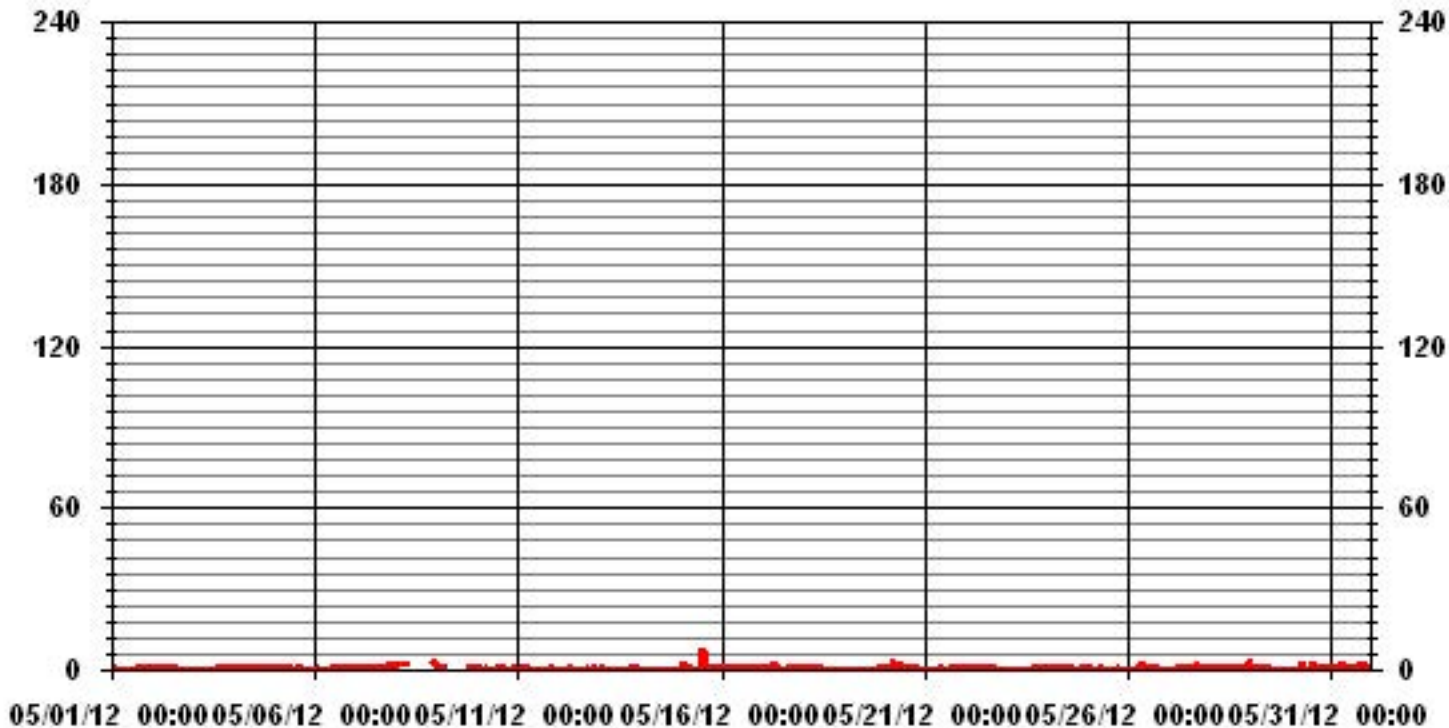
STATUS FLAG CODES

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:	359					
MAXIMUM INSTANTANEOUS VALUE:	8	PPB	@ HOUR(S)	13	ON DAY(S)	15
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	727 HRS		
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	0.67					

01 Hour Averages



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

May 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	4.78	3.33	4.63	5.94	8.69	10.72	11.01	5.50	3.04	1.15	1.15	2.17	8.84	13.33	7.68	7.97	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	4.78	3.33	4.63	5.94	8.69	10.72	11.01	5.50	3.04	1.15	1.15	2.17	8.84	13.33	7.68	7.97		

Calm : .00 %

Total # Operational Hours : 690

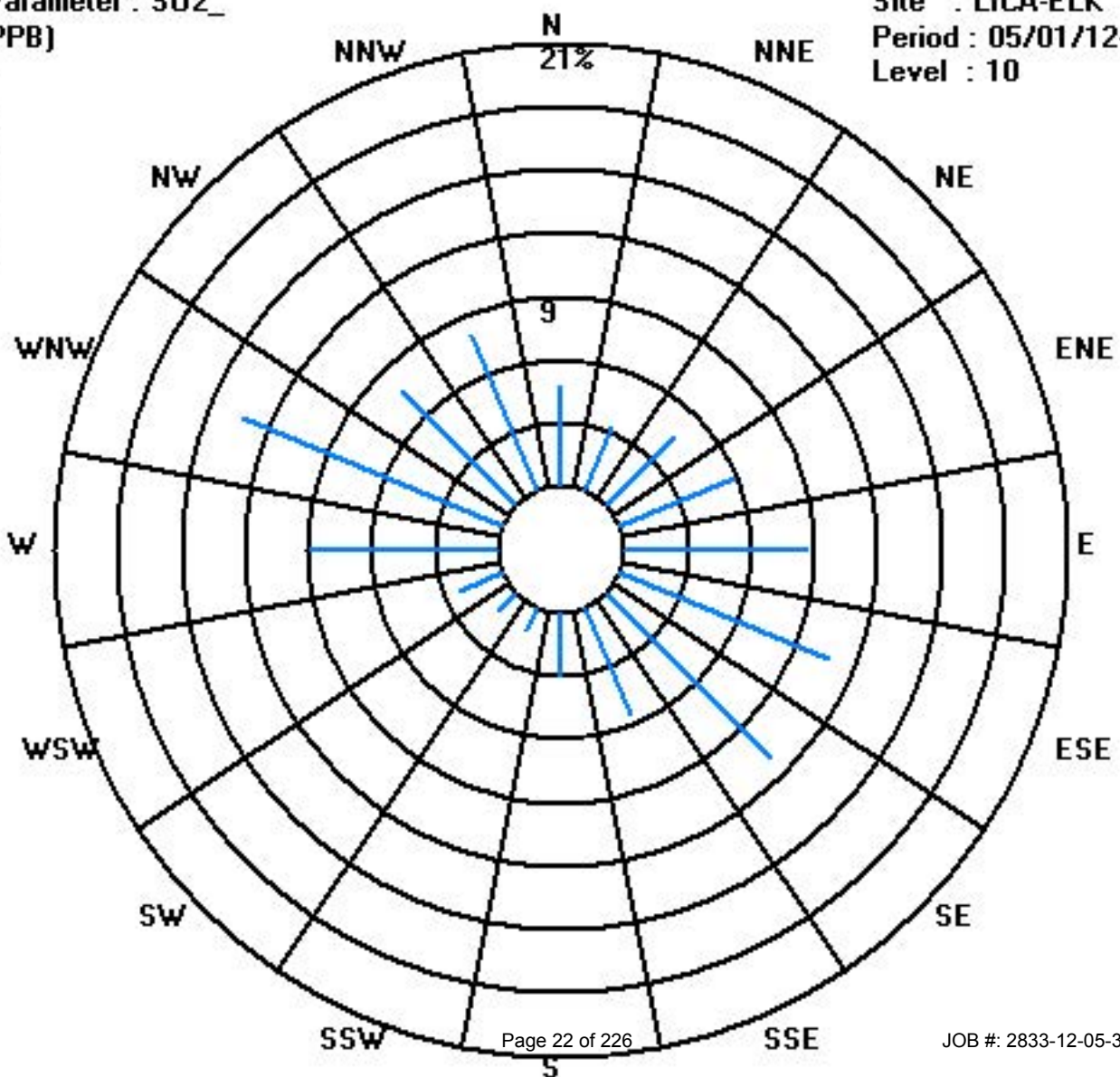
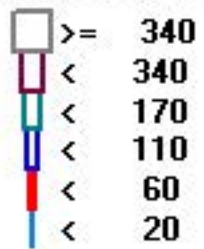
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	33	23	32	41	60	74	76	38	21	8	8	15	61	92	53	55	690
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	33	23	32	41	60	74	76	38	21	8	8	15	61	92	53	55	

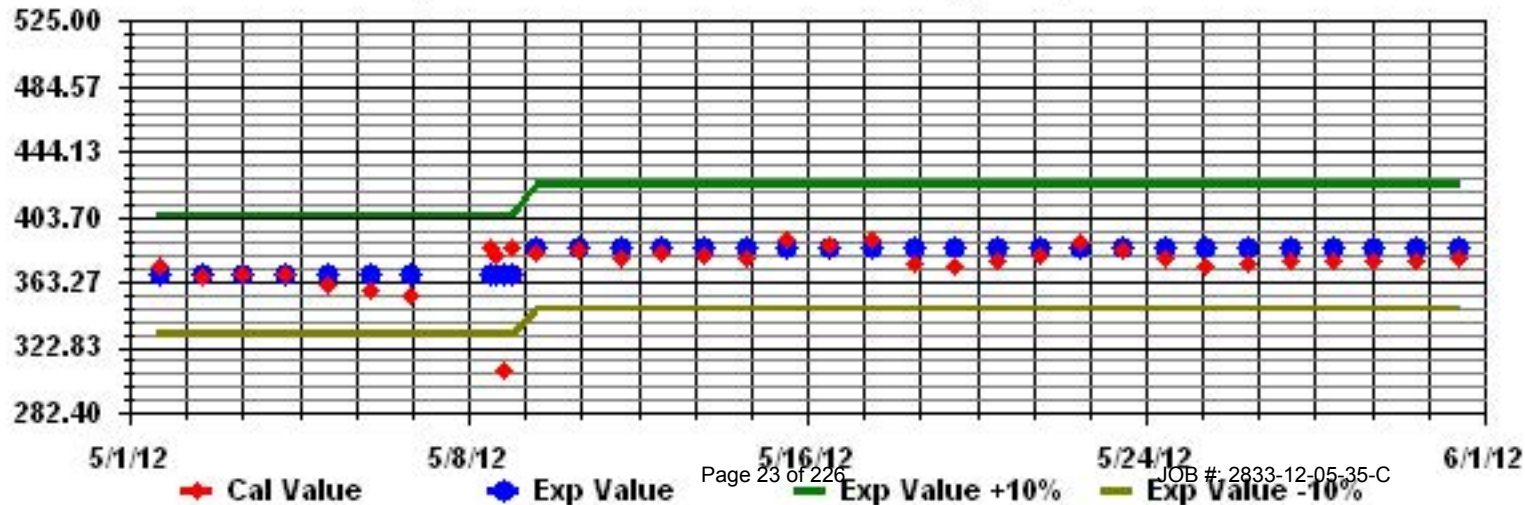
Calm : .00 %

Total # Operational Hours : 690

Class Limits (PPB)



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - PORTABLE - Elk Point Airport

MAY 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	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		0	0	0	0	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	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	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	24
5		0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	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	0.3	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	24
8		1	0	0	1	1	1	1	0	2	P	N	N	N	N	N	N	N	N	N	N	N	N	N	0	2	0.6	11
9		0	0	0	0	0	0	C	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	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	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	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	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	24
16		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	24
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	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	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	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	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	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	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	24
29		1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	24
30		0	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	24
31		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
HOURLY MAX		1	0	1	1	1	1	1	1	2	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	
HOURLY AVG		0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0		

STATUS FLAG CODES

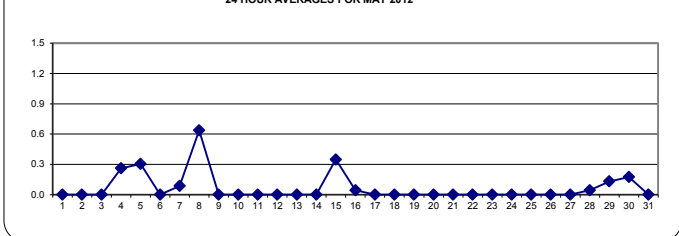
S - OUT OF SERVICE	IZS - IZS - DAILY ZERO/SPAN CHECK
N - INVALID DATA	M - MAINTENANCE
D - INSTRUMENT DRIFT	P - POWER FAILURE
C - CALIBRATION	NA - NOT APPLICABLE

OBJECTIVE LIMIT: ALBERTA ENVIRONMENT: 1-HR 10 PPB | 24-HR 3 PPB

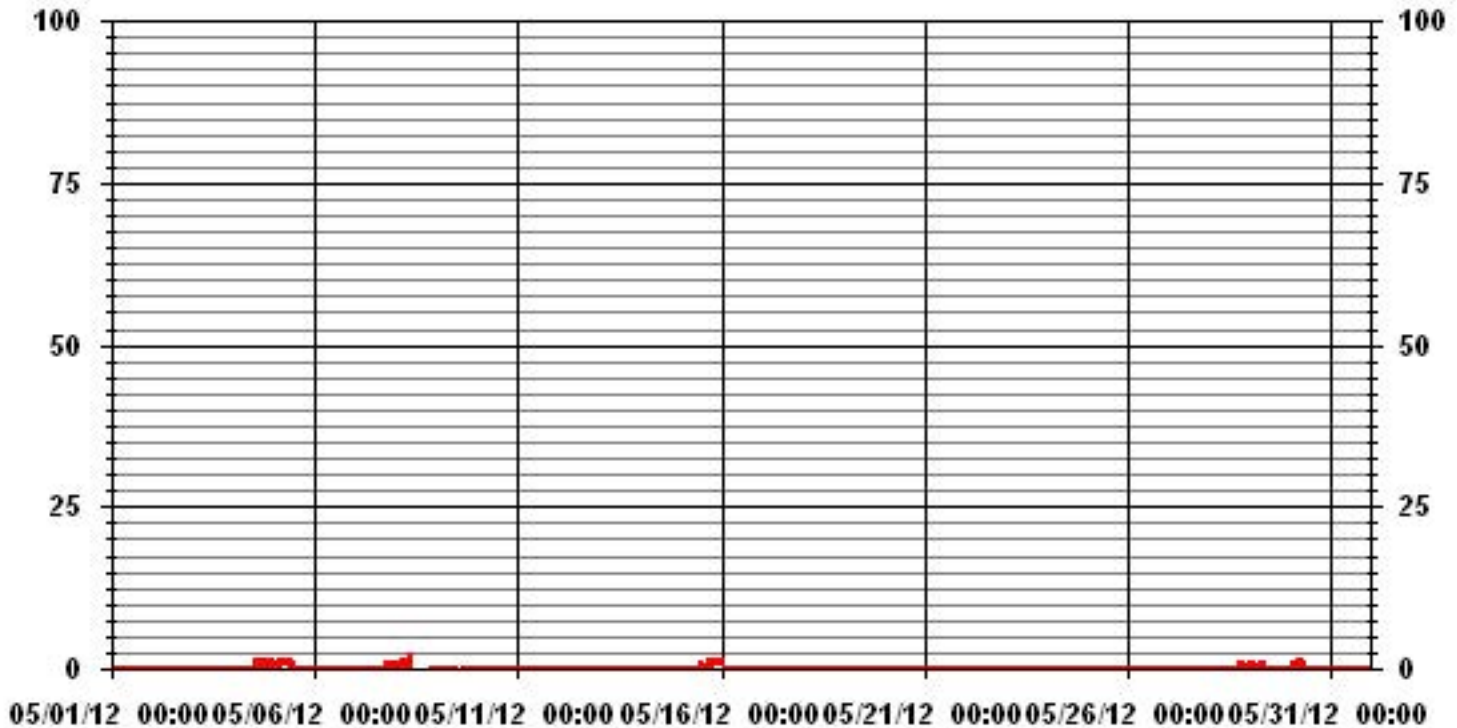
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0		
NUMBER OF 24-HR EXCEEDENCES:	0		
NUMBER OF NON-ZERO READINGS:	38		
MAXIMUM 1-HR AVERAGE:	2	PPB	@ HOUR(S) 8 ON DAY(S) 8
MAXIMUM 24-HR AVERAGE:	0.6	PPB	ON DAY(S) 8
	VAR-VARIOUS		
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME: 730 HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME: 98.1 %
STANDARD DEVIATION:	0.24		MONTHLY AVERAGE: 0.06 PPB

24 HOUR AVERAGES FOR MAY 2012



01 Hour Averages



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

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

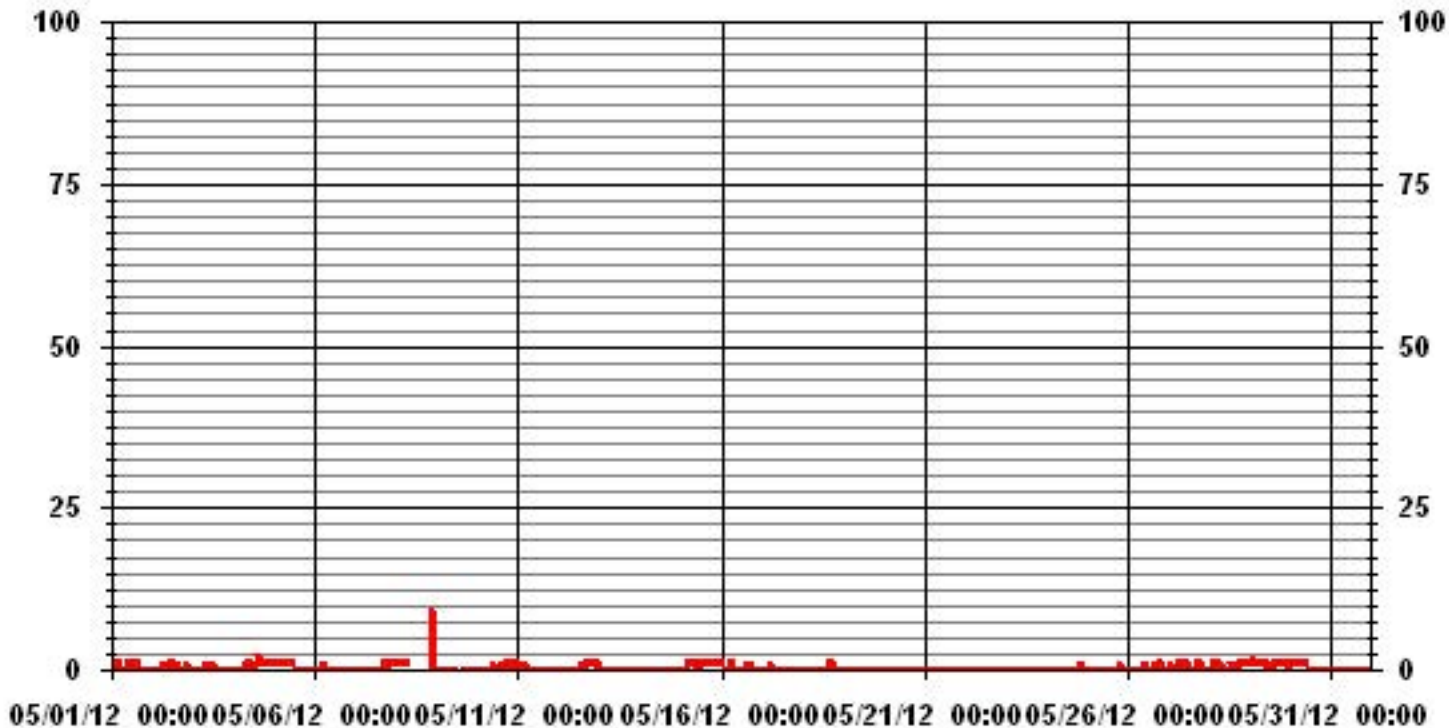
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	159					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	14, 2	ON DAY(S)	4, 29
	VAR - VARIOUS					
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	729 HRS		
MONTHLY CALIBRATION TIME:	6 HRS					
STANDARD DEVIATION:	0.43					

01 Hour Averages



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

May 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	4.89	3.31	4.61	5.90	8.64	10.66	11.09	5.47	3.02	1.15	1.15	2.16	8.78	13.25	7.63	8.21	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	4.89	3.31	4.61	5.90	8.64	10.66	11.09	5.47	3.02	1.15	1.15	2.16	8.78	13.25	7.63	8.21	

Calm : .00 %

Total # Operational Hours : 694

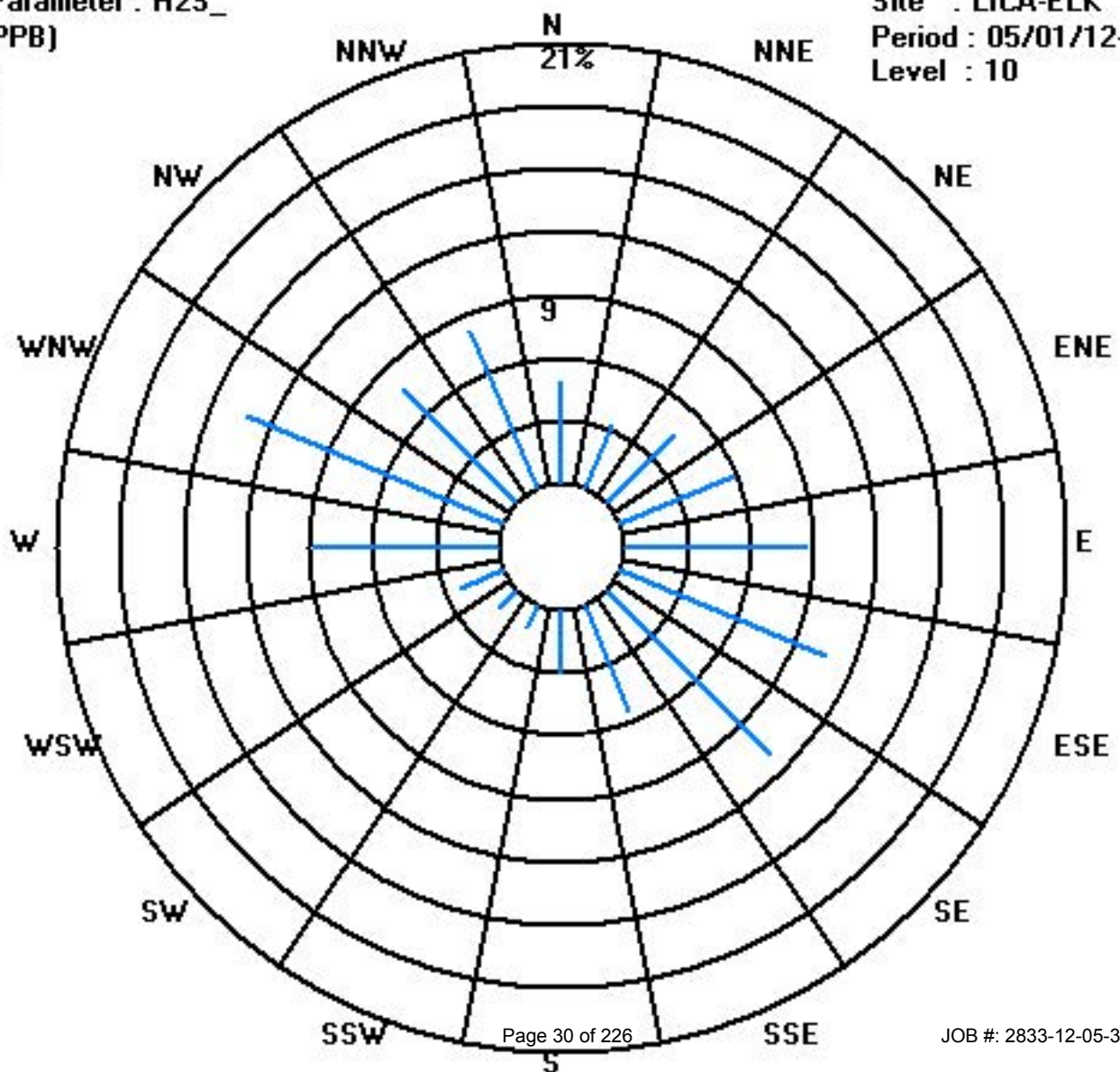
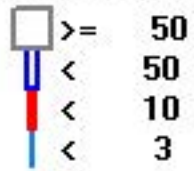
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	34	23	32	41	60	74	77	38	21	8	8	15	61	92	53	57	694
< 10																	
< 50																	
>= 50																	
Totals	34	23	32	41	60	74	77	38	21	8	8	15	61	92	53	57	

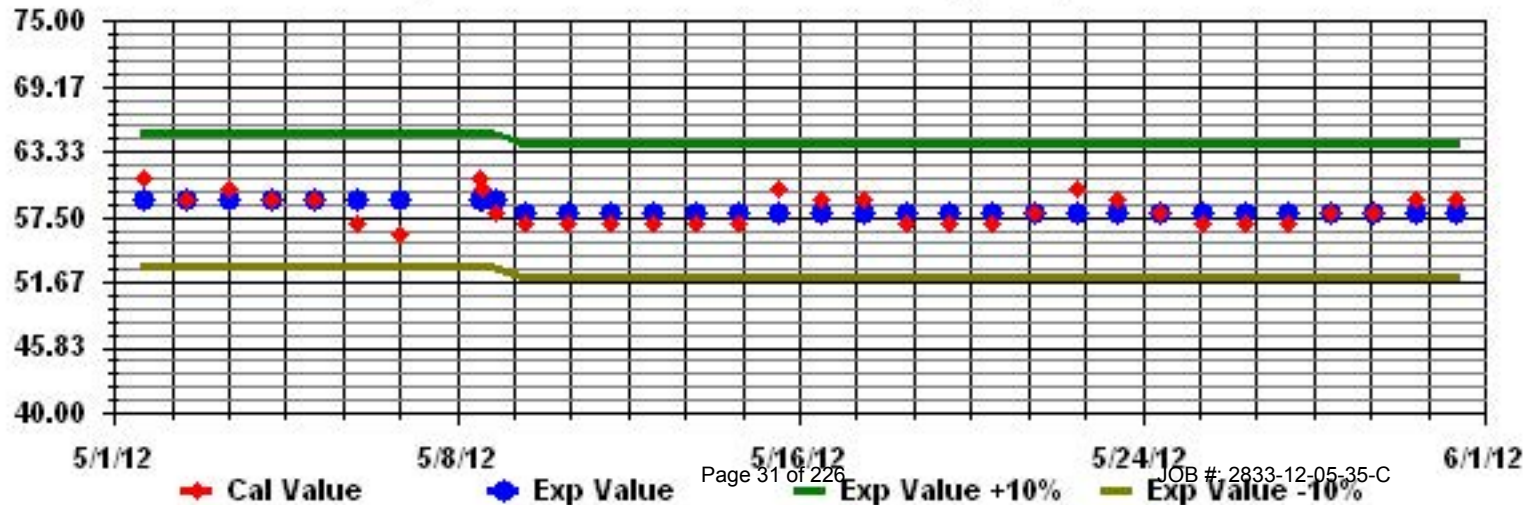
Calm : .00 %

Total # Operational Hours : 694

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 Point Airport

MAY 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		
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	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	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	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	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	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	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	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	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	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	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	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	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	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	N			0
15	N	N	N	N	N	N	N	N	N	N	N	N	N	M	C	C	21.2	8.8	15.2	7.7	5.7	9.7	12.7	15.8	7.3	21.2	11.6			11
16	8.8	4.8	7.8	14.8	12.8	17.8	10.3	2.2	17.8	18.7	2.7	25.7	23.7	8.2	2.7	17.7	12.7	4.8	9.7	3.7	0.8	9.7	5.8	5.3	25.7	10.4			24	
17	6.3	4.3	11.8	4.8	6.2	8.3	6.8	6.2	0	23.7	3.2	3.7	6.7	N	1.2	0	0.2	3.7	3.7	3.8	0	5.3	4.8	9.3	23.7	5.4			23	
18	6.8	0	0	0.8	0.8	3.8	0.8	2.8	3.8	N	0.8	2.8	3.2	3.7	3.2	6.7	3.7	9.2	3.7	6.2	6.7	7.7	10.2	9.7	10.2	4.2			23	
19	3.7	4.7	5.2	0	N	6.2	5.2	4.2	0.2	12.7	1.7	N	0	35.2	18.2	9.2	N	0.7	3.2	4.2	0.7	6.7	1.2	3.7	35.2	6.0			21	
20	5.7	N	N	6.2	3.2	6.7	0.7	6.7	6.2	0	3.2	N	5.2	N	0.7	10.7	0	3.2	6.2	3.2	9.2	8.2	2.2	7.7	10.7	4.8			20	
21	4.2	4.2	1.7	4.2	5.2	12.7	5.7	9.2	4.2	3.7	6.2	0	9.2	N	2.7	0.2	8.8	5.2	6.7	8.2	4.7	7.3	7.3	6.2	12.7	5.6			23	
22	9.2	7.7	4.2	6.7	6.7	8.2	5.7	4.2	4.7	6.7	5.2	4.8	2.7	3.7	3.7	6.2	3.2	3.7	2.7	2.7	5.2	0	0.2	3.7	9.2	4.7			24	
23	1.7	0.7	0	1.7	0	0	2.7	2.7	2.2	4.2	5.2	6.7	0.7	0	3.7	0.2	3.7	1.7	7.7	3.2	3.2	2.2	2.7	1.7	7.7	2.4			24	
24	4.7	4.7	2.2	9.2	5.7	2.2	7.7	3.2	0.7	0.7	N	0	9.7	N	5.7	N	5.2	6.7	2.7	2.7	4.2	0	5.2	9.7	4.2				20	
25	3.2	3.2	1.7	5.2	1.7	5.7	0	4.2	1.2	10.7	4.2	9.7	14.7	0	N	1.2	6.2	3.2	7.7	5.7	4.7	7.7	2.2	3.7	14.7	4.7			23	
26	5.7	10.2	7.3	12.7	11.7	6.7	7.3	8.8	2.2	0	14.7	21.2	0	0	6.7	0	5.2	4.8	11.2	4.8	5.2	6.7	11.2	6.7	21.2	7.1			24	
27	8.2	4.7	5.7	10.7	3.7	7.3	9.7	2.7	7.3	5.2	11.7	0	11.2	7.3	0	19.2	12.2	4.2	6.2	7.7	0.7	2.2	6.2	9.7	19.2	6.8			24	
28	5.2	7.3	3.2	3.7	11.2	10.7	7.3	1.2	10.7	8.2	8.2	4.2	14.2	3.2	1.7	20.7	15.7	0	8.2	6.2	2.2	7.7	9.2	10.7	20.7	7.5			24	
29	7.7	10.2	11.7	6.7	8.2	3.2	12.2	12.7	13.2	12.7	1.7	13.8	4.2	15.7	3.7	0.7	12.7	0	9.7	4.7	6.2	13.8	7.3	8.8	15.7	8.4			24	
30	7.7	10.7	13.2	11.7	13.2	13.2	14.3	13.8	14.3	19.2	12.7	14.7	0.7	0.2	N	3.7	0.2	8.8	5.7	11.7	6.7	5.7	5.2	11.2	19.2	9.5			23	
31	9.7	14.3	15.7	12.2	12.2	18.7	14.7	11.7	N	N	N	6.7	1.2	10.2	20.3	12.2	12.7	2.7	10.2	12.2	6.2	9.2	10.7	10.7	20.3	11.2			21	
HOURLY MAX	10	14	16	15	13	19	15	14	18	24	15	26	24	35	20	21	16	15	11	12	10	14	16	11						
HOURLY AVG	6.2	6.1	6.1	7.0	6.8	8.2	6.9	6.0	5.9	9.0	5.8	8.1	6.7	7.3	5.3	8.1	7.1	4.5	6.9	5.7	4.4	6.9	6.0	7.1						

STATUS FLAG CODES

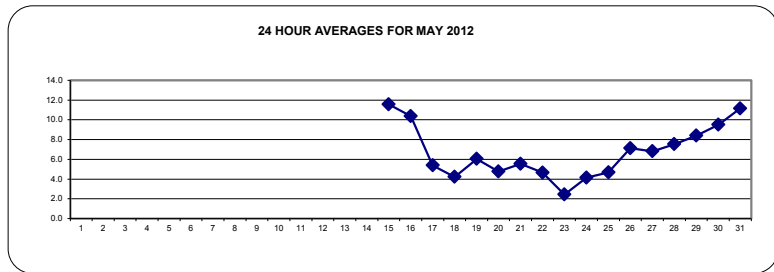
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

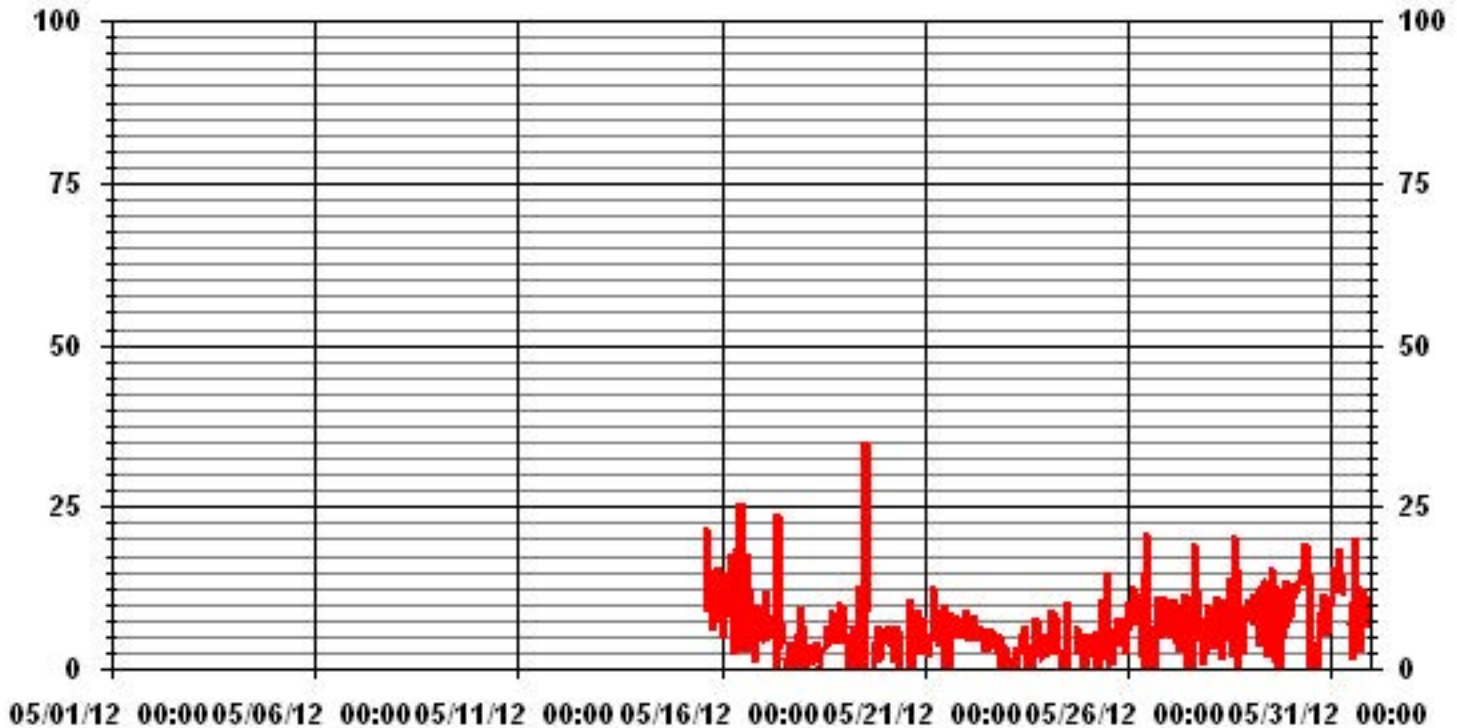
ALBERTA ENVIRONMENT:	1-HR	-	PPB	24-HR	30	PPB
----------------------	------	---	-----	-------	----	-----

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-				
NUMBER OF 24-HR EXCEEDENCES:	0	PROPOSED CANADA WIDE GUIDELINE			
NUMBER OF NON-ZERO READINGS:	347				
MAXIMUM 1-HR AVERAGE:	35.2	UG/M ³	@ HOUR(S)	13	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	11.6	UG/M ³			ON DAY(S)
IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	376	HRS
MONTHLY CALIBRATION TIME:	2	HRS	AMD OPERATION UPTIME:	50.5	%
STANDARD DEVIATION:	5.12		MONTHLY AVERAGE:	6.56	UG/M ³



01 Hour Averages



LICA-ELK
 PM2 / WDR Joint Frequency Distribution (Percent)

May 2012

Distribution By % Of Samples

Logger Id : 35
 Site Name : LICA-ELK
 Parameter : PM2
 Units : UG/M3

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	7.75	4.54	6.68	5.61	11.49	14.17	6.41	6.14	5.88	1.87	1.87	1.06	7.48	7.21	6.95	4.54	99.73
< 60.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.26	.00	.00	.26
< 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	7.75	4.54	6.68	5.61	11.49	14.17	6.41	6.14	5.88	1.87	1.87	1.06	7.48	7.48	6.95	4.54	

Calm : .00 %

Total # Operational Hours : 374

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	29	17	25	21	43	53	24	23	22	7	7	4	28	27	26	17	373
< 60.0														1			1
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	29	17	25	21	43	53	24	23	22	7	7	4	28	28	26	17	

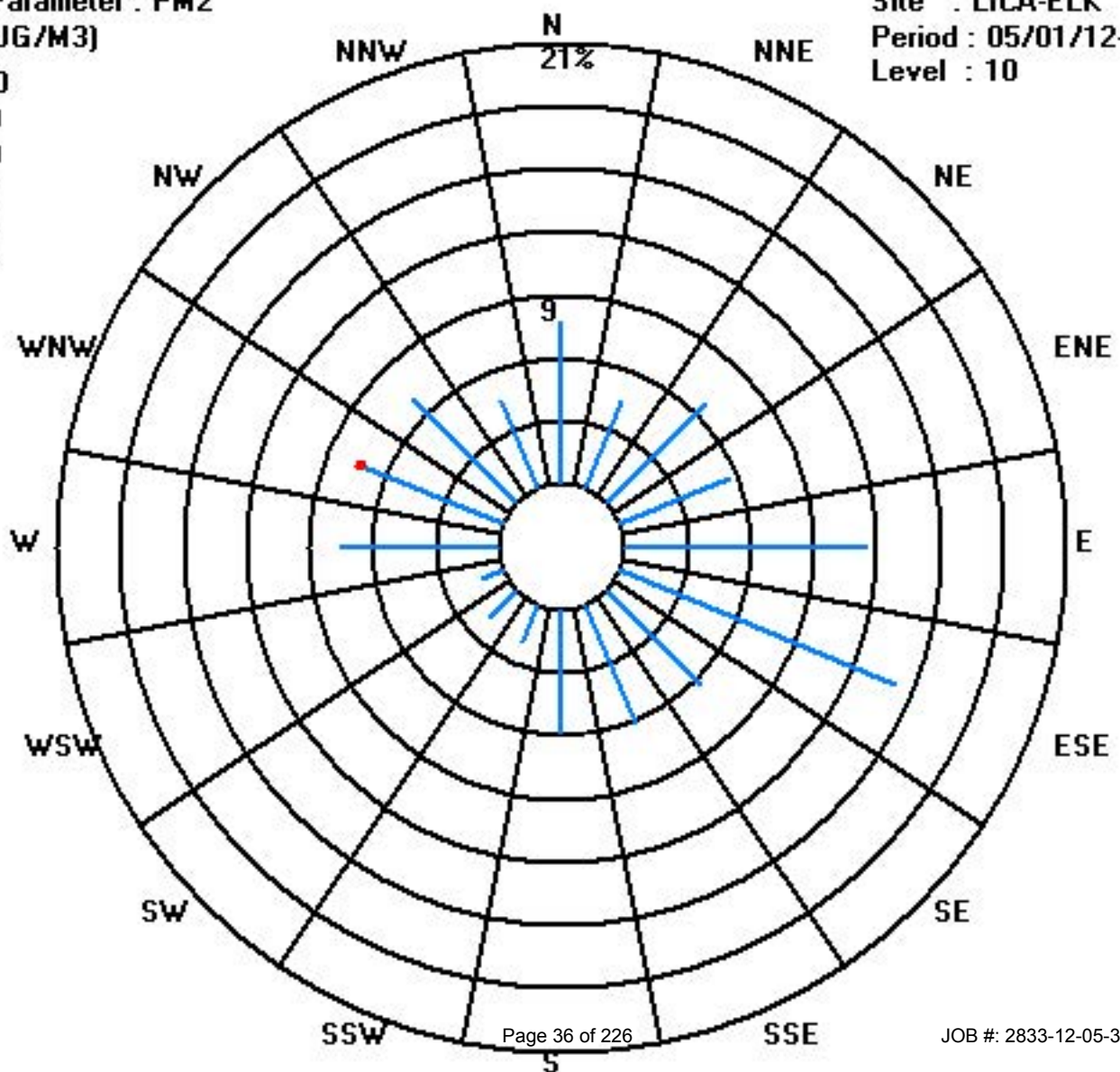
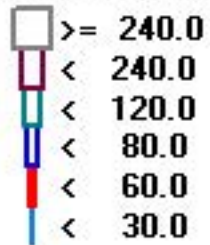
Calm : .00 %

Total # Operational Hours : 374

Class Limits (UG/M3)

Period : 05/01/12-05/31/12

Level : 10



Nitrogen Dioxide

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

MAY 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	23:00	DAILY 24-HOUR	24:00	RDGS.
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.		
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	IZS	0	0	0	1	2	1	0	2	0.2	24		
2	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	IZS	0	0	0	6	7	4	6	10	10	1.6	24		
3	10	12	8	8	13	11	7	2	0	0	0	0	0	0	0	IZS	0	0	0	0	1	1	2	1	13	3.3	24		
4	1	0	0	1	2	4	3	2	2	1	1	1	1	1	IZS	2	3	3	2	4	5	7	10	8	8	10	3.1	24	
5	7	6	6	4	6	7	3	2	2	2	2	1	IZS	2	2	1	2	1	1	1	1	1	1	1	1	7	2.7	24	
6	1	1	4	7	2	1	1	1	1	1	1	1	IZS	1	0	0	1	1	1	0	1	3	3	2	3	7	1.6	24	
7	12	5	6	5	9	10	8	4	2	1	IZS	1	1	1	1	1	1	1	2	7	9	7	4	5	12	4.5	24		
8	3	6	5	3	4	10	10	3	2	P	N	1	0	1	1	1	1	1	1	3	6	8	10	6	10	4.0	22		
9	11	9	13	13	11	2	C	1	IZS	1	C	C	C	C	C	C	1	1	1	1	1	10	9	10	5	13	6.2	24	
10	7	6	1	2	4	4	3	IZS	1	1	1	1	1	1	1	1	1	1	1	1	2	3	2	4	2	7	2.2	24	
11	2	1	2	1	2	2	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	6	7	6	7	1.5	24	
12	5	6	4	3	4	IZS	3	2	1	1	1	1	1	1	1	1	1	2	1	3	6	5	14	7	14	3.2	24		
13	4	4	7	6	IZS	10	5	2	2	1	1	1	1	1	1	1	1	2	2	4	15	14	15	8	15	4.7	24		
14	9	6	1	IZS	4	6	7	3	2	2	1	1	0	0	1	1	0	1	1	1	2	4	8	12	12	3.2	24		
15	9	7	IZS	10	8	11	7	4	3	2	1	1	1	1	1	1	1	1	2	2	2	3	2	2	11	3.6	24		
16	2	IZS	4	4	6	13	6	7	6	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	0	13	2.7	24	
17	IZS	1	1	3	1	0	1	0	0	0	0	M	0	0	0	1	0	0	1	2	1	1	1	IZS	3	0.7	23		
18	1	1	4	4	4	4	C	C	C	1	1	1	C	C	M	M	0	1	1	1	3	5	15	IZS	11	15	3.4	22	
19	10	4	3	6	3	4	2	2	2	1	1	1	1	1	0	0	1	1	1	2	5	IZS	7	6	10	2.8	24		
20	10	7	7	8	12	12	9	4	1	1	1	1	1	0	0	1	1	1	1	3	IZS	7	4	7	12	4.3	24		
21	9	7	7	5	9	9	5	3	2	1	1	1	1	1	1	1	2	2	2	IZS	2	2	2	1	9	3.3	24		
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	0	1	1.0	24		
23	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	IZS	1	6	8	3	6	13	13	1.8	24		
24	7	3	2	4	8	8	4	2	0	0	0	0	0	0	0	0	IZS	0	0	0	1	2	6	4	8	2.2	24		
25	2	2	2	3	1	7	5	3	2	1	0	0	1	0	0	IZS	1	1	2	3	2	8	11	11	11	3.0	24		
26	10	11	10	11	10	10	7	7	4	2	1	1	1	1	1	IZS	1	1	1	3	7	6	11	10	11	5.5	24		
27	8	11	11	8	11	10	7	6	3	1	1	1	1	1	IZS	0	0	0	1	1	1	2	3	4	4	11	4.1	24	
28	3	3	8	12	11	11	6	7	4	2	1	0	IZS	0	0	0	0	1	1	4	4	6	11	13	13	4.7	24		
29	9	9	8	11	13	10	6	4	3	3	2	IZS	1	1	1	1	1	1	1	3	7	5	5	4	13	4.7	24		
30	4	4	6	7	9	12	7	6	4	2	IZS	1	1	1	1	1	1	2	2	4	6	6	4	5	12	4.2	24		
31	7	12	8	8	12	13	9	6	3	IZS	1	1	0	0	1	1	1	1	1	3	5	7	5	4	13	4.7	24		
HOURLY MAX		12	12	13	13	13	13	10	7	6	3	2	1	1	2	2	3	3	2	4	7	15	15	15	13				
HOURLY AVG		5.5	4.8	4.6	5.3	6.1	6.8	4.7	2.9	1.8	1.1	0.8	0.7	0.6	0.6	0.6	0.8	0.9	1.0	1.2	2.6	4.4	5.1	5.8	5.6				

STATUS FLAG CODES

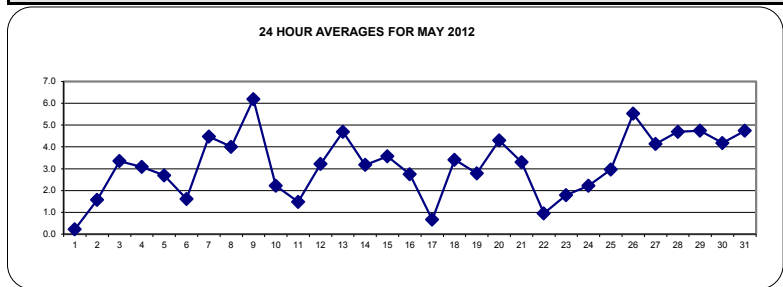
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

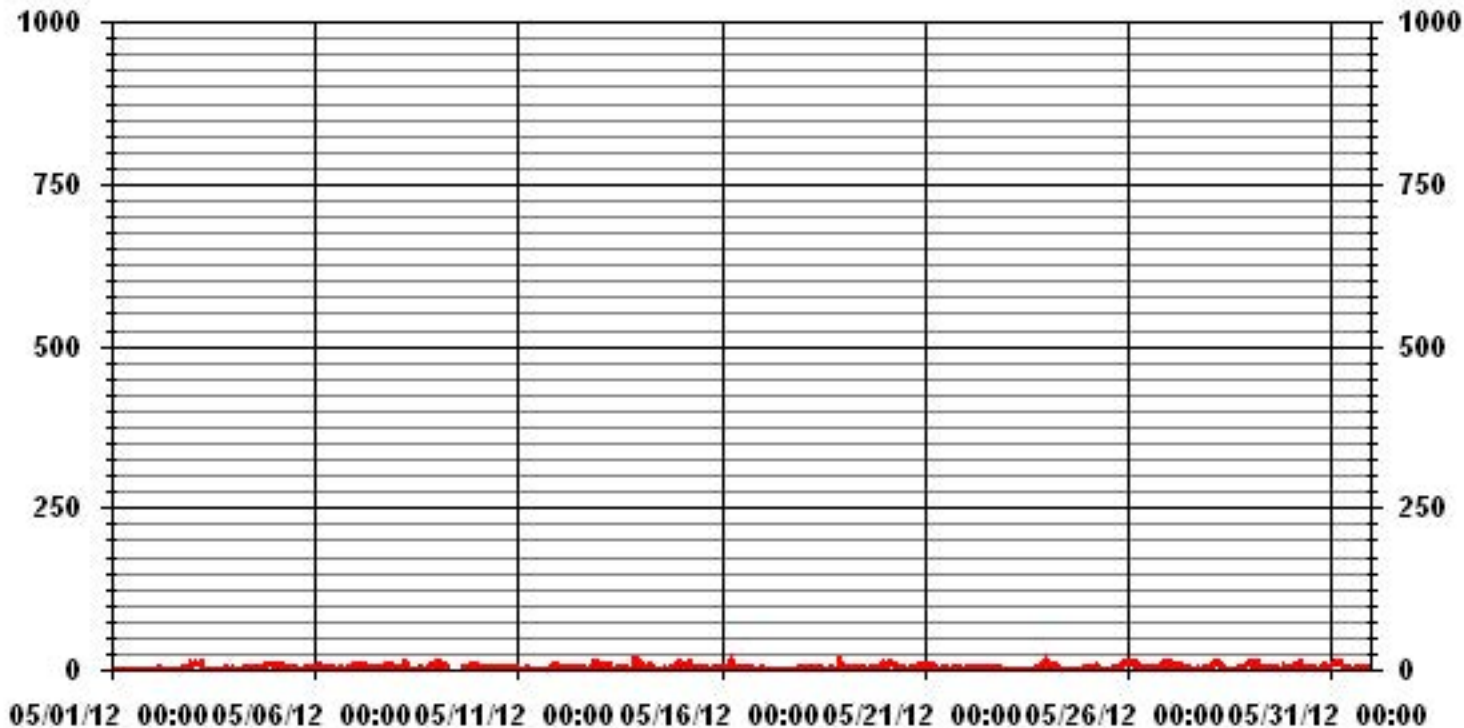
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	577				
MAXIMUM 1-HR AVERAGE:	15	PPB	@ HOUR(S)	VAR	ON DAY(S) 13, 18
MAXIMUM 24-HR AVERAGE:	6.2	PPB			ON DAY(S) 9
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	739 HRS	
MONTHLY CALIBRATION TIME:	11	HRS	AMD OPERATION UPTIME:	99.3 %	
STANDARD DEVIATION:	3.46		MONTHLY AVERAGE:	3.16 PPB	



01 Hour Averages



— LICA35 NO2_ PPB

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

MAY 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	0	1	1	1	2	1	0	0	0	0	0	0	0	0	0	23	IZS	0	0	0	3	3	2	1	23	1.7	24
2	1	1	2	2	2	1	1	1	0	0	0	0	0	0	0	IZS	1	1	2	13	9	7	9	14	14	2.9	24
3	14	18	12	10	17	15	9	5	2	1	1	1	1	1	IZS	1	1	1	1	2	3	4	2	18	5.3	24	
4	2	1	1	1	5	7	5	3	5	2	3	3	2	IZS	4	4	5	4	10	9	23	20	15	10	23	6.3	24
5	8	9	10	7	9	9	6	3	4	3	4	2	IZS	6	2	2	4	2	2	1	1	2	1	1	10	4.3	24
6	2	5	10	20	12	2	1	1	1	1	1	IZS	1	1	1	1	1	1	1	6	9	10	3	10	20	4.4	24
7	19	7	9	7	13	14	13	7	3	2	IZS	2	2	2	1	2	2	2	5	14	15	15	8	8	19	7.5	24
8	3	8	8	4	6	15	16	9	P	P	N	2	1	2	2	2	1	2	5	6	8	14	15	8	16	6.5	21
9	17	15	22	18	17	8	C	1	IZS	C	C	C	C	C	C	C	C	2	2	3	43	24	29	19	43	15.7	24
10	18	14	1	6	10	8	5	IZS	3	2	2	2	1	2	2	3	2	2	2	3	6	4	6	3	18	4.7	24
11	4	2	4	3	4	4	IZS	1	1	0	1	1	0	1	2	1	1	1	4	6	6	13	11	12	13	3.6	24
12	7	9	8	5	8	IZS	4	3	2	2	1	1	1	1	1	2	2	4	3	9	9	8	21	13	21	5.4	24
13	6	10	13	10	IZS	17	9	3	3	2	2	2	2	1	2	2	2	3	7	7	38	24	28	20	38	9.3	24
14	21	14	4	IZS	9	13	13	5	3	3	2	2	1	1	1	1	1	1	1	1	7	8	12	18	21	6.2	24
15	13	10	IZS	14	11	18	12	5	4	3	2	2	2	2	2	3	2	3	3	3	2	4	3	4	18	5.5	24
16	4	IZS	7	6	11	21	9	13	9	3	4	1	2	1	1	1	1	1	1	1	3	4	2	1	21	4.7	24
17	IZS	5	3	8	5	1	1	1	1	1	1	M	1	1	1	2	1	1	1	9	2	2	2	IZS	9	2.4	23
18	2	2	10	7	7	5	C	C	2	2	2	C	C	M	M	1	1	1	1	6	9	25	IZS	15	25	5.8	22
19	19	8	5	11	5	5	4	3	3	2	2	1	1	1	1	1	1	2	3	9	7	IZS	17	7	19	5.2	24
20	16	11	12	11	17	14	12	7	3	2	1	1	1	1	1	1	1	1	3	8	IZS	13	6	9	17	6.6	24
21	15	12	12	7	19	18	10	5	3	2	2	2	2	2	2	4	4	3	IZS	4	4	3	2	19	6.0	24	
22	2	2	2	2	2	2	2	2	2	2	1	2	2	1	1	1	1	1	IZS	1	1	1	1	1	2	1.5	24
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	IZS	3	13	13	4	10	19	19	3.5	24
24	11	9	2	6	13	12	12	3	1	1	1	1	1	1	1	1	IZS	1	1	1	2	4	13	7	13	4.6	24
25	3	2	3	7	1	13	11	5	3	2	1	1	3	1	1	IZS	2	2	3	6	6	15	17	13	17	5.3	24
26	12	14	15	28	16	16	8	9	6	3	2	2	2	2	IZS	2	2	2	2	7	12	11	17	17	28	9.0	24
27	17	15	17	10	16	17	10	7	4	3	2	1	1	IZS	1	1	1	1	1	2	4	6	6	6	17	6.5	24
28	5	5	13	21	21	21	9	8	6	4	2	1	IZS	1	1	1	1	3	3	8	8	9	22	16	22	8.2	24
29	12	15	13	16	17	15	10	5	4	4	3	IZS	2	2	2	2	2	3	2	7	12	7	6	5	17	7.2	24
30	6	5	8	8	15	18	9	8	6	3	IZS	2	1	2	2	2	2	3	4	10	13	7	7	8	18	6.5	24
31	11	15	11	12	15	16	12	9	4	IZS	2	1	1	1	1	2	2	2	2	5	10	11	7	5	16	6.8	24
HOURLY MAX	21	18	22	28	21	21	16	13	9	4	4	3	3	6	4	23	5	4	10	14	43	25	29	20			
HOURLY AVG	9.0	8.2	8.0	9.0	10.2	10.9	7.6	4.6	3.1	2.0	1.7	1.5	1.3	1.4	1.4	2.4	1.8	1.9	2.7	5.8	9.6	9.4	10.1	9.1			

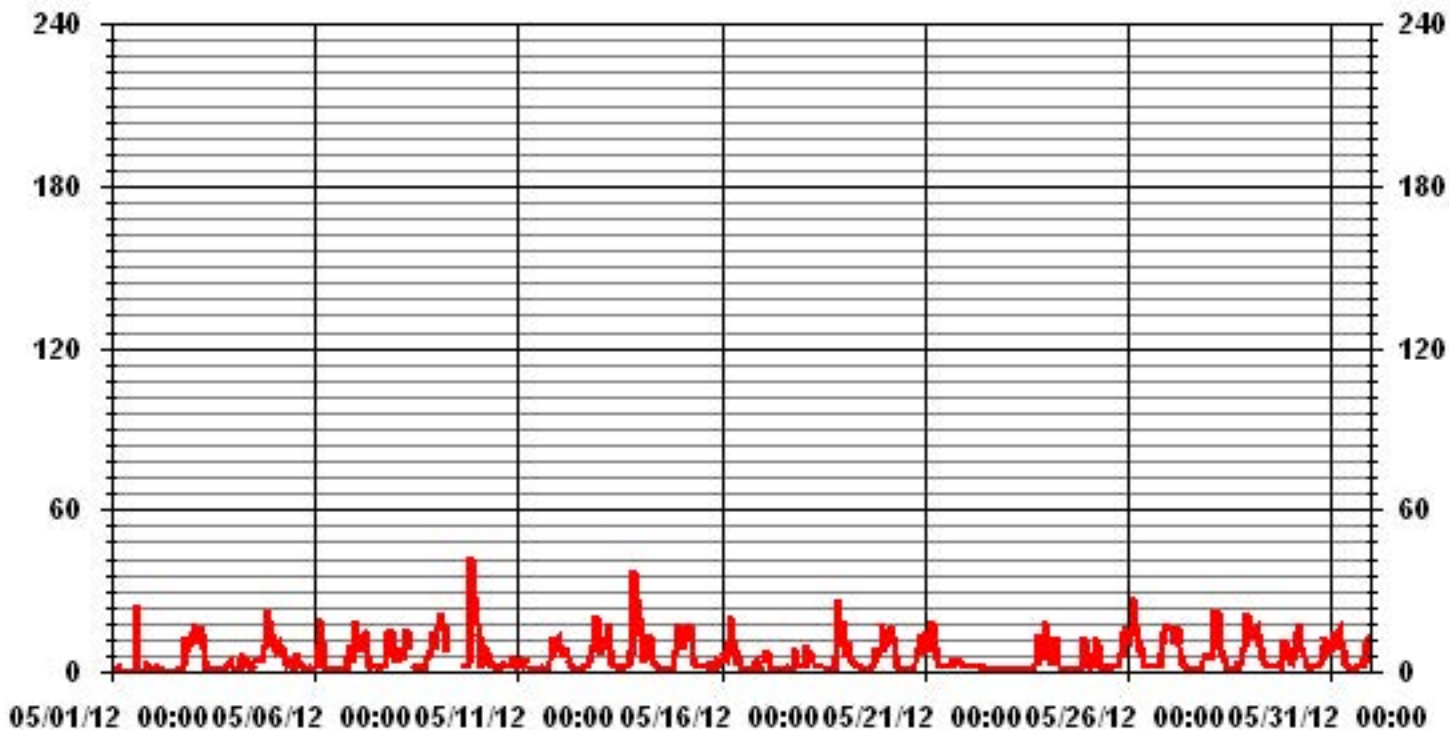
STATUS FLAG CODES

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:	672					
MAXIMUM INSTANTANEOUS VALUE:	43	PPB	@ HOUR(S)	20	ON DAY(S)	9
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	738	HRS	
MONTHLY CALIBRATION TIME:	13	HRS				
STANDARD DEVIATION:	5.93					

01 Hour Averages



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

May 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	4.73	3.29	4.30	5.73	8.60	10.32	11.04	5.45	3.87	1.57	1.14	2.15	8.75	13.19	7.60	8.17	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	4.73	3.29	4.30	5.73	8.60	10.32	11.04	5.45	3.87	1.57	1.14	2.15	8.75	13.19	7.60	8.17	

Calm : .00 %

Total # Operational Hours : 697

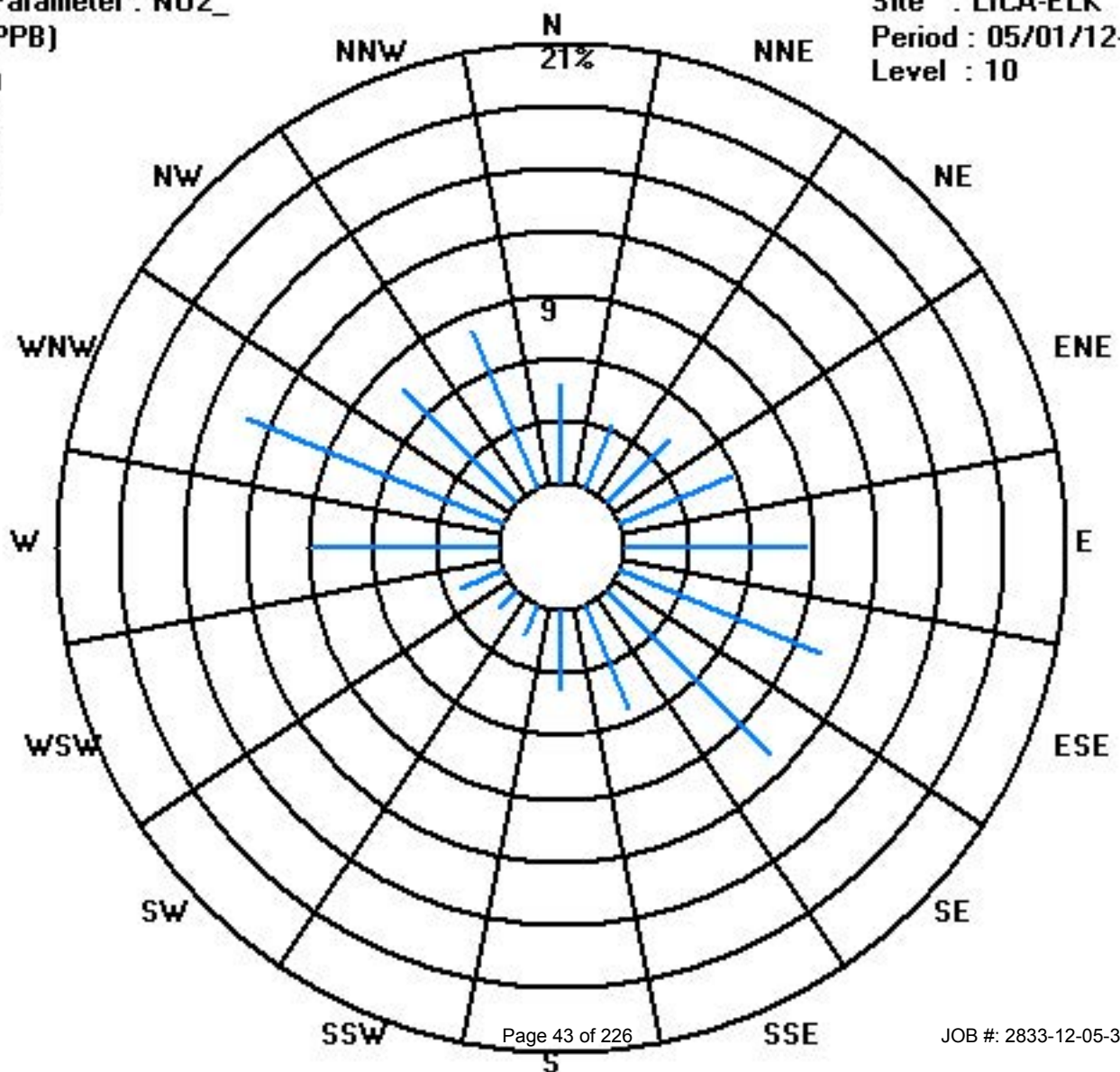
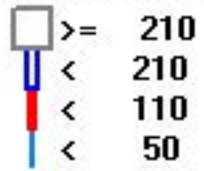
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	33	23	30	40	60	72	77	38	27	11	8	15	61	92	53	57	697
< 110																	
< 210																	
>= 210																	
Totals	33	23	30	40	60	72	77	38	27	11	8	15	61	92	53	57	

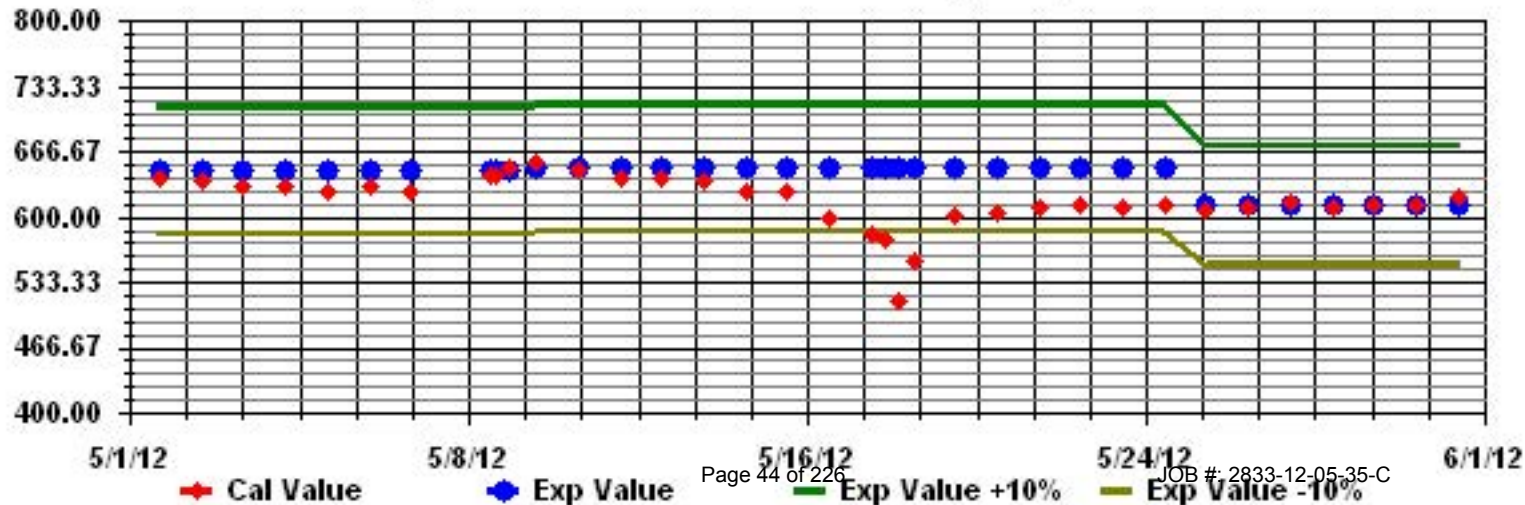
Calm : .00 %

Total # Operational Hours : 697

Class Limits (PPB)



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



Nitric Oxide

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

MAY 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 24-HOUR			
	HOUR START	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	IZS	0	0	0	0	0	0	0	0	2	0.1	24	
2	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	
3	0	0	0	0	2	5	3	1	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	5	0.5	24	
4	0	0	0	0	0	1	1	0	1	0	1	1	1	1	IZS	1	0	1	1	1	1	2	1	2	1	2	0.7	24	
5	0	0	0	0	0	1	0	0	0	0	1	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
6	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
7	0	0	0	0	0	1	2	1	1	1	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
8	0	0	0	0	0	1	2	1	0	P	N	0	0	1	1	1	1	1	1	1	0	0	1	1	0	2	0.5	22	
9	0	1	1	1	1	0	C	1	IZS	1	C	C	C	C	C	C	1	0	0	0	0	0	0	0	0	1	0.4	24	
10	0	0	0	0	0	0	0	IZS	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
11	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	1	0.1	24	
12	0	0	0	0	0	IZS	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
13	0	0	0	0	IZS	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24	
14	0	0	0	IZS	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
15	0	0	IZS	0	0	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3	24	
16	0	IZS	0	0	0	4	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.3	24	
17	IZS	0	0	0	0	0	0	0	0	0	0	M	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	23	
18	1	1	1	1	1	1	C	C	0	0	0	C	C	M	M	0	0	0	0	0	0	0	1	IZS	0	1	0.4	22	
19	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	1	0.1	24
20	0	0	0	0	4	7	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	7	0.9	24	
21	0	0	0	0	1	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	2	0.3	24	
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0.0	24
23	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	
24	0	0	0	0	1	3	2	1	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	3	0.3	24	
25	0	0	0	0	0	2	2	1	1	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	2	0.3	24	
26	0	0	1	2	4	12	6	6	2	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	12	1.4	24	
27	0	0	0	0	1	5	4	3	1	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	5	0.6	24	
28	0	0	0	2	3	3	2	2	2	1	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	3	0.7	24	
29	0	0	0	1	3	4	3	3	2	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.8	24	
30	0	0	0	0	2	5	3	2	1	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.6	24	
31	0	0	0	0	1	6	4	3	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0.7	24	
HOURLY MAX	1	1	1	2	4	12	7	6	2	1	1	1	1	1	1	2	1	1	1	1	1	2	1	2	1				
HOURLY AVG	0.1	0.1	0.1	0.2	0.8	2.3	1.7	1.2	0.6	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0				

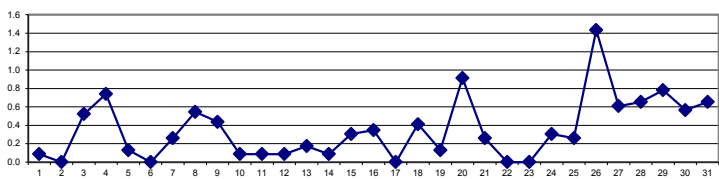
STATUS FLAG CODES

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

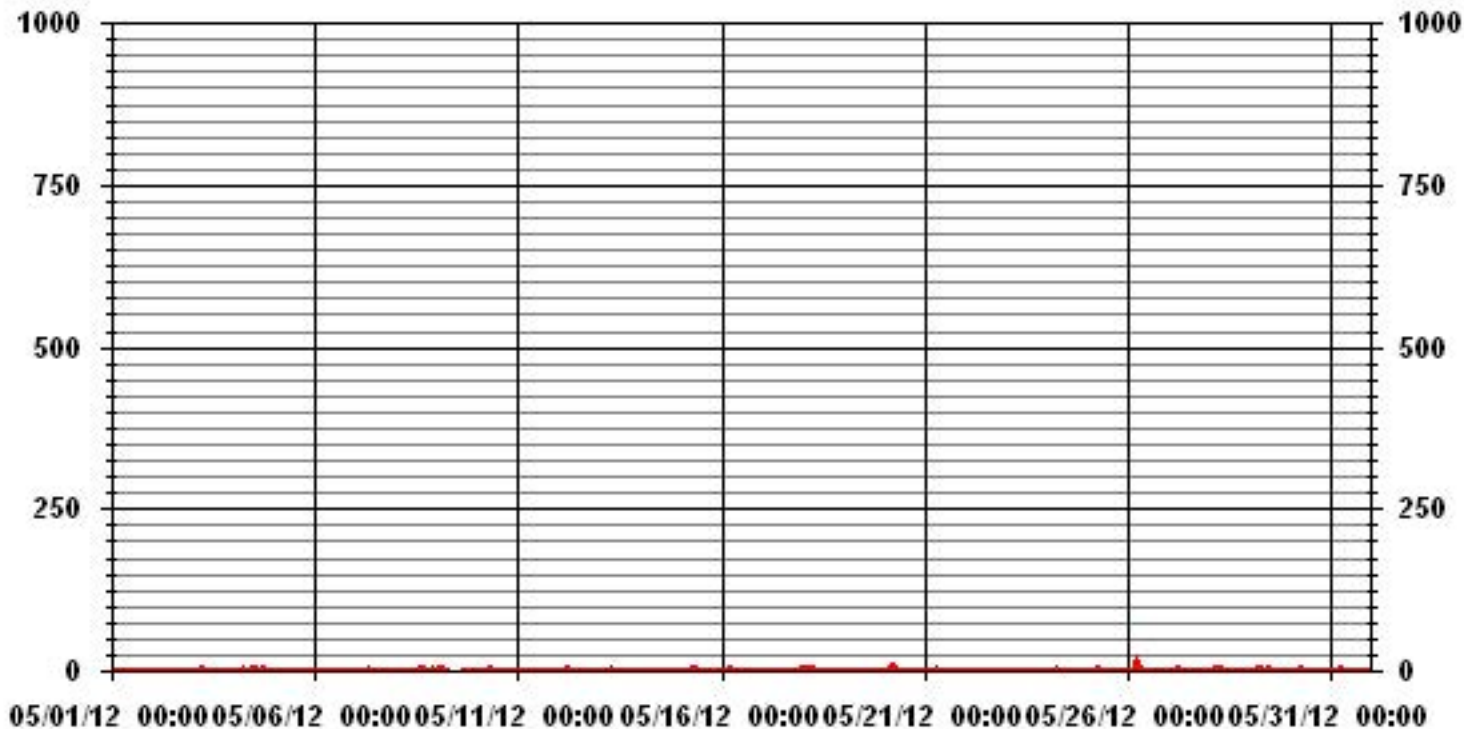
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	132					
MAXIMUM 1-HR AVERAGE:	12	PPB	@ HOUR(S)	5	ON DAY(S)	26
MAXIMUM 24-HR AVERAGE:	1.4	PPB			ON DAY(S)	26
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	739	HRS	
MONTHLY CALIBRATION TIME:	11	HRS	AMD OPERATION UPTIME:	99.3	%	
STANDARD DEVIATION:	1.01		MONTHLY AVERAGE:	0.35	PPB	

24 HOUR AVERAGES FOR MAY 2012



01 Hour Averages



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

MAY 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	0	1	0	0	0	0	0	0	0	36	IZS	1	1	0	0	0	0	0	36	1.7	24
2	0	0	1	0	0	0	1	1	1	1	1	0	0	0	1	IZS	1	1	1	1	1	1	0	2	2	0.7	24
3	3	2	1	1	8	12	4	2	1	1	1	1	1	1	IZS	2	1	1	1	1	1	0	1	12	2.1	24	
4	0	0	0	0	1	3	2	1	3	1	2	2	2	IZS	1	1	2	2	5	3	41	22	26	3	41	5.3	24
5	1	2	3	1	2	1	1	1	1	1	2	1	IZS	1	1	1	1	1	1	1	1	0	1	1	3	1.2	24
6	0	1	0	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	0	1	1	0.9	24	
7	1	0	1	2	2	3	4	2	1	1	IZS	1	1	1	1	1	1	1	1	1	1	0	0	4	1.2	24	
8	0	0	0	0	1	3	4	3	P	P	N	1	1	1	1	2	2	1	1	1	1	3	2	0	4	1.3	21
9	2	4	4	3	1	1	C	2	IZS	C	C	C	C	C	C	C	C	0	0	0	13	0	3	1	13	2.4	24
10	0	1	0	1	2	1	0	IZS	2	1	1	1	1	1	1	1	1	1	0	1	1	0	0	2	0.8	24	
11	0	0	0	0	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	0	4	1	1	4	0.9	24
12	1	1	1	0	2	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	1.0	24
13	0	0	2	1	IZS	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	3	2	1	1	3	1.2	24
14	3	0	0	IZS	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	3	1.0	24	
15	1	1	IZS	1	1	5	3	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	5	1.1	24	
16	0	IZS	1	0	1	11	2	5	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	11	1.0	24	
17	IZS	0	0	0	0	0	0	0	0	0	0	M	0	0	0	0	0	0	0	0	0	0	0	0	0.0	23	
18	1	1	2	1	1	2	C	C	1	0	0	C	C	M	M	1	1	0	1	1	1	3	IZS	1	3	1.1	22
19	8	1	2	3	1	1	1	2	1	1	1	1	0	1	0	1	1	1	1	1	IZS	1	1	8	1.4	24	
20	1	1	1	1	12	8	10	5	1	1	0	0	1	0	0	0	0	1	0	13	IZS	1	0	1	13	2.5	24
21	1	0	0	1	6	5	4	2	1	2	0	1	1	0	1	1	2	2	1	IZS	1	1	0	0	6	1.4	24
22	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	1	0.1	24	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	2	1	1	2	3	3	0.4	24
24	1	1	0	1	3	10	10	1	1	0	0	0	0	0	0	IZS	1	1	0	0	0	1	0	10	1.3	24	
25	0	0	0	0	0	8	5	2	1	1	1	1	1	0	0	IZS	1	1	1	1	0	2	2	1	8	1.3	24
26	1	2	4	24	18	17	7	7	5	2	1	1	1	1	IZS	1	1	1	1	1	1	0	1	1	24	4.3	24
27	1	1	1	1	9	10	5	4	2	1	1	1	1	IZS	1	0	0	1	1	0	0	1	1	10	1.9	24	
28	0	2	2	7	7	8	4	3	3	1	1	0	IZS	1	0	1	0	1	1	1	1	0	3	1	8	2.1	24
29	1	3	1	2	8	7	5	4	3	2	1	IZS	1	1	1	1	1	1	1	1	0	0	0	8	2.0	24	
30	1	0	0	0	5	11	5	3	2	1	IZS	1	1	1	1	1	1	1	1	1	1	0	0	1	11	1.7	24
31	1	1	1	1	4	7	7	6	1	IZS	1	1	1	0	0	1	1	0	0	0	1	1	0	0	7	1.6	24
HOURLY MAX	8	4	4	24	18	17	10	7	5	2	2	2	2	1	1	36	2	2	5	13	41	22	26	3			
HOURLY AVG	1.0	0.8	0.9	1.8	3.3	4.7	3.2	2.2	1.4	0.9	0.7	0.8	0.8	0.6	0.6	2.0	0.9	0.9	0.9	1.3	2.5	1.5	1.6	0.8			

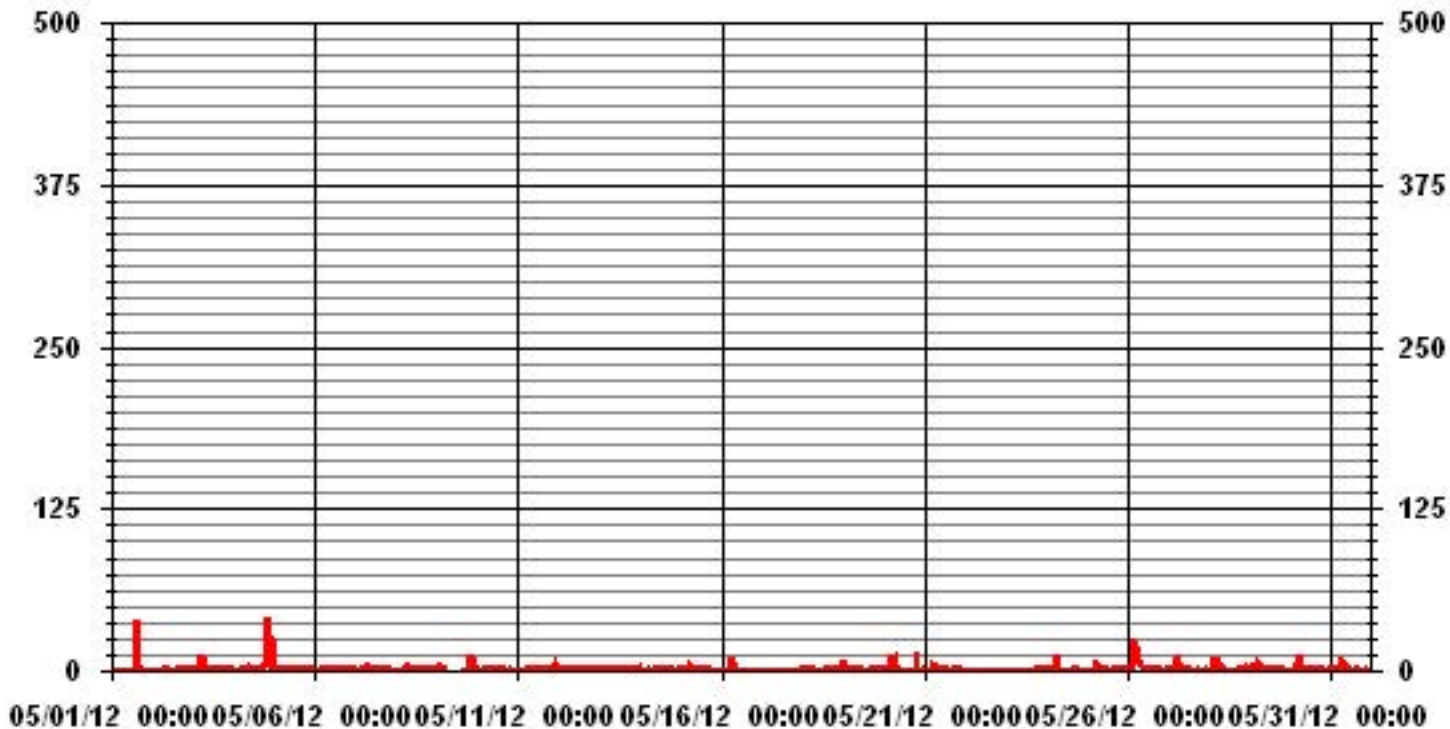
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	483					
MAXIMUM INSTANTANEOUS VALUE:	41	PPB	@ HOUR(S)	20	ON DAY(S)	4
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	738	HRS	
MONTHLY CALIBRATION TIME:	13	HRS				
STANDARD DEVIATION:	3.21					

01 Hour Averages



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

May 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	4.73	3.29	4.30	5.73	8.60	10.32	11.04	5.45	3.87	1.57	1.14	2.15	8.75	13.19	7.60	8.17	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	4.73	3.29	4.30	5.73	8.60	10.32	11.04	5.45	3.87	1.57	1.14	2.15	8.75	13.19	7.60	8.17	

Calm : .00 %

Total # Operational Hours : 697

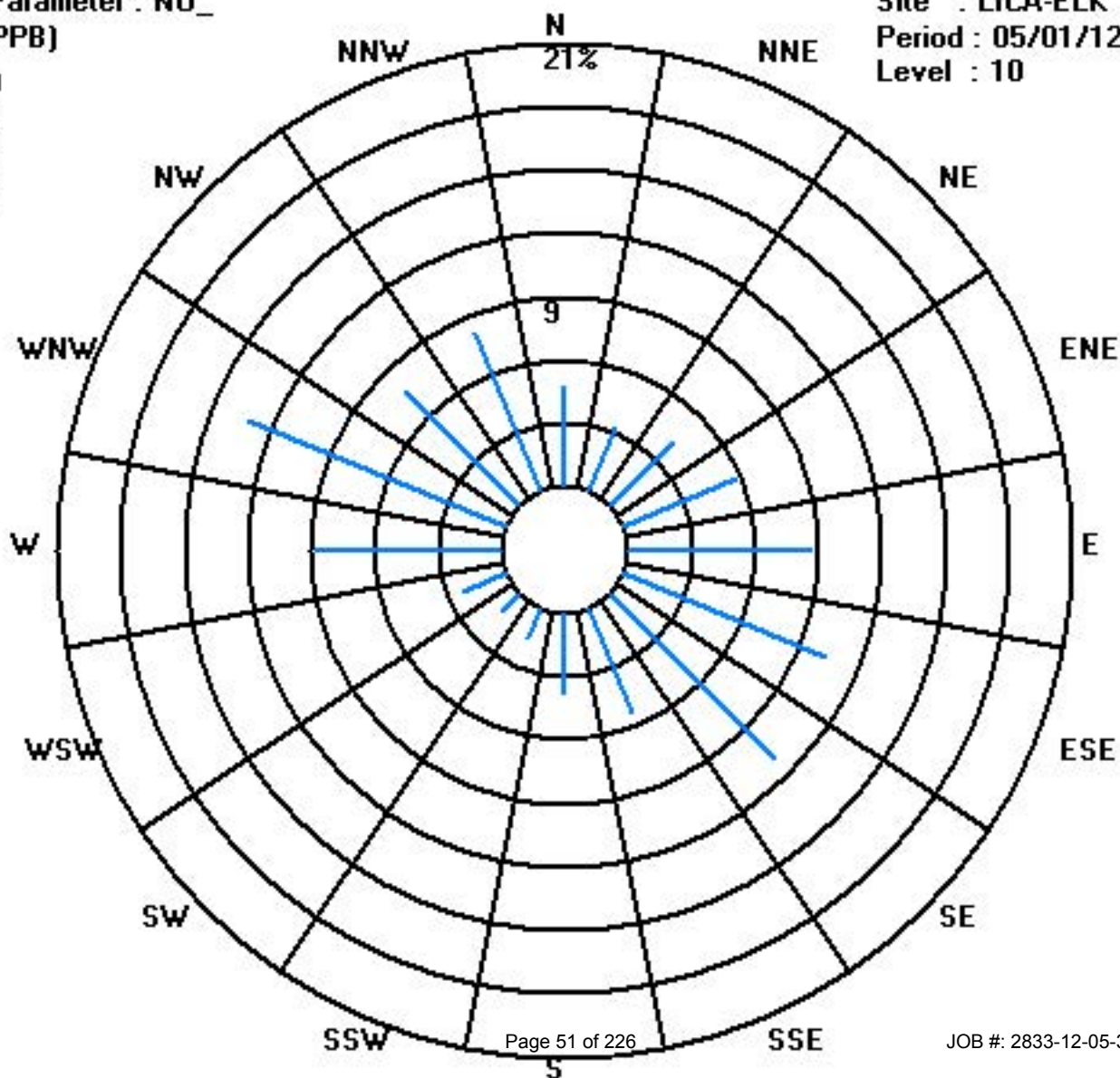
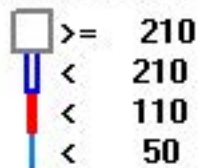
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	33	23	30	40	60	72	77	38	27	11	8	15	61	92	53	57	697
< 110																	
< 210																	
>= 210																	
Totals	33	23	30	40	60	72	77	38	27	11	8	15	61	92	53	57	

Calm : .00 %

Total # Operational Hours : 697

Class Limits (PPB)



Oxides of Nitrogen

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

MAY 2012

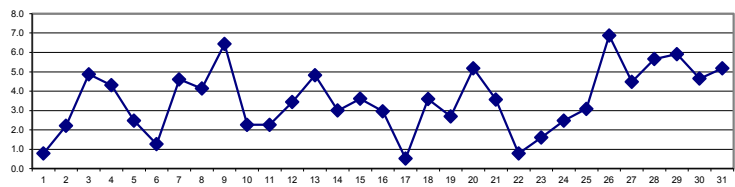
OXIDES OF NITROGEN hourly averages in ppb

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 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	1	1	1	1	1	0	0	0	0	0	0	0	0	4	IZS	1	1	1	2	2	1	1	4	0.8	24		
2	1	1	1	2	1	1	1	1	0	0	0	0	0	0	IZS	1	1	1	7	8	5	7	12	12	2.2	24		
3	11	14	9	9	15	17	11	4	2	1	1	1	1	1	IZS	2	1	1	1	2	2	1	3	2	17	4.9	24	
4	1	1	1	1	3	5	5	3	4	2	3	3	3	IZS	3	3	3	3	5	6	10	12	10	9	12	4.3	24	
5	7	6	6	4	6	8	3	2	2	2	2	1	IZS	2	2	1	1	1	0	0	0	1	0	0	8	2.5	24	
6	1	1	4	7	2	1	1	1	0	0	0	IZS	1	0	0	0	0	0	0	3	3	1	3	7	1.3	24		
7	12	4	6	5	9	11	10	5	2	1	IZS	1	1	1	1	1	1	1	2	7	9	7	4	5	12	4.6	24	
8	2	5	5	3	3	11	13	4	3	P	N	1	0	1	1	1	1	1	3	3	6	8	10	6	13	4.1	22	
9	11	10	14	13	11	2	C	1	IZS	1	C	C	C	C	C	C	C	1	1	1	1	11	9	11	5	14	6.4	24
10	7	6	0	2	4	5	4	IZS	2	1	1	1	1	1	1	1	1	1	1	1	1	3	2	4	2	7	2.3	24
11	1	1	2	1	2	2	IZS	2	1	1	1	1	1	1	1	1	1	1	1	1	3	4	8	8	7	8	2.3	24
12	6	7	5	4	5	IZS	3	2	1	1	1	1	1	1	1	1	1	2	1	3	6	5	14	7	14	3.4	24	
13	4	4	7	6	IZS	11	5	2	2	1	1	1	1	1	1	1	1	2	2	4	16	15	15	8	16	4.8	24	
14	9	6	0	IZS	5	6	8	3	2	2	1	1	0	0	0	0	0	0	0	2	4	8	12	12	12	3.0	24	
15	9	7	IZS	11	8	12	8	5	3	2	1	1	1	1	1	1	1	1	2	1	2	2	2	2	12	3.6	24	
16	2	IZS	4	4	6	18	7	9	8	2	1	1	1	1	1	0	0	0	0	0	1	1	1	0	18	3.0	24	
17	IZS	2	1	3	1	0	0	0	0	0	0	M	0	0	0	0	0	0	2	1	1	0	IZS	3	0.5	23		
18	1	1	4	4	4	4	C	C	2	1	2	C	C	M	M	1	1	1	1	3	5	15	IZS	11	15	3.6	22	
19	11	4	3	6	3	4	2	2	2	1	1	1	0	0	0	0	0	1	1	2	5	IZS	7	6	11	2.7	24	
20	10	7	7	8	16	19	15	7	2	1	1	1	0	0	0	1	1	1	1	3	IZS	7	4	7	19	5.2	24	
21	9	7	7	5	10	11	6	4	3	1	1	1	1	1	1	1	2	2	2	IZS	2	2	2	1	11	3.6	24	
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	IZS	1	1	1	0	0	1	0.8	24	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	6	8	3	6	13	13	1.6	24	
24	7	3	1	4	9	11	6	3	0	0	0	0	0	0	0	0	IZS	0	0	0	1	2	6	4	11	2.5	24	
25	2	1	2	3	0	10	6	3	2	1	0	0	1	0	0	IZS	1	1	2	3	2	8	12	11	12	3.1	24	
26	10	11	11	13	14	22	12	13	5	2	1	1	1	1	IZS	1	1	1	1	3	7	6	11	10	22	6.9	24	
27	8	11	11	8	12	14	11	9	3	2	1	0	0	IZS	0	0	0	0	1	1	1	3	4	3	14	4.5	24	
28	3	3	8	13	14	13	7	9	5	3	1	0	IZS	1	1	1	1	2	2	5	5	7	12	14	14	5.7	24	
29	10	10	9	12	17	15	10	7	6	5	4	IZS	1	1	1	1	1	1	1	3	7	5	5	4	17	5.9	24	
30	4	4	6	6	11	17	10	8	5	2	IZS	1	1	1	1	1	1	2	2	4	6	5	4	5	17	4.7	24	
31	7	12	8	8	13	18	13	9	3	IZS	1	0	0	0	1	1	1	1	1	3	5	7	4	3	18	5.2	24	
HOURLY MAX	12	14	14	13	17	22	15	13	8	5	4	3	3	2	3	4	3	3	5	7	16	15	15	14				
HOURLY AVG	5.6	5.0	4.8	5.6	6.9	9.0	6.4	4.1	2.4	1.3	1.0	0.8	0.7	0.6	0.7	0.9	0.8	1.0	1.2	2.6	4.7	5.2	5.9	5.8				

STATUS FLAG CODES

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

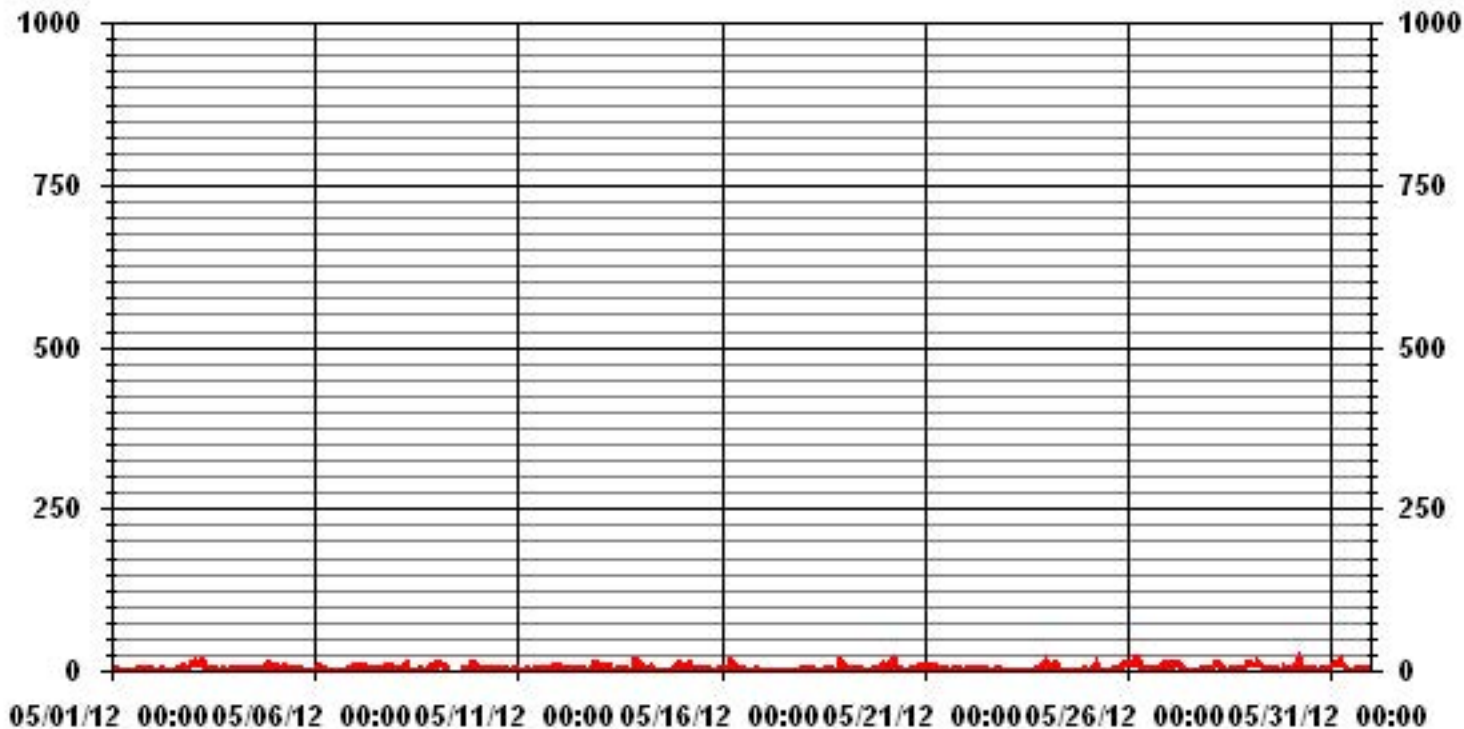
24 HOUR AVERAGES FOR MAY 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	578
MAXIMUM 1-HR AVERAGE:	22 PPB @ HOUR(S) 5 ON DAY(S) 26
MAXIMUM 24-HR AVERAGE:	6.9 PPB ON DAY(S) 26
IZS CALIBRATION TIME:	31 HRS
MONTHLY CALIBRATION TIME:	11 HRS
STANDARD DEVIATION:	4.03
OPERATIONAL TIME:	739 HRS
AMD OPERATION UPTIME:	99.3 %
MONTHLY AVERAGE:	3.52 PPB

01 Hour Averages



— LICA35 NOX_ PPB

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

MAY 2012

OXIDES OF NITROGEN MAX instantaneous maximum in ppb

MST		0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	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	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	55	IZS	2	1	1	3	3	3	2	55	3.9	24	
2	2	2	2	3	2	2	2	2	1	1	2	1	1	1	1	IZS	2	2	3	15	10	8	9	16	16	3.9	24	
3	16	21	13	12	23	28	13	8	4	3	2	2	2	2	IZS	3	2	3	3	4	4	4	3	28	7.7	24		
4	2	2	2	2	8	11	8	4	9	4	5	6	5	IZS	4	4	6	4	15	12	63	31	37	12	63	11.1	24	
5	8	9	13	7	10	10	7	3	4	3	5	2	IZS	7	3	2	4	2	1	1	1	2	1	1	13	4.6	24	
6	1	5	10	21	12	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	6	9	10	3	10	21	4.3	24	
7	19	7	9	8	15	16	17	8	4	2	IZS	2	2	2	1	2	2	2	5	14	15	15	8	8	19	8.0	24	
8	3	8	7	4	6	18	19	11	P	P	N	2	1	2	2	3	2	2	5	6	9	16	16	8	19	7.1	21	
9	17	18	26	20	18	8	C	2	IZS	C	C	C	C	C	C	C	C	C	2	2	3	57	25	33	20	57	17.9	24
10	18	14	1	7	9	9	6	IZS	5	2	2	2	1	2	2	3	2	2	2	2	3	6	3	6	3	18	4.8	24
11	3	2	4	2	5	4	IZS	3	3	1	2	2	1	2	4	2	2	2	5	7	7	17	13	13	17	4.6	24	
12	8	10	10	6	10	IZS	5	3	2	2	2	2	1	1	1	2	2	3	3	10	9	8	21	13	21	5.8	24	
13	6	10	13	10	IZS	19	11	4	3	2	1	2	2	1	1	2	2	3	7	7	41	25	29	21	41	9.7	24	
14	24	14	4	IZS	9	14	14	6	3	4	2	2	1	1	1	1	1	1	1	1	7	8	13	18	24	6.5	24	
15	13	9	IZS	15	11	22	14	7	5	3	2	2	2	2	3	2	3	2	3	3	2	3	3	3	3	22	5.8	24
16	4	IZS	7	6	12	32	10	18	11	4	4	1	1	1	1	1	1	1	1	1	2	3	2	1	32	5.4	24	
17	IZS	4	3	8	5	1	1	1	1	1	1	M	1	0	1	1	1	1	1	9	2	2	2	IZS	9	2.2	23	
18	3	2	10	7	7	5	C	C	2	2	2	C	C	M	M	1	1	1	1	6	9	28	IZS	15	28	6.0	22	
19	28	8	6	14	6	6	4	4	3	2	2	2	1	1	1	1	2	2	3	9	7	IZS	17	7	28	5.9	24	
20	17	11	12	11	29	20	19	11	3	2	1	1	1	1	1	1	1	1	3	17	IZS	14	6	8	29	8.3	24	
21	15	12	12	8	24	23	14	7	4	3	1	2	2	1	2	2	6	5	4	IZS	3	4	3	1	24	6.9	24	
22	1	1	1	2	2	2	1	2	2	2	1	2	1	1	1	1	1	1	IZS	4	14	14	4	10	21	2	1.3	24
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	4	14	14	4	10	21	2	3.7	24
24	12	10	2	6	15	22	22	4	2	0	0	0	1	1	1	0	IZS	1	1	1	2	4	13	7	22	5.5	24	
25	3	2	3	7	1	20	16	7	3	2	1	1	3	1	1	IZS	3	2	3	6	6	16	17	13	20	6.0	24	
26	13	15	18	50	33	33	14	16	11	4	2	2	2	2	IZS	2	2	2	2	8	12	11	17	17	50	12.5	24	
27	17	15	17	10	25	26	14	10	6	3	2	1	1	IZS	1	1	1	1	1	2	4	5	5	6	26	7.6	24	
28	5	5	13	27	27	29	13	11	9	4	3	1	IZS	2	2	2	2	4	4	9	9	10	26	17	29	10.2	24	
29	12	19	15	18	24	22	16	10	7	6	5	IZS	2	3	2	2	2	3	2	7	12	7	6	5	24	9.0	24	
30	7	5	8	8	19	28	13	10	7	3	IZS	2	2	3	2	2	2	4	4	10	13	7	7	8	28	7.6	24	
31	11	15	11	12	18	22	18	13	4	IZS	2	2	1	1	1	2	2	2	2	5	10	10	7	4	22	7.6	24	
HOURLY MAX	28	21	26	50	33	33	22	18	11	6	5	6	5	7	4	55	6	5	15	17	63	31	37	21				
HOURLY AVG	9.7	8.6	8.5	10.5	12.9	15.2	10.5	6.5	4.2	2.4	2.0	1.8	1.5	1.6	1.6	3.6	2.1	2.1	3.1	6.6	11.6	10.1	11.3	9.4				

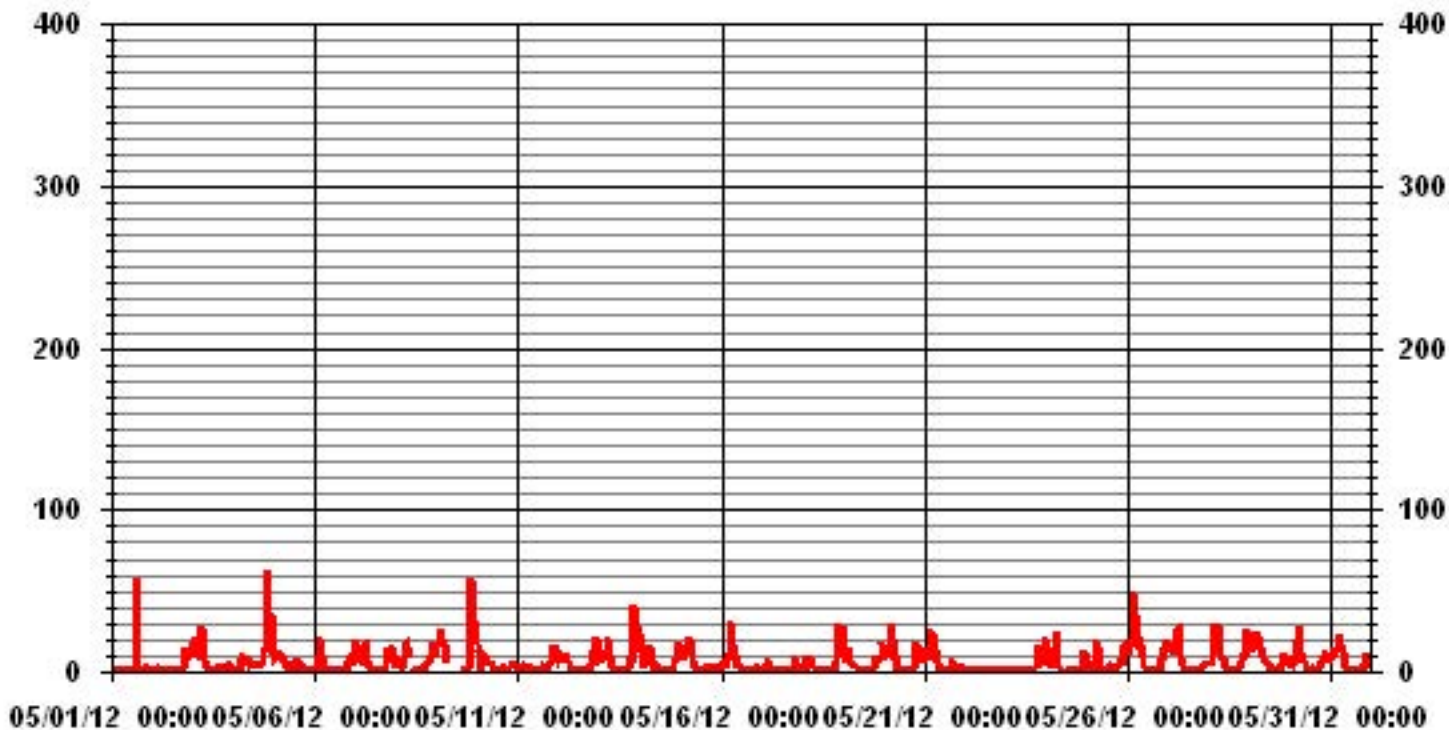
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	689					
MAXIMUM INSTANTANEOUS VALUE:	63	PPB	@ HOUR(S)	20	ON DAY(S)	4
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	738	HRS	
MONTHLY CALIBRATION TIME:	13	HRS				
STANDARD DEVIATION:	7.87					

01 Hour Averages



— LICA35 NOXMAX PPB

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

May 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	4.73	3.29	4.30	5.73	8.60	10.32	11.04	5.45	3.87	1.57	1.14	2.15	8.75	13.19	7.60	8.17	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	4.73	3.29	4.30	5.73	8.60	10.32	11.04	5.45	3.87	1.57	1.14	2.15	8.75	13.19	7.60	8.17	

Calm : .00 %

Total # Operational Hours : 697

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	33	23	30	40	60	72	77	38	27	11	8	15	61	92	53	57	697
< 110																	
< 210																	
>= 210																	
Totals	33	23	30	40	60	72	77	38	27	11	8	15	61	92	53	57	

Calm : .00 %

Total # Operational Hours : 697

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

May 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	4.73	3.29	4.30	5.73	8.60	10.32	11.04	5.45	3.87	1.57	1.14	2.15	8.75	13.19	7.60	8.17	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	4.73	3.29	4.30	5.73	8.60	10.32	11.04	5.45	3.87	1.57	1.14	2.15	8.75	13.19	7.60	8.17	

Calm : .00 %

Total # Operational Hours : 697

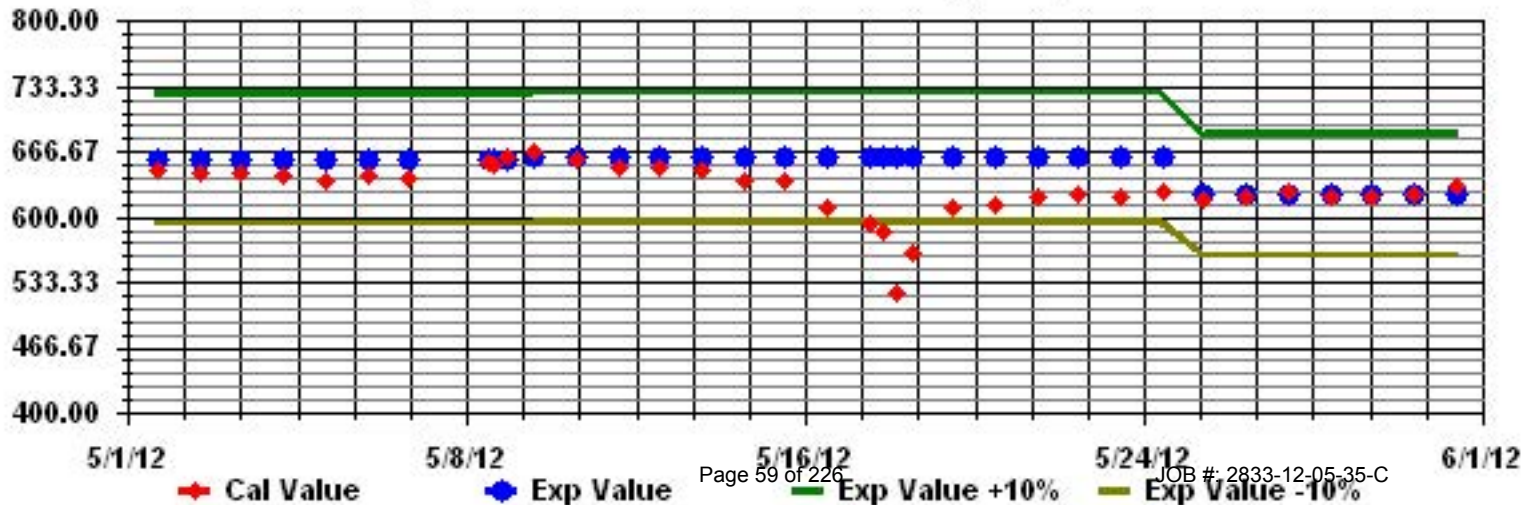
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	33	23	30	40	60	72	77	38	27	11	8	15	61	92	53	57	697
< 110																	
< 210																	
>= 210																	
Totals	33	23	30	40	60	72	77	38	27	11	8	15	61	92	53	57	

Calm : .00 %

Total # Operational Hours : 697

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



Ozone

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

MAY 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		
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	1	39	38	35	32	30	27	29	31	34	35	36	38	40	42	41	42	IZS	43	42	41	37	34	33	33	43	36.2	24	
2	2	32	31	28	26	25	32	33	35	41	45	47	46	45	47	48	IZS	50	49	47	38	35	35	26	20	50	37.4	24	
3	3	18	12	16	12	8	10	22	31	36	38	41	41	41	40	IZS	42	41	41	39	37	36	33	33	42	30.8	24		
4	4	34	33	30	30	28	26	27	27	27	28	25	24	23	IZS	24	24	20	24	21	17	12	5	7	4	34	22.6	24	
5	5	5	4	5	12	11	10	19	23	23	27	25	26	IZS	29	30	31	34	48	49	52	51	48	51	53	53	29.0	24	
6	6	52	51	38	31	38	42	45	46	48	51	54	IZS	56	57	56	56	56	56	56	53	46	46	46	42	57	48.8	24	
7	7	29	37	33	30	25	25	32	39	48	52	IZS	57	58	58	58	59	60	61	60	52	47	48	46	48	61	46.2	24	
8	8	50	38	40	46	43	29	30	43	52	P	N	N	N	N	N	N	N	N	N	N	N	N	27	29	52	38.8	11	
9	9	20	19	14	12	18	38	C	56	IZS	61	62	60	62	61	61	C	C	C	C	54	40	40	34	39	62	41.7	24	
10	10	34	34	40	38	35	36	37	IZS	41	43	43	45	45	45	45	44	45	44	43	40	39	34	36	45	40.5	24		
11	11	35	36	36	35	34	35	IZS	40	41	42	44	45	46	46	46	47	46	45	41	39	34	30	31	47	40.0	24		
12	12	32	28	31	32	31	IZS	37	41	44	47	48	49	51	52	52	52	53	52	52	49	42	42	30	36	53	42.7	24	
13	13	39	37	35	34	IZS	29	38	45	49	53	57	56	55	55	56	57	57	57	56	53	36	34	30	38	57	45.9	24	
14	14	35	41	47	IZS	43	44	43	49	50	49	47	47	47	47	48	49	51	51	50	48	46	37	31	24	51	44.5	24	
15	15	24	24	IZS	21	22	21	24	C	35	41	44	47	50	35	52	52	53	54	50	47	45	43	42	39	54	39.3	24	
16	16	37	IZS	33	32	25	16	29	30	35	46	52	52	54	55	55	54	52	51	51	50	48	43	41	45	55	42.9	24	
17	17	IZS	42	41	36	43	49	48	50	51	51	52	M	52	52	52	52	52	52	49	44	44	44	45	IZS	52	47.7	23	
18	18	42	37	27	26	26	24	27	29	32	33	33	32	40	44	43	45	45	44	43	35	29	16	IZS	16	45	33.4	24	
19	19	16	25	25	22	23	23	27	31	31	35	35	37	38	37	38	37	36	36	35	33	29	IZS	24	21	38	30.2	24	
20	20	15	18	19	14	8	9	13	24	34	41	43	45	46	47	49	50	52	53	50	46	IZS	35	35	30	53	33.7	24	
21	21	26	30	27	28	21	20	29	34	42	48	50	51	52	53	53	51	50	48	48	IZS	45	44	42	39	53	40.5	24	
22	22	39	38	37	34	32	31	31	30	28	28	28	28	28	30	33	35	36	36	IZS	34	35	36	36	36	39	33.0	24	
23	23	36	36	35	35	37	38	39	42	41	40	42	42	42	39	39	41	38	37	IZS	39	28	23	31	27	16	42	35.7	24
24	24	16	17	18	14	10	11	23	31	42	44	44	43	44	45	46	47	IZS	47	48	47	42	35	28	31	48	33.6	24	
25	25	35	35	33	29	30	21	30	31	33	41	43	46	48	51	48	IZS	49	49	46	41	39	29	20	19	51	36.8	24	
26	26	16	13	8	6	5	5	12	16	35	45	48	50	50	51	IZS	53	53	54	53	48	42	37	28	26	54	32.8	24	
27	27	24	18	15	12	10	11	19	27	42	47	50	50	50	IZS	51	51	51	51	50	47	43	36	39	38	51	36.2	24	
28	28	35	31	24	14	16	20	26	24	28	32	43	47	IZS	49	51	49	49	51	50	44	43	37	29	26	51	35.6	24	
29	29	22	19	18	13	8	12	18	21	26	33	42	IZS	53	54	53	52	53	52	52	48	40	41	39	42	54	35.3	24	
30	30	39	31	23	23	17	12	23	28	39	48	IZS	52	53	52	53	57	58	54	54	49	45	42	39	30	58	40.0	24	
31	31	31	22	22	19	13	10	14	22	33	IZS	45	48	49	49	49	48	49	50	44	40	35	34	34	50	35.2	24		
HOURLY MAX		52	51	47	46	43	49	48	56	52	61	62	60	62	61	61	59	60	61	60	54	51	48	51	53				
HOURLY AVG		30.2	29.2	27.8	24.9	23.8	23.9	28.4	33.7	38.0	42.2	43.7	44.6	47.0	47.2	47.6	47.2	47.7	48.4	47.5	43.6	39.3	36.6	33.5	31.8				

STATUS FLAG CODES

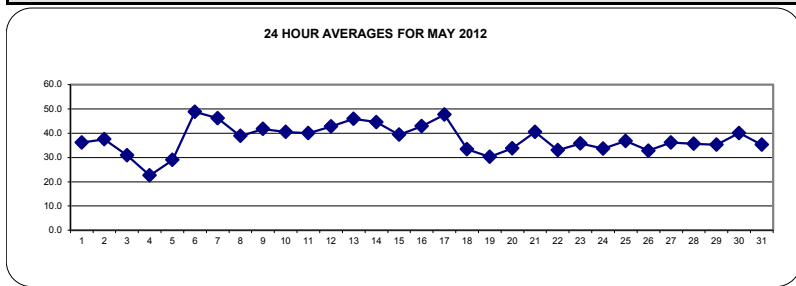
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

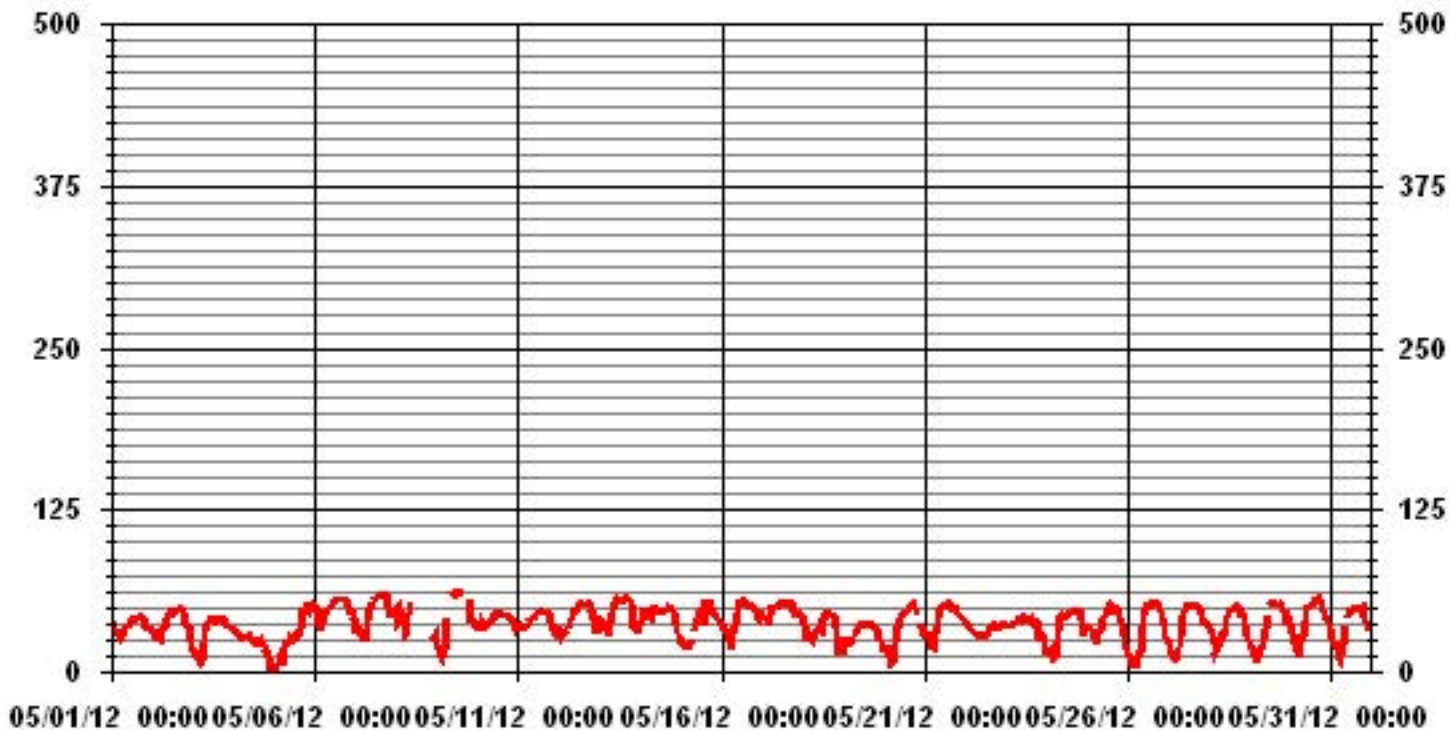
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	693				
MAXIMUM 1-HR AVERAGE:	62	PPB	@ HOUR(S)	10, 12	ON DAY(S) 9
MAXIMUM 24-HR AVERAGE:	48.8	PPB			ON DAY(S) 6
					VAR-VARIOUS
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	730	HRS
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	98.1	%
STANDARD DEVIATION:	12.49		MONTHLY AVERAGE:	37.56	PPB



01 Hour Averages



— LICA35 O3_ PPB

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

MAY 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	0:00	DAILY MAX.	24-HOUR AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	40	39	37	34	31	29	31	32	36	37	37	40	41	44	43	45	IZS	44	45	42	40	36	35	34	45	37.9	24	
2	33	32	31	29	28	34	34	38	43	48	48	46	46	48	49	IZS	51	50	49	47	40	40	30	25	51	40.0	24	
3	22	20	17	17	12	20	30	33	37	41	42	42	42	41	IZS	43	42	43	42	40	39	38	34	34	43	33.5	24	
4	35	34	31	31	30	29	29	29	29	29	28	26	25	IZS	26	27	22	28	25	19	19	10	10	6	35	25.1	24	
5	6	5	12	15	13	11	24	26	26	28	28	28	IZS	30	32	33	41	51	51	54	53	50	54	55	55	31.6	24	
6	54	55	48	42	41	44	46	48	50	54	57	IZS	58	59	57	56	58	58	57	56	49	51	49	48	59	52.0	24	
7	39	40	37	39	33	31	37	47	51	56	IZS	58	59	59	60	61	62	62	64	57	54	51	50	52	64	50.4	24	
8	51	50	47	48	49	38	35	49	P	P	N	N	N	N	N	N	N	N	N	N	N	N	N	33	32	51	43.2	10
9	26	24	21	16	28	46	C	59	IZS	62	63	64	63	63	63	C	C	C	C	57	48	44	43	43	64	46.3	24	
10	40	41	42	40	39	38	39	IZS	42	44	45	46	46	46	47	48	45	46	45	45	44	40	36	37	48	42.7	24	
11	36	37	37	36	35	36	IZS	41	42	43	45	47	47	47	48	47	47	47	46	44	43	37	35	36	48	41.7	24	
12	35	33	35	34	34	IZS	39	44	46	48	49	51	53	53	52	53	54	54	53	52	47	46	41	39	54	45.4	24	
13	40	40	40	39	IZS	35	43	49	52	57	58	57	57	56	57	58	58	61	59	56	51	44	38	43	61	49.9	24	
14	41	49	49	IZS	47	48	48	51	52	51	49	48	48	48	49	50	52	52	52	50	49	46	36	27	52	47.5	24	
15	29	28	IZS	27	26	25	C	41	43	46	50	52	52	53	54	55	55	55	53	50	46	44	43	40	55	43.4	24	
16	39	IZS	36	34	31	28	34	C	33	40	51	53	54	56	56	55	53	52	52	51	51	48	44	48	56	45.9	24	
17	IZS	46	46	44	48	50	50	52	52	52	53	M	53	53	53	54	54	53	52	48	46	46	46	IZS	54	50.0	23	
18	44	40	34	30	29	28	30	32	34	35	35	35	43	46	45	50	46	45	45	42	35	24	IZS	20	50	36.8	24	
19	22	29	27	26	26	24	31	35	35	37	37	39	39	38	39	37	37	37	36	34	IZS	28	27	39	33.0	24		
20	26	21	24	21	16	13	17	33	36	43	45	46	47	48	50	52	54	54	54	50	IZS	40	38	36	54	37.6	24	
21	32	33	32	33	31	24	32	39	45	49	51	52	54	54	54	53	51	50	50	IZS	46	45	44	42	54	43.3	24	
22	40	39	38	35	33	32	32	32	30	29	29	29	30	32	35	36	37	37	IZS	35	36	36	37	37	40	34.2	24	
23	37	36	36	36	38	40	42	43	42	42	43	44	41	42	43	40	39	IZS	45	37	29	36	33	21	45	38.5	24	
24	22	19	21	16	15	14	27	37	44	45	45	44	46	47	47	48	IZS	49	49	48	45	40	36	35	49	36.5	24	
25	36	37	36	35	34	34	37	36	36	44	45	47	52	53	51	IZS	53	50	50	44	47	38	29	22	53	41.1	24	
26	21	18	14	10	9	9	14	21	42	49	50	51	54	53	IZS	54	55	55	54	52	44	45	35	32	55	36.6	24	
27	30	24	19	17	13	15	26	36	48	50	51	51	51	IZS	52	52	52	53	51	50	46	43	43	40	53	39.7	24	
28	38	33	31	27	22	26	29	25	31	41	46	49	IZS	51	52	50	52	53	52	50	47	43	36	33	53	39.9	24	
29	28	29	26	18	11	17	20	23	30	38	48	IZS	54	56	54	54	54	54	53	53	45	43	41	44	56	38.8	24	
30	44	36	35	27	25	19	31	34	46	53	IZS	54	54	53	54	60	60	56	56	55	50	48	42	36	60	44.7	24	
31	38	28	26	24	17	13	17	31	38	IZS	48	50	50	50	51	51	50	51	51	48	43	39	36	36	51	38.5	24	
HOURLY MAX	54	55	49	48	49	50	50	59	52	62	63	64	63	63	63	61	62	62	64	57	54	51	54	55				
HOURLY AVG	34.1	33.2	32.2	29.3	28.1	28.3	32.3	37.5	40.6	44.8	45.5	46.2	48.6	49.2	49.0	49.0	49.4	50.0	49.7	47.2	43.7	41.1	37.8	35.3				

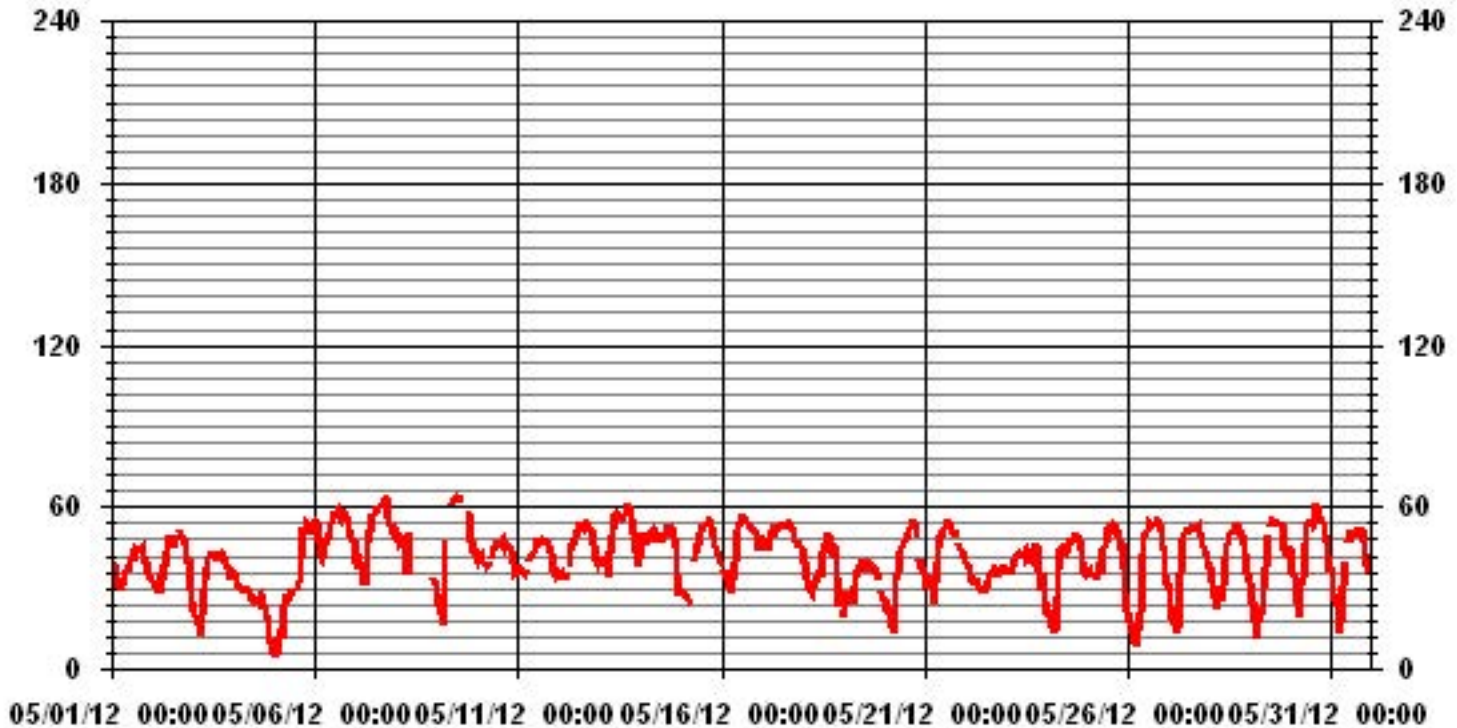
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	691					
MAXIMUM INSTANTANEOUS VALUE:	64	PPB	@ HOUR(S)	18, 11	ON DAY(S)	7, 9
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	729	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	11.62					

01 Hour Averages



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

May 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	2.74	2.59	4.18	5.77	7.93	9.52	9.37	3.17	1.87	.57	1.01	1.15	8.22	10.67	7.21	5.05	81.09
< 110	2.16	.72	.43	.14	.72	1.01	1.58	2.30	1.15	.57	.14	1.01	.57	2.59	.43	3.31	18.90
< 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	4.90	3.31	4.61	5.91	8.65	10.53	10.96	5.48	3.03	1.15	1.15	2.16	8.80	13.27	7.64	8.36	

Calm : .00 %

Total # Operational Hours : 693

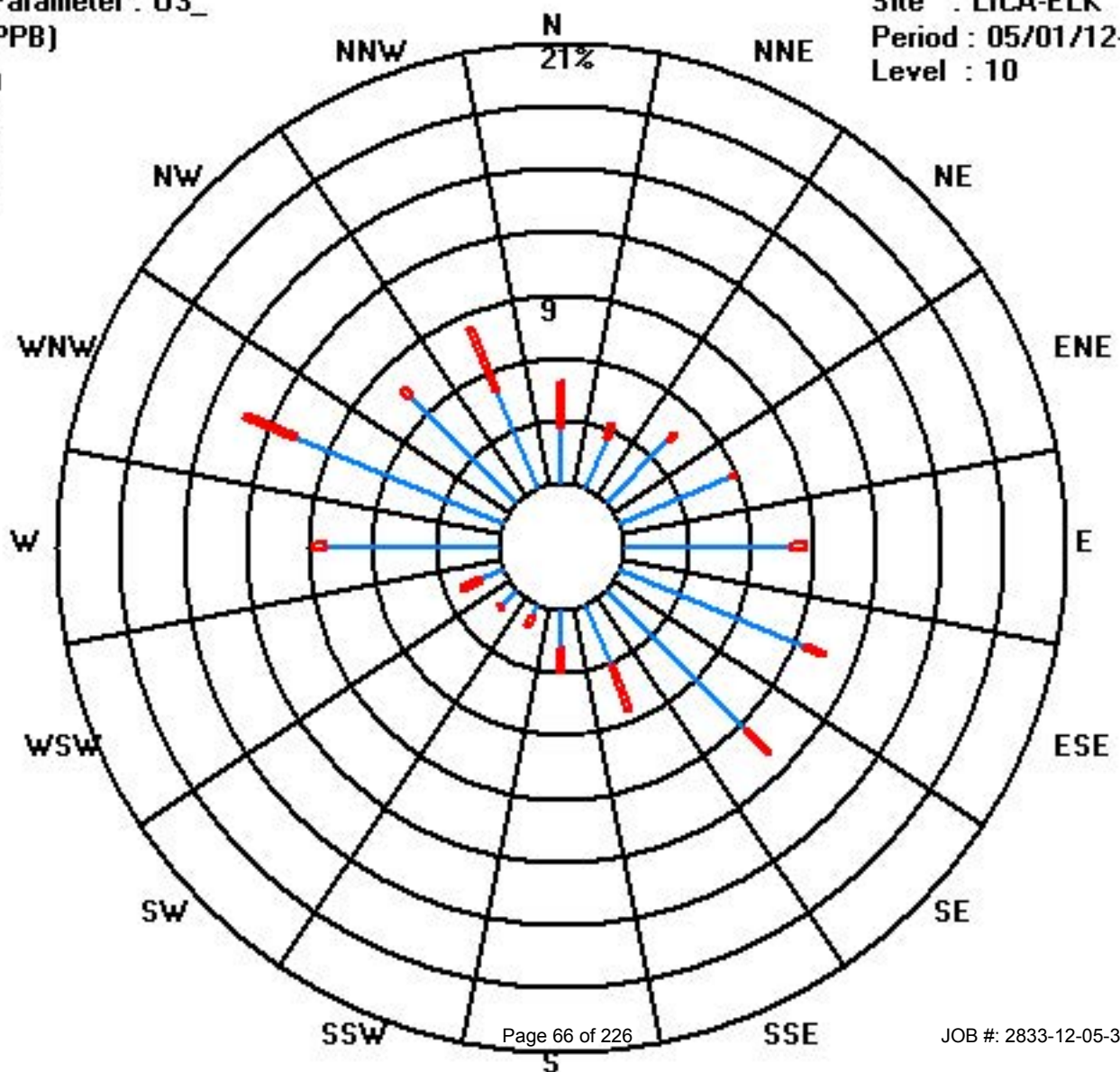
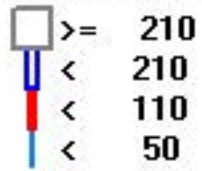
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	19	18	29	40	55	66	65	22	13	4	7	8	57	74	50	35	562
< 110	15	5	3	1	5	7	11	16	8	4	1	7	4	18	3	23	131
< 210																	
>= 210																	
Totals	34	23	32	41	60	73	76	38	21	8	8	15	61	92	53	58	

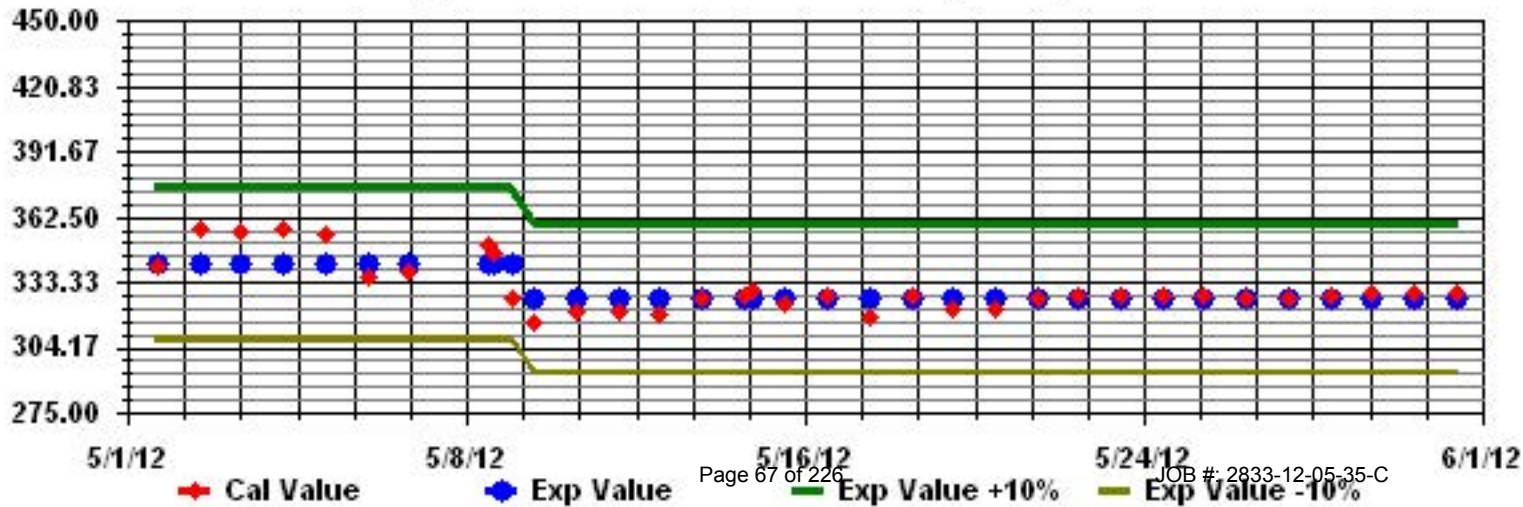
Calm : .00 %

Total # Operational Hours : 693

Class Limits (PPB)



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



Total Hydrocarbons

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

MAY 2012

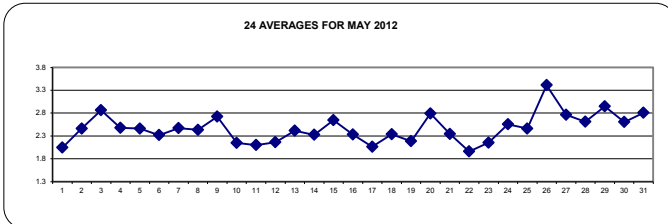
TOTAL HYDROCARBONS (THC) hourly averages in ppm

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	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	AVG.	RDGS.			
1		1.9	2	2	2.1	2.1	2.3	2	2	1.9	2	2	1.9	1.8	1.9	1.8	IZS	2.1	2	2	2.4	2.3	2.3	2.3	2.4	2.0	24			
2		2.2	2.3	2.6	2.5	2.5	2.5	2.4	2.3	2.3	2.2	2.2	2.1	2.1	2.2	2.2	IZS	2	1.9	2.1	2.3	3.7	2.7	3.3	4	4.0	2.5	24		
3		4.1	4.8	4	4	4.8	4.9	3.8	2.7	2.2	2.4	2.1	2	1.9	2	IZS	2	2	2.2	2.2	2.1	2.2	2.3	2.6	2.5	4.9	2.9	24		
4		2.3	2.3	2.3	2.3	2.5	2.5	2.4	2.6	2.4	2.3	2.3	2.3	2.3	IZS	2	2	2.1	2	2.2	2.6	2.6	3.6	3.6	3.4	3.6	2.5	24		
5		3.5	3.6	3.3	2.6	2.9	3.3	2.7	2.3	2.3	2.2	2.2	2.3	IZS	2.2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	3.6	2.5	24		
6		2.1	2.1	2.7	2.8	2.3	2.2	2.3	2.2	2.1	2.1	IZS	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.4	2.5	3.8	3.8	2.3	24			
7		3.4	2.4	2.5	2.9	3.3	3.2	3.1	2.5	2.4	2.3	IZS	2	2	2	2	1.9	1.9	2	2.3	2.7	2.6	2.8	2.6	3.4	2.5	24			
8		2.3	2.8	2.6	2.3	2.3	2.6	2.6	2.4	2.3	P	N	N	2	2	2	2	2	2	2.3	2.2	2.4	3.8	3.3	2.9	3.8	2.4	21		
9		3.4	3.8	4.4	4.7	3.6	2	C	2	IZS	1.9	C	C	M	M	2	2	2	2.1	2.1	2.1	2.3	2.6	3.5	2.5	4.7	2.7	22		
10		2.5	2.4	2.1	2.3	2.3	2.2	2.3	IZS	2.1	C	C	C	C	C	C	2	2	1.9	2	2	2.1	2	2.2	2.1	2.5	2.1	24		
11		2	2	2.1	2	2	2	IZS	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.3	2.9	2.8	2.9	21	24	
12		2.2	2.5	2.4	2.1	2.1	IZS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.3	2.3	3.2	2.6	3.2	2.2	24	
13		2.1	2.3	2.7	2.6	IZS	2.5	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	3.3	3.5	3.3	3.3	3.5	2.4	24		
14		3	2.6	2.1	IZS	2.2	2.5	2.4	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2.4	2.6	3.5	3.9	3.9	2.3	24		
15		3.7	3.4	IZS	3.7	3.9	3.9	3.7	3.3	2.8	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	3.9	2.6	24			
16		2.4	IZS	2.4	2.7	2.9	2.8	2.9	3	2.7	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.0	2.3	24		
17		IZS	2.2	2.1	2.5	2.1	2	2	2	2	2.1	2	M	2	2	2	2	2	2	2	2.1	2.1	2.1	2	IZS	2.5	2.1	23		
18		2	2.1	2.6	2.6	2.7	2.7	2.5	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	3.1	IZS	2.9	3.1	2.3	24		
19		3.1	2.3	2.1	2.5	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	2.3	IZS	2.4	2.7	3.1	2.2	24		
20		3.5	3.2	3.3	3.4	6	4.6	4.2	2.8	2.1	2	2	2	2	2	2	2	2	2	2.1	2.2	IZS	2.6	2.5	3.7	6.0	2.8	24		
21		3	3.1	2.9	3.1	3	3.1	2.8	2.6	2.3	2	2	2	2	2	2	2	2	2	2	2	IZS	2	2	2	3.1	2.3	24		
22		2	2	2	2	2	2	2	1.9	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	IZS	2	2	2	2	2.0	2.0	24		
23		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	IZS	2.1	2.4	3	2.4	2.5	3.1	3.1	2.2	24	
24		4.7	3.4	2.3	3.5	3.6	3	2.7	2.5	2.1	2.1	2	2	2	2	2.1	2.1	2.1	2.1	IZS	1.9	2	2	2.1	2.6	3.4	2.5	4.7	2.6	24
25		2.3	2.2	2.2	2.4	2.1	3.6	2.7	2.6	2.2	2	2	2	2	2	2	IZS	2	2	2.1	2.2	2.2	3.1	4	4.7	4.7	2.5	24		
26		4.1	4.2	4.7	4.6	7	7	5.3	4.6	2.6	2.1	2.1	2.1	2.1	2	IZS	2	2.1	2	2.1	2.3	2.4	2.7	4	4.3	7.0	3.4	24		
27		3.1	3.4	3.7	4	4.4	4.5	4.3	3.7	2.6	2.2	2	2	2	IZS	2	2	2	2	2	2	2.2	2.5	2.5	2.4	4.5	2.8	24		
28		2.3	2.4	2.9	5.2	4.6	2.9	2.1	2.4	2.2	2.1	2	2	IZS	2	2	2	2	2	2.1	2.4	2.7	3.1	3.2	3.4	5.2	2.6	24		
29		4.4	3.6	3.7	4.8	4.7	4.9	3.8	3.2	2.8	2.5	2.3	IZS	2	2	2	2	2	2	2	2.4	3	2.5	2.7	2.5	4.9	2.9	24		
30		2.6	3.1	3.4	3.1	3.8	4	3.5	3.1	2.7	2.2	IZS	2	2	2	2	2	2	2	2	2.1	2.2	2.5	2.3	3.3	4.0	2.6	24		
31		3.1	5.6	3.9	3.8	5.1	6	4	3.1	2	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.3	2.3	2.2	6.0	2.8	24		
HOURLY MAX		4.7	5.6	4.7	5.2	7.0	7.0	5.3	4.6	2.8	2.5	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.2	2.3	2.6	3.7	3.8	4.0	4.7					
HOURLY AVG		2.8	2.9	2.8	3.0	3.2	3.2	2.9	2.6	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.4	2.6	2.8	2.9					

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
BB	- BELOW BACKGROUND OF 1.5 PPM		

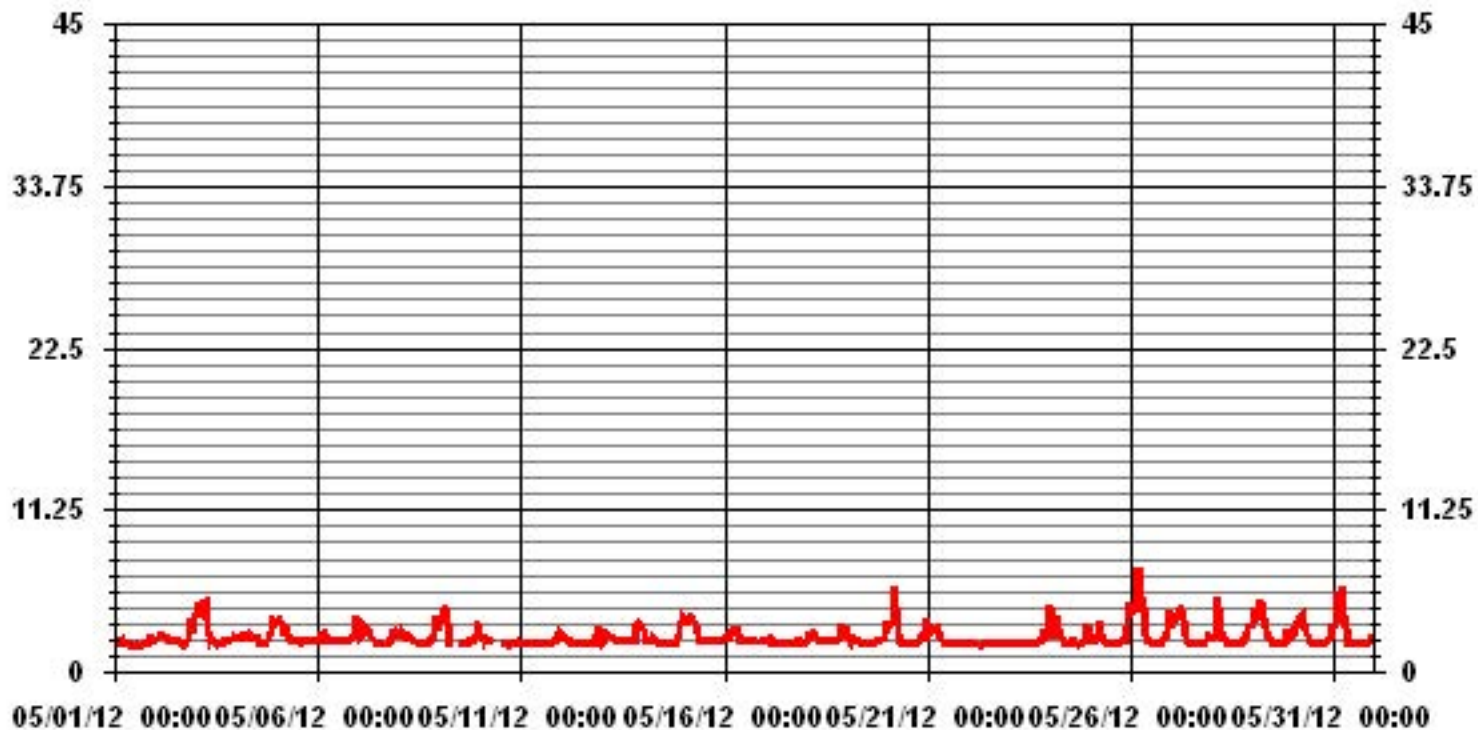
24 AVERAGES FOR MAY 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	698				
MAXIMUM 1-HR AVERAGE:	7.0 PPM	@ HOUR(S)	4, 5 ON DAY(S)	26	
MAXIMUM 24-HR AVERAGE:	3.4 PPM			ON DAY(S)	26
IZS CALIBRATION TIME:	31 HRS	OPERATIONAL TIME:	738 HRS		
MONTHLY CALIBRATION TIME:	9 HRS	AMD OPERATION UPTIME:	99.2 %		
STANDARD DEVIATION:	0.74	MONTHLY AVERAGE:	2.46 PPM		

01 Hour Averages



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

MAY 2012

TOTAL HYDROCARBONS MAX instantaneous maximum in ppm

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	2	2.3	2.1	2.2	2.5	2.6	2.1	2	2	2.1	2.1	1.9	1.9	2	2	1.9	IZS	2.2	2.1	2.1	2.6	2.5	2.7	2.5	2.7	2.2	24	
2	2.4	2.6	5	4.2	2.9	3.1	2.5	2.5	2.4	2.5	2.3	2.3	2.2	2.3	2.4	IZS	2.1	2.1	2.2	2.9	5.4	2.9	4.6	4.9	5.4	3.0	24	
3	5.8	6.9	4.7	6.1	5.9	6.3	4	3.1	2.4	2.5	2.3	2.1	2.1	2.2	IZS	2.1	2.1	2.3	2.9	2.4	2.5	2.9	3	2.7	6.9	3.4	24	
4	2.5	2.4	2.5	2.7	2.8	2.6	2.7	3.3	2.8	2.5	2.6	2.6	2.5	IZS	2.2	2.3	2.2	2.2	4.2	4.4	3.5	8	5.1	4.6	8	3.2	24	
5	4.4	4.3	4.6	3.2	3.8	4.8	3.2	2.5	2.7	2.3	2.5	2.3	IZS	2.6	2.1	2.3	2.6	2.3	2.5	2.2	2.2	2.2	2.3	2.3	4.8	2.9	24	
6	2.2	2.7	6.1	4.2	4.7	2.3	2.3	2.3	2.3	2.2	2.1	IZS	2.2	2.1	2.3	2.3	2.4	2.2	2.2	7.3	4.2	5.2	4.3	8.8	8.8	3.4	24	
7	9.7	2.6	3	4.6	3.7	3.6	3.4	2.7	2.6	2.6	IZS	2.1	2.1	2	2.2	2.1	2	2.2	3.8	4.2	3	2.8	4	3.7	9.7	3.2	24	
8	2.4	3.4	2.9	2.5	2.8	2.9	2.9	2.9	P	P	N	N	2.1	2.2	2.6	2.1	2.2	3.1	3.8	2.5	2.5	6.4	5.6	5.8	6.4	3.2	20	
9	6.2	6.4	5.4	10.8	5.3	2.6	C	2	IZS	C	C	C	M	M	2	2	2.2	2.4	2.4	2.8	2.8	3	7.7	5	10.8	4.2	22	
10	3	2.9	2.2	3	2.9	2.3	2.9	IZS	2.5	C	C	C	C	C	2.2	2.2	2	2.1	2.1	2.2	2.2	2.4	2.2	3	2.4	24		
11	2.2	2.1	2.3	2.1	2.1	2.1	IZS	2.1	2.1	2	2.2	2	2.1	2.2	2.5	2.3	2.2	2.2	2.3	2.2	2.3	3	3.3	3.3	3.3	2.3	24	
12	2.5	3.8	3	2.2	2.3	IZS	2.1	2.1	2.1	2.1	2	2	2	2	2.1	2.1	2	2.1	2.1	2.4	2.6	2.8	4.4	3.1	4.4	2.4	24	
13	2.2	3.7	4.5	4.1	IZS	3	2.7	2.3	2.3	2.2	2.3	2.5	2.4	2.3	2.2	2.3	2.4	2.4	2.5	2.4	8.2	5.1	4.4	4.6	8.2	3.2	24	
14	3.7	3.8	5	IZS	4.1	3.5	4	2.6	2.5	2.5	2.4	2.4	2.2	2.1	2.1	2	2	2	2	2	8.5	3.5	4.5	6.9	8.5	3.3	24	
15	5.2	4.2	IZS	4.7	4.7	4.4	4.3	3.5	3.4	2.3	2.2	2.3	2.2	2.2	2.2	2.3	2.1	2.4	2.4	2.4	2.4	2.4	2.4	2.6	5.2	3.0	24	
16	3.7	IZS	2.6	5.3	3.7	3	3	4.2	3.2	2.5	2.4	2.2	2.2	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.6	2.5	2.5	2.2	5.3	2.7	24	
17	IZS	3.3	3.6	4.9	3.4	2.1	2.1	2.1	2.1	2.4	2.1	M	2.1	2.1	2.1	2.2	2.3	2.1	2.3	2.3	2.3	2.2	2.1	IZS	4.9	2.5	23	
18	2.1	2.2	3.5	3.3	3.7	3	3	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.6	3.1	4.2	IZS	3.4	4.2	2.7	24	
19	4.8	2.8	2.5	4	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.4	2.3	2.4	2.4	2.4	2.7	2.9	2.7	2.6	IZS	3	3.5	4.8	2.6	24	
20	4.5	3.8	4.5	4.6	17.9	6	5	3.8	2.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.8	IZS	2.9	2.9	5	17.9	3.8	24	
21	4	3.7	3.3	4	3.3	3.9	3	3.4	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2.5	2.4	IZS	2.1	2.1	2	2	4	2.6	24	
22	2.1	2.1	2	2.1	2.1	2.1	2.2	2.2	2.3	2.1	2	2	2	2	1.9	1.9	1.9	2	IZS	2	2	2	2	2	2	2.3	2.0	24
23	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2.1	2.1	2.1	2.1	2.2	IZS	2.3	3	4	2.6	2.9	3.4	4	2.3	24	
24	8.6	7.1	2.3	6.9	6.3	4.7	3.6	2.7	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	IZS	2	2	2	2.2	6.2	6.3	2.8	8.6	3.6	24	
25	2.5	2.4	3.1	3.8	2.5	5.4	4.6	3.8	2.3	2.2	2.4	2.1	2.4	2.1	2.1	IZS	2.2	2.2	2.2	2.5	2.7	4.3	7	7.8	7.8	3.2	24	
26	5.2	4.8	7.7	5.5	11.6	8.8	5.9	4.9	4.2	2.3	2.3	2.2	2.4	2.3	IZS	2.9	2.9	2.3	3.1	4.2	2.6	3.3	6.6	8.1	11.6	4.6	24	
27	4.1	4	4.6	4.9	4.8	5.1	4.6	4.2	3.2	2.4	2.1	2.1	2.1	IZS	2	2	2.2	2	2.1	2.1	2.6	3.8	3.5	3.4	5.1	3.2	24	
28	2.8	3.9	5	15.8	9.8	5.3	2.3	2.9	2.6	2.2	2.3	2.2	IZS	2.1	2	2.1	2.1	2.1	3.2	2.7	2.9	4.3	4	3.9	15.8	3.8	24	
29	5.9	4.1	4.6	6.3	5.2	5.8	4.3	3.4	3.3	2.7	2.5	IZS	2.2	2.1	3	2.3	2.2	2.1	2.1	3.1	4.4	2.6	2.8	2.7	6.3	3.5	24	
30	3.1	3.9	3.8	3.6	5.4	5.4	4.1	3.3	3	2.5	IZS	2.2	2.4	2.3	2.1	2.1	3.3	3.7	2.2	2.7	2.5	6.1	3	8.4	8.4	3.5	24	
31	4.1	12.1	7.3	6.2	9.4	7.3	4.8	4.3	2.2	IZS	2.1	2.2	2.1	2	2	2	2.2	2.2	2	2	2.5	2.4	2.7	2.5	12.1	3.9	24	
HOURLY MAX	9.7	12.1	7.7	15.8	17.9	8.8	5.9	4.9	4.2	2.7	2.6	2.6	2.5	2.6	3.0	2.9	3.3	3.7	4.2	7.3	8.5	8.0	7.7	8.8				
HOURLY AVG	3.9	3.9	3.9	4.7	4.8	3.9	3.3	2.9	2.6	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.5	2.8	3.2	3.5	3.8	4.1				

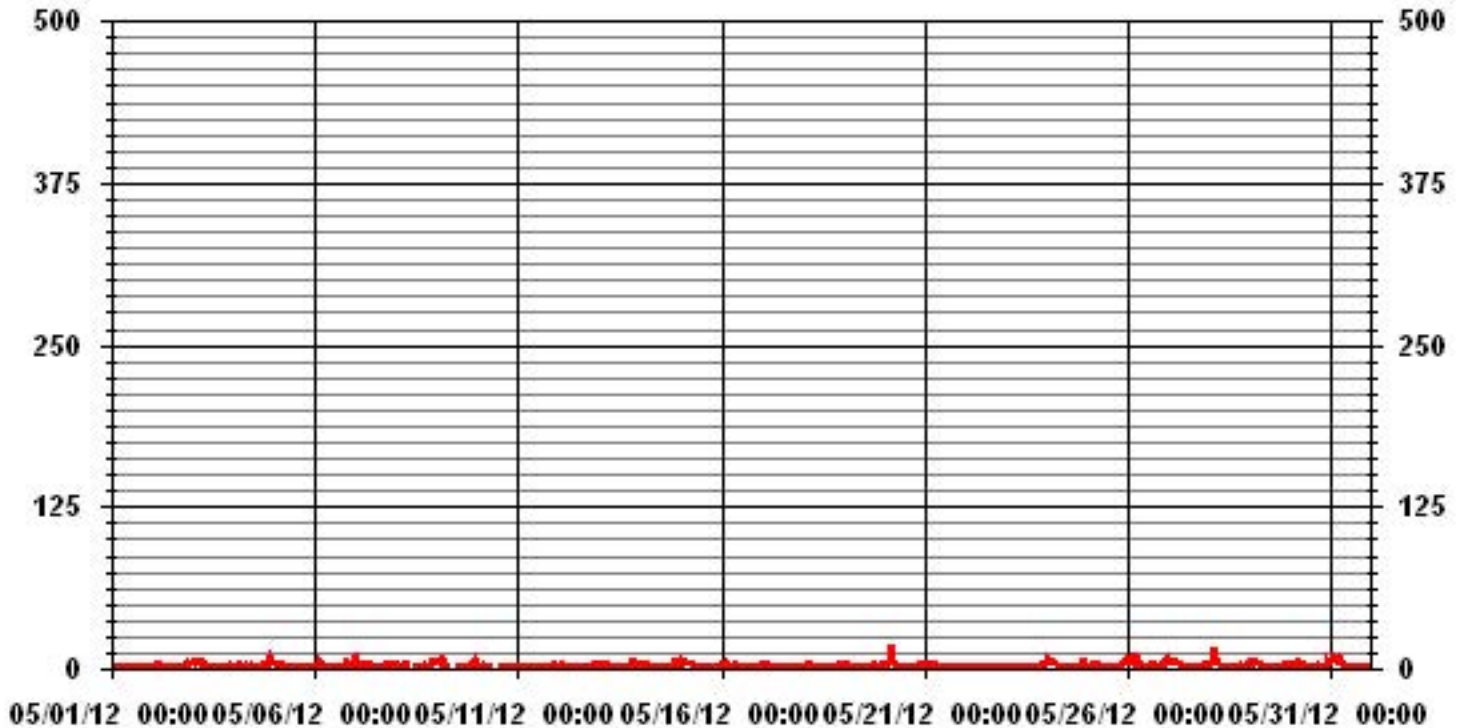
STATUS FLAG CODES

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:	696					
MAXIMUM INSTANTANEOUS VALUE:	17.9	PPB	@ HOUR(S)	4	ON DAY(S)	20
IZS CALIBRATION TIME:	31	HRS	OPERATIONAL TIME:	737	HRS	
MONTHLY CALIBRATION TIME:	10	HRS				
STANDARD DEVIATION:	1.65					

01 Hour Averages



— LICA35 THCMAX PPM

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

May 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	3.86	3.15	3.86	5.30	7.16	5.58	9.02	5.01	3.29	1.57	1.00	2.14	7.59	10.88	5.15	8.02	82.66	
< 10.0	.85	.14	.71	.57	1.43	5.01	2.00	.57	.42	.00	.14	.00	1.14	1.43	2.43	.42	17.33	
< 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	4.72	3.29	4.58	5.87	8.59	10.60	11.03	5.58	3.72	1.57	1.14	2.14	8.73	12.32	7.59	8.45		

Calm : .00 %

Total # Operational Hours : 698

Distribution By Samples

	Direction																	
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 3.0	27	22	27	37	50	39	63	35	23	11	7	15	53	76	36	56	577	
< 10.0	6	1	5	4	10	35	14	4	3		1		8	10	17	3	121	
< 50.0																		
>= 50.0																		
Totals	33	23	32	41	60	74	77	39	26	11	8	15	61	86	53	59		

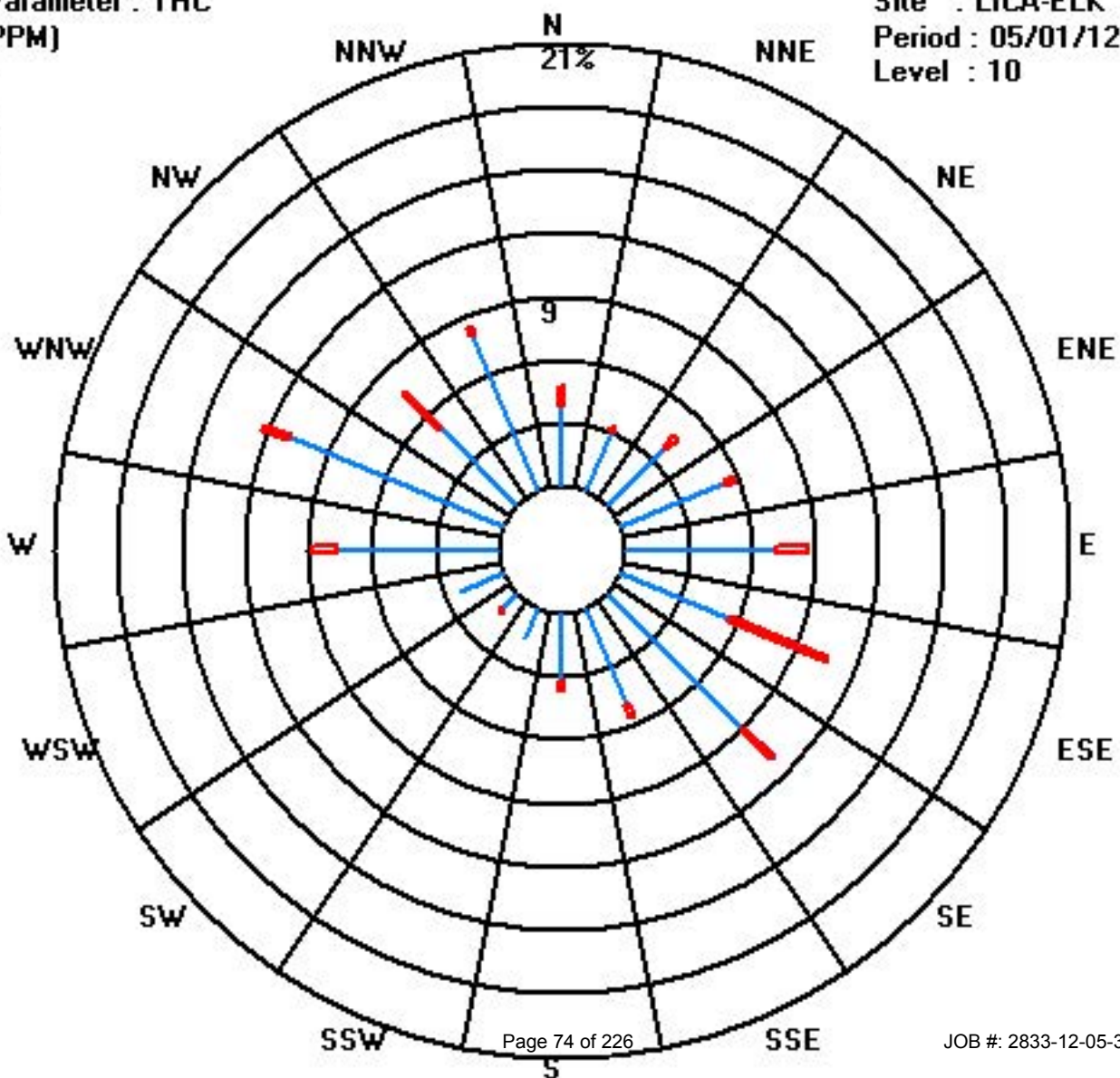
Calm : .00 %

Total # Operational Hours : 698

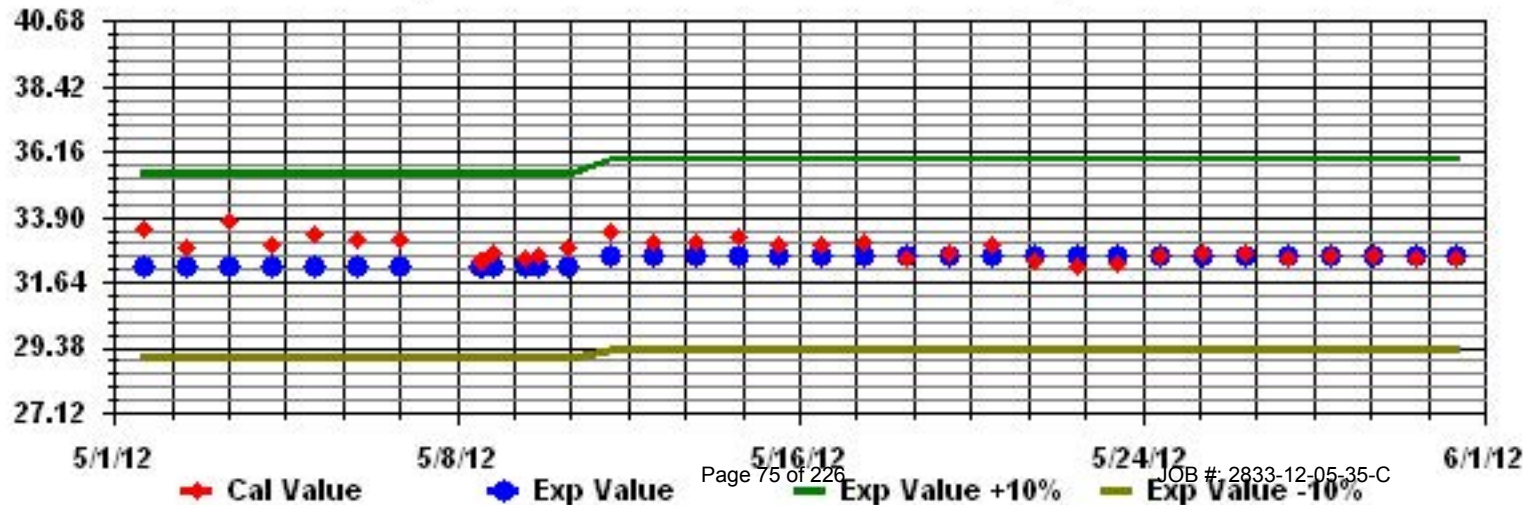
Class Limits (PPM)

Period : 05/01/12-05/31/12

Level : 10



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



Vector Wind Speed

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

MAY 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	24-HOUR	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.
DAY																											
1	13.1	13.3	13.7	13.9	9.6	10.5	13.4	16.9	14.3	16.2	16.7	17.7	15.7	16.3	16.7	18.2	17	16.1	14.8	11	8.2	9.1	11.4	11.9	18.2	13.8	24
2	12.4	11.1	4.7	5.8	4.5	5.5	10.3	9.6	13	14.5	12.6	12.4	9.5	12.1	9.5	7.4	7.3	8.9	9.3	6.1	4.6	5.8	2.6	5.5	14.5	7.4	24
3	4.4	6.6	2.8	3.8	4.5	6.9	14	15.6	25.3	28.2	31.5	31	30.9	24.9	25.9	32.2	30	26.9	24.9	23.4	19.3	17.9	18.2	22.5	32.2	19.5	24
4	24.3	21.2	18.3	20.2	17.8	18.1	18.4	18.5	18.5	20.5	17.5	15.6	13.5	12.1	7.4	6.3	10.2	6.8	9.7	6.8	1.5	7.5	6.6	4.6	24.3	13.2	24
5	3.1	1.8	5	4.8	3.2	0.6	5.9	8.1	5.3	4.1	13.1	17.7	4.4	3.1	2.1	5.5	8.4	17.6	21.9	18.6	12.4	23	21.6	17.5	23.0	9.5	24
6	18.9	13	9.6	11.6	15.8	20	21.3	22.2	21.3	24.1	25.9	29.6	30	27.2	27.6	26.6	24.3	22.2	22.9	15.7	14.4	11.2	10.7	9.3	30.0	19.8	24
7	7.9	8.3	6.6	5	6.7	5.8	6.6	3.1	3.5	6.3	5	5.7	6.7	7.3	6.5	7.9	6.8	5.9	5.3	7.6	10	10.4	10.2	11.1	11.1	6.9	24
8	12.7	7.3	7.8	11.7	9	7.3	9.2	8.7	17.7	P	28.5	27.5	25.2	28.3	24.7	21.9	22.1	16.4	8.9	9.1	10	11	11.6	7.6	28.5	15.1	23
9	6.7	5.7	4.2	1.3	12.5	18.1	25.1	28.5	26.6	24.7	21.2	20.1	20.2	20.8	20.4	16.7	21.3	21.1	20.6	9.1	4.4	9.6	14.1	12.7	28.5	16.1	24
10	8.8	11.1	16.4	16.2	12.6	12.7	21.4	26.9	30.4	32.5	34.1	32.2	28.2	29.6	33.4	29.3	25.2	21.9	19.5	16.2	11.8	12.1	10.8	10.9	34.1	21.0	24
11	13	13.5	12.9	15.9	16.8	15.4	23.8	30.7	31.6	28.6	29.5	32.8	32.8	31.2	32.6	29.5	30	28.3	20.9	14.5	9.8	10	9.4	7.5	32.8	21.7	24
12	7	2.9	7.7	7.5	5.7	7.5	12.4	19	22.6	26.1	26.2	28.9	28	31	34.9	33.1	33.9	31.3	27.4	14.4	10.3	12.5	8.9	10.4	34.9	18.7	24
13	10.5	8.9	9.9	8.4	7.8	7.3	12.4	15.5	21.8	22	25.6	31.9	34.7	29.9	31	31.1	27.8	26.2	18.1	11.8	11.9	6.9	8	9.7	34.7	17.9	24
14	10.5	14.8	18.9	13.3	11.5	18.8	20.3	30.9	37.1	42.6	37.4	31.4	31.4	25.5	24.3	20.3	18.4	16	13.2	7.2	5.1	2.4	5.9	8.3	42.6	19.4	24
15	10.1	9.3	8.4	6	8	9.3	9.1	16.2	18.1	23.6	24.1	27.7	29.7	25.2	23.7	25.1	21.7	20.6	22.1	27.1	24.1	21.3	22.3	14.7	29.7	18.6	24
16	11.7	8.4	8	6.9	1.9	0.1	0.5	6.1	5.9	9.8	13.1	15.6	14.4	11	9.6	12.3	28.7	28	27.8	23.1	23.8	23.5	13	10.2	28.7	13.1	24
17	13.5	8	11.7	11.2	20.6	25.3	19.9	20.5	20	18.7	16.3	20.6	19.2	18.6	12.3	11.5	5.7	7.6	6.4	13	10	12.9	16.8	7.4	25.3	14.5	24
18	13.8	10.4	7.1	2.2	2.1	5.7	7.1	2.3	3.5	6.5	4.1	0.4	4	0.9	0.3	3.9	6.1	4.4	3.1	6.1	6	6	6.7	7.3	13.8	5.0	24
19	10.3	9.4	7.2	8.8	9.4	9.7	14.5	23.8	23	26.2	28.5	28.3	31.1	30.7	31.9	32.2	26.8	26.6	20.1	14.6	9	4.6	7.4	3.2	32.2	18.2	24
20	2.1	2.9	5.2	4.3	3.6	1.7	4.5	4.9	7.7	7	6.1	5.6	4.8	8.4	7.8	4	4.2	3.9	4.6	4.9	7.5	8	8.1	7.2	8.4	5.4	24
21	6.7	4.8	3.5	1.8	2.2	5.1	7	14.4	18.1	22.8	22.5	20.7	23.1	20.8	22.6	22.9	24	22.1	23.2	23	26.2	25	27.3	24.3	27.3	17.3	24
22	19.1	19.2	21.5	19.8	20.1	19.6	22.3	22.8	17.1	17.4	18.3	17	14.5	18.6	20.4	20	20.4	17.6	16.4	16.9	17.2	16.5	15.6	16.5	22.8	18.5	24
23	14.9	13.5	13.3	13	12.4	13.1	15	15.3	16	17.1	19.3	20.2	19.1	17.9	17.4	10.1	8.2	7.7	1.7	4.1	8.1	9.2	8.5	10.4	20.2	12.7	24
24	9.3	9.4	9.8	7.6	5.6	5.1	2.6	3.6	10.2	10.9	10.9	12.5	13.3	13.8	15.6	15.6	17.1	14.3	12.2	10.9	7.5	5.1	5.2	3.3	17.1	9.6	24
25	8.4	7	2.9	9.1	8.3	4.2	2.4	8.3	8.9	10	9.3	9.7	21.5	5.8	12.3	11.3	5.8	8.7	9.7	4.2	4.2	4.5	5	1.4	21.5	7.6	24
26	0.3	1.6	0.7	0.5	1.4	1.4	1.2	1.6	3.5	2.6	3.1	3.4	8.1	13.1	14	14.1	12.5	11.6	11.4	6.4	7.9	8.8	9.6	6.6	14.1	6.1	24
27	4.5	5.6	4.8	3.6	3	4.4	4.2	5	6.9	13.6	20.6	23.7	16.3	11.2	12.9	10.9	15.4	15.7	14.2	10.4	5.8	4.3	12.7	7.7	23.7	9.9	24
28	2.6	5.7	7	10.6	9.6	8.1	9.9	7	6.9	2.7	9.5	11.2	12.7	10.5	11.1	8.3	11.3	9.4	10.8	7.8	7.4	5.4	4	2.8	12.7	8.0	24
29	0.9	0.3	0.5	4.1	6.1	3	8.1	9.5	11.5	9.6	8.3	11.5	12.4	14.6	13.4	12.4	15.2	11.7	11.4	9.3	8.3	9	8.1	9.7	15.2	8.7	24
30	5.8	1.6	2.8	0.9	2.3	4.7	5.7	5.6	4.4	6.3	11.1	12.2	12.2	12.9	10.8	11.6	9.8	18.1	12	7.5	4.6	4.3	5.6	3.6	18.1	7.4	24
31	3.9	4.3	3.9	2.6	3.6	1.5	2.5	6.4	12.4	12	17.2	18.8	16.7	15.7	13.8	16.3	25.6	22.6	21.4	11	7.7	9.3	8.7	11.8	25.6	11.2	24
HOURLY MAX	24.3	21.2	21.5	20.2	20.6	25.3	25.1	30.9	37.1	42.6	37.4	32.8	34.7	31.2	34.9	33.1	33.9	31.3	27.8	27.1	26.2	25.0	27.3	24.3			
HOURLY AVG	9.4	8.4	8.3	8.1	8.3	8.9	11.3	13.8	15.6	16.9	18.3	19.1	18.9	17.7	17.6	17.0	17.5	16.7	15.0	12.0	10.3	10.6	10.8	9.6			

STATUS FLAG CODES

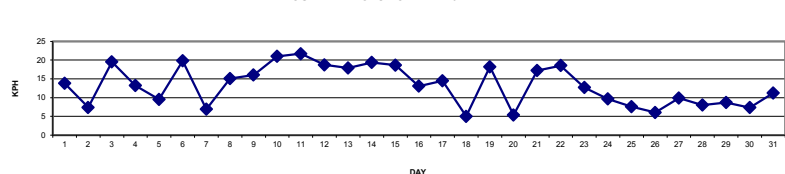
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

LAST CALIBRATION: November 24, 2011

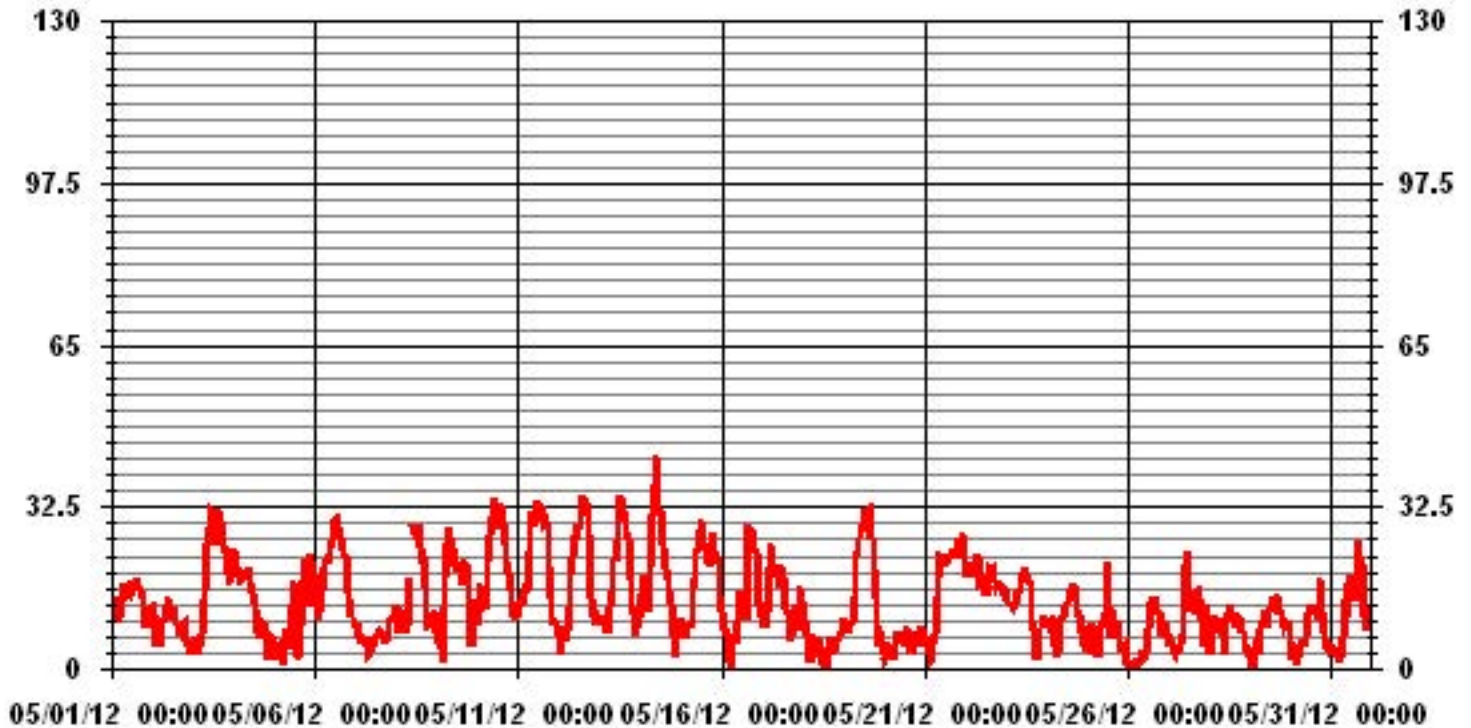
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	42.6	KPH	@ HOUR(S)	9	ON DAY(S)	14
MAXIMUM 24-HR AVERAGE:	21.7	KPH			ON DAY(S)	11
CALMS (≤ 0 KPH)	0.54	%	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	8.43		MONTHLY AVERAGE:	13.34	KPH	

24 HOUR AVERAGES FOR MAY 2012



01 Hour Averages



— LICA35 WSP KPH

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

MAY 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	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	
DAY																										
1	22.3	22.4	24.3	23.2	19	22.3	26.9	30.6	27.3	26.6	28	30.7	29.5	33.5	29.8	37.2	33.1	32.5	31.3	22	14.1	18.2	20.4	19.5	37.2	
2	19.4	18.1	12	7.5	7.9	12.2	17.3	18.9	24.5	30.5	29.8	29.4	24.9	25.1	22.5	22.6	22.7	21.3	16.9	11.6	13.7	22.1	7.1	9.8	30.5	
3	6.8	10.1	6.6	6.1	6.1	17.1	23.5	24.1	38.1	52	49.7	46.8	49.9	43.6	45.4	49.5	50.2	42.8	38.8	36.8	31.4	29.3	28.3	32.4	52	
4	38	33.5	33.1	32.7	30.7	27.6	26.4	27.1	30.5	32.2	31.3	24	20.3	19.7	15.4	15.1	16.3	13.4	15	10.5	8.5	13.4	10.3	8.4	38	
5	7.8	5.3	10.2	7.5	10.5	8.5	11.2	15.3	12.7	10.7	30.4	32.7	15.4	12.8	9.3	13.1	16.4	33	36.1	33.3	31.3	37.8	37.5	30.7	37.8	
6	34.7	33.3	18	17	28.2	30.4	33.9	33.7	32.6	40.1	45.8	51.8	50.5	50.1	47	47.1	45.7	42.9	39.7	36.8	20.5	14.8	13	11	51.8	
7	11.2	12.1	9.2	10.9	11.8	13.6	14	8.2	13.6	16.4	26.7	21.2	23.6	22.7	23.9	25.9	27.6	30.3	13	11.4	16.4	16.1	15.7	21.6	30.3	
8	25.2	19	25.2	25.5	22.2	16.6	15.4	18.7	P	P	N	48.3	50.2	49.5	50	36.9	36	32.4	20	15.4	16.9	15	17.2	14.1	50.2	
9	9.7	8.7	8.5	9.2	22.1	39.1	42.7	47.4	43.8	40.2	39.4	37.3	56.9	35.3	32.8	44	36.9	41.9	37.8	36.8	8.1	17.4	19.1	18.7	56.9	
10	15.2	20.5	25.5	25.8	19.8	19.5	36.4	45	48.1	51.8	56	54.8	64.1	60.6	57.5	54	44.7	42.3	34.8	35	28.5	18.3	19.9	20.4	64.1	
11	23.9	24.6	24.5	25.2	25.9	29.2	44	53.3	50.8	47.7	50.9	58	58.7	61.4	55.4	54.8	47.6	48	35.1	24.1	18.1	15	14.6	17.8	61.4	
12	13.3	8.3	17.2	14.9	13.7	17.3	26	36.6	38.5	45.9	49.3	50.7	54.5	55.2	59	59.6	57.6	50.5	45.2	30	14.9	17.5	16.2	14.9	59.6	
13	16.2	14.9	15.5	13.8	15.2	15	23.3	28.9	35	40.9	48.3	50.6	56.4	53.9	54	53.4	47.4	48.3	36.4	22	20.4	8.7	13.9	16.9	56.4	
14	15.7	28.3	30.8	26.9	26.8	29.6	38.8	55.4	65.7	66.9	63.6	53.4	51.2	45.1	44.2	42.1	34.7	29.9	24.6	16.9	8.1	7.2	8.5	12.5	66.9	
15	17.1	14.6	12.2	10.7	13.9	16.5	19.1	24.3	31.1	42.2	45.6	49.5	48.7	49.8	50.7	49.5	39.3	40.5	43.7	43.3	37.4	34.5	34.4	29.5	50.7	
16	18.3	13.8	18.9	12.7	7.1	4.4	5.6	13.6	12.3	24.1	26.3	28.7	30.6	25.2	27.3	41.4	48.2	45.4	49.4	45.5	43.7	45.4	31.3	22.9	49.4	
17	24.6	22	26.8	21.9	41.2	43.3	32.4	37.6	36.2	34.3	36.9	38.9	37.8	39.8	29.8	28.9	21	20.9	26.3	20.8	19.3	25.9	29.7	16.1	43.3	
18	23.8	20.5	11.5	7	6	11.4	13.7	6.5	11	13.7	14	5.9	12.4	8.2	6.2	12.5	13.2	10.5	8.5	11.3	11.1	10.3	10.1	13.4	23.8	
19	14.3	16.6	16.1	15.7	14.4	18	28.4	38.9	35.3	40.3	48.8	46.4	49.2	51	51.4	53.9	47.4	43.2	36.1	25.2	15.8	15.1	11.7	10.8	53.9	
20	6.3	8.1	13.2	7.6	6.8	8.5	9.7	14.8	19.2	23.5	21.9	30.1	20.4	25.3	23.6	19.3	16.5	14	7.6	9.5	10.9	14.7	13.6	13.4	30.1	
21	11.4	10.4	7.4	5.9	5.7	8.2	16.5	25.4	30.3	42.3	37.6	42.6	41.6	42.3	37.6	40.7	40.2	40.1	36.1	39.8	43.4	43.8	43.8	38.9	43.8	
22	34.4	28.8	32.8	30.6	34.7	31.8	34.4	37.1	27.8	29	32	35	27.2	37.3	35.4	35.2	36.6	40.9	32.3	32.6	32	32.2	31	32.6	40.9	
23	29.2	28.1	25.5	27	24.4	24.6	29.8	30.4	31.5	34.2	35.7	42.2	33	35.9	36.7	20.5	13.8	25.1	10.3	7.1	13.6	16.2	12.6	13.4	42.2	
24	11.2	11.9	11.6	9.5	9	7.6	7.6	12.3	21.6	25.2	26.9	24.8	26.4	30.3	35.8	32.5	33.3	27.4	23.3	21.8	15	11.1	10.3	10.4	35.8	
25	17.3	14.8	9.3	16.6	18.2	13.6	13.2	23	17.7	22.4	29.5	24.3	45.9	23.2	37.3	43	18.8	20.4	18	15.3	17.8	9.1	10.6	7.1	45.9	
26	7.1	6.8	3.1	5.4	21.4	7.9	4.4	7.2	13.1	12.8	15.2	15.1	28.3	28.9	28	25.8	28.9	24.3	21.7	15.2	11.7	14.1	13.3	10.6	28.9	
27	8.9	7.8	7.3	6	4.6	7	11	11.9	22.2	32	40.5	44.1	37.1	26.7	28.2	25.7	31	28.4	23.2	21.2	8.5	27.4	29.5	17	44.1	
28	9.9	18	14.9	15.2	14.6	13.4	14.7	12.3	11.6	15.2	20	25.9	29.6	28.3	27	23.3	29.6	21.1	19.2	14.5	12.5	8.9	6.7	6	29.6	
29	4.9	3.7	4	6.4	9.9	9	15.4	16.2	21.1	25.1	23.6	25.2	53.2	32.7	29.9	28.3	32.2	28.1	21.8	21.4	14.2	14.6	15.6	21.9	53.2	
30	25.7	5.9	6.7	5.1	5.5	7.7	9.3	12.6	14.1	20	27.4	31.1	33.3	30.5	24.7	25.4	26	36.1	25.4	17.1	17.8	9.1	8.4	6	36.1	
31	10.7	7.2	6.9	7	6.8	8	6.9	19	25.9	28.9	42.1	37	34.3	33.8	36.1	31.2	44.6	40.1	33.7	19.1	11.6	16.4	13.3	18.4	44.6	
PEAK	38.0	33.5	33.1	32.7	41.2	43.3	44.0	55.4	65.7	66.9	63.6	58.0	64.1	61.4	59.0	59.6	57.6	50.5	49.4	45.5	43.7	45.4	43.8	38.9		

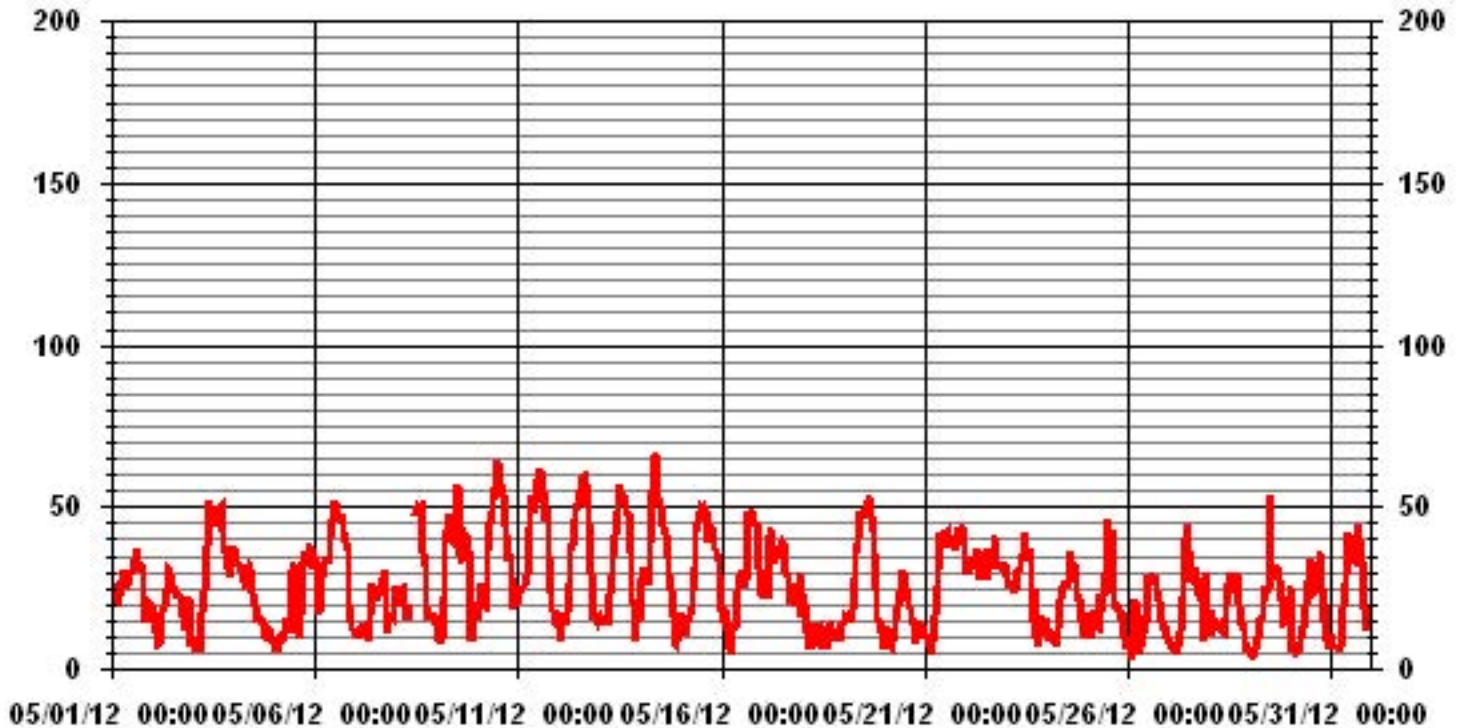
STATUS FLAG CODES

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

MAXIMUM INSTANTANEOUS READING	66.9	KPH	@ HOUR(S)	9
			ON DAY(S)	14

01 Hour Averages



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

May 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	1.61	1.21	1.48	1.34	2.82	2.82	1.07	1.07	.53	.67	.94	.80	1.07	1.74	1.07	.67	20.99
< 12.0	.94	.94	.80	1.34	2.55	4.03	3.23	2.42	1.88	.13	.00	1.34	5.24	2.82	2.01	1.74	31.49
< 20.0	1.21	1.07	2.15	2.96	2.82	1.74	2.42	.67	1.07	.40	.13	.00	1.74	1.88	1.88	1.74	23.95
< 29.0	1.21	.00	.13	.00	.40	1.88	3.09	1.21	.67	.26	.00	.00	.40	2.96	1.21	4.17	17.63
< 39.0	.00	.00	.00	.00	.00	.00	.80	.00	.00	.00	.00	.00	.00	3.36	1.07	.53	5.78
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.13
Totals	4.97	3.23	4.57	5.65	8.61	10.49	10.63	5.38	4.17	1.48	1.07	2.15	8.47	12.78	7.40	8.88	

Calm : .00 %

Total # Operational Hours : 743

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	12	9	11	10	21	21	8	8	4	5	7	6	8	13	8	5	156
< 12.0	7	7	6	10	19	30	24	18	14	1		10	39	21	15	13	234
< 20.0	9	8	16	22	21	13	18	5	8	3	1		13	14	14	13	178
< 29.0	9		1		3	14	23	9	5	2			3	22	9	31	131
< 39.0							6										43
>= 39.0															1		1
Totals	37	24	34	42	64	78	79	40	31	11	8	16	63	95	55	66	

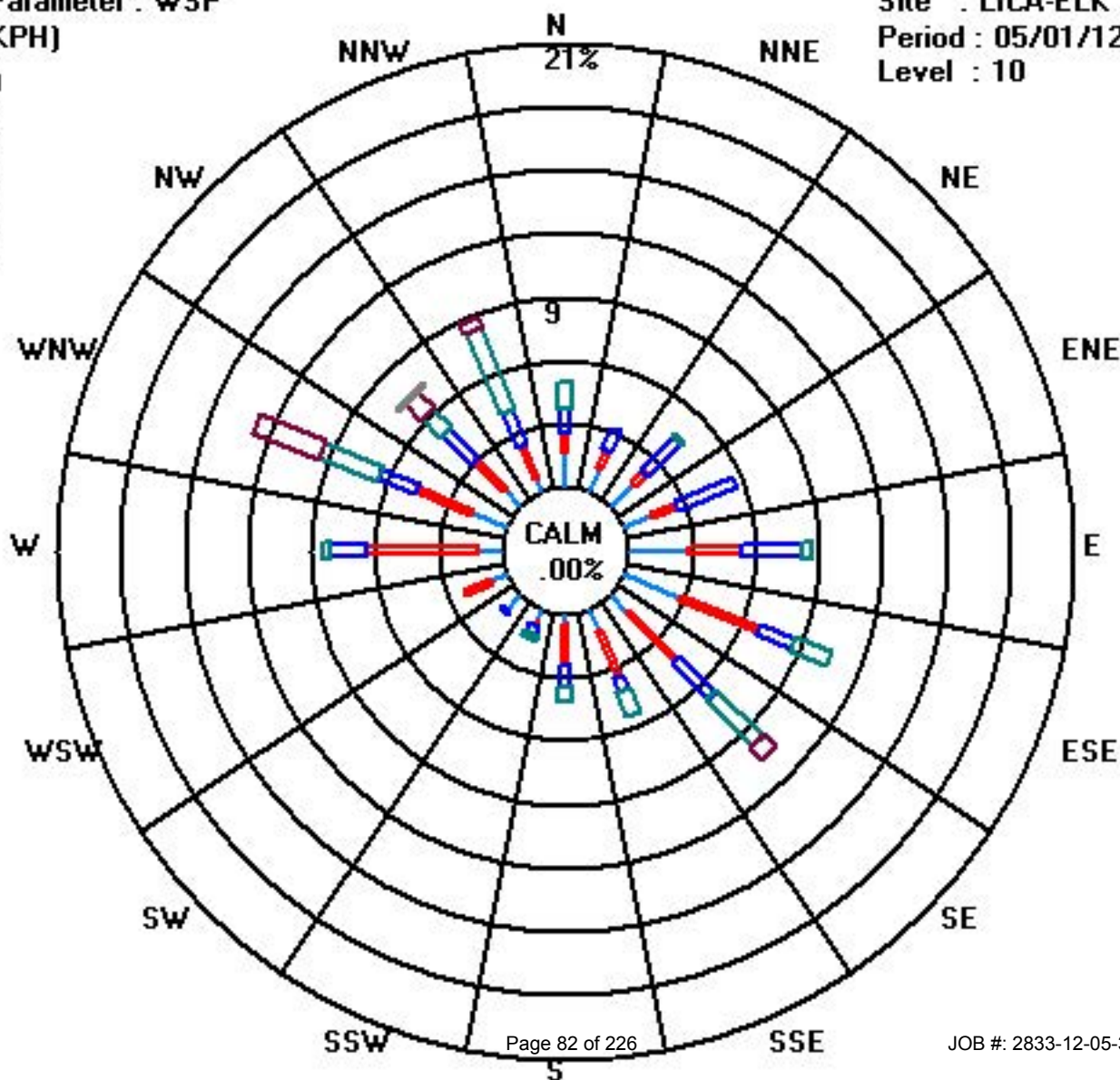
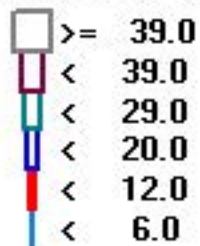
Calm : .00 %

Total # Operational Hours : 743

Class Limits (KPH)

Period : 05/01/12-05/31/12

Level : 10



Vector Wind Direction

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

MAY 2012

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST																										24-HOUR	24-HOUR AVG	
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	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	86	88	82	81	70	51	77	82	72	65	56	78	69	71	56	70	64	62	64	72	87	93	84	80	72	ENE	24	
2	78	64	25	6	22	61	72	83	99	98	99	81	84	77	95	130	115	114	124	136	117	158	138	130	92	E	24	
3	111	120	90	116	115	133	125	139	135	133	137	135	133	147	147	137	139	141	133	135	138	133	127	132	135	SE	24	
4	135	137	138	131	123	126	127	129	129	134	132	130	129	132	143	143	120	119	120	104	179	107	117	93	129	SE	24	
5	73	126	110	125	165	43	56	43	67	88	330	330	14	14	86	2	332	328	328	331	344	348	4	31	357	N	24	
6	54	45	318	315	327	339	342	342	335	339	344	346	337	339	335	336	336	345	335	335	315	327	328	322	340	NNE	24	
7	300	284	282	283	282	285	280	285	251	258	240	243	253	242	251	245	245	260	201	161	158	155	152	163	237	SW	24	
8	167	128	147	126	128	128	124	140	185	P	185	183	183	190	198	191	201	203	179	169	156	140	133	132	173	S	23	
9	132	129	117	5	276	314	332	340	347	342	352	341	346	340	338	337	339	330	340	330	285	273	321	316	335	NNW	24	
10	284	304	325	309	296	284	311	311	305	302	298	292	291	288	295	298	286	276	294	263	263	262	275	274	294	WNW	24	
11	265	267	267	260	260	268	287	296	295	286	285	288	291	288	302	306	300	299	300	289	265	250	250	275	287	WNW	24	
12	279	291	266	265	273	274	269	281	285	289	287	281	276	283	300	291	299	297	294	284	258	259	295	261	285	WNW	24	
13	271	293	281	300	296	278	282	298	299	296	297	300	303	295	292	299	309	299	301	282	305	304	298	302	297	WNW	24	
14	268	311	322	308	292	315	308	320	320	318	326	333	339	340	336	343	345	338	354	343	329	92	108	120	327	NW	24	
15	118	128	115	115	105	117	107	122	144	151	155	146	145	153	158	146	150	158	148	137	138	134	137	133	141	SE	24	
16	113	118	354	348	345	298	70	302	295	337	14	2	348	14	22	356	343	354	357	352	328	292	320	357	349	NNW	24	
17	56	22	352	315	332	358	342	357	360	353	7	358	354	12	359	323	40	96	79	114	81	100	110	91	13	NNE	24	
18	107	97	122	133	221	92	104	36	14	64	87	147	76	108	52	12	19	359	11	287	272	277	275	281	63	ENE	24	
19	279	258	281	278	260	261	291	295	296	295	297	301	304	300	308	305	313	314	309	298	272	297	274	266	297	WNW	24	
20	318	311	293	319	328	1	353	303	274	275	267	225	270	271	259	192	281	353	62	61	79	76	97	120	303	WNW	24	
21	110	115	79	56	91	120	109	122	124	126	111	115	142	142	128	123	126	122	118	122	122	119	121	117	122	ESE	24	
22	113	113	111	106	107	102	106	106	101	96	91	83	84	94	94	94	91	92	84	74	72	67	64	65	93	E	24	
23	65	65	63	62	61	55	54	55	48	44	52	46	33	35	48	20	357	36	94	267	266	268	283	307	41	NE	24	
24	319	328	331	319	315	307	13	54	73	65	64	42	45	44	33	20	11	18	15	15	15	354	326	12	18	NNE	24	
25	40	34	41	331	338	154	201	9	49	339	340	4	316	296	356	353	257	183	165	98	83	164	155	349	354	N	24	
26	187	165	53	332	180	104	82	31	247	227	217	164	145	149	172	189	204	171	187	168	171	160	137	123	170	SSE	24	
27	91	104	88	105	99	107	107	97	116	141	131	131	114	83	83	81	92	100	106	99	84	86	186	210	112	ESE	24	
28	198	234	288	305	309	287	284	305	319	339	70	81	106	106	103	79	104	142	136	147	158	143	110	92	108	ESE	24	
29	43	100	62	111	112	104	109	132	129	144	174	180	166	187	172	164	166	162	164	177	180	173	174	178	161	SSE	24	
30	194	41	74	8	119	111	117	136	170	168	179	183	180	192	168	161	168	236	268	291	253	273	226	222	192	S	24	
31	268	312	302	284	324	353	67	267	302	334	307	320	324	294	290	284	316	297	287	285	278	275	264	262	298	WNW	24	
HOURLY AVG	319	328	354	348	345	358	353	357	360	353	352	358	354	340	359	356	357	359	357	352	344	354	328	357				

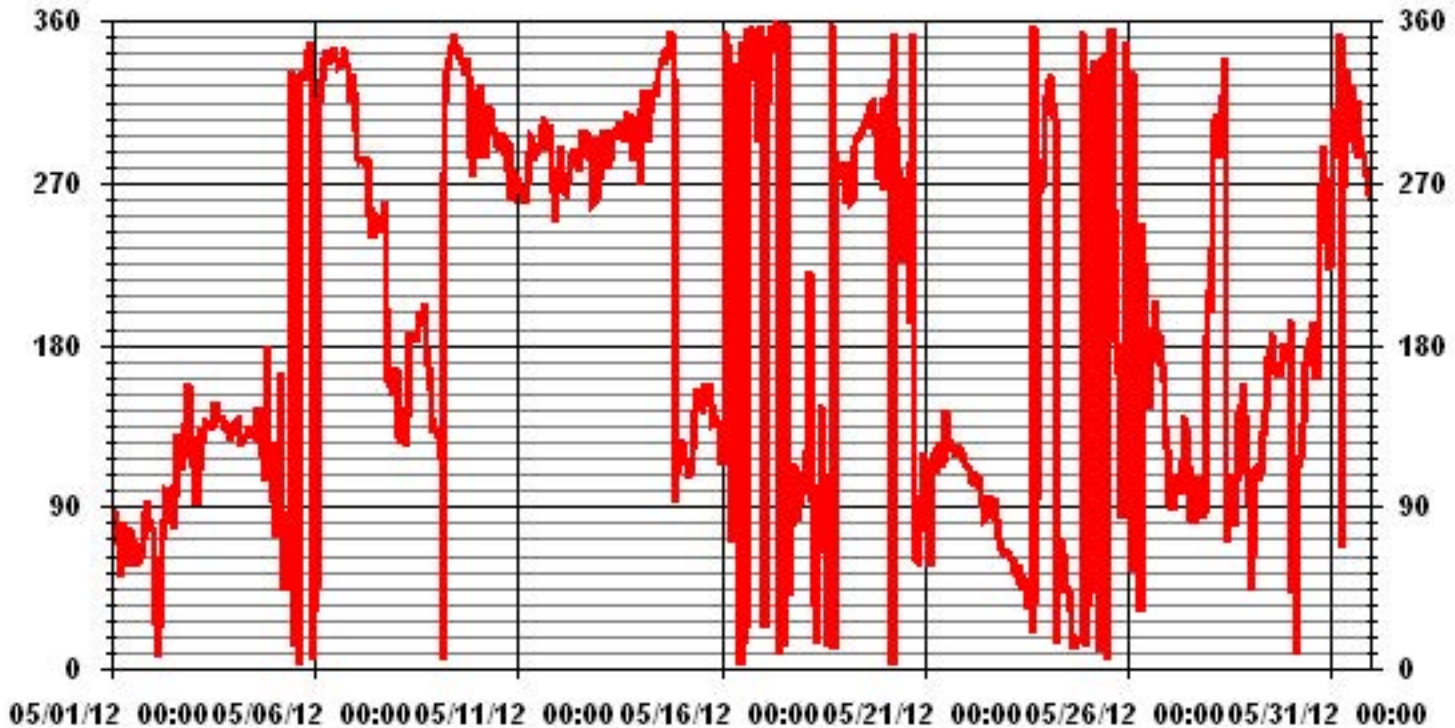
STATUS FLAG CODES

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:	743 HRS
STANDARD DEVIATION:	105.58	AMD OPERATION UPTIME:	99.9 %
		MONTHLY AVERAGE:	347 DEG

01 Hour Averages



Standard Deviation Wind Direction

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

MAY 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	9	8	7	9	8	8	11	11	15	14	16	17	19	18	16	15	15	13	13	10	10	9	10	9
2	6	7	13	8	8	11	10	15	16	15	25	27	28	21	23	31	35	22	13	8	37	16	11	10
3	6	9	13	6	5	8	7	12	10	11	11	10	9	11	12	10	10	8	8	7	6	6	7	7
4	7	8	8	7	7	7	8	7	8	7	9	9	10	10	17	20	11	15	10	8	24	10	7	16
5	27	28	10	8	19	43	15	13	19	31	22	9	22	51	58	27	10	10	9	8	10	8	12	11
6	10	23	24	5	6	8	8	10	9	11	14	15	12	15	12	14	15	16	10	9	3	5	2	3
7	7	6	7	40	6	11	13	24	42	31	52	48	37	37	50	43	41	34	27	9	9	9	7	12
8	12	12	25	16	19	11	10	21	13	P	13	14	14	13	14	13	12	10	12	11	9	5	9	10
9	5	12	11	35	10	10	11	11	13	13	20	18	18	16	12	15	23	12	13	20	17	8	8	5
10	12	10	7	7	6	10	10	9	11	11	11	13	17	16	12	14	13	15	10	11	9	8	12	13
11	11	12	11	9	9	14	10	9	10	13	14	14	15	15	13	12	10	9	8	9	4	3	19	
12	13	28	14	13	18	23	14	12	13	12	13	15	16	12	10	13	11	8	9	8	4	10	12	7
13	8	9	11	9	10	12	11	11	10	11	15	11	10	12	12	11	12	12	8	10	6	8	10	9
14	7	8	5	7	12	7	8	10	9	8	10	13	15	15	15	14	13	16	10	7	7	22	6	5
15	6	7	7	6	9	7	14	8	13	13	15	15	13	16	16	12	11	14	12	7	6	7	6	9
16	8	6	22	9	26	51	29	23	24	22	18	21	22	23	34	30	11	13	14	13	12	10	12	14
17	10	22	13	12	12	12	11	12	14	15	17	18	20	18	28	22	26	16	17	6	11	10	9	22
18	7	12	9	22	20	15	14	39	39	20	25	49	23	55	38	23	20	26	34	8	9	7	9	8
19	8	10	16	12	9	10	12	9	8	11	10	10	10	11	10	11	10	8	7	10	20	6	38	
20	22	25	22	30	20	35	16	20	23	44	56	50	55	35	33	53	35	33	12	15	8	13	9	9
21	9	10	9	7	9	7	12	9	11	13	14	17	17	16	13	11	11	8	9	7	7	7	8	8
22	8	7	7	7	6	8	8	7	8	10	10	11	11	11	11	11	11	12	12	12	13	12	13	12
23	12	12	12	13	12	12	12	12	13	13	12	13	11	11	12	11	11	17	37	8	7	9	8	4
24	2	3	3	3	8	6	18	29	21	22	26	25	23	27	18	19	16	14	12	9	9	18	14	21
25	13	14	29	9	11	35	47	22	17	23	34	42	15	47	51	36	32	17	14	17	23	13	10	40
26	39	50	18	50	52	39	19	56	53	64	58	43	34	21	23	21	18	17	17	12	7	9	6	9
27	11	6	10	9	17	9	24	20	26	17	15	13	21	28	23	22	16	11	11	8	5	18	17	27
28	26	18	12	3	5	9	8	11	14	37	21	24	29	24	31	38	22	18	11	8	8	5	9	14
29	21	13	31	10	6	33	14	15	18	23	28	32	30	22	23	25	18	17	14	10	8	9	12	12
30	48	46	22	64	16	6	14	25	34	34	24	25	26	22	25	28	23	15	16	10	18	19	6	9
31	20	13	12	16	21	21	26	38	16	22	19	17	18	19	21	15	14	10	10	9	9	11	7	7

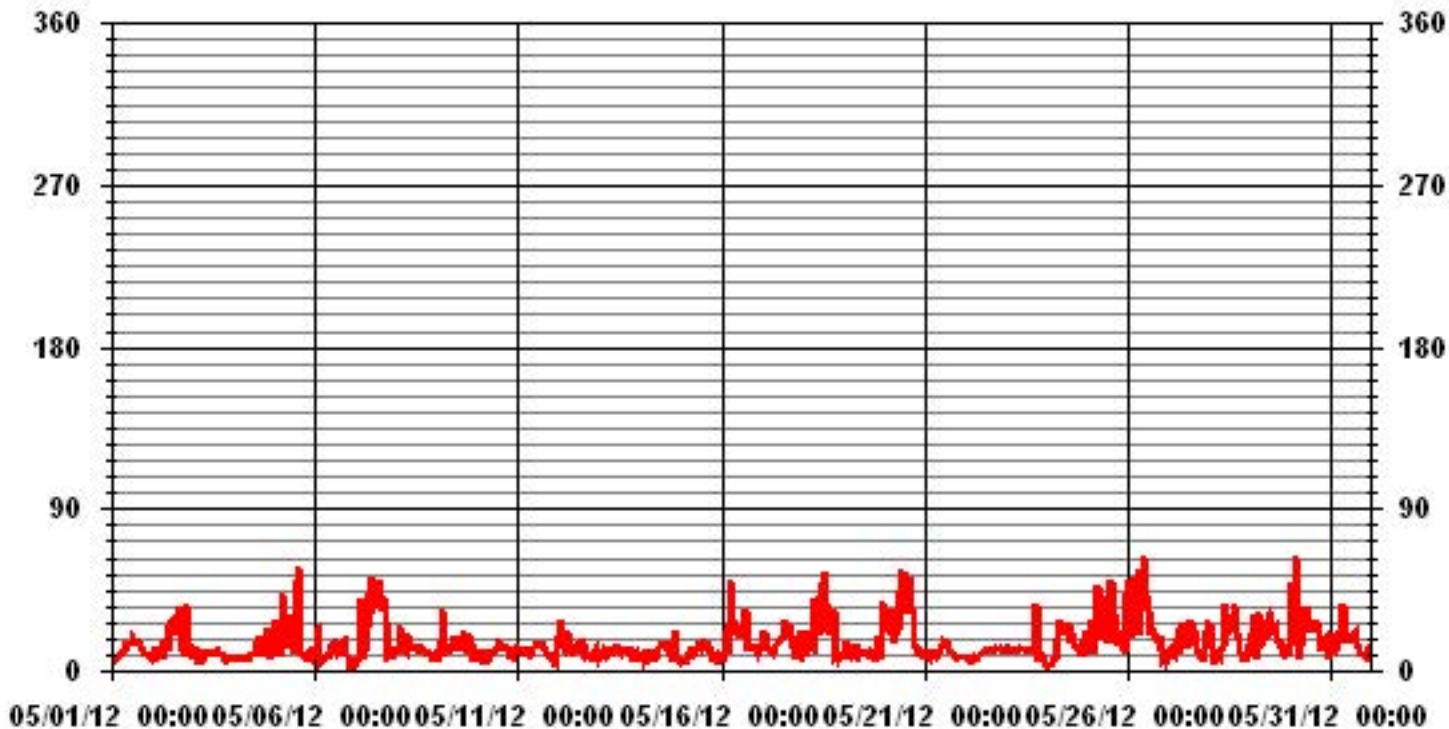
STATUS FLAG CODES

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: November 24, 2011

CALIBRATION TIME: 0 HRS OPERATIONAL TIME: 743 HRS

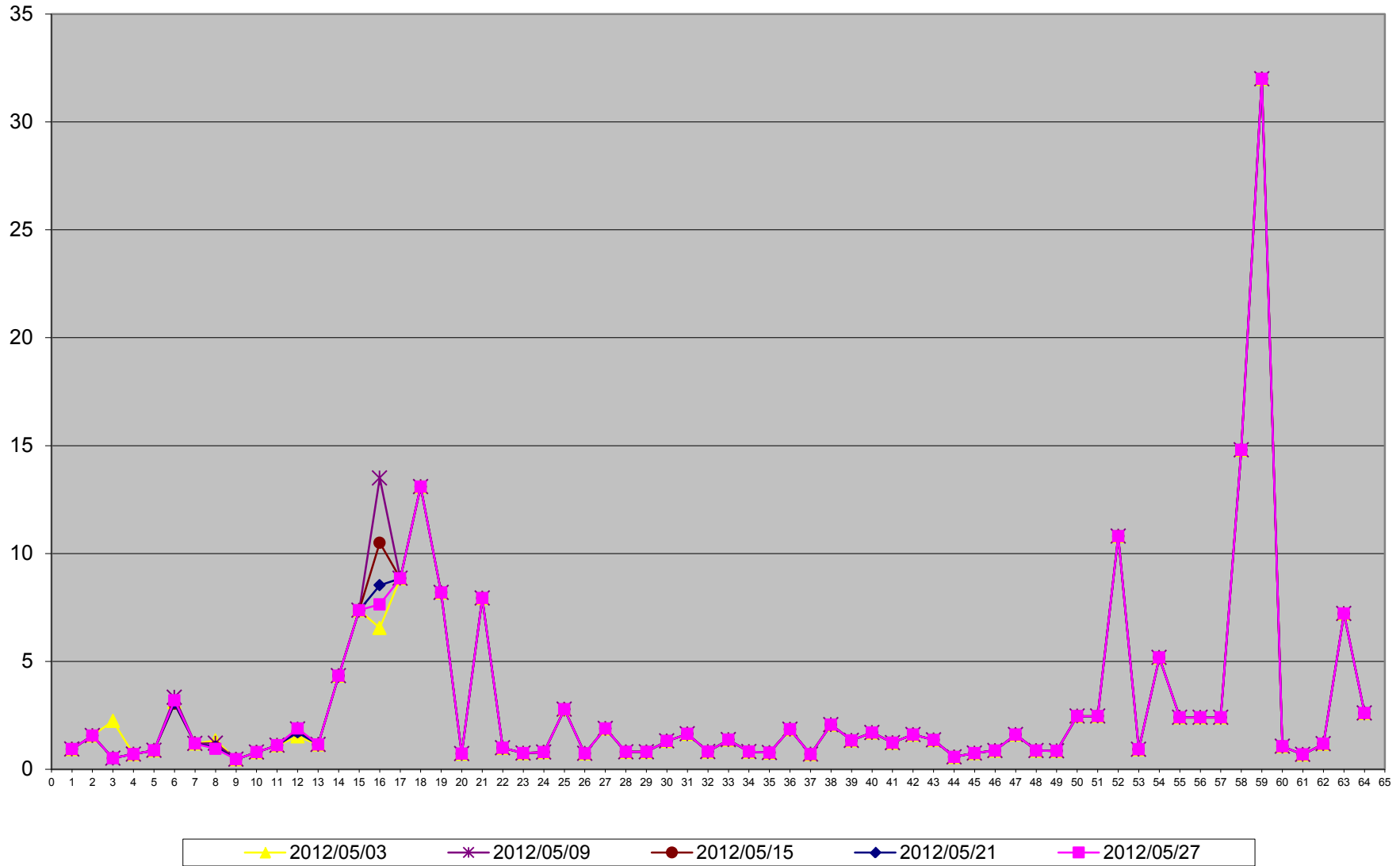
01 Hour Averages



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)

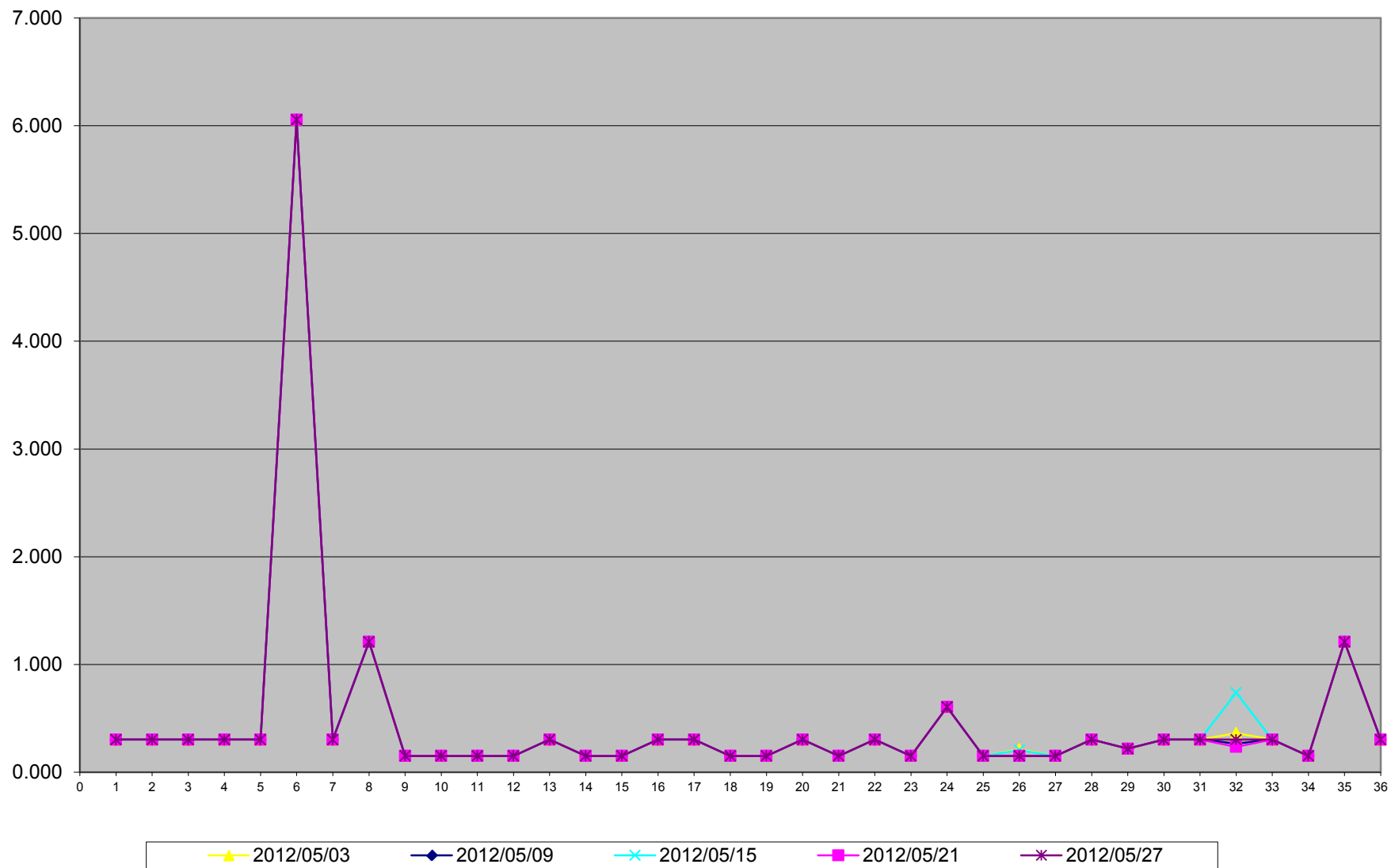
Polycyclic Aromatic Hydrocarbons

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

PAHs	2012/05/03	2012/05/09	2012/05/15	2012/05/21	2012/05/27
Sample Volume (unit: m3)	330.35	330.34	330.34	330.34	330.34
1 1-Methylnaphthalene	0.303	0.303	0.303	0.303	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	0.303	0.303	0.303	0.303
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	0.151	0.151
10 Acenaphthylene	0.151	0.151	0.151	0.151	0.151
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	0.303	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	0.151	0.151	0.151	0.151
26 Fluorene	0.212	0.151	0.206	0.151	0.151
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	0.218	0.218	0.218	0.218	0.218
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	0.363	0.266	0.739	0.236	0.303
33 p-Terphenyl	0.303	0.303	0.303	0.303	0.303
34 Pyrene	0.151	0.151	0.151	0.151	0.151
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 - Portable - Elk Point Airport



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	May 9, 2012	Previous Calibration	April 12, 2012
Company	Lakeland Community and Industry Association		
Plant / Location	Portable / Elk Poin Airport		
Start Time (MST)	14:54	End Time (MST)	18:21
Reason:	Post repair Calibration		
Barometric Pressure	702 mmHg	Station Temperature	22 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 :	467	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 ppb				
Sample Flow / Box Temp	577 ccm	31.9 Deg C	563 ccm	31.7 Deg C	
HVPS / Lamp Setting	612	1792	612	1801	
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	97.7	0.999	81.9	1.249	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	0	N/A
	No Zero Adj.			
4924	75.6	750	750	1.0000
	No Span Adj.			
4953	40.3	400	402	0.9958
4982	17.1	170	170	1.0000
4995	0	0	0	N/A
			Sum of Least Squares	0.9990
			New Correction Factor	1.0000

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	-	Auto Zero	1.0
Auto Span	-	Auto Span	385.0
Sample Lines Connected	-	Sample Lines Connected	YES

Percent Change

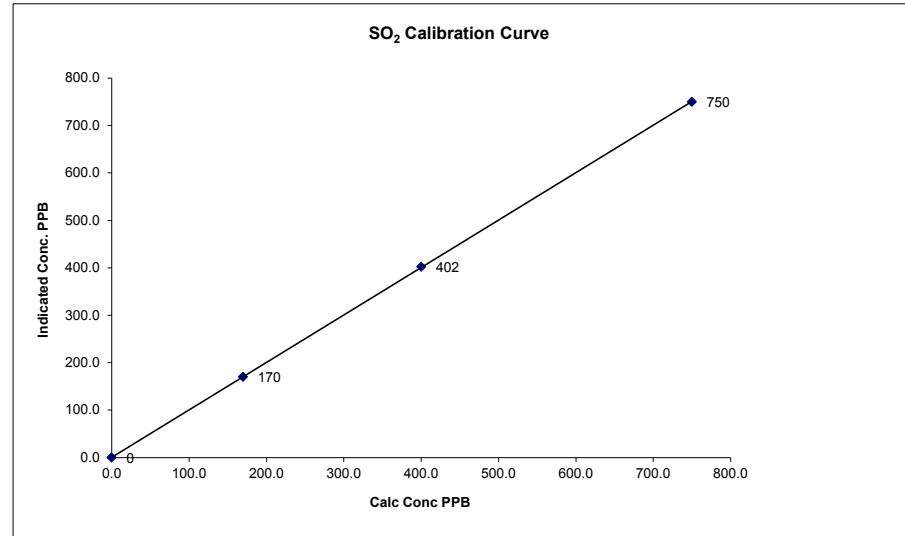
Previous Month's Calibration Correction Factor:	-
Current Correction Factor Before Span Adjust:	1.0000
Percent Change:	#VALUE!

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

SO₂ Calibration Curve

Calibration Date	May 9, 2012
Company	Lakeland Community and Industry Association
Plant / Location	Portable / Elk Poin Airport
Start Time (MST)	14:54
End Time (MST)	18:21

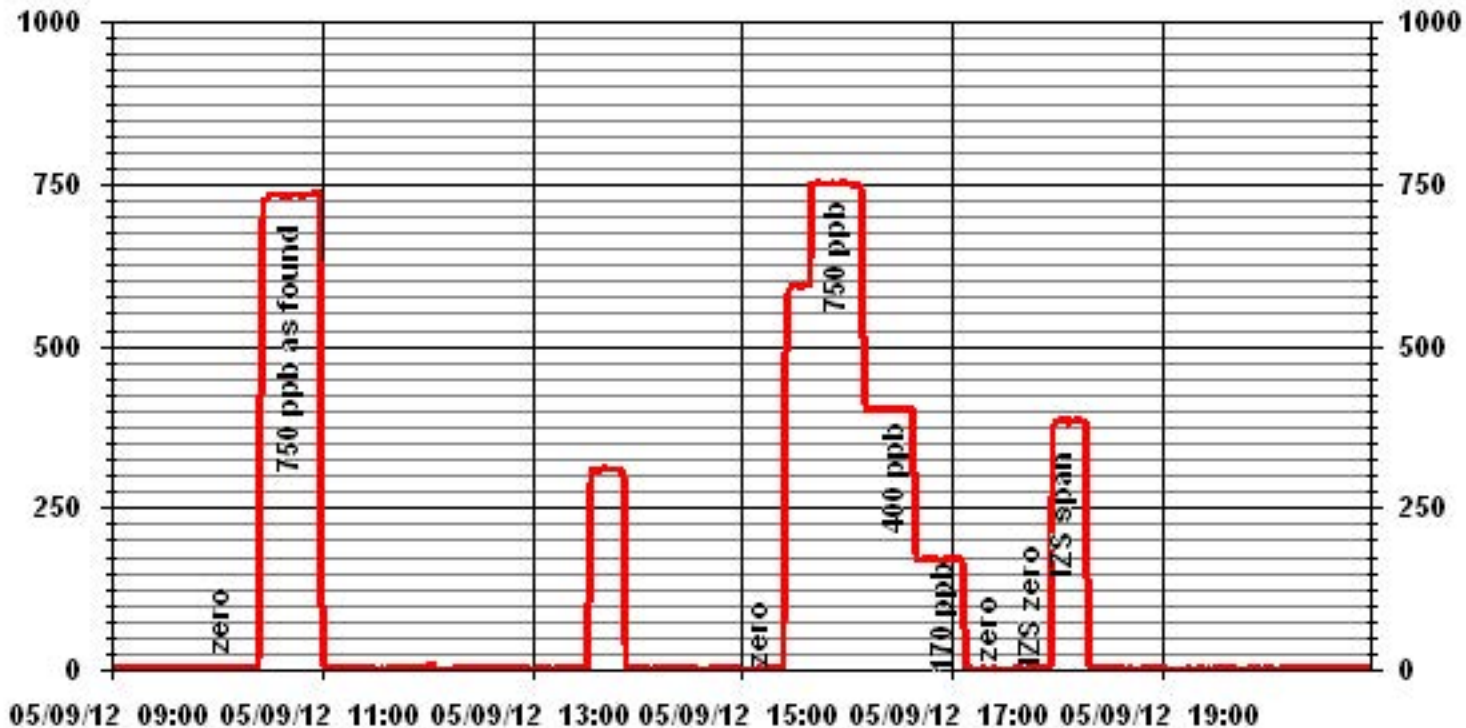
Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	0	n/a		0.999994
170	170	0.9980		1.000188
400	402	0.9958		0.441100
750	750	1.0000		



Notes:

Calibration Performed by: Ting Xu

01 Minute Averages



Hydrogen Sulphide

H2S Calibration Report

Station Information

Calibration Date	May 9, 2012	Previous Calibration	April 12, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	Portable/ Elk Point Airport		
Start Time (MST)	11:03	End Time (MST)	15:33
Reason:	Monthly Calibration		
Barometric Pressure	702 mmHg	Station Temperature	23 Deg C
Cal Gas	10 ppm	Gas Cyl. #	LL42648
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 :	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 - 100		
Sample Flow / Box Temp	514 ccm 31.3 Deg C	515 ccm 30.7 Deg C	
HVPS / Lamp Setting	540 2029	540 2029	
PMT / RxCell Temp	7.9 Deg C 50 Deg C	7.9 Deg C 50 Deg C	
Converter / IZS Temp	314.2 Deg C 45 Deg C	315.8 Deg C 45.0 Deg C	
Offset / Slope	78.4 1.001	81.7 1.004	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	2	NA
4955	0	0	0	1.0000
4959	40.0	80	82	0.9758
4959	40.0	80	81	0.9879
4981	20.0	40	41	0.9754
4986	11.5	23	24	0.9588
4995	0	0	1	NA
Sum of Least Squares				0.9837
New Correction Factor				0.9879

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	2.9		1.3
Auto Span	60.5		58.1
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%

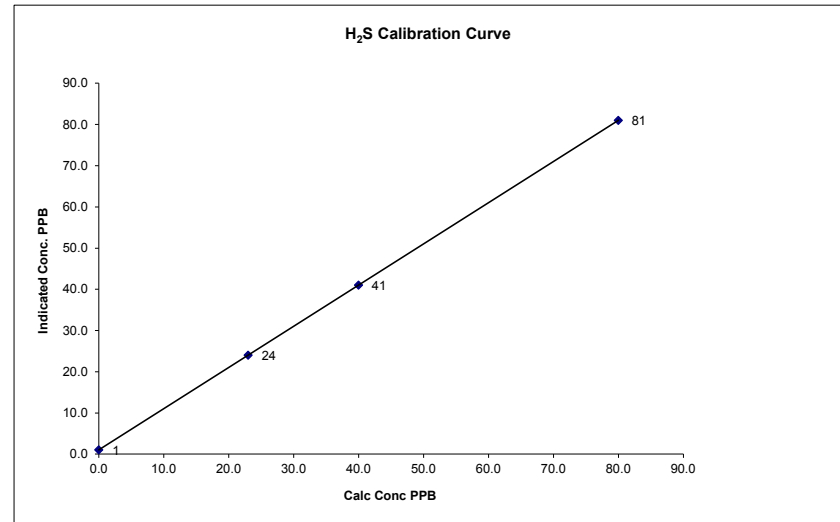
Notes: **NA : Not Applicable**
 After doing few minutes adj. Zero, there was a power failure. Re-did the point.

Calibration Performed by: Ting Xu

H₂S Calibration Curve

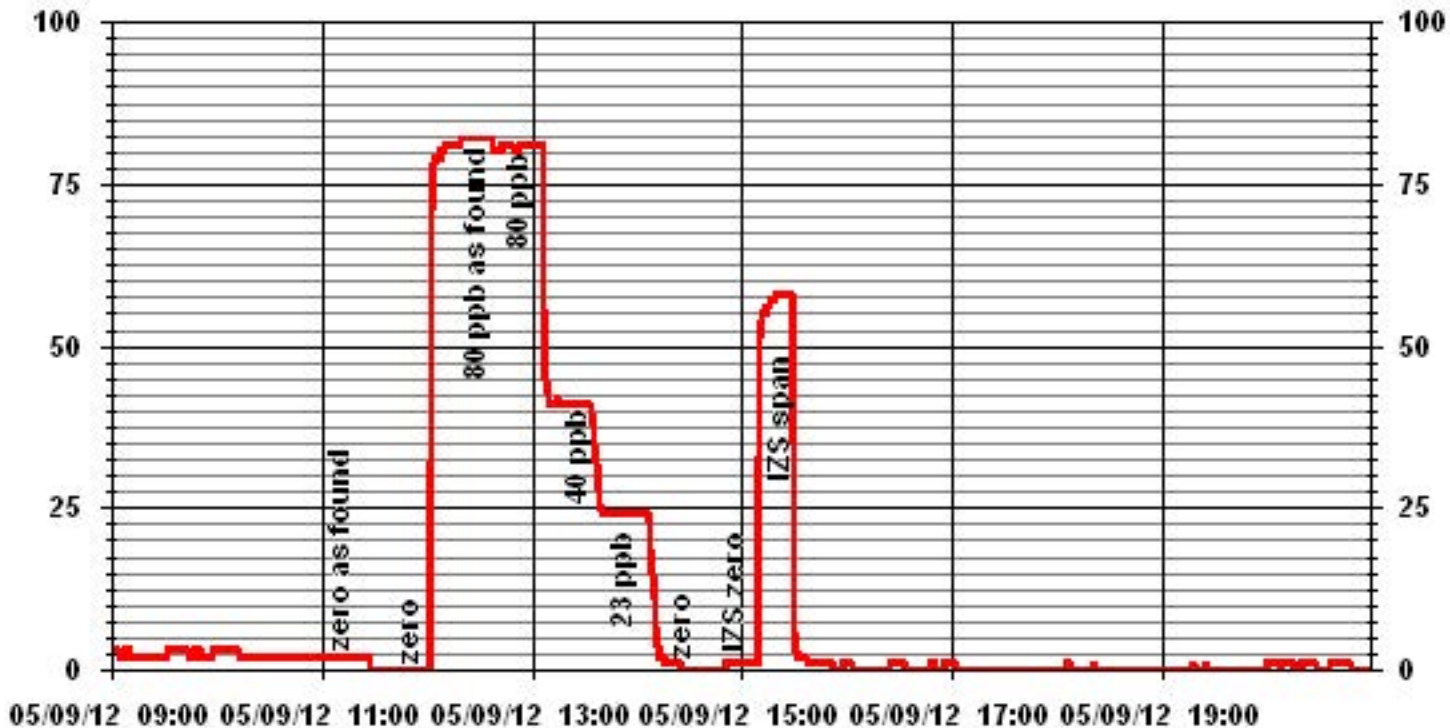
Calibration Date	May 9, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	Portable/ Elk Point Airport
Start Time (MST)	11:03
End Time (MST)	15:33

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope Intercept	(≥ 0.995) (0.85 to 1.15) (± 3% F.S.)
0	1			1.000000
23	24	0.9588		0.999846
40	41	0.9754		1.000644
80	81	0.9879		



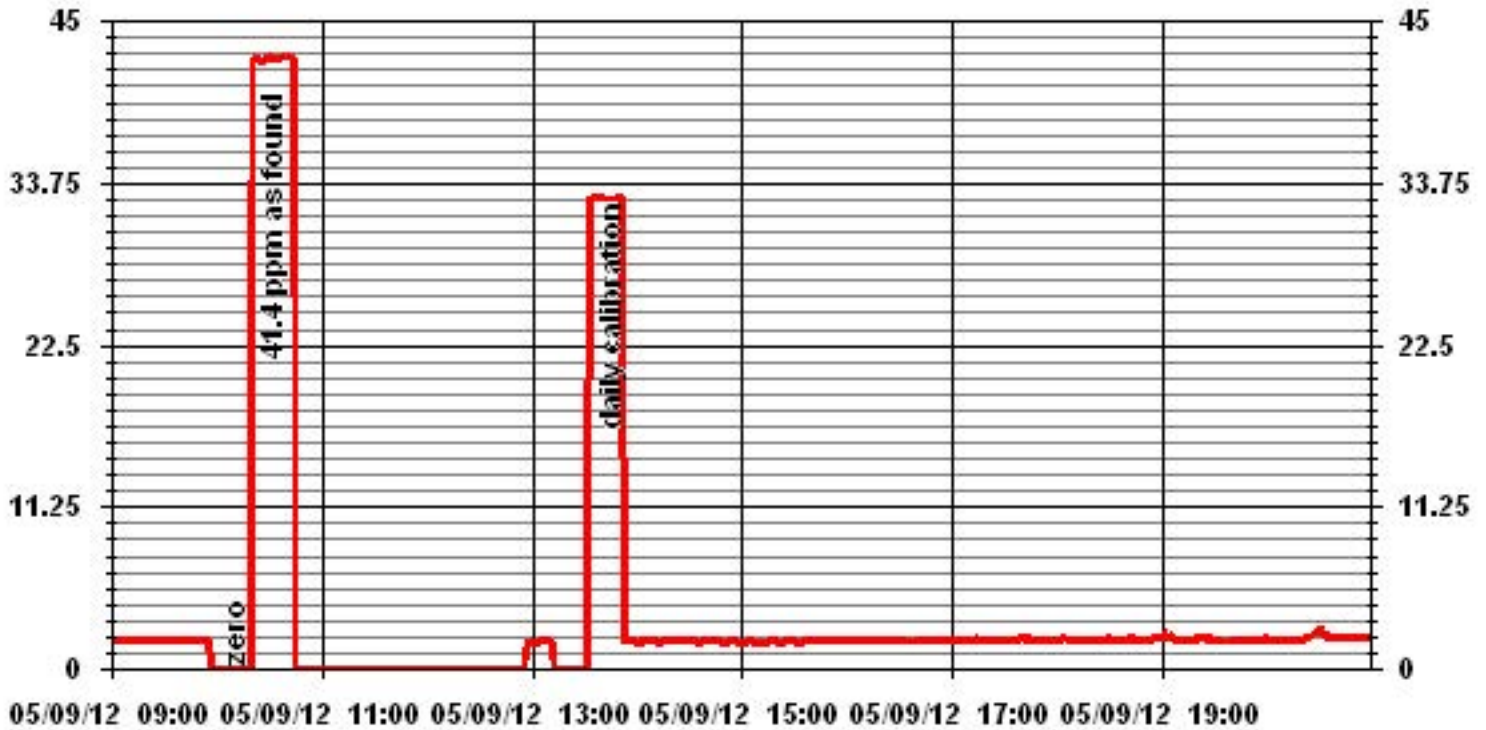
Notes:

01 Minute Averages



Total Hydrocarbons

01 Minute Averages



THC Calibration Report

Station Information			
Calibration Date:	May 10, 2012	Previous Calibration	May 9, 2012
Company:	Lakeland Industry and Community Association		
Plant / Location:	ELICA Portable Station / Elk Point Airport		
Start Time (MST)	9:27	End Time (MST)	14:23
Reason:	Post Repair Calibration		
Barometric Pressure:	- mmHg	Station Temperature:	22 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	Thermo 51C	S/N :	04366-09739	Method	Flame Ionization
--------------	------------	-------	-------------	--------	------------------

Analyzer Settings

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

Calibration Data

Dilution Flow	Source Gas Flow	Calculated Concentration	Indicated Concentration	Correction Factor
2000	0.0	0.0	0.0	NA
	No Zero Adj.			
2000	74.0	41.4	41.5	0.9982
	No Span Adj.			
2000	37.0	21.1	20.8	1.0139
2000	20.0	11.5	11.3	1.0173
2000	0.0	0.0	0.0	NA
New Correction Factor:				0.9982

Percent Change

Previous Calibration Correction Factor:	-
Current Correction Factor Before Span Adjust:	0.9982
Percent Change:	#VALUE!

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.1	0.0
Auto Span	32.5	32.6
Sample Lines Connected		YES

Cylinder Pressures			
Span	1200 psi	Hydrogen 800 psi	Zero Air 35 psi

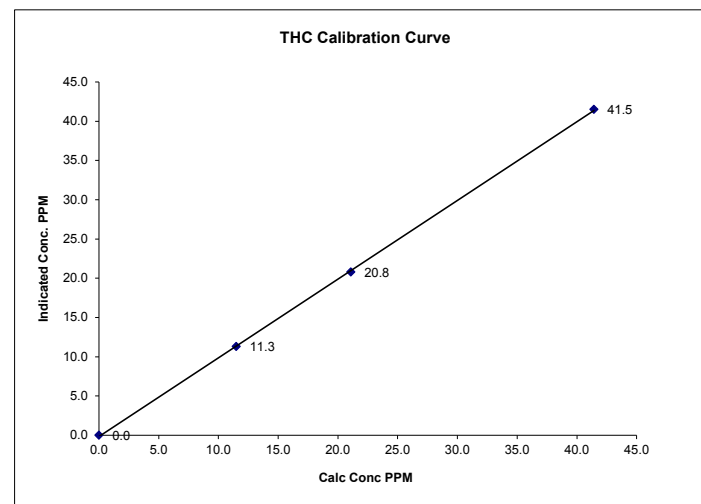
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

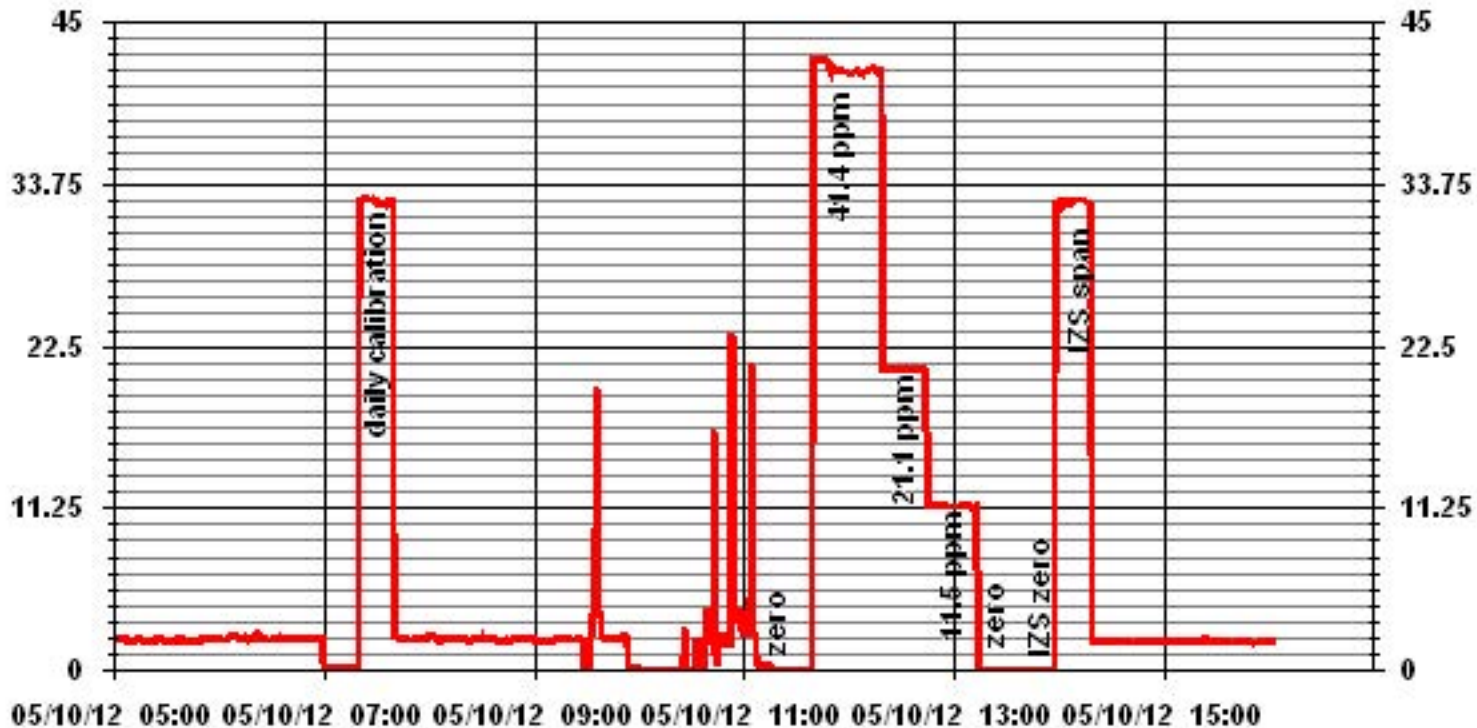
Calibration Date	May 10, 2012
Company	Lakeland Industry and Community Association
Plant / Location	ELICA Portable Station / Elk Point Airport
Start Time (MST)	9:27
End Time (MST)	14:23

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	0.999915	1.002551	-0.14913
11.5	11.3	1.0173			
21.1	20.8	1.0139			
41.4	41.5	0.9982			



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOM 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	May 15, 2012	Make/Model:	Streamline FTS
Station Name:	Lica Portable (CASA # 35)	Serial Number:	Hi 091001, Low 091099
Location:	Elk Point Airport	Cell s/n:	NA
Operator:	LICA	Thermometer s/n:	Fisher Brand 15-021B

	<u>Sampler</u>		<u>Set-up and current Sampler readings</u>
Make/Model	Thermo Scientific Series 1405F	F-Main Set Pt (l/min)	3.00
Unit #	NA	F-Aux Set Pt (l/min)	13.67
Unit s/n	1405A208301003	Filter Load (%)	19.2%
Firmware Ver.	1.52	K _o Factor	13125
Parameter	PM 2.5 (with FDMS)	Temp (°C)	22.5
		Press (ATM)	0.933

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 <0.10µg	0.006	Warnings	None
Pump Vacuum <0.40atm	0.31	Pump Gauge (inHg)	-19
Temperature/Pressure		D °C	
Measured Temp (± 2 °C)	22.4		0.1
Measured Press (± 0.01atm)	0.932	DATM	0.001
Flow Audit			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	1.26%
Measured Main Flow (l/min)	2.97	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	0.61%
Measured Bypass Flow (l/min)	13.42	Flow Adjusted to Measured?	Yes
Leak Check		Instrument Setup	
Main (< 0.15 l/min)	Base=-0.02 Ref=-0.03	Flow Control = Active	
Aux (< 0.6 l/min)	Base=0.00 Ref=0.00	Report Conditions = Actual	
K_o Factor			
Measured	NA		
K _o Difference (± 2.5%)	NA		

Start Time: 13:57 Finish Time: 14:52

Sample Inlet Cleaned: Yes New Filters Installed: NA
 New Filter Loading %: NA

Comments:

Nitrogen Dioxide

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	May 9, 2012		Previous Calibration		April 12, 2012	
Company	LICA		Plant/Location		Portable/Elk Point Airport	
Start Time (MST)	9:55		End Time (MST)		16:14	
Reason:	Monthly Calibration					
Barometric Pressure	700 mmHg	Station Temperature	23 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 :	593	Method:	Chemiluminescent
Calibrator Make / Model:	Enviroics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Enviroics 6100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 1000			ppb			
Sample Flow/Conv. Temp	469 ccm	315 Deg C		467 ccm	315 Deg C		
Ozone Flow / Vacuum	77 ccm	4.8 *Hg-A		78 ccm	4.8 *Hg-A		
HVPS / A ZERO	646 Volts	6.4 MV		646 Volts	6.4 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	31.8 Deg C	45.1 Deg C		32.1 Deg C	45.3 Deg C		
Offset	1.9 NOx	0.0 NO		1.9 NOx	0.0 NO		
Slope	1.162 NOx	1.155 NO		1.172 NOx	1.157 NO		
NO2 COEF / Conv Efficiency	NA NO2	0.996		NA NO2	0.996		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	NA	0	0	NA	-1	0	-1	NA	NA
No Zero Adj.										
4919	75.5	NA	750	748	NA	743	745	-2	1.0078	1.0044
4919	75.5	NA	750	748	NA	751	748	4	0.9971	1.0000
4953	40.3	NA	400	400	NA	398	396	2	1.0033	1.0089
4974	20.2	NA	201	200	NA	200	199	1	0.9981	1.0061
4994	0.0	NA	0	0	NA	-1	0	-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		
4918	75.5	NA	750	748	NA	753	747	6	NA	NA
No Adj Required										
4918	75.5	600	750	NA	549	750	204	546	1.0037	99.45%
4918	75.5	250	750	NA	231	752	522	230	1.0000	99.56%
4918	75.5	140	750	NA	133	752	620	132	1.0000	99.21%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 1.000	NO= 1.002	NO2= 1.005
				NOx= 0.9971	NO= 1.0000	NO2= 1.0037
				Average Converter Efficiency= 99.41%		

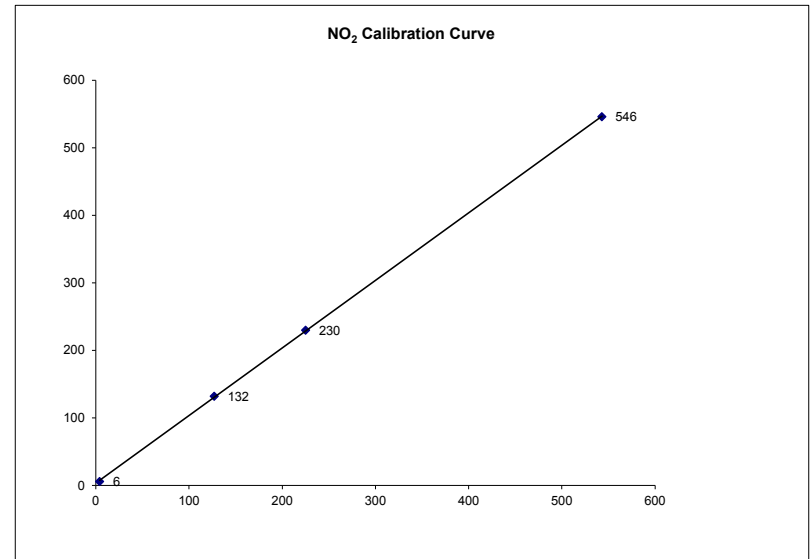
IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	-0.7 NOx	-0.5 NO2		-0.7 NOx	-0.8 NO2		
Auto Span	654 NOx	643 NO2		661 NOx	650 NO2		
				Sample Lines Connected YES			
Percent Change from Previous Calibration	NOx -1.0%		NO	-0.5%		NO2	0.2%
Notes	NA : Not Applicable						
	Additional point done for ozone cal O3 St. Pt =420, NOx = 752, No = 369, NO2 = 383						
Calibration Performed by: Ting Xu							

NO2 Calibration Curve

Calibration Date	May 9, 2012	
Company	LICA	
Plant / Location	Portable/Elk Point Airport	
Start Time (MST)	9:55	End Time (MST) 16:14

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999958
4	6	N/A	Intercept	(± 3% F.S.)	1.000161
127	132	0.9621			3.71373
225	230	0.9783			
543	546	0.9945			

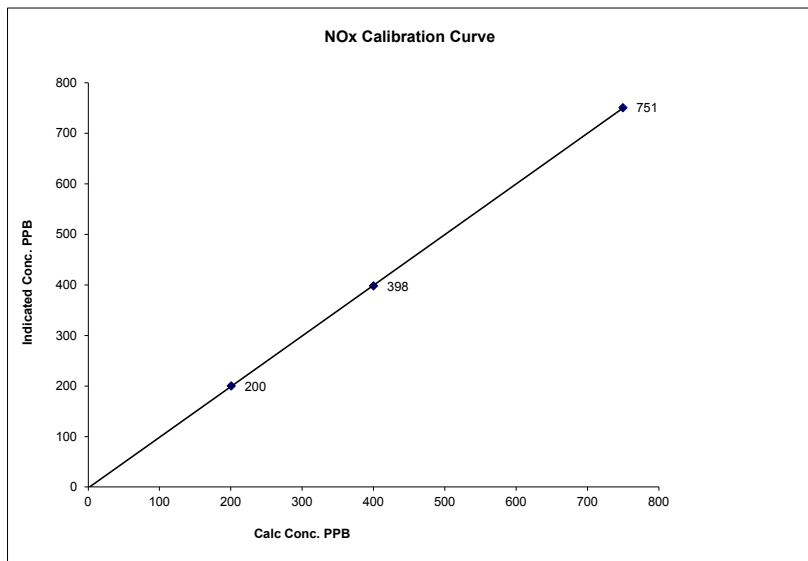


Notes:

NOx Calibration Curve

Calibration Date	May 9, 2012	
Company	LICA	
Plant / Location	Portable/Elk Point Airport	
Start Time (MST)	9:55	End Time (MST) 16:14

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999986
0	-1	N/A	Slope	(0.85 to 1.15)	1.002538
201	200	1.0031	Intercept	($\pm 3\%$ F.S.)	-1.53562
400	398	1.0058			
750	751	0.9984			

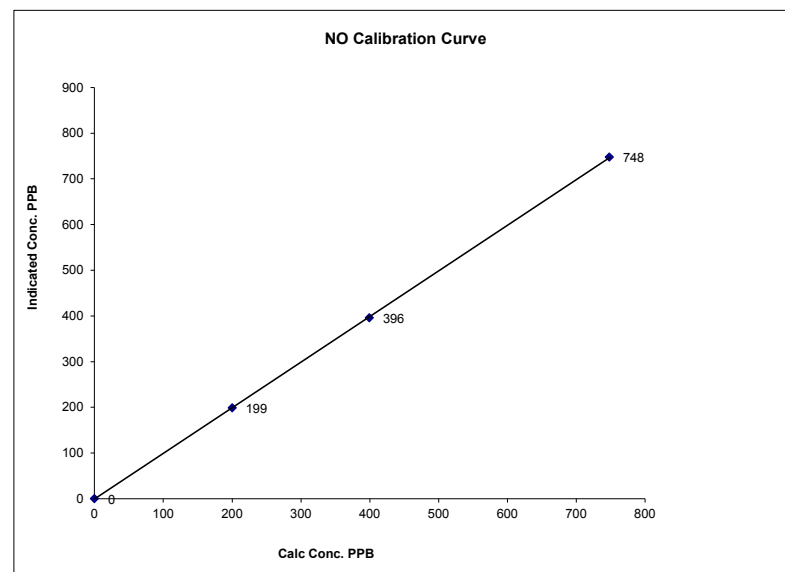


Notes:

NO Calibration Curve

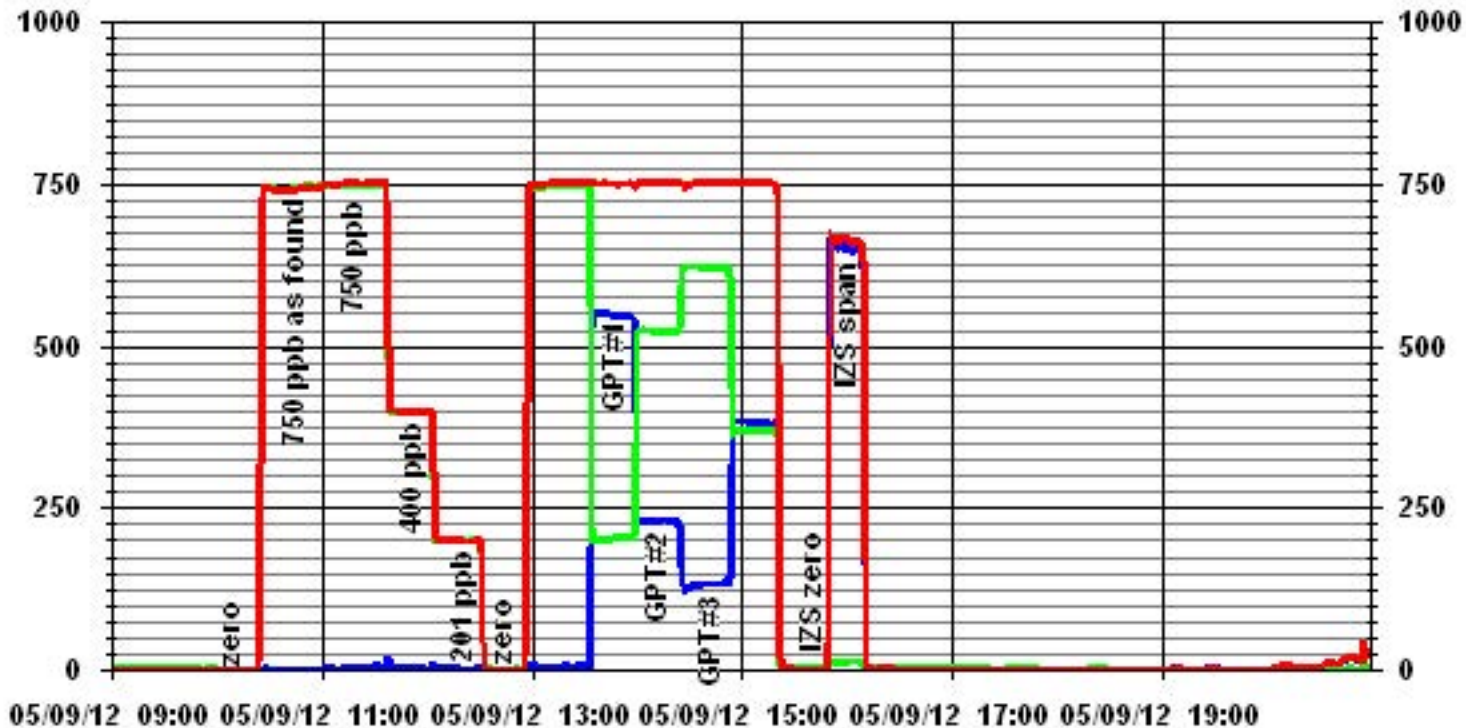
Calibration Date	May 9, 2012	
Company	LICA	
Plant / Location	Portable/Elk Point Airport	
Start Time (MST)	9:55	End Time (MST) 16:14

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999975
0	0	N/A	Slope	(0.85 to 1.15)	1.002566
200	199	1.0061	Intercept	($\pm 3\%$ F.S.)	-7.2078
400	396	1.0089			
748	748	1.0004			



Notes:

01 Minute Averages



— LICA35 IIOX_ PPB

— LICA35 IIO_ PPB

— LICA35 IIO2_ PPB

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	May 18, 2012	Previous Calibration	May 9, 2012
Company	LICA	Plant/Location	Portable/Elk Point Airport
Start Time (MST)	11:11	End Time (MST)	14:27
Reason:	As Found		
Barometric Pressure	0.932 atm	Station Temperature	23 Deg C
Cal Gas Concentration	NOx 49.6 ppm	NO 49.5 ppm	Cal Gas Expiry date
Cal Gas Cylinder #	LL42496		January 16, 2014
DAS Output Voltage	0 - 1 Volts	Chart Rec. Output	NA Volts

Equipment Information

Analyzer Make / Model:	TAPI 200E	S/N :	593	Method:	Chemiluminescent
Calibrator Make / Model:	Enviroics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Enviroics 6100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range		0 - 1000		ppb			
Sample Flow/Conv. Temp	471 ccm	315 Deg C		467 ccm	315 Deg C		
Ozone Flow / Vacuum	78 ccm	5.0 *Hg-A		78 ccm	4.8 *Hg-A		
HVPS / A ZERO	646 Volts	6.8 MV		646 Volts	6.7 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	34.9 Deg C	45.3 Deg C		32.1 Deg C	45.3 Deg C		
Offset	1.9 NOx	0.0 NO		1.9 NOx	0.0 NO		
Slope	1.172 NOx	1.157 NO		1.172 NOx	1.157 NO		
NO2 COEF / Conv Efficiency	NA NO2	0.996		NA NO2	0.996		

Dilution Calibration Data

Dilution Air Flow Rate	Source Flow Rate	O3 Set Point	Calculated Concentration			Indicated Concentration			Correction Factor	
			NOx	NO	NO2	NOx	NO	NO2	NOx	NO
4994	0.0	NA	0	0	NA	-2	0	-1	NA	NA
	No Zero Adj.									
4919	75.5	NA	750	748	NA	754	752	2	0.9918	0.9950

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	75.5	NA	750	748	NA	753	752	2	NA	NA
	No Adj Required									
4919	75.5	600	750	NA	526	753	228	526	0.9981	100.00%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= #VALUE! NOx= 0.9918	NO= #VALUE! NO= 0.9950	NO2= #VALUE! NO2= 0.9981
Average Converter Efficiency=						

IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	-1.2 NOx	-1 NO2		-1 NOx	-0.9 NO2		
Auto Span	587 NOx	577 NO2		523 NOx	515 NO2		
Sample Lines Connected							
YES							
Percent Change from Previous Calibration				NOx 0.5% NO 0.5% NO2 0.6%			

Notes **NA : Not Applicable**

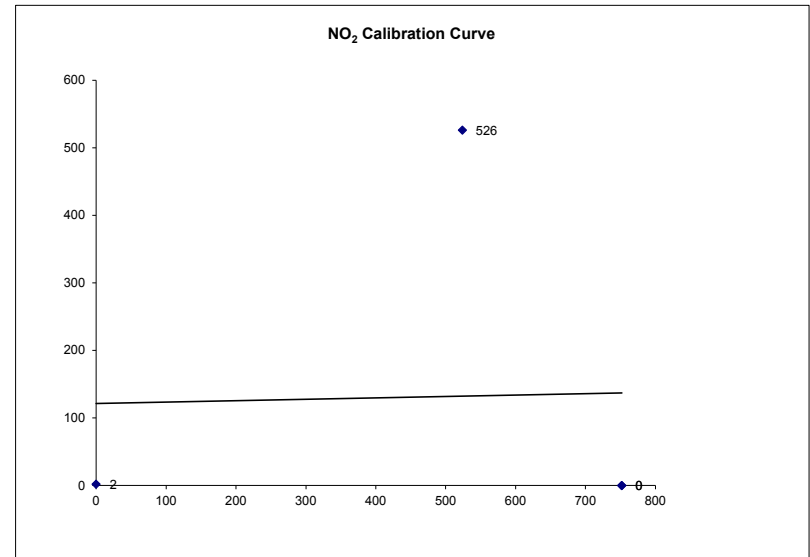
Following the A/F points, the perm tube was replaced.

Calibration Performed by: Ting Xu

NO2 Calibration Curve

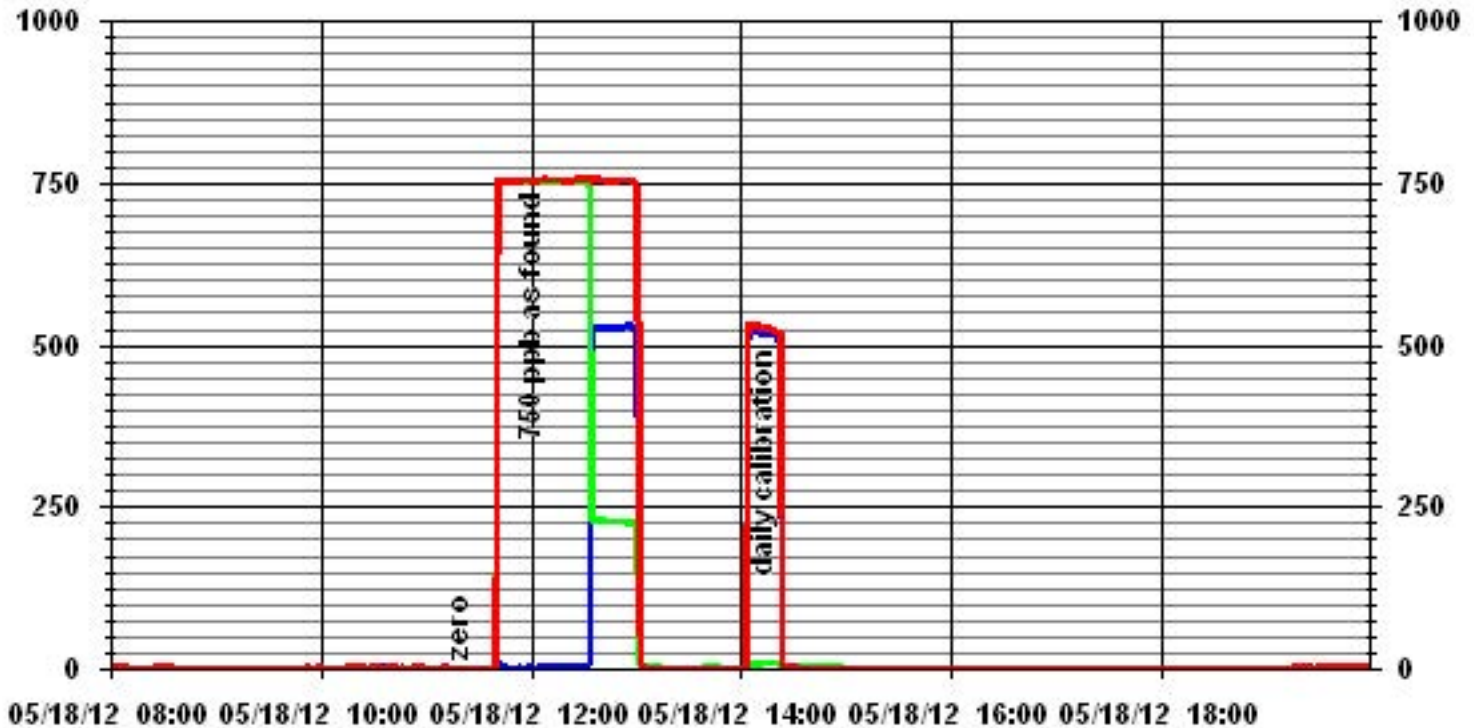
Calibration Date	May 18, 2012
Company	LICA
Plant / Location	Portable/Elk Point Airport
Start Time (MST)	11:11
End Time (MST)	14:27

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.000805
0	2	N/A	Intercept	(± 3% F.S.)	0.021008
752	0	#DIV/0!			#####
752	0	#DIV/0!			
524	526	0.9962			



Notes:

01 Minute Averages



— LICA35 IIOX_ PPB

— LICA35 IIO_ PPB

— LICA35 IIO2_ PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	May 9, 2012	Previous Calibration	April 12, 2012
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Elk Point Airport		
Start Time (MST)	15:31	End Time (MST)	18:55
Reason:	Monthly Calibration		
Barometric Pressure	702 mmHg	Station Temperature	22 Deg C
DAS Output Voltage	0-10 Volts		

Equipment Information

Analyzer Make / Model:	Thermo 49i	S/N :	1002240372	Method:	Photometric
Calibrator Make / Model:	EnviroNics 6100		4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO 717		

Analyzer Settings

Before Calibration		After Calibration	
Concentration Range	0 - 500 ppb		
Cell A Flow / Cell B Flow	738 ccm	744 ccm	758 ccm
Pressure	686 mmHg		698 mmHg
Bench Lamp	54 Deg C		54.1 Deg C
O3 Lamp / Box Temp	68.2 Deg C	30.7 Deg C	68.2 Deg C
Offset / Slope	0.5	1.059	0.5

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4994	0	0	-1	NA
	No Zero Adj.			
4994	420	378	399	0.9474
4994	420	378	378	1.0000
4994	250	225	226	0.9956
4994	140	127	126	1.0079
4994	0	0	0	NA
Sum of Least Squares				0.9995
New Correction Factor				1.0000

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	-0.7		-0.6
Auto Span	347.0		326.0
Sample Lines Connected			YES
Previous Calibration Correction Factor:			1.0000
Current Correctio Factor Before Span Adjust:			0.9474
Percent Change:			5.6%

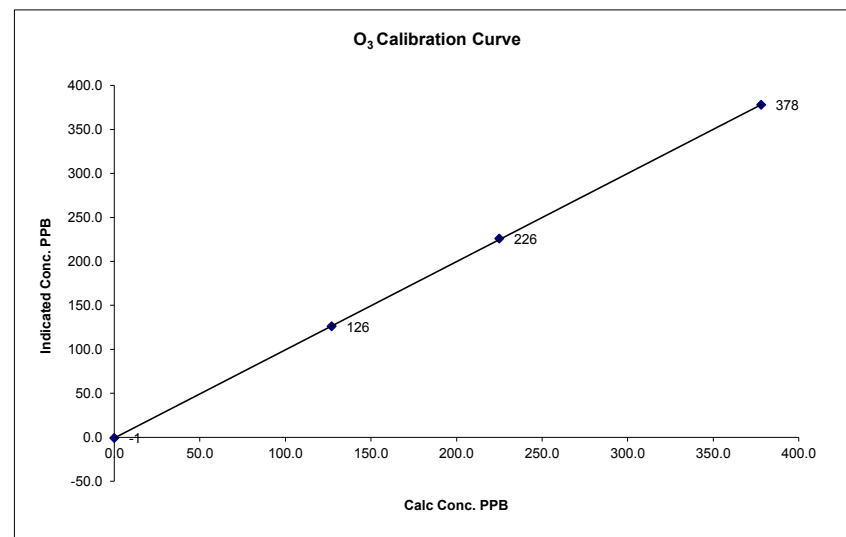
Note: **NA : Not Applicable**

Calibration Performed by: Limin Li / Jacob Roch

O₃ Calibration Curve

Calibration Date	May 9, 2012		
Company	Lakeland Industry & Community Association		
Plant / Location	Portable / Elk Point Airport		
Start Time (MST)	15:31	End Time (MST)	18:55

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	
0	-1	n/a	Slope (0.85 to 1.15)	0.999978
127	126	1.0079	Intercept (± 3% F.S.)	1.003671
225	226	0.9956		-0.919929
378	378	1.0000		



Notes:

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: 299
Station ID: Lica 35 (Portable) Canister Installation Date/Time: Apr 30, 12 @ 12:14 mst
Field Sample ID: LICA VOC/PORT/ May 03, 12 Canister Removal Date/Time: May 07, 12 @ 11:23 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
03-May-12	05/03/2012 0:00	05/04/2012 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	21

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

Comments: System leak check prior to sampling. COC # 08703

Technician Signature: Ting Xu



Your C.O.C. #: 08703

Attention: Michael Bisaga

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

Report Date: 2012/05/17

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B266627

Received: 2012/05/09, 11:30

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/05/10	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/10	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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

Maxxam Job #: B266627
 Report Date: 2012/05/17

RESULTS OF ANALYSES OF AIR

Maxxam ID		NJ8413	NJ8414	
Sampling Date		2012/05/03	2012/05/03	
COC Number		08703	08703	
	Units	LICA VOC\CLS\MAY 03,12	LICA VOC\PORT\MAY 03,12	QC Batch

Volatile Organics				
Pressure on Receipt	psig	24	21	2848582

QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NJ8413				
Sampling Date		2012/05/03				
COC Number		08703				
	Units	LICA VOC\CLSMAY 03,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2848218
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2848218
Propene	ppbv	<0.30	0.30	<0.516	0.516	2848218
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2848218
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2848218
Dichlorodifluoromethane (FREON 12)	ppbv	0.54	0.20	2.69	0.989	2848218
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2848218
Chloromethane	ppbv	0.52	0.30	1.07	0.620	2848218
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2848218
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2848218
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2848218
Trichlorofluoromethane (FREON 11)	ppbv	0.28	0.20	1.58	1.12	2848218
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2848218
Ethanol (ethyl alcohol)	ppbv	2.3	2.3	4.40	4.33	2848218
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2848218
2-Propanone	ppbv	2.63	0.80	6.24	1.90	2848218
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2848218
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2848218
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2848218
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2848218
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2848218
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2848218
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2848218
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2848218
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2848218
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2848218
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2848218
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2848218
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2848218
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2848218
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2848218

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NJ8413				
Sampling Date		2012/05/03				
COC Number		08703				
	Units	LICA VOC\CLSMAY 03,12	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2848218
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2848218
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2848218
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2848218
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2848218
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2848218
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2848218
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2848218
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2848218
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2848218
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2848218
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2848218
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2848218
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2848218
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2848218
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2848218
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2848218
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2848218
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2848218
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2848218
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2848218
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2848218
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2848218
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2848218
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2848218
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2848218
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2848218
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2848218
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2848218
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2848218
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2848218
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2848218
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2848218
QC Batch = Quality Control Batch						

Maxxam Job #: B266627
 Report Date: 2012/05/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NJ8413				
Sampling Date		2012/05/03				
COC Number		08703				
	Units	LICA VOC\CLSMAY 03,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	86		N/A	N/A	2848218
D5-Chlorobenzene	%	93		N/A	N/A	2848218
Difluorobenzene	%	91		N/A	N/A	2848218

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

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NJ8414				
Sampling Date		2012/05/03				
COC Number		08703				
	Units	LICA VOCI PORTMAY 03,12	RDL	ug/m3	DL (ug/m3)	QC Batch
Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2848218
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2848218
Propene	ppbv	<1.3	1.3	<2.24	2.24	2848218
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2848218
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2848218
Dichlorodifluoromethane (FREON 12)	ppbv	0.63	0.20	3.11	0.989	2848218
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2848218
Chloromethane	ppbv	0.65	0.30	1.34	0.620	2848218
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2848218
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2848218
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2848218
Trichlorofluoromethane (FREON 11)	ppbv	0.27	0.20	1.52	1.12	2848218
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2848218
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2848218
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2848218
2-Propanone	ppbv	2.76	0.80	6.55	1.90	2848218
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2848218
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2848218
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2848218
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2848218
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2848218
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2848218
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2848218
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2848218
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2848218
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2848218
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2848218
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2848218
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2848218
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2848218
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2848218
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B266627
 Report Date: 2012/05/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NJ8414				
Sampling Date		2012/05/03				
COC Number		08703				
	Units	LICA VOC/PORTMAY 03,12	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2848218
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2848218
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2848218
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2848218
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2848218
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2848218
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2848218
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2848218
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2848218
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2848218
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2848218
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2848218
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2848218
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2848218
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2848218
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2848218
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2848218
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2848218
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2848218
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2848218
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2848218
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2848218
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2848218
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2848218
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2848218
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2848218
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2848218
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2848218
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2848218
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2848218
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2848218
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2848218
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2848218
QC Batch = Quality Control Batch						

Maxxam Job #: B266627
 Report Date: 2012/05/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NJ8414				
Sampling Date		2012/05/03				
COC Number		08703				
	Units	LICA VOC\PORTMAY 03,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	82		N/A	N/A	2848218
D5-Chlorobenzene	%	91		N/A	N/A	2848218
Difluorobenzene	%	88		N/A	N/A	2848218

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

Maxxam Job #: B266627
 Report Date: 2012/05/17

Test Summary

Maxxam ID NJ8413
Sample ID LICA VOC\CLSMAY 03,12
Matrix AIR

Collected 2012/05/03
Shipped
Received 2012/05/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2848582	N/A	2012/05/10	DIANE TEMNUIK
Volatile Organics in Air (TO-15)	GC/MS	2848218	N/A	2012/05/10	DIANE TEMNUIK

Maxxam ID NJ8414
Sample ID LICA VOC\PORTMAY 03,12
Matrix AIR

Collected 2012/05/03
Shipped
Received 2012/05/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2848582	N/A	2012/05/10	DIANE TEMNUIK
Volatile Organics in Air (TO-15)	GC/MS	2848218	N/A	2012/05/10	DIANE TEMNUIK

Maxxam Job #: B266627
Report Date: 2012/05/17

GENERAL COMMENTS

WS# 2848218

1,2,4-Trichlorobenzene was above 40%RSD in the continuing calibration. No positives were found, therefore data was not affected.

Sample NJ8414-01: DL was raised for Propene due to matrix interference.

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB266627

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2848218 DVO	Spiked Blank	Bromochloromethane	2012/05/10		101	%	60 - 140
		D5-Chlorobenzene	2012/05/10		105	%	60 - 140
		Difluorobenzene	2012/05/10		104	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/10		97	%	70 - 130
		Carbon Disulfide	2012/05/10		102	%	70 - 130
		Propene	2012/05/10		90	%	70 - 130
		Vinyl Acetate	2012/05/10		116	%	70 - 130
		Vinyl Bromide	2012/05/10		102	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/10		101	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/10		105	%	70 - 130
		Chloromethane	2012/05/10		99	%	70 - 130
		Vinyl Chloride	2012/05/10		87	%	70 - 130
		Chloroethane	2012/05/10		86	%	70 - 130
		1,3-Butadiene	2012/05/10		93	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/10		94	%	70 - 130
		Trichlorotrifluoroethane	2012/05/10		95	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/10		96	%	70 - 130
		2-propanol	2012/05/10		108	%	70 - 130
		2-Propanone	2012/05/10		112	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/10		126	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/10		108	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/10		109	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/10		95	%	70 - 130
		Ethyl Acetate	2012/05/10		113	%	70 - 130
		1,1-Dichloroethylene	2012/05/10		101	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/10		102	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/10		96	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/10		99	%	70 - 130
		Chloroform	2012/05/10		97	%	70 - 130
		Carbon Tetrachloride	2012/05/10		96	%	70 - 130
		1,1-Dichloroethane	2012/05/10		96	%	70 - 130
		1,2-Dichloroethane	2012/05/10		102	%	70 - 130
		Ethylene Dibromide	2012/05/10		95	%	70 - 130
		1,1,1-Trichloroethane	2012/05/10		95	%	70 - 130
		1,1,2-Trichloroethane	2012/05/10		95	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/10		92	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/10		102	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/10		103	%	70 - 130
		1,2-Dichloropropane	2012/05/10		99	%	70 - 130
		Bromomethane	2012/05/10		84	%	70 - 130
		Bromoform	2012/05/10		97	%	70 - 130
		Bromodichloromethane	2012/05/10		97	%	70 - 130
		Dibromochloromethane	2012/05/10		92	%	70 - 130
		Heptane	2012/05/10		103	%	70 - 130
		Trichloroethylene	2012/05/10		93	%	70 - 130
		Tetrachloroethylene	2012/05/10		83	%	70 - 130
		Benzene	2012/05/10		97	%	70 - 130
		Toluene	2012/05/10		97	%	70 - 130
		Ethylbenzene	2012/05/10		98	%	70 - 130
		p+m-Xylene	2012/05/10		95	%	70 - 130
		o-Xylene	2012/05/10		96	%	70 - 130
		Styrene	2012/05/10		80	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/10		91	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/10		89	%	70 - 130
		4-ethyltoluene	2012/05/10		90	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB266627

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2848218 DVO	Spiked Blank	Chlorobenzene	2012/05/10		96	%	70 - 130
		Benzyl chloride	2012/05/10		95	%	70 - 130
		1,3-Dichlorobenzene	2012/05/10		89	%	70 - 130
		1,4-Dichlorobenzene	2012/05/10		88	%	70 - 130
		1,2-Dichlorobenzene	2012/05/10		84	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/10		114	%	70 - 130
		Hexachlorobutadiene	2012/05/10		101	%	70 - 130
		Hexane	2012/05/10		98	%	70 - 130
		Cyclohexane	2012/05/10		93	%	70 - 130
		Tetrahydrofuran	2012/05/10		114	%	70 - 130
		1,4-Dioxane	2012/05/10		101	%	70 - 130
		Xylene (Total)	2012/05/10		95	%	70 - 130
	Method Blank	Bromochloromethane	2012/05/10		89	%	60 - 140
		D5-Chlorobenzene	2012/05/10		102	%	60 - 140
		Difluorobenzene	2012/05/10		96	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/10	<0.20		ppbv	
		Carbon Disulfide	2012/05/10	<0.50		ppbv	
		Propene	2012/05/10	<0.30		ppbv	
		Vinyl Acetate	2012/05/10	<0.20		ppbv	
		Vinyl Bromide	2012/05/10	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/10	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/10	<0.17		ppbv	
		Chloromethane	2012/05/10	<0.30		ppbv	
		Vinyl Chloride	2012/05/10	<0.18		ppbv	
		Chloroethane	2012/05/10	<0.30		ppbv	
		1,3-Butadiene	2012/05/10	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/10	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/10	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/10	<2.3		ppbv	
		2-propanol	2012/05/10	<3.0		ppbv	
		2-Propanone	2012/05/10	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/10	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/10	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/10	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/10	<0.20		ppbv	
		Ethyl Acetate	2012/05/10	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/10	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/10	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/10	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/10	<0.80		ppbv	
		Chloroform	2012/05/10	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/10	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/10	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/10	<0.20		ppbv	
		Ethylene Dibromide	2012/05/10	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/10	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/10	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/10	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/10	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/10	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/10	<0.40		ppbv	
		Bromomethane	2012/05/10	<0.18		ppbv	
		Bromoform	2012/05/10	<0.20		ppbv	
		Bromodichloromethane	2012/05/10	<0.20		ppbv	
		Dibromochloromethane	2012/05/10	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB266627

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2848218	DVO	Method Blank					
		Heptane	2012/05/10	<0.30		ppbv	
		Trichloroethylene	2012/05/10	<0.30		ppbv	
		Tetrachloroethylene	2012/05/10	<0.20		ppbv	
		Benzene	2012/05/10	<0.18		ppbv	
		Toluene	2012/05/10	<0.20		ppbv	
		Ethylbenzene	2012/05/10	<0.20		ppbv	
		p+m-Xylene	2012/05/10	<0.37		ppbv	
		o-Xylene	2012/05/10	<0.20		ppbv	
		Styrene	2012/05/10	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/10	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/10	<0.50		ppbv	
		4-ethyltoluene	2012/05/10	<2.2		ppbv	
		Chlorobenzene	2012/05/10	<0.20		ppbv	
		Benzyl chloride	2012/05/10	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/10	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/10	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/10	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/10	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/10	<3.0		ppbv	
		Hexane	2012/05/10	<0.30		ppbv	
		Cyclohexane	2012/05/10	<0.20		ppbv	
		Tetrahydrofuran	2012/05/10	<0.40		ppbv	
		1,4-Dioxane	2012/05/10	<2.0		ppbv	
		Xylene (Total)	2012/05/10	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2012/05/10	NC		%	25
		Carbon Disulfide	2012/05/10	NC		%	25
		Propene	2012/05/10	NC		%	25
		Vinyl Acetate	2012/05/10	NC		%	25
		Vinyl Bromide	2012/05/10	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2012/05/10	2.9		%	25
		1,2-Dichlorotetrafluoroethane	2012/05/10	NC		%	25
		Chloromethane	2012/05/10	NC		%	25
		Vinyl Chloride	2012/05/10	NC		%	25
		Chloroethane	2012/05/10	NC		%	25
		1,3-Butadiene	2012/05/10	NC		%	25
		Trichlorofluoromethane (FREON 11)	2012/05/10	NC		%	25
		Trichlorotrifluoroethane	2012/05/10	NC		%	25
		Ethanol (ethyl alcohol)	2012/05/10	3.7		%	25
		2-propanol	2012/05/10	NC		%	25
		2-Propanone	2012/05/10	2.0		%	25
		Methyl Ethyl Ketone (2-Butanone)	2012/05/10	NC		%	25
		Methyl Isobutyl Ketone	2012/05/10	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2012/05/10	NC		%	25
		Methyl t-butyl ether (MTBE)	2012/05/10	NC		%	25
		Ethyl Acetate	2012/05/10	NC		%	25
		1,1-Dichloroethylene	2012/05/10	NC		%	25
		cis-1,2-Dichloroethylene	2012/05/10	NC		%	25
		trans-1,2-Dichloroethylene	2012/05/10	NC		%	25
		Methylene Chloride(Dichloromethane)	2012/05/10	NC		%	25
		Chloroform	2012/05/10	NC		%	25
		Carbon Tetrachloride	2012/05/10	NC		%	25
		1,1-Dichloroethane	2012/05/10	NC		%	25
		1,2-Dichloroethane	2012/05/10	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB266627

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2848218 DVO	RPD - Sample/Sample Dup	Ethylene Dibromide	2012/05/10	NC		%	25
		1,1,1-Trichloroethane	2012/05/10	NC		%	25
		1,1,2-Trichloroethane	2012/05/10	NC		%	25
		1,1,2,2-Tetrachloroethane	2012/05/10	NC		%	25
		cis-1,3-Dichloropropene	2012/05/10	NC		%	25
		trans-1,3-Dichloropropene	2012/05/10	NC		%	25
		1,2-Dichloropropane	2012/05/10	NC		%	25
		Bromomethane	2012/05/10	NC		%	25
		Bromoform	2012/05/10	NC		%	25
		Bromodichloromethane	2012/05/10	NC		%	25
		Dibromochloromethane	2012/05/10	NC		%	25
		Heptane	2012/05/10	NC		%	25
		Trichloroethylene	2012/05/10	NC		%	25
		Tetrachloroethylene	2012/05/10	5.5		%	25
		Benzene	2012/05/10	4.2		%	25
		Toluene	2012/05/10	5.8		%	25
		Ethylbenzene	2012/05/10	0.7		%	25
		p+m-Xylene	2012/05/10	2.8		%	25
		o-Xylene	2012/05/10	4.3		%	25
		Styrene	2012/05/10	NC		%	25
		1,3,5-Trimethylbenzene	2012/05/10	NC		%	25
		1,2,4-Trimethylbenzene	2012/05/10	NC		%	25
		4-ethyltoluene	2012/05/10	NC		%	25
		Chlorobenzene	2012/05/10	NC		%	25
		Benzyl chloride	2012/05/10	NC		%	25
		1,3-Dichlorobenzene	2012/05/10	NC		%	25
		1,4-Dichlorobenzene	2012/05/10	3.1		%	25
		1,2-Dichlorobenzene	2012/05/10	NC		%	25
		1,2,4-Trichlorobenzene	2012/05/10	NC		%	25
		Hexachlorobutadiene	2012/05/10	NC		%	25
		Hexane	2012/05/10	NC		%	25
		Cyclohexane	2012/05/10	7.2		%	25
		Tetrahydrofuran	2012/05/10	NC		%	25
		1,4-Dioxane	2012/05/10	NC		%	25
		Xylene (Total)	2012/05/10	3.1		%	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: 7825
Station ID: Lica 35 (Portable) Canister Installation Date/Time: May 07, 12 @ 11:33 mst
Field Sample ID: LICA VOC/PORT/ May 09, 12 Canister Removal Date/Time: May 10, 12 @ 09:41 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
09-May-12	05/09/2012 0:00	05/10/2012 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 # 11203

Technician Signature: Ting Xu

Your C.O.C. #: na

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

Report Date: 2012/05/25

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B270516****Received: 2012/05/16, 10:09**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/05/17	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/17	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.

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 10

Maxxam Job #: B270516
 Report Date: 2012/05/25

RESULTS OF ANALYSES OF AIR

Maxxam ID		NL8149	NL8150	
Sampling Date		2012/05/09	2012/05/09	
COC Number		na	na	
	Units	LICA VOC/CLS/MAY 09,12 - 317	LICA VOC/PORT/MAY 09,12 - 7825	QC Batch

Volatile Organics				
Pressure on Receipt	psig	22	22	2854190

QC Batch = Quality Control Batch

Maxxam Job #: B270516
 Report Date: 2012/05/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NL8149			NL8150				
Sampling Date		2012/05/09			2012/05/09				
COC Number		na			na				
	Units	LICA VOC/CLS/MAY 09,12 - 317	ug/m3	DL (ug/m3)	LICA VOC/PORT/MAY 09,12 - 7825	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	2854207
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2854207
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2854207
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2854207
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2854207
Dichlorodifluoromethane (FREON 12)	ppbv	0.68	3.34	0.989	0.67	0.20	3.33	0.989	2854207
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2854207
Chloromethane	ppbv	0.53	1.10	0.620	0.59	0.30	1.21	0.620	2854207
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2854207
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2854207
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2854207
Trichlorofluoromethane (FREON 11)	ppbv	0.34	1.93	1.12	0.33	0.20	1.86	1.12	2854207
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2854207
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2854207
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2854207
2-Propanone	ppbv	5.23	12.4	1.90	5.67	0.80	13.5	1.90	2854207
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2854207
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2854207
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2854207
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2854207
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2854207
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2854207
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2854207
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2854207
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2854207
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2854207
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2854207
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2854207
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2854207
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2854207
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2854207

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B270516
 Report Date: 2012/05/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NL8149			NL8150				
Sampling Date		2012/05/09			2012/05/09				
COC Number		na			na				
	Units	LICA VOC/CLS/MAY 09,12 - 317	ug/m3	DL (ug/m3)	LICA VOC/PORT/MAY 09,12 - 7825	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	2854207
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2854207
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2854207
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2854207
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2854207
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2854207
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2854207
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2854207
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2854207
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2854207
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2854207
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2854207
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2854207
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2854207
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2854207
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2854207
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2854207
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2854207
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2854207
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2854207
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2854207
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2854207
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2854207
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2854207
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2854207
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2854207
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2854207
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2854207
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2854207
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2854207
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2854207
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2854207
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2854207
QC Batch = Quality Control Batch									

Maxxam Job #: B270516
 Report Date: 2012/05/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NL8149			NL8150				
Sampling Date		2012/05/09			2012/05/09				
COC Number		na			na				
	Units	LICA VOC/CLS/MAY 09,12 - 317	ug/m3	DL (ug/m3)	LICA VOC/PORT/MAY 09,12 - 7825	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	68	N/A	N/A	66		N/A	N/A	2854207
D5-Chlorobenzene	%	63	N/A	N/A	63		N/A	N/A	2854207
Difluorobenzene	%	69	N/A	N/A	67		N/A	N/A	2854207

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

Maxxam Job #: B270516
 Report Date: 2012/05/25

Test Summary

Maxxam ID NL8149
Sample ID LICA VOC/CLS/MAY 09,12 - 317
Matrix AIR

Collected 2012/05/09
Shipped
Received 2012/05/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2854190	N/A	2012/05/17	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2854207	N/A	2012/05/17	SPOMENKA SMILJANIC

Maxxam ID NL8150
Sample ID LICA VOC/PORT/MAY 09,12 - 7825
Matrix AIR

Collected 2012/05/09
Shipped
Received 2012/05/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2854190	N/A	2012/05/17	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2854207	N/A	2012/05/17	SPOMENKA SMILJANIC

Maxxam Job #: B270516
Report Date: 2012/05/25

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: GB270516

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2854207 S_S	Spiked Blank	Bromochloromethane	2012/05/17		107	%	60 - 140
		D5-Chlorobenzene	2012/05/17		108	%	60 - 140
		Difluorobenzene	2012/05/17		109	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/17		93	%	70 - 130
		Carbon Disulfide	2012/05/17		96	%	70 - 130
		Propene	2012/05/17		89	%	70 - 130
		Vinyl Acetate	2012/05/17		99	%	70 - 130
		Vinyl Bromide	2012/05/17		94	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/17		96	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/17		107	%	70 - 130
		Chloromethane	2012/05/17		95	%	70 - 130
		Vinyl Chloride	2012/05/17		94	%	70 - 130
		Chloroethane	2012/05/17		93	%	70 - 130
		1,3-Butadiene	2012/05/17		95	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/17		92	%	70 - 130
		Trichlorotrifluoroethane	2012/05/17		94	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/17		81	%	70 - 130
		2-propanol	2012/05/17		97	%	70 - 130
		2-Propanone	2012/05/17		105	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/17		90	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/17		96	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/17		98	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/17		98	%	70 - 130
		Ethyl Acetate	2012/05/17		100	%	70 - 130
		1,1-Dichloroethylene	2012/05/17		95	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/17		96	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/17		94	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/17		86	%	70 - 130
		Chloroform	2012/05/17		94	%	70 - 130
		Carbon Tetrachloride	2012/05/17		95	%	70 - 130
		1,1-Dichloroethane	2012/05/17		93	%	70 - 130
		1,2-Dichloroethane	2012/05/17		94	%	70 - 130
		Ethylene Dibromide	2012/05/17		98	%	70 - 130
		1,1,1-Trichloroethane	2012/05/17		94	%	70 - 130
		1,1,2-Trichloroethane	2012/05/17		96	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/17		93	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/17		98	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/17		101	%	70 - 130
		1,2-Dichloropropane	2012/05/17		95	%	70 - 130
		Bromomethane	2012/05/17		93	%	70 - 130
		Bromoform	2012/05/17		102	%	70 - 130
		Bromodichloromethane	2012/05/17		96	%	70 - 130
		Dibromochloromethane	2012/05/17		100	%	70 - 130
		Heptane	2012/05/17		91	%	70 - 130
		Trichloroethylene	2012/05/17		94	%	70 - 130
		Tetrachloroethylene	2012/05/17		97	%	70 - 130
		Benzene	2012/05/17		95	%	70 - 130
		Toluene	2012/05/17		97	%	70 - 130
		Ethylbenzene	2012/05/17		95	%	70 - 130
		p+m-Xylene	2012/05/17		93	%	70 - 130
		o-Xylene	2012/05/17		94	%	70 - 130
		Styrene	2012/05/17		86	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/17		94	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/17		95	%	70 - 130
		4-ethyltoluene	2012/05/17		97	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB270516

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2854207 S_S	Spiked Blank	Chlorobenzene	2012/05/17		92	%	70 - 130
		Benzyl chloride	2012/05/17		98	%	70 - 130
		1,3-Dichlorobenzene	2012/05/17		93	%	70 - 130
		1,4-Dichlorobenzene	2012/05/17		91	%	70 - 130
		1,2-Dichlorobenzene	2012/05/17		90	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/17		81	%	70 - 130
		Hexachlorobutadiene	2012/05/17		85	%	70 - 130
		Hexane	2012/05/17		97	%	70 - 130
		Cyclohexane	2012/05/17		93	%	70 - 130
		Tetrahydrofuran	2012/05/17		100	%	70 - 130
		1,4-Dioxane	2012/05/17		102	%	70 - 130
	Method Blank	Xylene (Total)	2012/05/17		94	%	70 - 130
		Bromochloromethane	2012/05/17		95	%	60 - 140
		D5-Chlorobenzene	2012/05/17		88	%	60 - 140
		Difluorobenzene	2012/05/17		97	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/17	<0.20		ppbv	
		Carbon Disulfide	2012/05/17	<0.50		ppbv	
		Propene	2012/05/17	<0.30		ppbv	
		Vinyl Acetate	2012/05/17	<0.20		ppbv	
		Vinyl Bromide	2012/05/17	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/17	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/17	<0.17		ppbv	
		Chloromethane	2012/05/17	<0.30		ppbv	
		Vinyl Chloride	2012/05/17	<0.18		ppbv	
		Chloroethane	2012/05/17	<0.30		ppbv	
		1,3-Butadiene	2012/05/17	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/17	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/17	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/17	<2.3		ppbv	
		2-propanol	2012/05/17	<3.0		ppbv	
		2-Propanone	2012/05/17	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/17	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/17	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/17	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/17	<0.20		ppbv	
		Ethyl Acetate	2012/05/17	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/17	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/17	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/17	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/17	<0.80		ppbv	
		Chloroform	2012/05/17	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/17	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/17	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/17	<0.20		ppbv	
		Ethylene Dibromide	2012/05/17	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/17	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/17	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/17	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/17	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/17	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/17	<0.40		ppbv	
		Bromomethane	2012/05/17	<0.18		ppbv	
		Bromoform	2012/05/17	<0.20		ppbv	
		Bromodichloromethane	2012/05/17	<0.20		ppbv	
		Dibromochloromethane	2012/05/17	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB270516

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2854207 S_S	Method Blank	Heptane	2012/05/17	<0.30		ppbv	
		Trichloroethylene	2012/05/17	<0.30		ppbv	
		Tetrachloroethylene	2012/05/17	<0.20		ppbv	
		Benzene	2012/05/17	<0.18		ppbv	
		Toluene	2012/05/17	<0.20		ppbv	
		Ethylbenzene	2012/05/17	<0.20		ppbv	
		p+m-Xylene	2012/05/17	<0.37		ppbv	
		o-Xylene	2012/05/17	<0.20		ppbv	
		Styrene	2012/05/17	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/17	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/17	<0.50		ppbv	
		4-ethyltoluene	2012/05/17	<2.2		ppbv	
		Chlorobenzene	2012/05/17	<0.20		ppbv	
		Benzyl chloride	2012/05/17	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/17	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/17	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/17	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/17	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/17	<3.0		ppbv	
		Hexane	2012/05/17	<0.30		ppbv	
		Cyclohexane	2012/05/17	<0.20		ppbv	
		Tetrahydrofuran	2012/05/17	<0.40		ppbv	
		1,4-Dioxane	2012/05/17	<2.0		ppbv	
		Xylene (Total)	2012/05/17	<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: 283
Station ID: Lica 35 (Portable) Canister Installation Date/Time: May 14, 12 @ 13:48 mst
Field Sample ID: LICA VOC/PORT/ May 15, 12 Canister Removal Date/Time: May 17, 12 @ 10:47 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
15-May-12	05/15/2012 0:00	05/16/2012 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 # 11064

Technician Signature: Ting Xu



Your C.O.C. #: 11064

Attention: Michael Bisaga

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

Report Date: 2012/06/01

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B273742

Received: 2012/05/22, 18:30

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/05/30	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/30	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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

Maxxam Job #: B273742
 Report Date: 2012/06/01

RESULTS OF ANALYSES OF AIR

Maxxam ID		NN4075	NN4076	
Sampling Date		2012/05/15 00:00	2012/05/15 00:00	
COC Number		11064	11064	
	Units	LICA VOC/CLS/MAY 15,12 / 113	LICA VOC/PORT/MAY 15,12 / 283	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2866381
QC Batch = Quality Control Batch				

Maxxam Job #: B273742
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NN4075				
Sampling Date		2012/05/15 00:00				
COC Number		11064				
	Units	LICA VOC/CLS/MAY 15,12 / 113	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2866695
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2866695
Propene	ppbv	<0.30	0.30	<0.516	0.516	2866695
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2866695
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2866695
Dichlorodifluoromethane (FREON 12)	ppbv	0.60	0.20	2.95	0.989	2866695
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2866695
Chloromethane	ppbv	0.50	0.30	1.03	0.620	2866695
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2866695
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2866695
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2866695
Trichlorofluoromethane (FREON 11)	ppbv	0.30	0.20	1.67	1.12	2866695
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2866695
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2866695
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2866695
2-Propanone	ppbv	2.99	0.80	7.11	1.90	2866695
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2866695
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2866695
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2866695
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2866695
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2866695
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2866695
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2866695
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2866695
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2866695
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2866695
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2866695
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2866695
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2866695
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2866695
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B273742
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NN4075				
Sampling Date		2012/05/15 00:00				
COC Number		11064				
	Units	LICA VOC/CLS/MAY 15,12 / 113	RDL	ug/m3	DL (ug/m3)	QC Batch

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2866695
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2866695
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2866695
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2866695
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2866695
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2866695
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2866695
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2866695
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2866695
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2866695
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2866695
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2866695
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2866695
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2866695
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2866695
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2866695
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2866695
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2866695
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2866695
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2866695
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2866695
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2866695
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2866695
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2866695
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2866695
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2866695
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2866695
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2866695
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2866695
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2866695
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2866695
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2866695
QC Batch = Quality Control Batch						

Maxxam Job #: B273742
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NN4075				
Sampling Date		2012/05/15 00:00				
COC Number		11064				
	Units	LICA VOC/CLS/MAY 15,12 / 113	RDL	ug/m3	DL (ug/m3)	QC Batch
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2866695
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2866695
Surrogate Recovery (%)						
Bromochloromethane	%	88		N/A	N/A	2866695
D5-Chlorobenzene	%	78		N/A	N/A	2866695
Difluorobenzene	%	89		N/A	N/A	2866695
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B273742
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NN4076				
Sampling Date		2012/05/15 00:00				
COC Number		11064				
	Units	LICA VOC/PORT/MAY 15,12 / 283	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2866695
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2866695
Propene	ppbv	<0.30	0.30	<0.516	0.516	2866695
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2866695
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2866695
Dichlorodifluoromethane (FREON 12)	ppbv	0.61	0.20	3.04	0.989	2866695
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2866695
Chloromethane	ppbv	0.50	0.30	1.03	0.620	2866695
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2866695
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2866695
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2866695
Trichlorofluoromethane (FREON 11)	ppbv	0.31	0.20	1.76	1.12	2866695
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2866695
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2866695
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2866695
2-Propanone	ppbv	4.44	0.80	10.5	1.90	2866695
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2866695
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2866695
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2866695
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2866695
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2866695
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2866695
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2866695
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2866695
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2866695
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2866695
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2866695
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2866695
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2866695
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2866695
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B273742
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NN4076				
Sampling Date		2012/05/15 00:00				
COC Number		11064				
	Units	LICA VOC/PORT/MAY 15,12 / 283	RDL	ug/m3	DL (ug/m3)	QC Batch

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2866695
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2866695
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2866695
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2866695
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2866695
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2866695
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2866695
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2866695
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2866695
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2866695
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2866695
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2866695
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2866695
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2866695
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2866695
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2866695
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2866695
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2866695
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2866695
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2866695
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2866695
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2866695
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2866695
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2866695
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2866695
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2866695
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2866695
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2866695
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2866695
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2866695
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2866695
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2866695

QC Batch = Quality Control Batch

Maxxam Job #: B273742
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NN4076				
Sampling Date		2012/05/15 00:00				
COC Number		11064				
	Units	LICA VOC/PORT/MAY 15,12 / 283	RDL	ug/m3	DL (ug/m3)	QC Batch
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2866695
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2866695
Surrogate Recovery (%)						
Bromochloromethane	%	86		N/A	N/A	2866695
D5-Chlorobenzene	%	76		N/A	N/A	2866695
Difluorobenzene	%	87		N/A	N/A	2866695
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B273742
 Report Date: 2012/06/01

Test Summary

Maxxam ID NN4075
Sample ID LICA VOC/CLS/MAY 15,12 / 113
Matrix AIR

Collected 2012/05/15
Shipped
Received 2012/05/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2866381	N/A	2012/05/30	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2866695	N/A	2012/05/30	SPOMENKA SMILJANIC

Maxxam ID NN4076
Sample ID LICA VOC/PORT/MAY 15,12 / 283
Matrix AIR

Collected 2012/05/15
Shipped
Received 2012/05/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2866381	N/A	2012/05/30	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2866695	N/A	2012/05/30	SPOMENKA SMILJANIC

Maxxam Job #: B273742
Report Date: 2012/06/01

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB273742

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2866695 S_S	Spiked Blank	Bromochloromethane	2012/05/30		104	%	60 - 140
		D5-Chlorobenzene	2012/05/30		102	%	60 - 140
		Difluorobenzene	2012/05/30		105	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/30		107	%	70 - 130
		Carbon Disulfide	2012/05/30		102	%	70 - 130
		Propene	2012/05/30		99	%	70 - 130
		Vinyl Acetate	2012/05/30		116	%	70 - 130
		Vinyl Bromide	2012/05/30		104	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/30		111	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/30		127	%	70 - 130
		Chloromethane	2012/05/30		119	%	70 - 130
		Vinyl Chloride	2012/05/30		112	%	70 - 130
		Chloroethane	2012/05/30		110	%	70 - 130
		1,3-Butadiene	2012/05/30		115	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/30		109	%	70 - 130
		Trichlorotrifluoroethane	2012/05/30		102	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/30		102	%	70 - 130
		2-propanol	2012/05/30		109	%	70 - 130
		2-Propanone	2012/05/30		130	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/30		109	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/30		120	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/30		122	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/30		107	%	70 - 130
		Ethyl Acetate	2012/05/30		117	%	70 - 130
		1,1-Dichloroethylene	2012/05/30		108	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/30		108	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/30		106	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/30		101	%	70 - 130
		Chloroform	2012/05/30		105	%	70 - 130
		Carbon Tetrachloride	2012/05/30		115	%	70 - 130
		1,1-Dichloroethane	2012/05/30		109	%	70 - 130
		1,2-Dichloroethane	2012/05/30		114	%	70 - 130
		Ethylene Dibromide	2012/05/30		104	%	70 - 130
		1,1,1-Trichloroethane	2012/05/30		112	%	70 - 130
		1,1,2-Trichloroethane	2012/05/30		104	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/30		102	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/30		112	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/30		113	%	70 - 130
		1,2-Dichloropropane	2012/05/30		107	%	70 - 130
		Bromomethane	2012/05/30		107	%	70 - 130
		Bromoform	2012/05/30		115	%	70 - 130
		Bromodichloromethane	2012/05/30		118	%	70 - 130
		Dibromochloromethane	2012/05/30		116	%	70 - 130
		Heptane	2012/05/30		114	%	70 - 130
		Trichloroethylene	2012/05/30		100	%	70 - 130
		Tetrachloroethylene	2012/05/30		105	%	70 - 130
		Benzene	2012/05/30		102	%	70 - 130
		Toluene	2012/05/30		105	%	70 - 130
		Ethylbenzene	2012/05/30		103	%	70 - 130
		p+m-Xylene	2012/05/30		103	%	70 - 130
		o-Xylene	2012/05/30		105	%	70 - 130
		Styrene	2012/05/30		84	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/30		103	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/30		102	%	70 - 130
		4-ethyltoluene	2012/05/30		108	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB273742

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2866695 S_S	Spiked Blank	Chlorobenzene	2012/05/30		96	%	70 - 130
		Benzyl chloride	2012/05/30		107	%	70 - 130
		1,3-Dichlorobenzene	2012/05/30		93	%	70 - 130
		1,4-Dichlorobenzene	2012/05/30		91	%	70 - 130
		1,2-Dichlorobenzene	2012/05/30		93	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/30		89	%	70 - 130
		Hexachlorobutadiene	2012/05/30		105	%	70 - 130
		Hexane	2012/05/30		112	%	70 - 130
		Cyclohexane	2012/05/30		110	%	70 - 130
		Tetrahydrofuran	2012/05/30		115	%	70 - 130
		1,4-Dioxane	2012/05/30		111	%	70 - 130
		Xylene (Total)	2012/05/30		104	%	70 - 130
	Method Blank	Bromochloromethane	2012/05/30		97	%	60 - 140
		D5-Chlorobenzene	2012/05/30		85	%	60 - 140
		Difluorobenzene	2012/05/30		100	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/30	<0.20		ppbv	
		Carbon Disulfide	2012/05/30	<0.50		ppbv	
		Propene	2012/05/30	<0.30		ppbv	
		Vinyl Acetate	2012/05/30	<0.20		ppbv	
		Vinyl Bromide	2012/05/30	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/30	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/30	<0.17		ppbv	
		Chloromethane	2012/05/30	<0.30		ppbv	
		Vinyl Chloride	2012/05/30	<0.18		ppbv	
		Chloroethane	2012/05/30	<0.30		ppbv	
		1,3-Butadiene	2012/05/30	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/30	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/30	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/30	<2.3		ppbv	
		2-propanol	2012/05/30	<3.0		ppbv	
		2-Propanone	2012/05/30	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/30	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/30	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/30	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/30	<0.20		ppbv	
		Ethyl Acetate	2012/05/30	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/30	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/30	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/30	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/30	<0.80		ppbv	
		Chloroform	2012/05/30	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/30	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/30	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/30	<0.20		ppbv	
		Ethylene Dibromide	2012/05/30	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/30	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/30	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/30	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/30	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/30	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/30	<0.40		ppbv	
		Bromomethane	2012/05/30	<0.18		ppbv	
		Bromoform	2012/05/30	<0.20		ppbv	
		Bromodichloromethane	2012/05/30	<0.20		ppbv	
		Dibromochloromethane	2012/05/30	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB273742

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2866695 S_S	Method Blank	Heptane	2012/05/30	<0.30		ppbv	
		Trichloroethylene	2012/05/30	<0.30		ppbv	
		Tetrachloroethylene	2012/05/30	<0.20		ppbv	
		Benzene	2012/05/30	<0.18		ppbv	
		Toluene	2012/05/30	<0.20		ppbv	
		Ethylbenzene	2012/05/30	<0.20		ppbv	
		p+m-Xylene	2012/05/30	<0.37		ppbv	
		o-Xylene	2012/05/30	<0.20		ppbv	
		Styrene	2012/05/30	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/30	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/30	<0.50		ppbv	
		4-ethyltoluene	2012/05/30	<2.2		ppbv	
		Chlorobenzene	2012/05/30	<0.20		ppbv	
		Benzyl chloride	2012/05/30	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/30	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/30	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/30	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/30	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/30	<3.0		ppbv	
		Hexane	2012/05/30	<0.30		ppbv	
		Cyclohexane	2012/05/30	<0.20		ppbv	
		Tetrahydrofuran	2012/05/30	<0.40		ppbv	
		1,4-Dioxane	2012/05/30	<2.0		ppbv	
		Xylene (Total)	2012/05/30	<0.60		ppbv	
	RPD - Sample/Sample Dup	2-propanol	2012/05/30	NC		%	25
		Benzene	2012/05/30	NC		%	25
		Toluene	2012/05/30	NC		%	25
		Ethylbenzene	2012/05/30	NC		%	25
		p+m-Xylene	2012/05/30	NC		%	25
		o-Xylene	2012/05/30	NC		%	25
		Xylene (Total)	2012/05/30	NC		%	25

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
 Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
 NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: Elk Point Airport Canister ID: 278
Station ID: Lica 35 (Portable) Canister Installation Date/Time: May 17, 12 @ 10:56 mst
Field Sample ID: LICA VOC/PORT/ May 21, 12 Canister Removal Date/Time: May 25, 12 @ 09:31 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
21-May-12	05/21/2012 0:00	05/22/2012 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 # 12073

Technician Signature: Ting Xu



Your C.O.C. #: na

Attention: Michael Bisaga

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

Report Date: 2012/06/01

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B277461

Received: 2012/05/29, 10:32

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/05/30	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/30	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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

Maxxam Job #: B277461
 Report Date: 2012/06/01

RESULTS OF ANALYSES OF AIR

Maxxam ID		NP2543	NP2544	
Sampling Date		2012/05/21	2012/05/21	
COC Number		na	na	
	Units	LICA VOC\CLSIMAY 21,12 / 319	LICA VOC\PORTMAY 21,12 / 278	QC Batch

Volatile Organics				
Pressure on Receipt	psig	24	22	2866381

QC Batch = Quality Control Batch

Maxxam Job #: B277461
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NP2543			NP2544				
Sampling Date		2012/05/21			2012/05/21				
COC Number		na			na				
	Units	LICA VOC\CLSMAY 21,12 / 319	ug/m3	DL (ug/m3)	LICA VOC\PORTMAY 21,12 / 278	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	2866695
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2866695
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2866695
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2866695
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2866695
Dichlorodifluoromethane (FREON 12)	ppbv	0.60	2.97	0.989	0.62	0.20	3.07	0.989	2866695
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2866695
Chloromethane	ppbv	0.48	0.989	0.620	0.50	0.30	1.04	0.620	2866695
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2866695
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2866695
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2866695
Trichlorofluoromethane (FREON 11)	ppbv	0.31	1.73	1.12	0.30	0.20	1.71	1.12	2866695
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2866695
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2866695
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2866695
2-Propanone	ppbv	3.23	7.67	1.90	3.59	0.80	8.53	1.90	2866695
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2866695
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2866695
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2866695
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2866695
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2866695
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2866695
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2866695
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2866695
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2866695
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2866695
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2866695
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2866695
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2866695
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2866695
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2866695

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B277461
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NP2543			NP2544				
Sampling Date		2012/05/21			2012/05/21				
COC Number		na			na				
	Units	LICA VOC\CLSMAY 21,12 / 319	ug/m3	DL (ug/m3)	LICA VOC\PORTMAY 21,12 / 278	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	2866695
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2866695
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2866695
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2866695
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2866695
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2866695
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2866695
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2866695
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2866695
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2866695
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2866695
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2866695
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2866695
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2866695
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2866695
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2866695
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2866695
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2866695
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2866695
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2866695
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2866695
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2866695
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2866695
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2866695
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2866695
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2866695
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2866695
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2866695
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2866695
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2866695
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2866695
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2866695
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2866695
QC Batch = Quality Control Batch									

Maxxam Job #: B277461
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NP2543			NP2544				
Sampling Date		2012/05/21			2012/05/21				
COC Number		na			na				
	Units	LICA VOC\CLSMAY 21,12 / 319	ug/m3	DL (ug/m3)	LICA VOC\PORTMAY 21,12 / 278	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	88	N/A	N/A	85		N/A	N/A	2866695
D5-Chlorobenzene	%	78	N/A	N/A	77		N/A	N/A	2866695
Difluorobenzene	%	90	N/A	N/A	88		N/A	N/A	2866695

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

Maxxam Job #: B277461
 Report Date: 2012/06/01

Test Summary

Maxxam ID NP2543
Sample ID LICA VOC\CLSMAY 21,12 / 319
Matrix AIR

Collected 2012/05/21
Shipped
Received 2012/05/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2866381	N/A	2012/05/30	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2866695	N/A	2012/05/30	SPOMENKA SMILJANIC

Maxxam ID NP2544
Sample ID LICA VOC\PORTMAY 21,12 / 278
Matrix AIR

Collected 2012/05/21
Shipped
Received 2012/05/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2866381	N/A	2012/05/30	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2866695	N/A	2012/05/30	SPOMENKA SMILJANIC

Maxxam Job #: B277461
Report Date: 2012/06/01

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB277461

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2866695 S_S	Spiked Blank	Bromochloromethane	2012/05/30		104	%	60 - 140
		D5-Chlorobenzene	2012/05/30		102	%	60 - 140
		Difluorobenzene	2012/05/30		105	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/30		107	%	70 - 130
		Carbon Disulfide	2012/05/30		102	%	70 - 130
		Propene	2012/05/30		99	%	70 - 130
		Vinyl Acetate	2012/05/30		116	%	70 - 130
		Vinyl Bromide	2012/05/30		104	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/30		111	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/30		127	%	70 - 130
		Chloromethane	2012/05/30		119	%	70 - 130
		Vinyl Chloride	2012/05/30		112	%	70 - 130
		Chloroethane	2012/05/30		110	%	70 - 130
		1,3-Butadiene	2012/05/30		115	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/30		109	%	70 - 130
		Trichlorotrifluoroethane	2012/05/30		102	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/30		102	%	70 - 130
		2-propanol	2012/05/30		109	%	70 - 130
		2-Propanone	2012/05/30		130	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/30		109	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/30		120	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/30		122	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/30		107	%	70 - 130
		Ethyl Acetate	2012/05/30		117	%	70 - 130
		1,1-Dichloroethylene	2012/05/30		108	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/30		108	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/30		106	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/30		101	%	70 - 130
		Chloroform	2012/05/30		105	%	70 - 130
		Carbon Tetrachloride	2012/05/30		115	%	70 - 130
		1,1-Dichloroethane	2012/05/30		109	%	70 - 130
		1,2-Dichloroethane	2012/05/30		114	%	70 - 130
		Ethylene Dibromide	2012/05/30		104	%	70 - 130
		1,1,1-Trichloroethane	2012/05/30		112	%	70 - 130
		1,1,2-Trichloroethane	2012/05/30		104	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/30		102	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/30		112	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/30		113	%	70 - 130
		1,2-Dichloropropane	2012/05/30		107	%	70 - 130
		Bromomethane	2012/05/30		107	%	70 - 130
		Bromoform	2012/05/30		115	%	70 - 130
		Bromodichloromethane	2012/05/30		118	%	70 - 130
		Dibromochloromethane	2012/05/30		116	%	70 - 130
		Heptane	2012/05/30		114	%	70 - 130
		Trichloroethylene	2012/05/30		100	%	70 - 130
		Tetrachloroethylene	2012/05/30		105	%	70 - 130
		Benzene	2012/05/30		102	%	70 - 130
		Toluene	2012/05/30		105	%	70 - 130
		Ethylbenzene	2012/05/30		103	%	70 - 130
		p+m-Xylene	2012/05/30		103	%	70 - 130
		o-Xylene	2012/05/30		105	%	70 - 130
		Styrene	2012/05/30		84	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/30		103	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/30		102	%	70 - 130
		4-ethyltoluene	2012/05/30		108	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB277461

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2866695 S_S	Spiked Blank	Chlorobenzene	2012/05/30		96	%	70 - 130
		Benzyl chloride	2012/05/30		107	%	70 - 130
		1,3-Dichlorobenzene	2012/05/30		93	%	70 - 130
		1,4-Dichlorobenzene	2012/05/30		91	%	70 - 130
		1,2-Dichlorobenzene	2012/05/30		93	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/30		89	%	70 - 130
		Hexachlorobutadiene	2012/05/30		105	%	70 - 130
		Hexane	2012/05/30		112	%	70 - 130
		Cyclohexane	2012/05/30		110	%	70 - 130
		Tetrahydrofuran	2012/05/30		115	%	70 - 130
		1,4-Dioxane	2012/05/30		111	%	70 - 130
		Xylene (Total)	2012/05/30		104	%	70 - 130
	Method Blank	Bromochloromethane	2012/05/30		97	%	60 - 140
		D5-Chlorobenzene	2012/05/30		85	%	60 - 140
		Difluorobenzene	2012/05/30		100	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/30	<0.20		ppbv	
		Carbon Disulfide	2012/05/30	<0.50		ppbv	
		Propene	2012/05/30	<0.30		ppbv	
		Vinyl Acetate	2012/05/30	<0.20		ppbv	
		Vinyl Bromide	2012/05/30	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/30	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/30	<0.17		ppbv	
		Chloromethane	2012/05/30	<0.30		ppbv	
		Vinyl Chloride	2012/05/30	<0.18		ppbv	
		Chloroethane	2012/05/30	<0.30		ppbv	
		1,3-Butadiene	2012/05/30	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/30	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/30	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/30	<2.3		ppbv	
		2-propanol	2012/05/30	<3.0		ppbv	
		2-Propanone	2012/05/30	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/30	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/30	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/30	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/30	<0.20		ppbv	
		Ethyl Acetate	2012/05/30	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/30	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/30	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/30	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/30	<0.80		ppbv	
		Chloroform	2012/05/30	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/30	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/30	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/30	<0.20		ppbv	
		Ethylene Dibromide	2012/05/30	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/30	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/30	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/30	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/30	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/30	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/30	<0.40		ppbv	
		Bromomethane	2012/05/30	<0.18		ppbv	
		Bromoform	2012/05/30	<0.20		ppbv	
		Bromodichloromethane	2012/05/30	<0.20		ppbv	
		Dibromochloromethane	2012/05/30	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB277461

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2866695 S_S	Method Blank	Heptane	2012/05/30	<0.30		ppbv	
		Trichloroethylene	2012/05/30	<0.30		ppbv	
		Tetrachloroethylene	2012/05/30	<0.20		ppbv	
		Benzene	2012/05/30	<0.18		ppbv	
		Toluene	2012/05/30	<0.20		ppbv	
		Ethylbenzene	2012/05/30	<0.20		ppbv	
		p+m-Xylene	2012/05/30	<0.37		ppbv	
		o-Xylene	2012/05/30	<0.20		ppbv	
		Styrene	2012/05/30	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/30	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/30	<0.50		ppbv	
		4-ethyltoluene	2012/05/30	<2.2		ppbv	
		Chlorobenzene	2012/05/30	<0.20		ppbv	
		Benzyl chloride	2012/05/30	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/30	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/30	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/30	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/30	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/30	<3.0		ppbv	
		Hexane	2012/05/30	<0.30		ppbv	
		Cyclohexane	2012/05/30	<0.20		ppbv	
		Tetrahydrofuran	2012/05/30	<0.40		ppbv	
		1,4-Dioxane	2012/05/30	<2.0		ppbv	
		Xylene (Total)	2012/05/30	<0.60		ppbv	
	RPD - Sample/Sample Dup	2-propanol	2012/05/30	NC		%	25
		Benzene	2012/05/30	NC		%	25
		Toluene	2012/05/30	NC		%	25
		Ethylbenzene	2012/05/30	NC		%	25
		p+m-Xylene	2012/05/30	NC		%	25
		o-Xylene	2012/05/30	NC		%	25
		Xylene (Total)	2012/05/30	NC		%	25

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6200
Location: Elk Point Airport Canister ID: 7802
Station ID: Lica 35 (Portable) Canister Installation Date/Time: May 25, 12 @ 09:35 mst
Field Sample ID: LICA VOC/PORT/ May 27, 12 Canister Removal Date/Time: May 30, 12 @ 12:15 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
27-May-12	05/27/2012 0:00	05/28/2012 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	21

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

Comments: System leak check prior to sampling. COC # 11224

Technician Signature: Ting Xu



Your C.O.C. #: 11224

Attention: Michael Bisaga

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

Report Date: 2012/06/11

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B280111

Received: 2012/06/01, 09:00

Sample Matrix: AIR
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/06/05	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/06/05	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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

Maxxam Job #: B280111
 Report Date: 2012/06/11

RESULTS OF ANALYSES OF AIR

Maxxam ID		NQ7875	NQ7876	
Sampling Date		2012/05/27	2012/05/27	
COC Number		11224	11224	
	Units	LICA	LICA	QC Batch
		VOC\CLS\MAY27,12 / 7864	VOC\PORT\MAY27,12 / 7802	

Volatile Organics				
Pressure on Receipt	psig	22	22	2872691

QC Batch = Quality Control Batch

Maxxam Job #: B280111
 Report Date: 2012/06/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NQ7875				
Sampling Date		2012/05/27				
COC Number		11224				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOCICLSMAY27,12				
		/7864				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2874022
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2874022
Propene	ppbv	<0.30	0.30	<0.516	0.516	2874022
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2874022
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2874022
Dichlorodifluoromethane (FREON 12)	ppbv	0.71	0.20	3.50	0.989	2874022
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2874022
Chloromethane	ppbv	0.50	0.30	1.03	0.620	2874022
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2874022
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2874022
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2874022
Trichlorofluoromethane (FREON 11)	ppbv	0.34	0.20	1.92	1.12	2874022
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2874022
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2874022
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2874022
2-Propanone	ppbv	4.09	0.80	9.72	1.90	2874022
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2874022
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2874022
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2874022
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2874022
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2874022
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2874022
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2874022
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2874022
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2874022
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2874022
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2874022
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2874022
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2874022
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2874022
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2874022
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B280111
 Report Date: 2012/06/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NQ7875				
Sampling Date		2012/05/27				
COC Number		11224				
	Units	LICA VOCICLSMAY27,12 /7864	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2874022
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2874022
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2874022
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2874022
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2874022
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2874022
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2874022
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2874022
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2874022
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2874022
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2874022
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2874022
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2874022
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2874022
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2874022
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2874022
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2874022
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2874022
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2874022
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2874022
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2874022
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2874022
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2874022
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2874022
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2874022
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2874022
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2874022
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2874022
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2874022
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2874022
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2874022
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2874022
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2874022
QC Batch = Quality Control Batch						

Maxxam Job #: B280111
 Report Date: 2012/06/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NQ7875				
Sampling Date		2012/05/27				
COC Number		11224				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\CLSMAY27,12				
		/ 7864				

Surrogate Recovery (%)						
Bromochloromethane	%	70		N/A	N/A	2874022
D5-Chlorobenzene	%	63		N/A	N/A	2874022
Difluorobenzene	%	73		N/A	N/A	2874022

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

Maxxam Job #: B280111
 Report Date: 2012/06/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NQ7876				
Sampling Date		2012/05/27				
COC Number		11224				
	Units	LICA VOC\PORT\MAY27,12 /7802	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2874022
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2874022
Propene	ppbv	<0.30	0.30	<0.516	0.516	2874022
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2874022
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2874022
Dichlorodifluoromethane (FREON 12)	ppbv	0.64	0.20	3.19	0.989	2874022
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2874022
Chloromethane	ppbv	0.46	0.30	0.949	0.620	2874022
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2874022
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2874022
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2874022
Trichlorofluoromethane (FREON 11)	ppbv	0.34	0.20	1.89	1.12	2874022
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2874022
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2874022
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2874022
2-Propanone	ppbv	3.22	0.80	7.64	1.90	2874022
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2874022
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2874022
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2874022
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2874022
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2874022
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2874022
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2874022
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2874022
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2874022
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2874022
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2874022
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2874022
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2874022
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2874022
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2874022

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B280111
 Report Date: 2012/06/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NQ7876				
Sampling Date		2012/05/27				
COC Number		11224				
	Units	LICA VOC\PORT\MAY27,12 /7802	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2874022
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2874022
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2874022
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2874022
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2874022
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2874022
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2874022
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2874022
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2874022
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2874022
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2874022
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2874022
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2874022
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2874022
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2874022
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2874022
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2874022
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2874022
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2874022
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2874022
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2874022
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2874022
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2874022
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2874022
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2874022
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2874022
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2874022
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2874022
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2874022
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2874022
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2874022
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2874022
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2874022
QC Batch = Quality Control Batch						

Maxxam Job #: B280111
 Report Date: 2012/06/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NQ7876				
Sampling Date		2012/05/27				
COC Number		11224				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\PORT\MAY27,12				
		/7802				

Surrogate Recovery (%)						
Bromochloromethane	%	69		N/A	N/A	2874022
D5-Chlorobenzene	%	63		N/A	N/A	2874022
Difluorobenzene	%	73		N/A	N/A	2874022

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

Maxxam Job #: B280111
 Report Date: 2012/06/11

Test Summary

Maxxam ID NQ7875
Sample ID LICA VOC\CLSMAY27,12 / 7864
Matrix AIR

Collected 2012/05/27
Shipped
Received 2012/06/01

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2872691	N/A	2012/06/05	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2874022	N/A	2012/06/05	SPOMENKA SMILJANIC

Maxxam ID NQ7876
Sample ID LICA VOC\PORTMAY27,12 / 7802
Matrix AIR

Collected 2012/05/27
Shipped
Received 2012/06/01

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2872691	N/A	2012/06/05	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2874022	N/A	2012/06/05	SPOMENKA SMILJANIC

Maxxam Job #: B280111
Report Date: 2012/06/11

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: GB280111

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2874022 S_S	Spiked Blank	Bromochloromethane	2012/06/05		103	%	60 - 140
		D5-Chlorobenzene	2012/06/05		100	%	60 - 140
		Difluorobenzene	2012/06/05		106	%	60 - 140
		2,2,4-Trimethylpentane	2012/06/05		93	%	70 - 130
		Carbon Disulfide	2012/06/05		92	%	70 - 130
		Propene	2012/06/05		86	%	70 - 130
		Vinyl Acetate	2012/06/05		101	%	70 - 130
		Vinyl Bromide	2012/06/05		99	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/06/05		105	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/06/05		120	%	70 - 130
		Chloromethane	2012/06/05		108	%	70 - 130
		Vinyl Chloride	2012/06/05		101	%	70 - 130
		Chloroethane	2012/06/05		100	%	70 - 130
		1,3-Butadiene	2012/06/05		104	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/06/05		104	%	70 - 130
		Trichlorotrifluoroethane	2012/06/05		95	%	70 - 130
		Ethanol (ethyl alcohol)	2012/06/05		88	%	70 - 130
		2-propanol	2012/06/05		95	%	70 - 130
		2-Propanone	2012/06/05		115	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/06/05		94	%	70 - 130
		Methyl Isobutyl Ketone	2012/06/05		103	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/06/05		104	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/06/05		101	%	70 - 130
		Ethyl Acetate	2012/06/05		101	%	70 - 130
		1,1-Dichloroethylene	2012/06/05		100	%	70 - 130
		cis-1,2-Dichloroethylene	2012/06/05		99	%	70 - 130
		trans-1,2-Dichloroethylene	2012/06/05		97	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/06/05		90	%	70 - 130
		Chloroform	2012/06/05		98	%	70 - 130
		Carbon Tetrachloride	2012/06/05		109	%	70 - 130
		1,1-Dichloroethane	2012/06/05		98	%	70 - 130
		1,2-Dichloroethane	2012/06/05		106	%	70 - 130
		Ethylene Dibromide	2012/06/05		93	%	70 - 130
		1,1,1-Trichloroethane	2012/06/05		105	%	70 - 130
		1,1,2-Trichloroethane	2012/06/05		93	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/06/05		91	%	70 - 130
		cis-1,3-Dichloropropene	2012/06/05		100	%	70 - 130
		trans-1,3-Dichloropropene	2012/06/05		103	%	70 - 130
		1,2-Dichloropropane	2012/06/05		93	%	70 - 130
		Bromomethane	2012/06/05		100	%	70 - 130
		Bromoform	2012/06/05		110	%	70 - 130
		Bromodichloromethane	2012/06/05		108	%	70 - 130
		Dibromochloromethane	2012/06/05		108	%	70 - 130
		Heptane	2012/06/05		98	%	70 - 130
		Trichloroethylene	2012/06/05		90	%	70 - 130
		Tetrachloroethylene	2012/06/05		95	%	70 - 130
		Benzene	2012/06/05		91	%	70 - 130
		Toluene	2012/06/05		94	%	70 - 130
		Ethylbenzene	2012/06/05		94	%	70 - 130
		p+m-Xylene	2012/06/05		95	%	70 - 130
		o-Xylene	2012/06/05		97	%	70 - 130
		Styrene	2012/06/05		75	%	70 - 130
		1,3,5-Trimethylbenzene	2012/06/05		96	%	70 - 130
		1,2,4-Trimethylbenzene	2012/06/05		96	%	70 - 130
		4-ethyltoluene	2012/06/05		100	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB280111

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2874022 S_S	Spiked Blank	Chlorobenzene	2012/06/05		87	%	70 - 130
		Benzyl chloride	2012/06/05		100	%	70 - 130
		1,3-Dichlorobenzene	2012/06/05		86	%	70 - 130
		1,4-Dichlorobenzene	2012/06/05		85	%	70 - 130
		1,2-Dichlorobenzene	2012/06/05		86	%	70 - 130
		1,2,4-Trichlorobenzene	2012/06/05		85	%	70 - 130
		Hexachlorobutadiene	2012/06/05		106	%	70 - 130
		Hexane	2012/06/05		99	%	70 - 130
		Cyclohexane	2012/06/05		95	%	70 - 130
		Tetrahydrofuran	2012/06/05		98	%	70 - 130
		1,4-Dioxane	2012/06/05		98	%	70 - 130
		Xylene (Total)	2012/06/05		96	%	70 - 130
	Method Blank	Bromochloromethane	2012/06/05		77	%	60 - 140
		D5-Chlorobenzene	2012/06/05		67	%	60 - 140
		Difluorobenzene	2012/06/05		79	%	60 - 140
		2,2,4-Trimethylpentane	2012/06/05	<0.20		ppbv	
		Carbon Disulfide	2012/06/05	<0.50		ppbv	
		Propene	2012/06/05	<0.30		ppbv	
		Vinyl Acetate	2012/06/05	<0.20		ppbv	
		Vinyl Bromide	2012/06/05	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/06/05	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/06/05	<0.17		ppbv	
		Chloromethane	2012/06/05	<0.30		ppbv	
		Vinyl Chloride	2012/06/05	<0.18		ppbv	
		Chloroethane	2012/06/05	<0.30		ppbv	
		1,3-Butadiene	2012/06/05	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/06/05	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/06/05	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/06/05	<2.3		ppbv	
		2-propanol	2012/06/05	<3.0		ppbv	
		2-Propanone	2012/06/05	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/06/05	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/06/05	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/06/05	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/06/05	<0.20		ppbv	
		Ethyl Acetate	2012/06/05	<2.2		ppbv	
		1,1-Dichloroethylene	2012/06/05	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/06/05	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/06/05	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/06/05	<0.80		ppbv	
		Chloroform	2012/06/05	<0.15		ppbv	
		Carbon Tetrachloride	2012/06/05	<0.30		ppbv	
		1,1-Dichloroethane	2012/06/05	<0.20		ppbv	
		1,2-Dichloroethane	2012/06/05	<0.20		ppbv	
		Ethylene Dibromide	2012/06/05	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/06/05	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/06/05	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/06/05	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/06/05	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/06/05	<0.17		ppbv	
		1,2-Dichloropropane	2012/06/05	<0.40		ppbv	
		Bromomethane	2012/06/05	<0.18		ppbv	
		Bromoform	2012/06/05	<0.20		ppbv	
		Bromodichloromethane	2012/06/05	<0.20		ppbv	
		Dibromochloromethane	2012/06/05	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB280111

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2874022 S_S	Method Blank	Heptane	2012/06/05	<0.30		ppbv	
		Trichloroethylene	2012/06/05	<0.30		ppbv	
		Tetrachloroethylene	2012/06/05	<0.20		ppbv	
		Benzene	2012/06/05	<0.18		ppbv	
		Toluene	2012/06/05	<0.20		ppbv	
		Ethylbenzene	2012/06/05	<0.20		ppbv	
		p+m-Xylene	2012/06/05	<0.37		ppbv	
		o-Xylene	2012/06/05	<0.20		ppbv	
		Styrene	2012/06/05	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/06/05	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/06/05	<0.50		ppbv	
		4-ethyltoluene	2012/06/05	<2.2		ppbv	
		Chlorobenzene	2012/06/05	<0.20		ppbv	
		Benzyl chloride	2012/06/05	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/06/05	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/06/05	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/06/05	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/06/05	<2.0		ppbv	
		Hexachlorobutadiene	2012/06/05	<3.0		ppbv	
		Hexane	2012/06/05	<0.30		ppbv	
		Cyclohexane	2012/06/05	<0.20		ppbv	
		Tetrahydrofuran	2012/06/05	<0.40		ppbv	
		1,4-Dioxane	2012/06/05	<2.0		ppbv	
		Xylene (Total)	2012/06/05	<0.60		ppbv	

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

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

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

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/May 03, 12

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: Apr 30, 2012 @ 12:30 mst
 Removal Date/Time: May 07, 2012 @ 11:40 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
03-May-12	05/03/2012 0:00	05/04/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
27-Apr-12	07-May-12	08-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)
707	229	7.1	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# 10644
GB234634 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/May 03 , 12

Technician Signature: Ting Xu

Your C.O.C. #: 10644

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

Report Date: 2012/05/14

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B266367****Received: 2012/05/09, 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	2012/05/09	2012/05/11	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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

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 #: B266367
 Report Date: 2012/05/14

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

Maxxam ID		NJ6849	NJ6850		
Sampling Date		2012/05/03	2012/05/03		
COC Number		10644	10644		
	Units	LICA PUFF+QFF/CLS/MAY 03,12	LICA PUFF+QFF/PORT/MAY 03,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2844288
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2844288
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2844288
2-Methylantracene	ug	<0.10	<0.10	0.10	2844288
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2844288
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2844288
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2844288
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2844288
Acenaphthene	ug	<0.050	<0.050	0.050	2844288
Acenaphthylene	ug	<0.050	<0.050	0.050	2844288
Anthracene	ug	<0.050	<0.050	0.050	2844288
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2844288
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2844288
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2844288
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2844288
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2844288
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2844288
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2844288
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2844288
Biphenyl	ug	<0.10	<0.10	0.10	2844288
Chrysene	ug	<0.050	<0.050	0.050	2844288
Coronene	ug	<0.10	<0.10	0.10	2844288
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2844288
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2844288
Fluoranthene	ug	0.102	<0.050	0.050	2844288
Fluorene	ug	0.058	0.070	0.050	2844288
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2844288
m-Terphenyl	ug	<0.10	<0.10	0.10	2844288
Naphthalene	ug	<0.072	<0.072	0.072	2844288
o-Terphenyl	ug	<0.10	<0.10	0.10	2844288
Perylene	ug	<0.10	<0.10	0.10	2844288

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B266367
 Report Date: 2012/05/14

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

Maxxam ID		NJ6849	NJ6850		
Sampling Date		2012/05/03	2012/05/03		
COC Number		10644	10644		
	Units	LICA PUFF+QFF/CLS/MAY 03,12	LICA PUFF+QFF/PORT/MAY 03,12	RDL	QC Batch

Phenanthrene	ug	0.326	0.120	0.050	2844288
p-Terphenyl	ug	<0.10	<0.10	0.10	2844288
Pyrene	ug	0.070	<0.050	0.050	2844288
Quinoline	ug	<0.40	<0.40	0.40	2844288
Tetralin	ug	<0.10	<0.10	0.10	2844288
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	62	64		2844288
D10-Fluoranthene	%	102	98		2844288
D10-Fluorene (FS)	%	13 (1)	13 (1)		2844288
D10-Phenanthrene	%	90	86		2844288
D12-Benzo(a)anthracene	%	102	100		2844288
D12-Benzo(a)pyrene	%	96	96		2844288
D12-Benzo(b)fluoranthene	%	102	100		2844288
D12-Benzo(ghi)perylene	%	108	104		2844288
D12-Benzo(k)fluoranthene	%	92	92		2844288
D12-Chrysene	%	90	88		2844288
D12-Indeno(1,2,3-cd)pyrene	%	112	106		2844288
D12-Perylene	%	96	94		2844288
D14-Dibenzo(a,h)anthracene	%	114	108		2844288
D14-Terphenyl (FS)	%	99	95		2844288
D8-Acenaphthylene	%	66	70		2844288
D8-Naphthalene	%	60	62		2844288

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 #: B266367
 Report Date: 2012/05/14

Test Summary

Maxxam ID NJ6849
Sample ID LICA PUFF+QFF/CLS/MAY 03,12
Matrix PUF AND FILTER

Collected 2012/05/03
Shipped
Received 2012/05/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2844288	2012/05/09	2012/05/11	WENDY ZHAO

Maxxam ID NJ6850
Sample ID LICA PUFF+QFF/PORT/MAY 03,12
Matrix PUF AND FILTER

Collected 2012/05/03
Shipped
Received 2012/05/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2844288	2012/05/09	2012/05/11	WENDY ZHAO

Maxxam Job #: B266367
Report Date: 2012/05/14

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.

Chrysene is statistically out of control at 88.5% recovery in the spike:dup and spike is OK. Acceptance criteria met for both spike and dup. Data reported and flagged.

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 NJ6849-01: PAHMS-F

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

Sample NJ6850-01: 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: GB266367

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2844288 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/05/11		66	%	50 - 150
		D10-Fluoranthene	2012/05/11		96	%	50 - 150
		D10-Phenanthrene	2012/05/11		84	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/11		102	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/11		100	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/11		106	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/11		110	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/11		92	%	50 - 150
		D12-Chrysene	2012/05/11		92	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/05/11		114	%	50 - 150
		D12-Perylene	2012/05/11		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/11		116	%	50 - 150
		D8-Acenaphthylene	2012/05/11		72	%	50 - 150
		D8-Naphthalene	2012/05/11		66	%	50 - 150
		Acenaphthene	2012/05/11		70	%	60 - 130
	RPD	Acenaphthene	2012/05/11	0.7		%	50
	Spiked Blank	Acenaphthylene	2012/05/11		71	%	60 - 130
	RPD	Acenaphthylene	2012/05/11	0		%	50
	Spiked Blank	Anthracene	2012/05/11		81	%	60 - 130
	RPD	Anthracene	2012/05/11	1.2		%	50
	Spiked Blank	Benzo(a)anthracene	2012/05/11		101	%	60 - 130
	RPD	Benzo(a)anthracene	2012/05/11	3.5		%	50
	Spiked Blank	Benzo(a)pyrene	2012/05/11		86	%	60 - 130
	RPD	Benzo(a)pyrene	2012/05/11	2.7		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/05/11		95	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/05/11	4.6		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/05/11		103	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/05/11	4.0		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/05/11		104	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/05/11	8.0		%	50
	Spiked Blank	Chrysene	2012/05/11		89	%	60 - 130
	RPD	Chrysene	2012/05/11	0.6		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/05/11		116	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/05/11	3.1		%	50
	Spiked Blank	Fluoranthene	2012/05/11		96	%	60 - 130
	RPD	Fluoranthene	2012/05/11	2.1		%	50
	Spiked Blank	Fluorene	2012/05/11		75	%	60 - 130
	RPD	Fluorene	2012/05/11	0.3		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/05/11		108	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/05/11	3.0		%	50
	Spiked Blank	Naphthalene	2012/05/11		67	%	60 - 130
	RPD	Naphthalene	2012/05/11	0.7		%	50
	Spiked Blank	Phenanthrene	2012/05/11		80	%	60 - 130
	RPD	Phenanthrene	2012/05/11	1.2		%	50
	Spiked Blank	Pyrene	2012/05/11		85	%	60 - 130
	RPD	Pyrene	2012/05/11	1.8		%	50
	Method Blank	D10-2-Methylnaphthalene	2012/05/11		54	%	50 - 150
		D10-Fluoranthene	2012/05/11		92	%	50 - 150
		D10-Phenanthrene	2012/05/11		72	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/11		96	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/11		96	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/11		102	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/11		104	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/11		86	%	50 - 150
		D12-Chrysene	2012/05/11		90	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB266367

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2844288 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/05/11		108	%	50 - 150
		D12-Perylene	2012/05/11		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/11		110	%	50 - 150
		D8-Acenaphthylene	2012/05/11		60	%	50 - 150
		D8-Naphthalene	2012/05/11		54	%	50 - 150
		1-Methylnaphthalene	2012/05/11	<0.10		ug	
		1-Methylphenanthrene	2012/05/11	<0.10		ug	
		2-Chloronaphthalene	2012/05/11	<0.10		ug	
		2-Methylantracene	2012/05/11	<0.10		ug	
		2-Methylnaphthalene	2012/05/11	<0.10		ug	
		3-Methylcholanthrene	2012/05/11	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/05/11	<0.10		ug	
		9,10-Dimethylantracene	2012/05/11	<0.40		ug	
		Acenaphthene	2012/05/11	<0.050		ug	
		Acenaphthylene	2012/05/11	<0.050		ug	
		Anthracene	2012/05/11	<0.050		ug	
		Benzo(a)anthracene	2012/05/11	<0.050		ug	
		Benzo(a)fluorene	2012/05/11	<0.10		ug	
		Benzo(a)pyrene	2012/05/11	<0.050		ug	
		Benzo(b)fluoranthene	2012/05/11	<0.050		ug	
		Benzo(b)fluorene	2012/05/11	<0.10		ug	
		Benzo(e)pyrene	2012/05/11	<0.10		ug	
		Benzo(g,h,i)perylene	2012/05/11	<0.050		ug	
		Benzo(k)fluoranthene	2012/05/11	<0.050		ug	
		Biphenyl	2012/05/11	<0.10		ug	
		Chrysene	2012/05/11	<0.050		ug	
		Coronene	2012/05/11	<0.10		ug	
		Dibenz(a,h)anthracene	2012/05/11	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/05/11	<0.20		ug	
		Fluoranthene	2012/05/11	<0.050		ug	
		Fluorene	2012/05/11	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/05/11	<0.050		ug	
		m-Terphenyl	2012/05/11	<0.10		ug	
		Naphthalene	2012/05/11	<0.072		ug	
		o-Terphenyl	2012/05/11	<0.10		ug	
		Perylene	2012/05/11	<0.10		ug	
		Phenanthrene	2012/05/11	<0.050		ug	
		p-Terphenyl	2012/05/11	<0.10		ug	
		Pyrene	2012/05/11	<0.050		ug	
		Quinoline	2012/05/11	<0.40		ug	
		Tetralin	2012/05/11	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica Puf+ s/n: 100-1015
 Location: Elk Point Airport Motor s/n: 1139
 Station ID: Lica 35 (Portable) Installation Date/Time: May 07, 2012 @ 11:50 mst
 Field Sample ID: LICA PUF/PORT/May 09, 12 Removal Date/Time: May 10, 2012 @ 10:55 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
09-May-12	05/09/2012 0:00	05/10/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
04-May-12	07-May-12	16-May-12	????

Set Flow Rate (slpm): 230

Date of Last Calibration: 22-Sep-11

Sampling Data			
Average Pressure (mmHg)	Average Flow (Qstd slpm)	Average Temperature (C)	Volume (Vstd m ³)
703	229	11.7	330.34

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

Comments: COC# 11241
GB234642 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/May 09 , 12

Technician Signature: Ting Xu

Your C.O.C. #: 11241

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

Report Date: 2012/05/25

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B270595****Received: 2012/05/16, 09:25**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/05/16	2012/05/19	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 #: B270595
 Report Date: 2012/05/25

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

Maxxam ID		NL8503	NL8504		
Sampling Date		2012/05/09	2012/05/09		
COC Number		11241	11241		
	Units	LICA PUFF+QFF/CLS/MAY 09,12	LICA PUFF+QFF/PORT/MAY 09,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2851816
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2851816
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2851816
2-Methylantracene	ug	<0.10	<0.10	0.10	2851816
2-Methylnaphthalene	ug	0.14	<0.10	0.10	2851816
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2851816
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2851816
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2851816
Acenaphthene	ug	0.056	<0.050	0.050	2851816
Acenaphthylene	ug	<0.050	<0.050	0.050	2851816
Anthracene	ug	<0.050	<0.050	0.050	2851816
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2851816
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2851816
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2851816
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2851816
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2851816
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2851816
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2851816
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2851816
Biphenyl	ug	<0.10	<0.10	0.10	2851816
Chrysene	ug	<0.050	<0.050	0.050	2851816
Coronene	ug	<0.10	<0.10	0.10	2851816
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2851816
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2851816
Fluoranthene	ug	<0.050	<0.050	0.050	2851816
Fluorene	ug	0.122	<0.050	0.050	2851816
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2851816
m-Terphenyl	ug	<0.10	<0.10	0.10	2851816
Naphthalene	ug	<0.072	<0.072	0.072	2851816
o-Terphenyl	ug	<0.10	<0.10	0.10	2851816
Perylene	ug	<0.10	<0.10	0.10	2851816
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					

Maxxam Job #: B270595
 Report Date: 2012/05/25

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

Maxxam ID		NL8503	NL8504		
Sampling Date		2012/05/09	2012/05/09		
COC Number		11241	11241		
	Units	LICA PUFF+QFF/CLS/MAY 09,12	LICA PUFF+QFF/PORT/MAY 09,12	RDL	QC Batch

Phenanthrene	ug	0.376	0.088	0.050	2851816
p-Terphenyl	ug	<0.10	<0.10	0.10	2851816
Pyrene	ug	<0.050	<0.050	0.050	2851816
Quinoline	ug	<0.40	<0.40	0.40	2851816
Tetralin	ug	<0.10	<0.10	0.10	2851816
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	68	72		2851816
D10-Fluoranthene	%	82	78		2851816
D10-Fluorene (FS)	%	17 (1)	14 (1)		2851816
D10-Phenanthrene	%	78	74		2851816
D12-Benzo(a)anthracene	%	84	86		2851816
D12-Benzo(a)pyrene	%	90	92		2851816
D12-Benzo(b)fluoranthene	%	88	90		2851816
D12-Benzo(ghi)perylene	%	92	94		2851816
D12-Benzo(k)fluoranthene	%	94	92		2851816
D12-Chrysene	%	92	90		2851816
D12-Indeno(1,2,3-cd)pyrene	%	92	92		2851816
D12-Perylene	%	90	90		2851816
D14-Dibenzo(a,h)anthracene	%	92	90		2851816
D14-Terphenyl (FS)	%	79	76		2851816
D8-Acenaphthylene	%	70	74		2851816
D8-Naphthalene	%	70	74		2851816

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 #: B270595
Report Date: 2012/05/25

Test Summary

Maxxam ID NL8503
Sample ID LICA PUFF+QFF/CLS/MAY 09,12
Matrix PUF AND FILTER

Collected 2012/05/09
Shipped
Received 2012/05/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2851816	2012/05/16	2012/05/19	WENDY ZHAO

Maxxam ID NL8504
Sample ID LICA PUFF+QFF/PORT/MAY 09,12
Matrix PUF AND FILTER

Collected 2012/05/09
Shipped
Received 2012/05/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2851816	2012/05/16	2012/05/19	WENDY ZHAO

Maxxam Job #: B270595
Report Date: 2012/05/25

GENERAL COMMENTS

PAHMS-F

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

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

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

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

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

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB270595

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2851816 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/05/19		74	%	50 - 150
		D10-Fluoranthene	2012/05/19		76	%	50 - 150
		D10-Phenanthrene	2012/05/19		72	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/19		90	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/19		96	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/19		94	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/19		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/19		96	%	50 - 150
		D12-Chrysene	2012/05/19		94	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/05/19		92	%	50 - 150
		D12-Perylene	2012/05/19		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/19		92	%	50 - 150
		D8-Acenaphthylene	2012/05/19		76	%	50 - 150
		D8-Naphthalene	2012/05/19		80	%	50 - 150
	Acenaphthene	2012/05/19		72	%	60 - 130	
	RPD	Acenaphthene	2012/05/19	5.7		%	50
	Spiked Blank	Acenaphthylene	2012/05/19		72	%	60 - 130
	RPD	Acenaphthylene	2012/05/19	3.9		%	50
	Spiked Blank	Anthracene	2012/05/19		73	%	60 - 130
	RPD	Anthracene	2012/05/19	1.7		%	50
	Spiked Blank	Benzo(a)anthracene	2012/05/19		86	%	60 - 130
	RPD	Benzo(a)anthracene	2012/05/19	2.7		%	50
	Spiked Blank	Benzo(a)pyrene	2012/05/19		75	%	60 - 130
	RPD	Benzo(a)pyrene	2012/05/19	0.3		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/05/19		86	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/05/19	0.9		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/05/19		84	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/05/19	2.4		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/05/19		97	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/05/19	0.8		%	50
	Spiked Blank	Chrysene	2012/05/19		88	%	60 - 130
	RPD	Chrysene	2012/05/19	2.9		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/05/19		88	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/05/19	2.3		%	50
	Spiked Blank	Fluoranthene	2012/05/19		74	%	60 - 130
	RPD	Fluoranthene	2012/05/19	7.2		%	50
	Spiked Blank	Fluorene	2012/05/19		71	%	60 - 130
	RPD	Fluorene	2012/05/19	16.0		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/05/19		83	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/05/19	2.4		%	50
Spiked Blank	Naphthalene	2012/05/19		77	%	60 - 130	
RPD	Naphthalene	2012/05/19	7.7		%	50	
Spiked Blank	Phenanthrene	2012/05/19		65	%	60 - 130	
RPD	Phenanthrene	2012/05/19	1.9		%	50	
Spiked Blank	Pyrene	2012/05/19		66	%	60 - 130	
RPD	Pyrene	2012/05/19	7.0		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/05/19		78	%	50 - 150	
	D10-Fluoranthene	2012/05/19		82	%	50 - 150	
	D10-Phenanthrene	2012/05/19		74	%	50 - 150	
	D12-Benzo(a)anthracene	2012/05/19		84	%	50 - 150	
	D12-Benzo(a)pyrene	2012/05/19		94	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/05/19		92	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/05/19		92	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/05/19		94	%	50 - 150	
	D12-Chrysene	2012/05/19		92	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB270595

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2851816 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/05/19		92	%	50 - 150
		D12-Perylene	2012/05/19		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/19		90	%	50 - 150
		D8-Acenaphthylene	2012/05/19		82	%	50 - 150
		D8-Naphthalene	2012/05/19		86	%	50 - 150
		1-Methylnaphthalene	2012/05/19	<0.10		ug	
		1-Methylphenanthrene	2012/05/19	<0.10		ug	
		2-Chloronaphthalene	2012/05/19	<0.10		ug	
		2-Methylanthracene	2012/05/19	<0.10		ug	
		2-Methylnaphthalene	2012/05/19	<0.10		ug	
		3-Methylcholanthrene	2012/05/19	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/05/19	<0.10		ug	
		9,10-Dimethylanthracene	2012/05/19	<0.40		ug	
		Acenaphthene	2012/05/19	<0.050		ug	
		Acenaphthylene	2012/05/19	<0.050		ug	
		Anthracene	2012/05/19	<0.050		ug	
		Benzo(a)anthracene	2012/05/19	<0.050		ug	
		Benzo(a)fluorene	2012/05/19	<0.10		ug	
		Benzo(a)pyrene	2012/05/19	<0.050		ug	
		Benzo(b)fluoranthene	2012/05/19	<0.050		ug	
		Benzo(b)fluorene	2012/05/19	<0.10		ug	
		Benzo(e)pyrene	2012/05/19	<0.10		ug	
		Benzo(g,h,i)perylene	2012/05/19	<0.050		ug	
		Benzo(k)fluoranthene	2012/05/19	<0.050		ug	
		Biphenyl	2012/05/19	<0.10		ug	
		Chrysene	2012/05/19	<0.050		ug	
		Coronene	2012/05/19	<0.10		ug	
		Dibenz(a,h)anthracene	2012/05/19	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/05/19	<0.20		ug	
		Fluoranthene	2012/05/19	<0.050		ug	
		Fluorene	2012/05/19	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/05/19	<0.050		ug	
		m-Terphenyl	2012/05/19	<0.10		ug	
		Naphthalene	2012/05/19	<0.072		ug	
		o-Terphenyl	2012/05/19	<0.10		ug	
		Perylene	2012/05/19	<0.10		ug	
		Phenanthrene	2012/05/19	<0.050		ug	
		p-Terphenyl	2012/05/19	<0.10		ug	
		Pyrene	2012/05/19	<0.050		ug	
		Quinoline	2012/05/19	<0.40		ug	
		Tetralin	2012/05/19	<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/May 15, 12

Puf+ s/n: 100-1015
 Motor s/n: 1139
 Installation Date/Time: May 14, 2012 @ 13:58 mst
 Removal Date/Time: May 17, 2012 @ 11:12 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
15-May-12	05/15/2012 0:00	05/16/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
10-May-12	17-May-12	22-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)
708	229	14.8	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# 11065
GB234711 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/May 15 , 12

Technician Signature: Ting Xu

Your C.O.C. #: 11065

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

Report Date: 2012/06/01

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B273663****Received: 2012/05/22, 08:53**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/05/26	2012/05/30	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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 #: B273663
 Report Date: 2012/06/01

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

Maxxam ID		NN3774	NN3775		
Sampling Date		2012/05/15 00:00	2012/05/15 00:00		
COC Number		11065	11065		
	Units	LICA PUFF+QFF/PORT/MAY 15,12	LICA PUFF+QFF/CLS/MAY15,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2861254
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2861254
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2861254
2-Methylantracene	ug	<0.10	<0.10	0.10	2861254
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2861254
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2861254
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2861254
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2861254
Acenaphthene	ug	<0.050	<0.050	0.050	2861254
Acenaphthylene	ug	<0.050	<0.050	0.050	2861254
Anthracene	ug	<0.050	<0.050	0.050	2861254
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2861254
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2861254
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2861254
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2861254
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2861254
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2861254
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2861254
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2861254
Biphenyl	ug	<0.10	<0.10	0.10	2861254
Chrysene	ug	<0.050	<0.050	0.050	2861254
Coronene	ug	<0.10	<0.10	0.10	2861254
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2861254
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2861254
Fluoranthene	ug	<0.050	<0.050	0.050	2861254
Fluorene	ug	0.068	<0.050	0.050	2861254
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2861254
m-Terphenyl	ug	<0.10	<0.10	0.10	2861254
Naphthalene	ug	<0.072	0.096	0.072	2861254
o-Terphenyl	ug	<0.10	<0.10	0.10	2861254

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B273663
 Report Date: 2012/06/01

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

Maxxam ID		NN3774	NN3775		
Sampling Date		2012/05/15 00:00	2012/05/15 00:00		
COC Number		11065	11065		
	Units	LICA PUFF+QFF/PORT/MAY 15,12	LICA PUFF+QFF/CLS/MAY15,12	RDL	QC Batch

Perylene	ug	<0.10	<0.10	0.10	2861254
Phenanthrene	ug	0.244	0.218	0.050	2861254
p-Terphenyl	ug	<0.10	<0.10	0.10	2861254
Pyrene	ug	<0.050	<0.050	0.050	2861254
Quinoline	ug	<0.40	<0.40	0.40	2861254
Tetralin	ug	<0.10	<0.10	0.10	2861254
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	62	64		2861254
D10-Fluoranthene	%	94	94		2861254
D10-Fluorene (FS)	%	6.2 (1)	8.4 (1)		2861254
D10-Phenanthrene	%	84	84		2861254
D12-Benzo(a)anthracene	%	102	102		2861254
D12-Benzo(a)pyrene	%	96	94		2861254
D12-Benzo(b)fluoranthene	%	98	92		2861254
D12-Benzo(ghi)perylene	%	98	98		2861254
D12-Benzo(k)fluoranthene	%	88	94		2861254
D12-Chrysene	%	86	88		2861254
D12-Indeno(1,2,3-cd)pyrene	%	94	94		2861254
D12-Perylene	%	92	92		2861254
D14-Dibenzo(a,h)anthracene	%	94	94		2861254
D14-Terphenyl (FS)	%	91	91		2861254
D8-Acenaphthylene	%	72	74		2861254
D8-Naphthalene	%	62	62		2861254

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 #: B273663
 Report Date: 2012/06/01

Test Summary

Maxxam ID NN3774
Sample ID LICA PUFF+QFF/PORT/MAY 15,12
Matrix PUF AND FILTER

Collected 2012/05/15
Shipped
Received 2012/05/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2861254	2012/05/26	2012/05/30	WENDY ZHAO

Maxxam ID NN3775
Sample ID LICA PUFF+QFF/CLS/MAY15,12
Matrix PUF AND FILTER

Collected 2012/05/15
Shipped
Received 2012/05/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2861254	2012/05/26	2012/05/30	WENDY ZHAO

Maxxam Job #: B273663
Report Date: 2012/06/01

GENERAL COMMENTS

PAHMS-F

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

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

Sample NN3774-01: PAHMS-F

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

Sample NN3775-01: 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: GB273663

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2861254 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/05/30		68	%	50 - 150
		D10-Fluoranthene	2012/05/30		88	%	50 - 150
		D10-Phenanthrene	2012/05/30		80	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/30		100	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/30		98	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/30		92	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/30		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/30		92	%	50 - 150
		D12-Chrysene	2012/05/30		88	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/05/30		90	%	50 - 150
		D12-Perylene	2012/05/30		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/30		90	%	50 - 150
		D8-Acenaphthylene	2012/05/30		78	%	50 - 150
		D8-Naphthalene	2012/05/30		66	%	50 - 150
		RPD	Acenaphthene	2012/05/30	14.1		%
	Spiked Blank	Acenaphthene	2012/05/30			%	50
	RPD	Acenaphthylene	2012/05/30	16.1		%	60 - 130
	Spiked Blank	Acenaphthylene	2012/05/30			%	50
	RPD	Anthracene	2012/05/30	14.8		%	60 - 130
	Spiked Blank	Anthracene	2012/05/30			%	50
	RPD	Benzo(a)anthracene	2012/05/30	0.6		%	60 - 130
	Spiked Blank	Benzo(a)anthracene	2012/05/30			%	50
	RPD	Benzo(a)pyrene	2012/05/30	2.3		%	60 - 130
	Spiked Blank	Benzo(a)pyrene	2012/05/30			%	50
	RPD	Benzo(b)fluoranthene	2012/05/30	1.1		%	60 - 130
	Spiked Blank	Benzo(b)fluoranthene	2012/05/30			%	50
	RPD	Benzo(g,h,i)perylene	2012/05/30	3.8		%	60 - 130
	Spiked Blank	Benzo(g,h,i)perylene	2012/05/30			%	50
	RPD	Benzo(k)fluoranthene	2012/05/30	1.8		%	60 - 130
	Spiked Blank	Benzo(k)fluoranthene	2012/05/30			%	50
	RPD	Chrysene	2012/05/30	2.8		%	60 - 130
	Spiked Blank	Chrysene	2012/05/30			%	50
	RPD	Dibenz(a,h)anthracene	2012/05/30	6.3		%	60 - 130
	Spiked Blank	Dibenz(a,h)anthracene	2012/05/30			%	50
	RPD	Fluoranthene	2012/05/30	8.0		%	60 - 130
	Spiked Blank	Fluoranthene	2012/05/30			%	50
	RPD	Fluorene	2012/05/30	16.0		%	60 - 130
	Spiked Blank	Fluorene	2012/05/30			%	50
	RPD	Indeno(1,2,3-cd)pyrene	2012/05/30	5.4		%	60 - 130
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/05/30			%	50
RPD	Naphthalene	2012/05/30	9.5		%	60 - 130	
Spiked Blank	Naphthalene	2012/05/30			%	50	
RPD	Phenanthrene	2012/05/30	11.2		%	60 - 130	
Spiked Blank	Phenanthrene	2012/05/30			%	50	
RPD	Pyrene	2012/05/30	7.7		%	60 - 130	
Spiked Blank	Pyrene	2012/05/30			%	50	
Method Blank	D10-2-Methylnaphthalene	2012/05/30			%	50 - 150	
	D10-Fluoranthene	2012/05/30			%	50 - 150	
	D10-Phenanthrene	2012/05/30			%	50 - 150	
	D12-Benzo(a)anthracene	2012/05/30			%	50 - 150	
	D12-Benzo(a)pyrene	2012/05/30			%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/05/30			%	50 - 150	
	D12-Benzo(ghi)perylene	2012/05/30			%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/05/30			%	50 - 150	
	D12-Chrysene	2012/05/30			%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB273663

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2861254 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/05/30		92	%	50 - 150
		D12-Perylene	2012/05/30		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/30		92	%	50 - 150
		D8-Acenaphthylene	2012/05/30		92	%	50 - 150
		D8-Naphthalene	2012/05/30		78	%	50 - 150
		1-Methylnaphthalene	2012/05/30	<0.10		ug	
		1-Methylphenanthrene	2012/05/30	<0.10		ug	
		2-Chloronaphthalene	2012/05/30	<0.10		ug	
		2-Methylanthracene	2012/05/30	<0.10		ug	
		2-Methylnaphthalene	2012/05/30	<0.10		ug	
		3-Methylcholanthrene	2012/05/30	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/05/30	<0.10		ug	
		9,10-Dimethylanthracene	2012/05/30	<0.40		ug	
		Acenaphthene	2012/05/30	<0.050		ug	
		Acenaphthylene	2012/05/30	<0.050		ug	
		Anthracene	2012/05/30	<0.050		ug	
		Benzo(a)anthracene	2012/05/30	<0.050		ug	
		Benzo(a)fluorene	2012/05/30	<0.10		ug	
		Benzo(a)pyrene	2012/05/30	<0.050		ug	
		Benzo(b)fluoranthene	2012/05/30	<0.050		ug	
		Benzo(b)fluorene	2012/05/30	<0.10		ug	
		Benzo(e)pyrene	2012/05/30	<0.10		ug	
		Benzo(g,h,i)perylene	2012/05/30	<0.050		ug	
		Benzo(k)fluoranthene	2012/05/30	<0.050		ug	
		Biphenyl	2012/05/30	<0.10		ug	
		Chrysene	2012/05/30	<0.050		ug	
		Coronene	2012/05/30	<0.10		ug	
		Dibenz(a,h)anthracene	2012/05/30	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/05/30	<0.20		ug	
		Fluoranthene	2012/05/30	<0.050		ug	
		Fluorene	2012/05/30	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/05/30	<0.050		ug	
		m-Terphenyl	2012/05/30	<0.10		ug	
		Naphthalene	2012/05/30	<0.072		ug	
		o-Terphenyl	2012/05/30	<0.10		ug	
		Perylene	2012/05/30	<0.10		ug	
		Phenanthrene	2012/05/30	<0.050		ug	
		p-Terphenyl	2012/05/30	<0.10		ug	
		Pyrene	2012/05/30	<0.050		ug	
		Quinoline	2012/05/30	<0.40		ug	
		Tetralin	2012/05/30	<0.10		ug	

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica Puf+ s/n: 100-1015
 Location: Elk Point Airport Motor s/n: 1139
 Station ID: Lica 35 (Portable) Installation Date/Time: May 17, 2012 @ 11:25 mst
 Field Sample ID: LICA PUF/PORT/May 21, 12 Removal Date/Time: May 25, 2012 @ 09:42 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
21-May-12	05/21/2012 0:00	05/22/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
16-May-12	25-May-12	28-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	14.0	30.34

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# 12074
GB234716 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/May 21 , 12

Technician Signature: Ting Xu

Your C.O.C. #: 12074

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

Report Date: 2012/06/01

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B277544****Received: 2012/05/29, 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	2012/05/30	2012/05/31	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 #: B277544
 Report Date: 2012/06/01

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

Maxxam ID		NP2873	NP2874		
Sampling Date		2012/05/21	2012/05/21		
COC Number		12074	12074		
	Units	LICA PUFF+QFF/CLS/MAY 21,12	LICA PUFF+QFF/PORT/MAY 21,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2864824
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2864824
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2864824
2-Methylantracene	ug	<0.10	<0.10	0.10	2864824
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2864824
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2864824
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2864824
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2864824
Acenaphthene	ug	<0.050	<0.050	0.050	2864824
Acenaphthylene	ug	<0.050	<0.050	0.050	2864824
Anthracene	ug	<0.050	<0.050	0.050	2864824
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2864824
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2864824
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2864824
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2864824
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2864824
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2864824
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2864824
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2864824
Biphenyl	ug	<0.10	<0.10	0.10	2864824
Chrysene	ug	<0.050	<0.050	0.050	2864824
Coronene	ug	<0.10	<0.10	0.10	2864824
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2864824
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2864824
Fluoranthene	ug	0.074	<0.050	0.050	2864824
Fluorene	ug	0.062	<0.050	0.050	2864824
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2864824
m-Terphenyl	ug	<0.10	<0.10	0.10	2864824
Naphthalene	ug	0.170	<0.072	0.072	2864824
o-Terphenyl	ug	<0.10	<0.10	0.10	2864824
Perylene	ug	<0.10	<0.10	0.10	2864824

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B277544
 Report Date: 2012/06/01

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

Maxxam ID		NP2873	NP2874		
Sampling Date		2012/05/21	2012/05/21		
COC Number		12074	12074		
	Units	LICA PUFF+QFF/CLS/MAY 21,12	LICA PUFF+QFF/PORT/MAY 21,12	RDL	QC Batch

Phenanthrene	ug	0.374	0.078	0.050	2864824
p-Terphenyl	ug	<0.10	<0.10	0.10	2864824
Pyrene	ug	<0.050	<0.050	0.050	2864824
Quinoline	ug	<0.40	<0.40	0.40	2864824
Tetralin	ug	<0.10	<0.10	0.10	2864824
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	72	74		2864824
D10-Fluoranthene	%	100	90		2864824
D10-Fluorene (FS)	%	11 (1)	13 (1)		2864824
D10-Phenanthrene	%	90	84		2864824
D12-Benzo(a)anthracene	%	100	102		2864824
D12-Benzo(a)pyrene	%	92	94		2864824
D12-Benzo(b)fluoranthene	%	94	96		2864824
D12-Benzo(ghi)perylene	%	98	96		2864824
D12-Benzo(k)fluoranthene	%	94	90		2864824
D12-Chrysene	%	86	90		2864824
D12-Indeno(1,2,3-cd)pyrene	%	92	90		2864824
D12-Perylene	%	90	90		2864824
D14-Dibenzo(a,h)anthracene	%	94	90		2864824
D14-Terphenyl (FS)	%	98	86		2864824
D8-Acenaphthylene	%	82	84		2864824
D8-Naphthalene	%	70	72		2864824

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 #: B277544
 Report Date: 2012/06/01

Test Summary

Maxxam ID NP2873
Sample ID LICA PUFF+QFF/CLS/MAY 21,12
Matrix PUF AND FILTER

Collected 2012/05/21
Shipped
Received 2012/05/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2864824	2012/05/30	2012/05/31	WENDY ZHAO

Maxxam ID NP2874
Sample ID LICA PUFF+QFF/PORT/MAY 21,12
Matrix PUF AND FILTER

Collected 2012/05/21
Shipped
Received 2012/05/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2864824	2012/05/30	2012/05/31	WENDY ZHAO

Maxxam Job #: B277544
Report Date: 2012/06/01

GENERAL COMMENTS

PAHMS-F

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

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

Sample received past holding time according to the tracking sheet.

Sample NP2873-01: PAHMS-F

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

Sample NP2874-01: 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: GB277544

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2864824 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/05/31		76	%	50 - 150
		D10-Fluoranthene	2012/05/31		96	%	50 - 150
		D10-Phenanthrene	2012/05/31		88	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/31		100	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/31		98	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/31		92	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/31		102	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/31		94	%	50 - 150
		D12-Chrysene	2012/05/31		88	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/05/31		94	%	50 - 150
		D12-Perylene	2012/05/31		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/31		96	%	50 - 150
		D8-Acenaphthylene	2012/05/31		88	%	50 - 150
		D8-Naphthalene	2012/05/31		74	%	50 - 150
		RPD	Acenaphthene	2012/05/31		73	%
	Spiked Blank	Acenaphthene	2012/05/31	1.7		%	50
	RPD	Acenaphthylene	2012/05/31		79	%	60 - 130
	Spiked Blank	Acenaphthylene	2012/05/31	0.3		%	50
	RPD	Anthracene	2012/05/31		86	%	60 - 130
	Spiked Blank	Anthracene	2012/05/31	6.6		%	50
	RPD	Benzo(a)anthracene	2012/05/31		94	%	60 - 130
	Spiked Blank	Benzo(a)anthracene	2012/05/31	0.8		%	50
	RPD	Benzo(a)pyrene	2012/05/31		79	%	60 - 130
	Spiked Blank	Benzo(a)pyrene	2012/05/31	0		%	50
	RPD	Benzo(b)fluoranthene	2012/05/31		87	%	60 - 130
	Spiked Blank	Benzo(b)fluoranthene	2012/05/31	11.4		%	50
	RPD	Benzo(g,h,i)perylene	2012/05/31		90	%	60 - 130
	Spiked Blank	Benzo(g,h,i)perylene	2012/05/31	1.1		%	50
	RPD	Benzo(k)fluoranthene	2012/05/31		95	%	60 - 130
	Spiked Blank	Benzo(k)fluoranthene	2012/05/31	8.0		%	50
	RPD	Chrysene	2012/05/31		83	%	60 - 130
	Spiked Blank	Chrysene	2012/05/31	2.4		%	50
	RPD	Dibenz(a,h)anthracene	2012/05/31		92	%	60 - 130
	Spiked Blank	Dibenz(a,h)anthracene	2012/05/31	1.6		%	50
	RPD	Fluoranthene	2012/05/31		90	%	60 - 130
	Spiked Blank	Fluoranthene	2012/05/31	7.2		%	50
	RPD	Fluorene	2012/05/31		76	%	60 - 130
	Spiked Blank	Fluorene	2012/05/31	1.3		%	50
	RPD	Indeno(1,2,3-cd)pyrene	2012/05/31		87	%	60 - 130
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/05/31	1.7		%	50
RPD	Naphthalene	2012/05/31		69	%	60 - 130	
Spiked Blank	Naphthalene	2012/05/31	0.7		%	50	
RPD	Phenanthrene	2012/05/31		80	%	60 - 130	
Spiked Blank	Phenanthrene	2012/05/31	3.8		%	50	
RPD	Pyrene	2012/05/31		80	%	60 - 130	
Spiked Blank	Pyrene	2012/05/31	6.5		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/05/31		82	%	50 - 150	
	D10-Fluoranthene	2012/05/31		90	%	50 - 150	
	D10-Phenanthrene	2012/05/31		86	%	50 - 150	
	D12-Benzo(a)anthracene	2012/05/31		100	%	50 - 150	
	D12-Benzo(a)pyrene	2012/05/31		94	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/05/31		96	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/05/31		94	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/05/31		90	%	50 - 150	
	D12-Chrysene	2012/05/31		90	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB277544

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2864824 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/05/31		90	%	50 - 150
		D12-Perylene	2012/05/31		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/31		88	%	50 - 150
		D8-Acenaphthylene	2012/05/31		90	%	50 - 150
		D8-Naphthalene	2012/05/31		80	%	50 - 150
		1-Methylnaphthalene	2012/05/31	<0.10		ug	
		1-Methylphenanthrene	2012/05/31	<0.10		ug	
		2-Chloronaphthalene	2012/05/31	<0.10		ug	
		2-Methylanthracene	2012/05/31	<0.10		ug	
		2-Methylnaphthalene	2012/05/31	<0.10		ug	
		3-Methylcholanthrene	2012/05/31	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/05/31	<0.10		ug	
		9,10-Dimethylanthracene	2012/05/31	<0.40		ug	
		Acenaphthene	2012/05/31	<0.050		ug	
		Acenaphthylene	2012/05/31	<0.050		ug	
		Anthracene	2012/05/31	<0.050		ug	
		Benzo(a)anthracene	2012/05/31	<0.050		ug	
		Benzo(a)fluorene	2012/05/31	<0.10		ug	
		Benzo(a)pyrene	2012/05/31	<0.050		ug	
		Benzo(b)fluoranthene	2012/05/31	<0.050		ug	
		Benzo(b)fluorene	2012/05/31	<0.10		ug	
		Benzo(e)pyrene	2012/05/31	<0.10		ug	
		Benzo(g,h,i)perylene	2012/05/31	<0.050		ug	
		Benzo(k)fluoranthene	2012/05/31	<0.050		ug	
		Biphenyl	2012/05/31	<0.10		ug	
		Chrysene	2012/05/31	<0.050		ug	
		Coronene	2012/05/31	<0.10		ug	
		Dibenz(a,h)anthracene	2012/05/31	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/05/31	<0.20		ug	
		Fluoranthene	2012/05/31	<0.050		ug	
		Fluorene	2012/05/31	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/05/31	<0.050		ug	
		m-Terphenyl	2012/05/31	<0.10		ug	
		Naphthalene	2012/05/31	<0.072		ug	
		o-Terphenyl	2012/05/31	<0.10		ug	
		Perylene	2012/05/31	<0.10		ug	
		Phenanthrene	2012/05/31	<0.050		ug	
		p-Terphenyl	2012/05/31	<0.10		ug	
		Pyrene	2012/05/31	<0.050		ug	
		Quinoline	2012/05/31	<0.40		ug	
		Tetralin	2012/05/31	<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 Puf+ s/n: 100-1015
 Location: Elk Point Airport Motor s/n: 1139
 Station ID: Lica 35 (Portable) Installation Date/Time: May 25, 2012 @ 09:55 mst
 Field Sample ID: LICA PUF/PORT/May 27, 12 Removal Date/Time: May 30, 2012 @ 12:20 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
27-May-12	05/27/2012 0:00	05/28/2012 0:00	24.0000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
23-May-12	30-May-12	05-Jun-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)
708	229	12.5	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# 11225
GB234714 Puff #2
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/PORT/May 27 , 12

Technician Signature: Ting Xu

Your C.O.C. #: 11225

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

Report Date: 2012/06/08

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B280452****Received: 2012/06/01, 10:05**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/06/04	2012/06/06	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 #: B280452
 Report Date: 2012/06/08

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

Maxxam ID		NQ9620	NQ9621		
Sampling Date		2012/05/27	2012/05/27		
COC Number		11225	11225		
	Units	LICAPUFF+QFF/CLS/MAY	LICAPUFF+QFF/PORT/MAY	RDL	QC Batch
		27,12	27,12		

Semivolatiles Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2869051
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2869051
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2869051
2-Methylantracene	ug	<0.10	<0.10	0.10	2869051
2-Methylnaphthalene	ug	0.14	<0.10	0.10	2869051
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2869051
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2869051
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2869051
Acenaphthene	ug	0.080	<0.050	0.050	2869051
Acenaphthylene	ug	<0.050	<0.050	0.050	2869051
Anthracene	ug	<0.050	<0.050	0.050	2869051
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2869051
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2869051
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2869051
Benzo(b)fluoranthene	ug	0.056	<0.050	0.050	2869051
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2869051
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2869051
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2869051
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2869051
Biphenyl	ug	<0.10	<0.10	0.10	2869051
Chrysene	ug	<0.050	<0.050	0.050	2869051
Coronene	ug	<0.10	<0.10	0.10	2869051
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2869051
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2869051
Fluoranthene	ug	0.058	<0.050	0.050	2869051
Fluorene	ug	0.124	<0.050	0.050	2869051
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2869051
m-Terphenyl	ug	<0.10	<0.10	0.10	2869051
Naphthalene	ug	0.192	<0.072	0.072	2869051
o-Terphenyl	ug	<0.10	<0.10	0.10	2869051
Perylene	ug	<0.10	<0.10	0.10	2869051
Phenanthrene	ug	0.396	0.100	0.050	2869051

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B280452
 Report Date: 2012/06/08

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

Maxxam ID		NQ9620	NQ9621		
Sampling Date		2012/05/27	2012/05/27		
COC Number		11225	11225		
	Units	LICAPUFF+QFF/CLS/MAY	LICAPUFF+QFF/PORT/MAY	RDL	QC Batch
		27,12	27,12		

p-Terphenyl	ug	<0.10	<0.10	0.10	2869051
Pyrene	ug	<0.050	<0.050	0.050	2869051
Quinoline	ug	<0.40	<0.40	0.40	2869051
Tetralin	ug	<0.10	<0.10	0.10	2869051
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	68	78		2869051
D10-Fluoranthene	%	86	82		2869051
D10-Fluorene (FS)	%	9.0 (1)	9.8 (1)		2869051
D10-Phenanthrene	%	80	80		2869051
D12-Benzo(a)anthracene	%	96	98		2869051
D12-Benzo(a)pyrene	%	90	90		2869051
D12-Benzo(b)fluoranthene	%	96	90		2869051
D12-Benzo(ghi)perylene	%	96	96		2869051
D12-Benzo(k)fluoranthene	%	88	94		2869051
D12-Chrysene	%	88	92		2869051
D12-Indeno(1,2,3-cd)pyrene	%	88	88		2869051
D12-Perylene	%	88	88		2869051
D14-Dibenzo(a,h)anthracene	%	88	88		2869051
D14-Terphenyl (FS)	%	81	78		2869051
D8-Acenaphthylene	%	72	78		2869051
D8-Naphthalene	%	68	78		2869051

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 #: B280452
Report Date: 2012/06/08

Test Summary

Maxxam ID NQ9620
Sample ID LICAPUFF+QFF/CLS/MAY 27,12
Matrix PUF AND FILTER

Collected 2012/05/27
Shipped
Received 2012/06/01

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2869051	2012/06/04	2012/06/06	WENDY ZHAO

Maxxam ID NQ9621
Sample ID LICAPUFF+QFF/PORT/MAY 27,12
Matrix PUF AND FILTER

Collected 2012/05/27
Shipped
Received 2012/06/01

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2869051	2012/06/04	2012/06/06	WENDY ZHAO

Maxxam Job #: B280452
Report Date: 2012/06/08

GENERAL COMMENTS

PAHMS-F

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

Chryene is statistically out of control at 85.50% recovery in the spike:dup. Spike recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

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 pass the holding time according to the tracking sheet.

Sample NQ9620-01: PAHMS-F

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

Sample NQ9621-01: 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: GB280452

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2869051 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/06/06		84	%	50 - 150
		D10-Fluoranthene	2012/06/06		82	%	50 - 150
		D10-Phenanthrene	2012/06/06		80	%	50 - 150
		D12-Benzo(a)anthracene	2012/06/06		94	%	50 - 150
		D12-Benzo(a)pyrene	2012/06/06		92	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/06/06		94	%	50 - 150
		D12-Benzo(ghi)perylene	2012/06/06		96	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/06/06		92	%	50 - 150
		D12-Chrysene	2012/06/06		96	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/06/06		88	%	50 - 150
		D12-Perylene	2012/06/06		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/06/06		88	%	50 - 150
		D8-Acenaphthylene	2012/06/06		84	%	50 - 150
		D8-Naphthalene	2012/06/06		84	%	50 - 150
		RPD	Acenaphthene	2012/06/06		76	%
	RPD	Acenaphthene	2012/06/06	4.8		%	50
	Spiked Blank	Acenaphthylene	2012/06/06		77	%	60 - 130
	RPD	Acenaphthylene	2012/06/06	5.7		%	50
	Spiked Blank	Anthracene	2012/06/06		75	%	60 - 130
	RPD	Anthracene	2012/06/06	11.3		%	50
	Spiked Blank	Benzo(a)anthracene	2012/06/06		90	%	60 - 130
	RPD	Benzo(a)anthracene	2012/06/06	1.4		%	50
	Spiked Blank	Benzo(a)pyrene	2012/06/06		74	%	60 - 130
	RPD	Benzo(a)pyrene	2012/06/06	6.9		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/06/06		92	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/06/06	2.2		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/06/06		84	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/06/06	6.9		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/06/06		90	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/06/06	1.9		%	50
	Spiked Blank	Chrysene	2012/06/06		88	%	60 - 130
	RPD	Chrysene	2012/06/06	2.3		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/06/06		84	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/06/06	9.1		%	50
	Spiked Blank	Fluoranthene	2012/06/06		78	%	60 - 130
	RPD	Fluoranthene	2012/06/06	11.2		%	50
	Spiked Blank	Fluorene	2012/06/06		75	%	60 - 130
	RPD	Fluorene	2012/06/06	7.4		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/06/06		80	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/06/06	9.0		%	50
Spiked Blank	Naphthalene	2012/06/06		73	%	60 - 130	
RPD	Naphthalene	2012/06/06	5.6		%	50	
Spiked Blank	Phenanthrene	2012/06/06		75	%	60 - 130	
RPD	Phenanthrene	2012/06/06	8.7		%	50	
Spiked Blank	Pyrene	2012/06/06		69	%	60 - 130	
RPD	Pyrene	2012/06/06	12.2		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/06/06		82	%	50 - 150	
	D10-Fluoranthene	2012/06/06		88	%	50 - 150	
	D10-Phenanthrene	2012/06/06		86	%	50 - 150	
	D12-Benzo(a)anthracene	2012/06/06		94	%	50 - 150	
	D12-Benzo(a)pyrene	2012/06/06		94	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/06/06		94	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/06/06		98	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/06/06		94	%	50 - 150	
	D12-Chrysene	2012/06/06		92	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB280452

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2869051 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/06/06		92	%	50 - 150
		D12-Perylene	2012/06/06		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/06/06		92	%	50 - 150
		D8-Acenaphthylene	2012/06/06		86	%	50 - 150
		D8-Naphthalene	2012/06/06		82	%	50 - 150
		1-Methylnaphthalene	2012/06/06	<0.10		ug	
		1-Methylphenanthrene	2012/06/06	<0.10		ug	
		2-Chloronaphthalene	2012/06/06	<0.10		ug	
		2-Methylanthracene	2012/06/06	<0.10		ug	
		2-Methylnaphthalene	2012/06/06	<0.10		ug	
		3-Methylcholanthrene	2012/06/06	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/06/06	<0.10		ug	
		9,10-Dimethylanthracene	2012/06/06	<0.40		ug	
		Acenaphthene	2012/06/06	<0.050		ug	
		Acenaphthylene	2012/06/06	<0.050		ug	
		Anthracene	2012/06/06	<0.050		ug	
		Benzo(a)anthracene	2012/06/06	<0.050		ug	
		Benzo(a)fluorene	2012/06/06	<0.10		ug	
		Benzo(a)pyrene	2012/06/06	<0.050		ug	
		Benzo(b)fluoranthene	2012/06/06	<0.050		ug	
		Benzo(b)fluorene	2012/06/06	<0.10		ug	
		Benzo(e)pyrene	2012/06/06	<0.10		ug	
		Benzo(g,h,i)perylene	2012/06/06	<0.050		ug	
		Benzo(k)fluoranthene	2012/06/06	<0.050		ug	
		Biphenyl	2012/06/06	<0.10		ug	
		Chrysene	2012/06/06	<0.050		ug	
		Coronene	2012/06/06	<0.10		ug	
		Dibenz(a,h)anthracene	2012/06/06	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/06/06	<0.20		ug	
		Fluoranthene	2012/06/06	<0.050		ug	
		Fluorene	2012/06/06	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/06/06	<0.050		ug	
		m-Terphenyl	2012/06/06	<0.10		ug	
		Naphthalene	2012/06/06	<0.072		ug	
		o-Terphenyl	2012/06/06	<0.10		ug	
		Perylene	2012/06/06	<0.10		ug	
		Phenanthrene	2012/06/06	<0.050		ug	
		p-Terphenyl	2012/06/06	<0.10		ug	
		Pyrene	2012/06/06	<0.050		ug	
		Quinoline	2012/06/06	<0.40		ug	
		Tetralin	2012/06/06	<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
May 2012

Prepared By:



June 20, 2012

Lakeland Industry & Community Association

St. Lina

Ambient Air Monitoring

Table of Contents

	Page		Page
Introduction	3		
Calibration Procedure	4		
Monthly Continuous Summary	5		
General Monthly Summary	6		
Continuous Monitoring	10		
• Monthly Summaries, Graphs & Wind Roses	11		
• Air Quality Index	12		
• Sulphur Dioxide	14		
• Hydrogen Sulphide	22		
• Total Hydrocarbons	30		
• Ozone	38		
• Nitrogen Dioxide	46		
• Nitric Oxide	54		
• Oxides of Nitrogen	61		
• Particulate Matter 2.5	69		
• Temperature	74		
• Barometric Pressure	77		
• Relative Humidity	80		
• Precipitation	83		
• Vector Wind Speed	86		
• Vector Wind Direction	93		
• Standard Deviation Wind Direction	96		
		Calibration Reports	99
		• Sulphur Dioxide	100
		• Hydrogen Sulphide	103
		• Total Hydrocarbons	106
		• Nitrogen Dioxide	109
		• Ozone	113
		• Particulate Matter 2.5	116
		• Wind System	121

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: May 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 – May 2012

LICA ST. LINA SITE						MAXIMUM VALUES							OPERATIONAL TIME (PERCENT)	
						OBJECTIVES					EXCEEDENCES			MONTHLY AVERAGE
PARAMETER	1-HR	24-HR	1-HR	24-HR	MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (KPH)	WIND DIRECTION (DEGREES)	READING	DAY		
SO2 (PPB)	172	48	0	0	0.03	3	26	9	6	209(SSW)	0.3	8, 20	99.7	
H2S (PPB)	10	3	0	0	0.13	1	VAR	VAR	VAR	VAR	0.9	4, 22	99.9	
THC (PPM)	-	-	-	-	2.11	3.0	29	7, 8	6.9, 7	93(E), 121(ESE)	2.3	29	99.7	
OZONE (PPB)	82	-	0	-	39.8	58	7, 9	VAR	VAR	VAR	49.8	9	100.0	
NOx (PPB)	-	-	-	-	0.95	6	16	5	5.7	27(NNE)	1.9	31	100.0	
NO (PPB)	-	-	-	-	0.45	6	25	19, 20	5.6, 7.8	193(S), 168(SSE)	2.1	25	99.9	
NO2 (PPB)	159	-	0	-	0.58	5	16	5	5.7	27(NNE)	1.0	VAR	100.0	
PM2.5 (ug/m3)	-	30	-	0	4.86	22.5	16	5	5.7	27(NNE)	10.3	16	100.0	
TEMPERATURE (DEGREE C)	-	-	-	-	11.31	24.2	13	13, 14	4.1, 6.7	342(NNW), 343(NNW)	17.6	13	100.0	
BP (MILLIBAR)	-	-	-	-	930	942	7	9	5.5	334(NNW)	939.3	7	100.0	
RH (%)	-	-	-	-	47.40	91	VAR	VAR	VAR	VAR	82.8	4	100.0	
PRECIPITATION (MM)	-	-	-	-	0.08	3.6	22	11	20.9	70(ENE)	31.3	22	100.0	
VECTOR WS (KPH)	-	-	-	-	9.80	23.5	31	18	-	256(WSW)	17.6	22	99.9	
VECTOR WD (DEGREES)	-	-	-	-	245(WSW)	-	-	-	-	-	-	-	99.9	

VAR-VARIOUS

General Monthly Summary

Equipment Operation

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

AQM STATION – LICA – St. Lina

Sulphur Dioxide (PPB)

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

The analyzer spanned high on May 10th and 11th. The as found points check was performed on May 11th. The result was good, but the sample flow was low. The sample pump was replaced on May 11th. A post-repair calibration was performed on May 25th. The pump issue would not affect the data quality. The inlet filter was changed before the post-repair calibration was started on May 25th. 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 May 23rd. 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

The analyzer was working well throughout the month. Both the H₂ gas cylinder and CH₄ gas cylinder were changed on May 11th. The inlet filter was changed before the monthly calibration was started on May 23rd. 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 May 25th. Maximum hourly reading recorded at hour 5 on May 31st went above the full scale. The actual hourly reading may be higher than the indicated. 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 May 23rd. 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 May 25th. Data was corrected using Alberta air quality guideline. If the data was between 0 to –3, the data was corrected to 0. If the data was below –3, the data was invalidated. No hourly data was invalidated as all data were above –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 replaced to RM Young5103VK, S/N: 56589

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

The wind system was working well throughout the month. The Met 50.5 wind system was removed and sent back to the manufacturer for a 2-Year calibration/maintenance on May 15th. A temporary RM Young wind system was installed following an installation calibration on May 15th.

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

The manifold was cleaned on May 25th. A thrown-away filter for the heating/cooling system was replaced on May 23rd.

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. Sixty-one AQI values recorded in May 2012 were within the Fair range, and they were all due to ozone. All others were within the Good range. The highest hourly concentration of Ozone was 58 ppb and an AQI value of 32, on May 7th and 9th, in various hours. The highest concentration of PM2.5 was 22.5 ug/m3 and an AQI value of 19, on May 16th, hour of 5.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 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	1	03	NA	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	MAX
1	17	-	16	15	14	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	20
2	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
3	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
4	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
5	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
6	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
7	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
8	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
9	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
10	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
11	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
12	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
13	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
14	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
15	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
16	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
17	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
18	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
19	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
20	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
21	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
22	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
23	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
24	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
25	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
26	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
27	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
28	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
29	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
30	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
31	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03
PEAK	24	25	25	25	25	25	28	30	31	31	31	31	32	32	30	29	29	30	32	27	29	27	26	25	25	25	
	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03

STATUS FLAG CODES NA - NOT APPLICABLE

V - VARIOUS

AQI CLASS	OZONE (O ₃)					PARTICULATE MATTER 2.5 (PM2)					NITROGEN DIOXIDE (NO ₂)					SULPHUR DIOXIDE (SO ₂)					FREQUENCY	
	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	61	8.2%	32	VAR	7.9	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	61	8.2%
GOOD (1-25)	630	84.7%	-	-	-	3	0.4%	19	5	16	0	0.0%	-	-	-	0	0.0%	-	-	-	633	85.1%
OVERALL	691	92.9%	-	-	-	54	0.4%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	694	93.3%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	6.7%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 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	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
2	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
3	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	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0.0	24	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0.0	24	
6	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	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0.0	24
8	0	0	0	0	0	0	0	1	1	1	0	0	0	1	1	1	1	IZS	0	0	0	0	0	0	0	1	0.3	24
9	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
10	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
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	M	M	C	0	0	0	0	0	0	0	0	0.0	22
12	0	0	0	0	0	0	0	0	C	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0.0	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	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	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	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	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	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	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	0	IZS	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0.3	24
21	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
22	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
24	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
25	IZS	0	0	0	0	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0.0	24	
26	0	0	0	0	0	0	0	0	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	3	0.2	24
27	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	
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0.0	24
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0.0	24
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0.0	24
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0.0	24
HOURLY MAX	0	0	0	0	0	0	0	1	1	3	1	0	0	1	1	1	1	0	0	1	1	1	1	0	0			
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

STATUS FLAG CODES

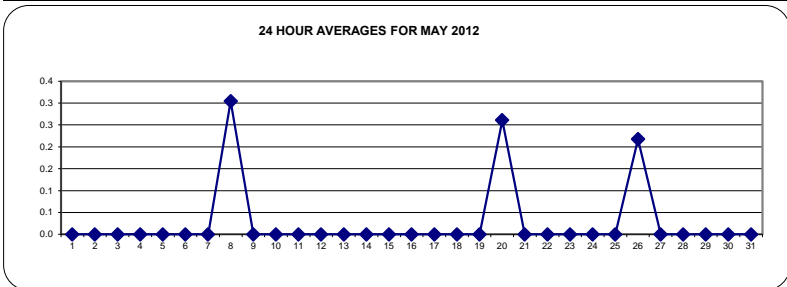
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

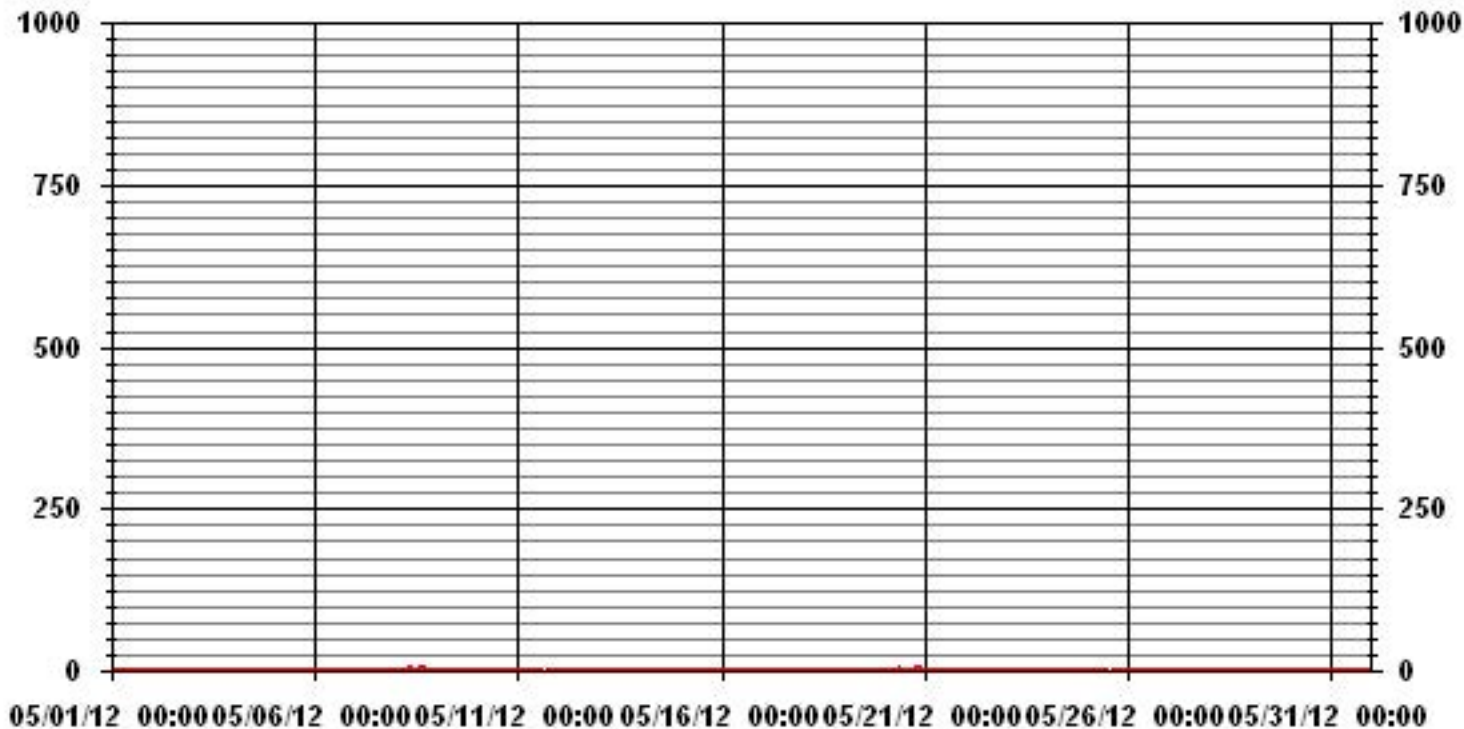
ALBERTA ENVIRONMENT:	1-HR	172	PPB	24-HR	48	PPB
----------------------	------	-----	-----	-------	----	-----

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF 24-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	16					
MAXIMUM 1-HR AVERAGE:	3	PPB	@ HOUR(S)	9	ON DAY(S)	26
MAXIMUM 24-HR AVERAGE:	0.3	PPB			ON DAY(S)	8, 20
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	742	HRS	
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	99.7	%	
STANDARD DEVIATION:	0.18		MONTHLY AVERAGE:	0.03	PPB	



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 2012

SULPHUR DIOXIDE MAX instantaneous maximum 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	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	
2	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	1	1.0	24
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	2	1.0	24	
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1.0	24	
5	1	1	1	1	1	1	1	1	P	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	0	1	1	1.0	23	
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	IZS	0	0	0	0	1	1	1	0.8	24	
7	0	0	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	0.7	24	
8	1	1	1	1	1	1	1	2	2	2	2	1	1	2	2	2	2	2	IZS	1	1	1	1	1	1	2	1.3	24		
9	1	1	1	1	1	1	1	1	1	0	0	0	1	1	0	0	IZS	0	0	0	0	0	0	0	0	0	1	0.5	24	
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	0.3	24	
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	M	M	M	C	1	1	1	1	1	1	1	1	1.0	21	
12	1	1	1	1	1	1	1	1	C	1	1	1	1	IZS	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
13	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
14	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
15	1	1	1	1	1	1	1	1	1	1	1	1	IZS	0	0	0	0	0	M	1	0	1	1	0	0	0	1	0.6	23	
16	0	1	0	0	1	1	1	1	1	IZS	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	0.8	24	
17	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1	0	1	0.2	24	
18	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	
19	0	0	0	0	0	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	24	
20	1	1	1	1	1	IZS	1	1	1	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.1	24	
21	1	1	1	1	1	IZS	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0.5	24	
22	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	24
23	P	1	IZS	1	P	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	22	
24	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	0	0	0	0	0	0	1	0.7	24	
25	IZS	0	0	0	0	1	0	0	0	1	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	1	0.1	24	
26	0	0	0	0	0	0	0	1	4	5	5	1	0	0	0	0	0	0	0	0	0	0	1	IZS	0	5	0.7	24		
27	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	1	0	0	0	0	IZS	0	0	1	0.2	24		
28	0	0	1	1	1	0	1	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	IZS	1	1	0	1	0.7	24	
29	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	0.8	24	
30	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1.0	24	
31	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1.0	24	
HOURLY MAX	1	1	1	1	1	1	1	2	4	5	5	1	1	2	2	2	2	2	2	1	1	1	1	1	1	2				
HOURLY AVG	0.6	0.7	0.6	0.6	0.7	0.7	0.7	0.8	0.9	1.0	0.9	0.7	0.7	0.8	0.7	0.8	0.9	0.8	0.6	0.7	0.7	0.8	0.7	0.7						

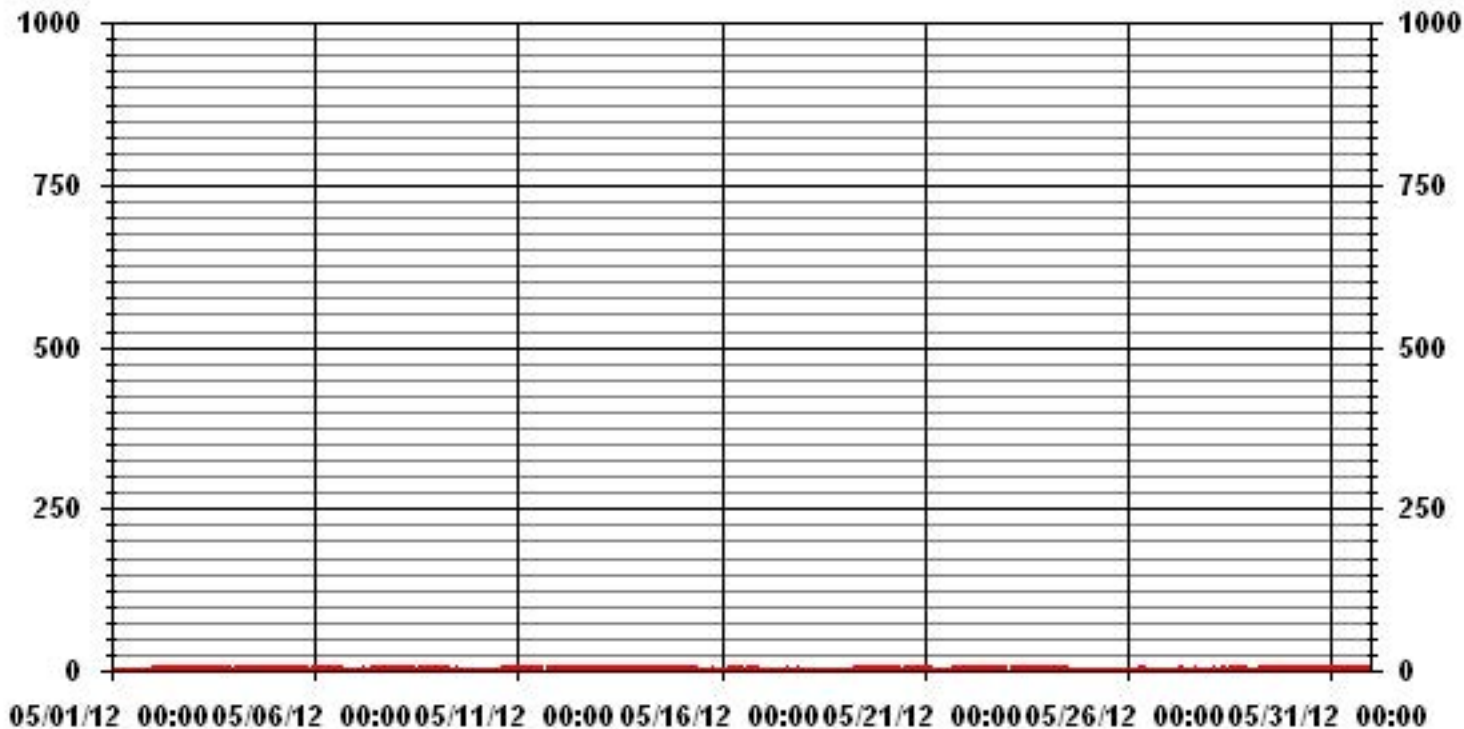
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	490					
MAXIMUM INSTANTANEOUS VALUE:	5	PPB	@ HOUR(S)	9, 10	ON DAY(S)	26
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	737	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	0.55					

01 Hour Averages



LICA31
 SO2_ / WDR Joint Frequency Distribution (Percent)

May 2012

Distribution By % Of Samples

Logger Id : 31
 Site Name : LICA31
 Parameter : SO2_
 Units : PPB

Wind Parameter : WDR
 Instrument Height : 10 Meters

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 20	2.14	3.71	6.29	6.58	6.29	4.00	4.72	3.29	8.72	8.72	6.58	8.29	9.44	8.29	5.72	7.15	100.00	
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	2.14	3.71	6.29	6.58	6.29	4.00	4.72	3.29	8.72	8.72	6.58	8.29	9.44	8.29	5.72	7.15		

Calm : .00 %

Total # Operational Hours : 699

Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 20	15	26	44	46	44	28	33	23	61	61	46	58	66	58	40	50	699	
< 60																		
< 110																		
< 170																		
< 340																		
>= 340																		
Totals	15	26	44	46	44	28	33	23	61	61	46	58	66	58	40	50		

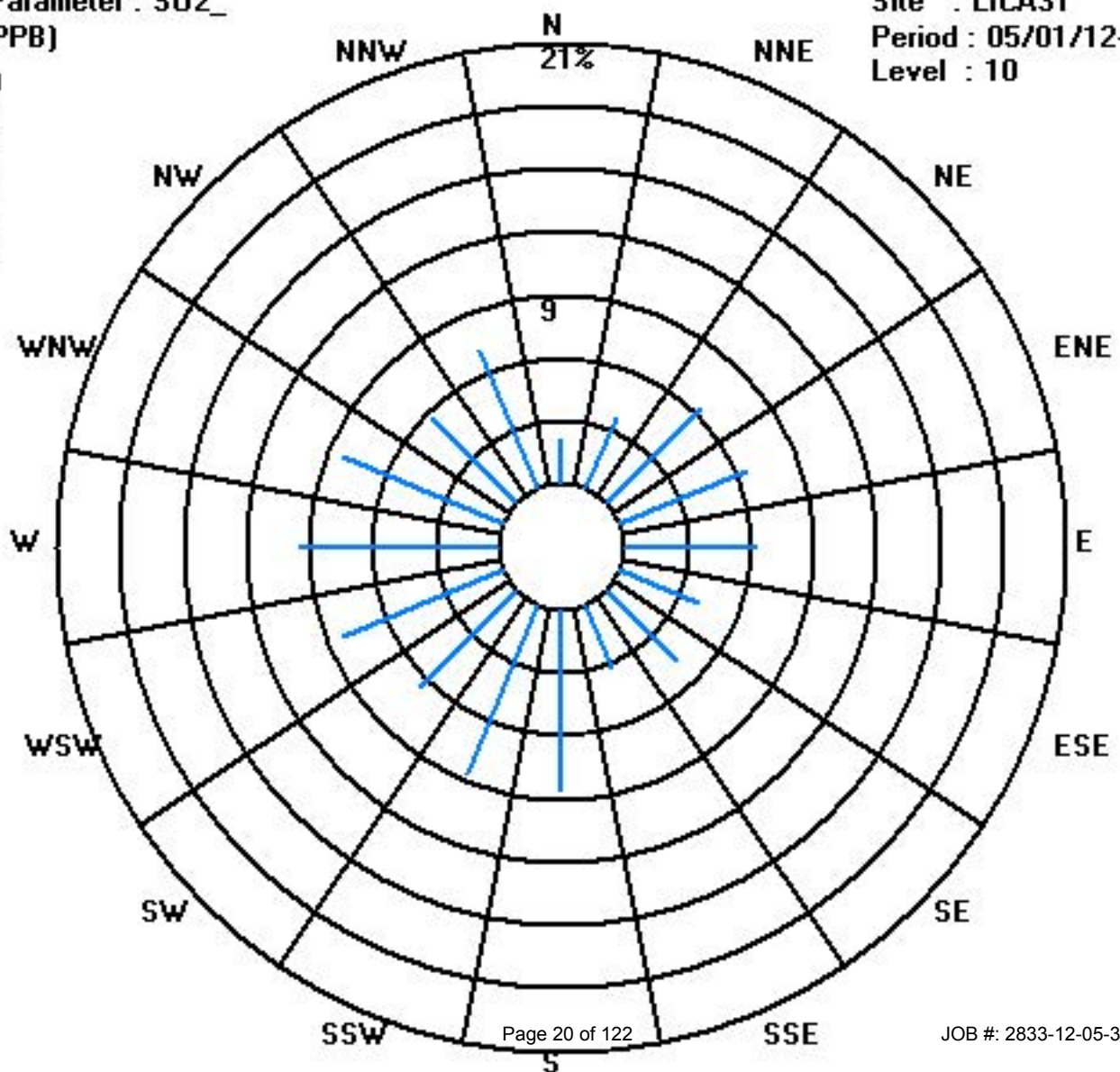
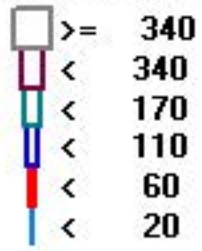
Calm : .00 %

Total # Operational Hours : 699

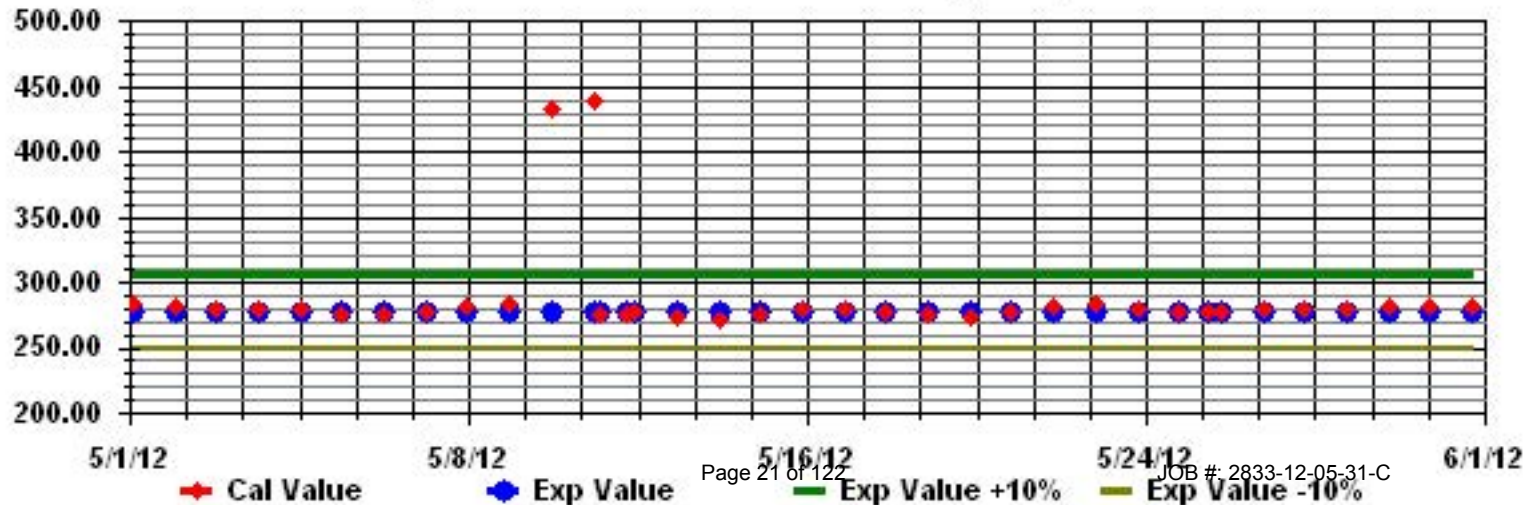
Class Limits (PPB)

Period : 05/01/12-05/31/12

Level : 10



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



Hydrogen Sulphide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 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	0:00	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	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	
2	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	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	IZS	0	1	0.1	24	
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	IZS	0	0	1	0.9	24		
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0.0	24		
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0.0	24		
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0.0	24		
8	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	IZS	IZS	0	0	0	0	0	0	0	1	0.3	24	
9	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	1	0.0	24	
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0.0	24	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	1	0	0	0	0	1	0.0	24	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	1	1	0	0	1	0.1	24	
14	0	1	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
15	0	0	0	0	0	0	0	0	1	1	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
16	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
17	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
18	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
19	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
20	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0.5	24	
21	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	0	1	0.2	24	
22	0	0	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	0.9	24	
23	1	1	IZS	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
24	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
25	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	0	0	0	0	0	0	0	IZS	0	0.0	23	
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	IZS	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	1	1	0.0	24	
31	0	1	1	1	1	1	1	1	1	0	1	1	0	1	0	0	1	1	IZS	1	1	1	1	1	1	1	1	0.8	24	
HOURLY MAX		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
HOURLY AVG		0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1				

STATUS FLAG CODES

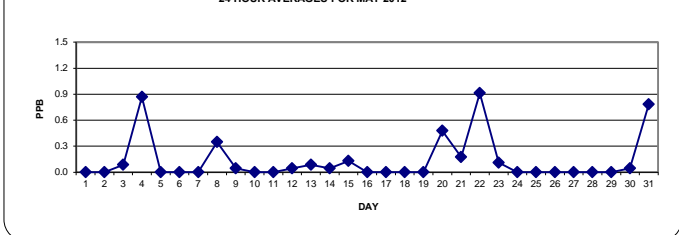
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

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

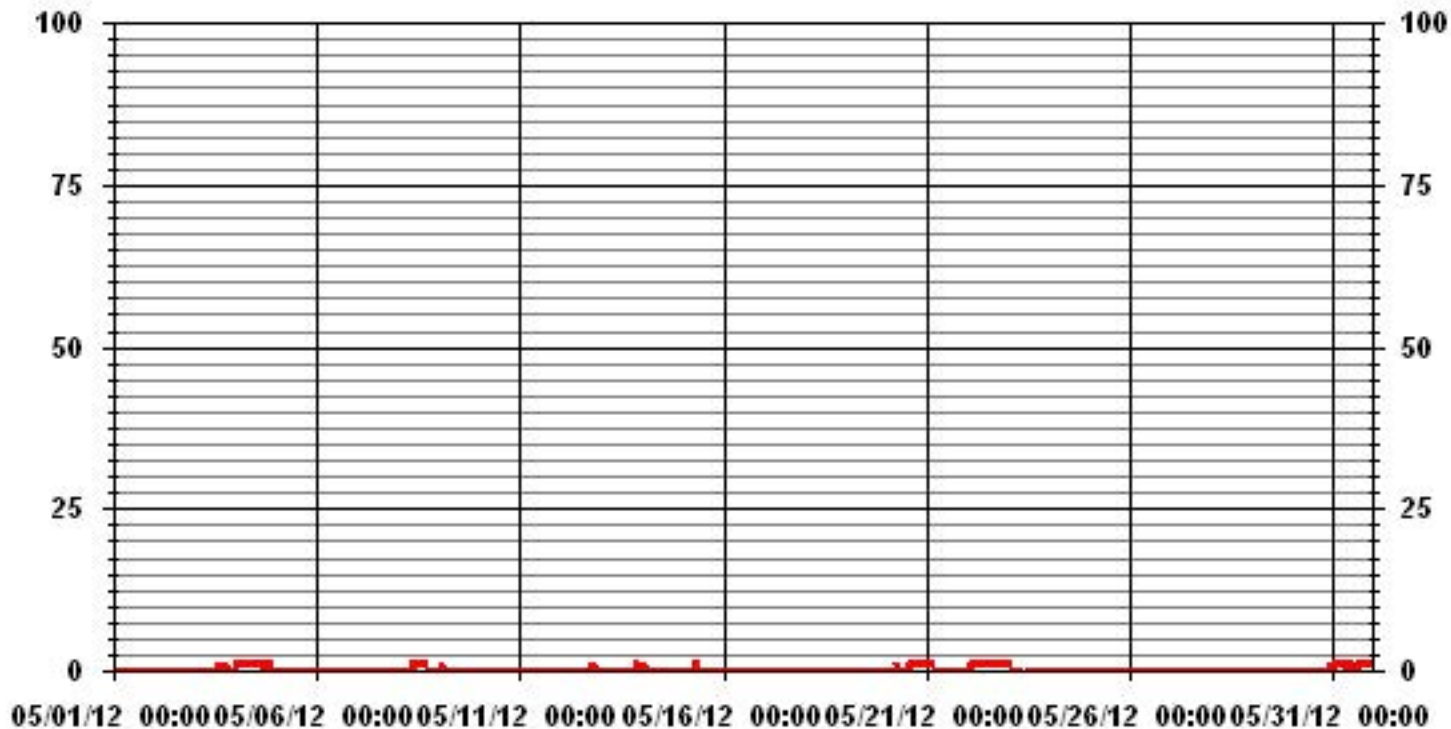
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	95
MAXIMUM 1-HR AVERAGE:	1 PPB @ HOUR(S) VAR ON DAY(S) VAR
MAXIMUM 24-HR AVERAGE:	0.9 PPB ON DAY(S) VAR-VARIOUS 4, 22
IZS CALIBRATION TIME:	33 HRS OPERATIONAL TIME: 743 HRS
MONTHLY CALIBRATION TIME:	5 HRS AMD OPERATION UPTIME: 99.9 %
STANDARD DEVIATION:	0.34 MONTHLY AVERAGE: 0.13 PPB

24 HOUR AVERAGES FOR MAY 2012



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

MAY 2012

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

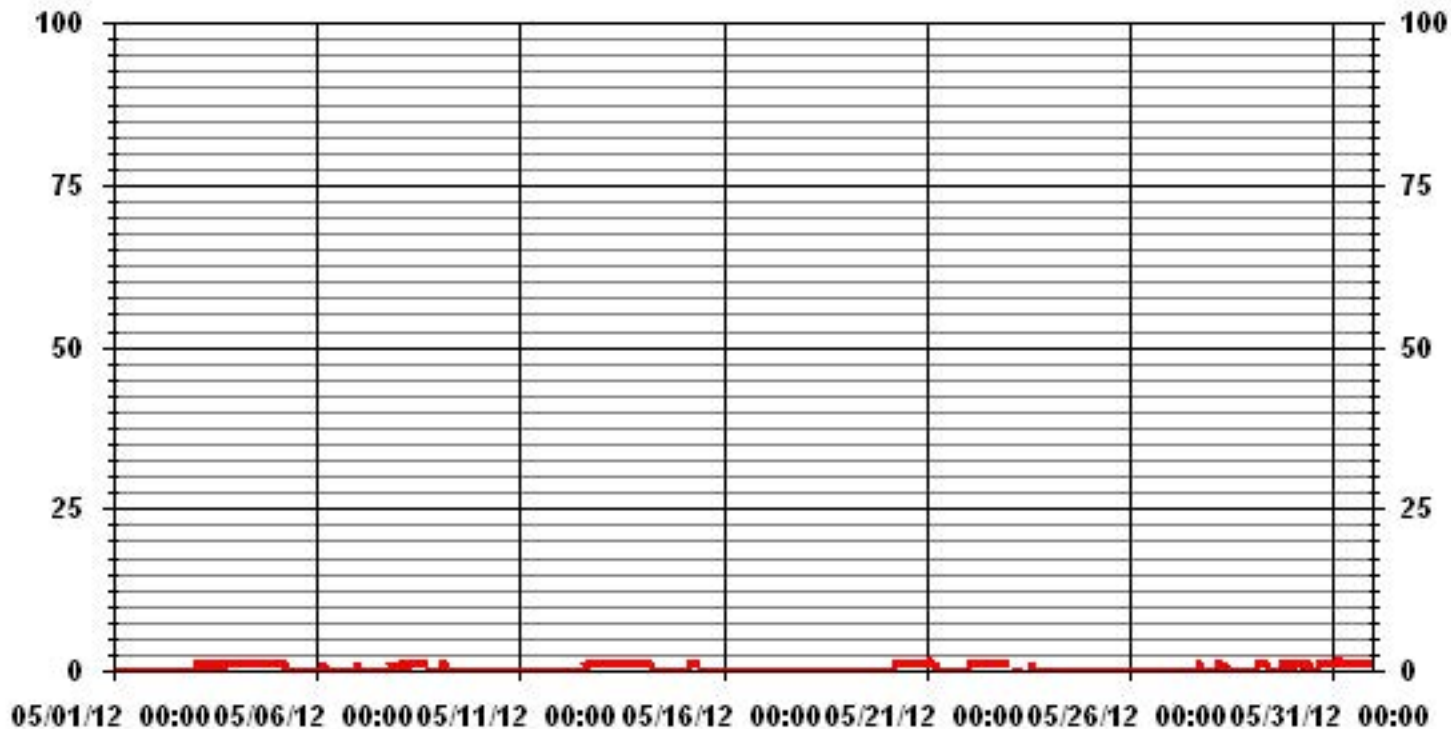
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	211					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	2, 3	ON DAY(S)	21, 31
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	739	HRS	
MONTHLY CALIBRATION TIME:	5	HRS				
STANDARD DEVIATION:	0.47					

01 Hour Averages



— LICA31 H2S MAX PPB

LICA31
H2S_ / WDR Joint Frequency Distribution (Percent)

May 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	2.27	3.84	5.84	6.55	6.26	3.98	4.98	3.27	8.68	8.68	6.55	8.40	9.54	8.26	5.69	7.12	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.27	3.84	5.84	6.55	6.26	3.98	4.98	3.27	8.68	8.68	6.55	8.40	9.54	8.26	5.69	7.12	

Calm : .00 %

Total # Operational Hours : 702

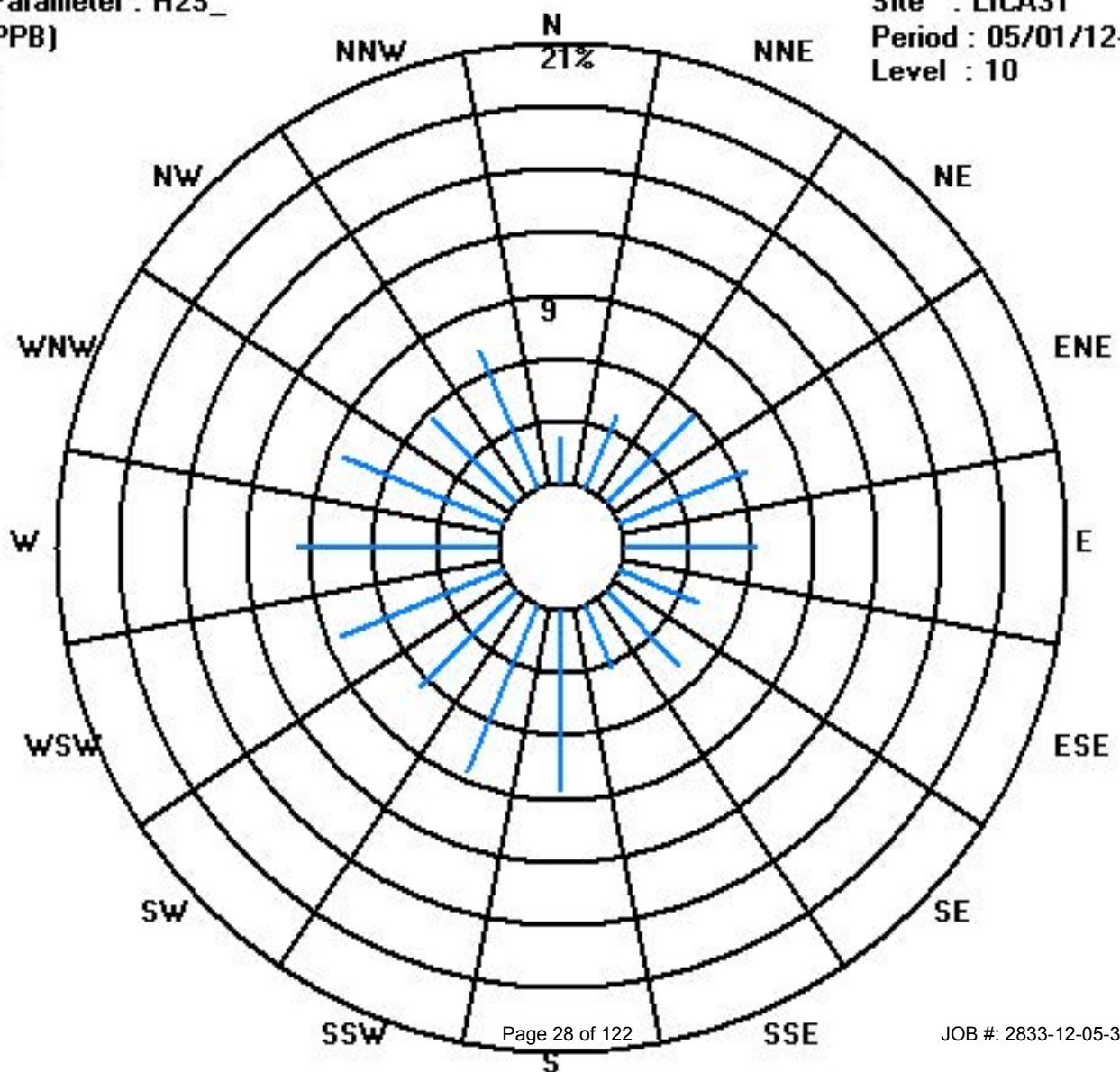
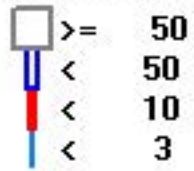
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	16	27	41	46	44	28	35	23	61	61	46	59	67	58	40	50	702
< 10																	
< 50																	
>= 50																	
Totals	16	27	41	46	44	28	35	23	61	61	46	59	67	58	40	50	

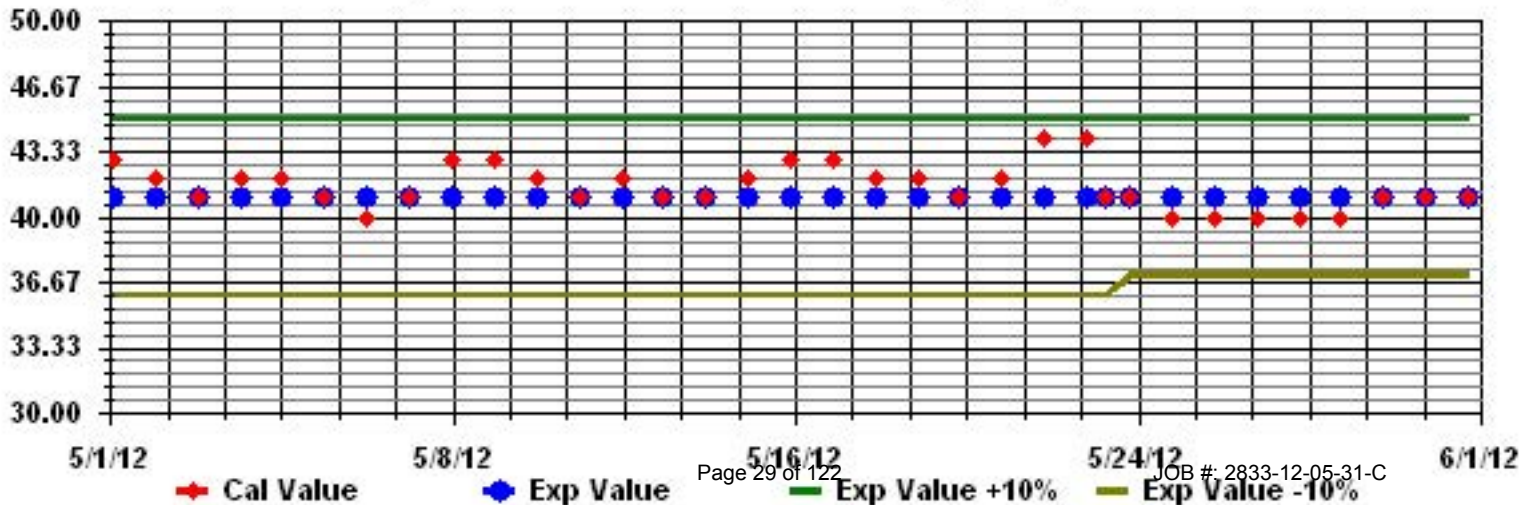
Calm : .00 %

Total # Operational Hours : 702

Class Limits (PPB)

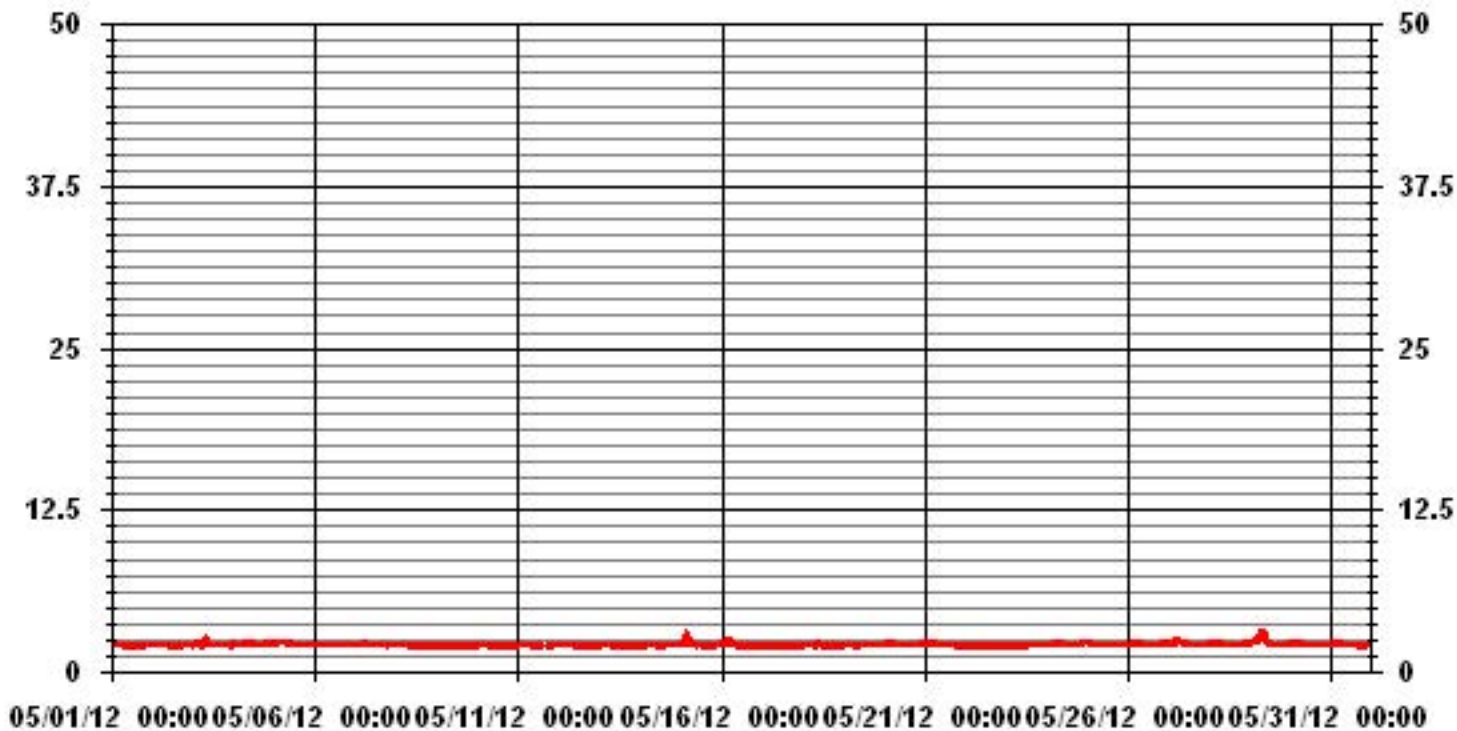


Calibration Graph for Site: LICA31 Parameter: H2S_ Sequence: H2S Phase: SPAll



Total Hydrocarbons

01 Hour Averages



— LICA31 THC PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 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	24:00	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	2.1	IZS	2.4	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	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.1	24	
2	IZS	2.1	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	2.3	2.2	2.2	2.3	2.3	IZS	2.3	2.2	24	
3	2.2	2.4	2.3	2.2	2.2	2.3	2.6	2.6	2.6	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	IZS	2.2	2.6	2.2	24
4	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	2.2	2.2	2.3	2.3	2.2	IZS	IZS	2.3	2.3	2.3	2.2	24
5	2.2	2.4	2.5	2.5	2.3	2.4	2.4	P	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.5	IZS	2.1	2.1	2.1	2.5	2.2	23	
6	2.3	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	IZS	2.2	2.2	2.2	2.2	2.3	2.1	24	
7	2.2	2.2	2.2	2.2	2.1	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	IZS	IZS	2.1	2.2	2.2	2.1	2.1	2.3	2.1	24	
8	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	IZS	2	2	2	2	2	2	2.2	2.0	24	
9	2	2.2	2.2	2.1	2	2	2	2	2	2	2	2	2	2	2	2	IZS	2	2	2	2.1	2.1	2.1	2.1	2.2	2.0	24	
10	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	24
11	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	M	C	2.4	2.1	2.1	2.2	2.2	2.1	2.4	2.1	23	
12	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	2.1	2	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	24
13	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	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	IZS	2.1	2.3	2.1	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.1	24	
15	2.2	2.4	2.7	3	2.9	2.6	2.4	2.3	2.2	2.2	IZS	2.1	2.1	2.1	2.1	2.1	M	2	2.1	2.1	2.1	2.2	2.2	2.2	3	2.3	23	
16	2.2	2.3	2.5	2.5	2.5	2.7	2.6	2.3	2.1	IZS	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.3	2.7	2.2	24
17	2.2	2.1	2.1	2	2.1	2.1	2	2	IZS	2	2	2.1	2.1	2.1	2	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	24
18	2.1	2.1	2.2	2.1	2.3	2.2	2.1	IZS	2.2	2.3	2.3	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	2.3	2.1	24
19	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	2.1	24
20	2.1	2.1	2.2	2.2	2.2	IZS	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.3	2.3	2.4	2.4	2.2	24	
21	2.4	2.3	2.3	2.3	IZS	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	2.1	2.1	2.4	2.2	24	
22	2.1	2.1	2.1	IZS	2.1	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.0	24	
23	P	2.1	IZS	2	P	2	2	2	2	2	2	C	C	C	C	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.1	22	
24	2.1	IZS	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.2	24	
25	IZS	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.1	2.2	2.2	2.1	2.2	2.2	2.1	2.2	M	2.2	2.2	2.2	2.1	2.2	2.2	IZS	2.3	2.2	23	
26	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	IZS	2.2	2.3	2.2	24	
27	2.2	2.2	2.2	2.3	2.4	2.5	2.5	2.4	2.5	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	IZS	2.1	2.1	2.5	2.3	24	
28	2.5	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.1	IZS	2.2	2.2	2.2	2.5	2.2	24	
29	2.4	2.4	2.3	2.5	2.7	5.1	2.8	4.4	4.7	2.7	2.5	2.3	2.2	2.2	2.1	2.2	2.1	2.1	2.1	IZS	2.1	2.2	2.2	5.1	2.6	24		
30	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	IZS	2.1	2.1	2.1	2.2	2.2	2.2	2.1	24	
31	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.4	2.3	2.2	2.2	2.1	2.4	2.1	2.3	2.1	2.1	IZS	2.1	2	2.1	2.1	2.1	2.1	2.4	2.2	24	
HOURLY MAX	2.5	2.4	2.7	3.0	2.9	5.1	2.8	4.4	4.7	2.7	2.5	2.3	2.4	2.3	2.3	2.2	2.3	2.3	2.4	2.5	2.2	2.3	2.3	2.4				
HOURLY AVG	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2				

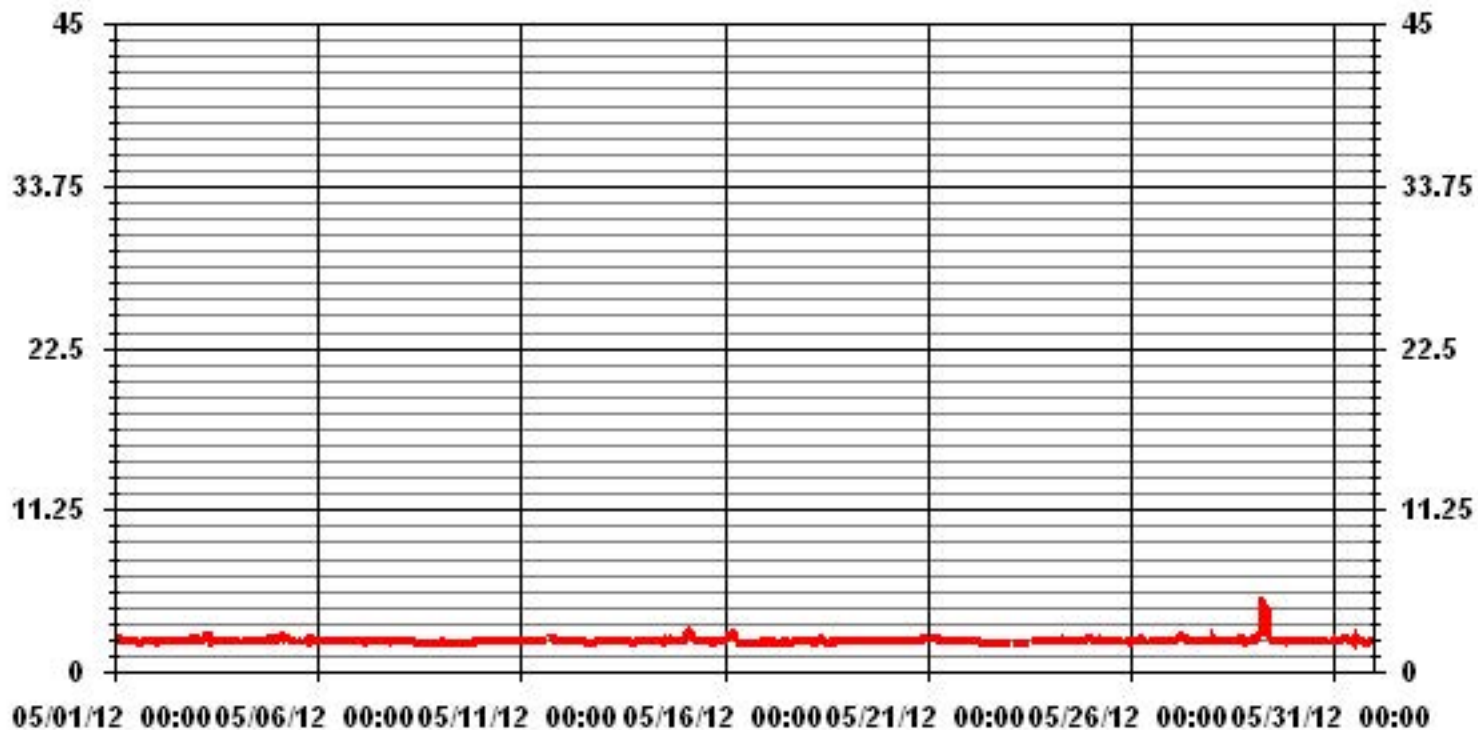
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	699					
MAXIMUM INSTANTANEOUS VALUE:	5.1	PPM	@ HOUR(S)	5	ON DAY(S)	29
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	738	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.21					

01 Hour Averages



— LICA31 THCMAX PPM

LICA31
 THC / WDR Joint Frequency Distribution (Percent)

May 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	2.13	3.28	6.41	6.56	6.13	3.85	4.99	3.28	8.70	8.70	6.56	8.41	9.55	8.27	5.70	7.13	99.71
< 10.0	.00	.00	.00	.00	.14	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.28
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.13	3.28	6.41	6.56	6.27	3.99	4.99	3.28	8.70	8.70	6.56	8.41	9.55	8.27	5.70	7.13	

Calm : .00 %

Total # Operational Hours : 701

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	15	23	45	46	43	27	35	23	61	61	46	59	67	58	40	50	699
< 10.0					1	1											2
< 50.0																	
>= 50.0																	
Totals	15	23	45	46	44	28	35	23	61	61	46	59	67	58	40	50	

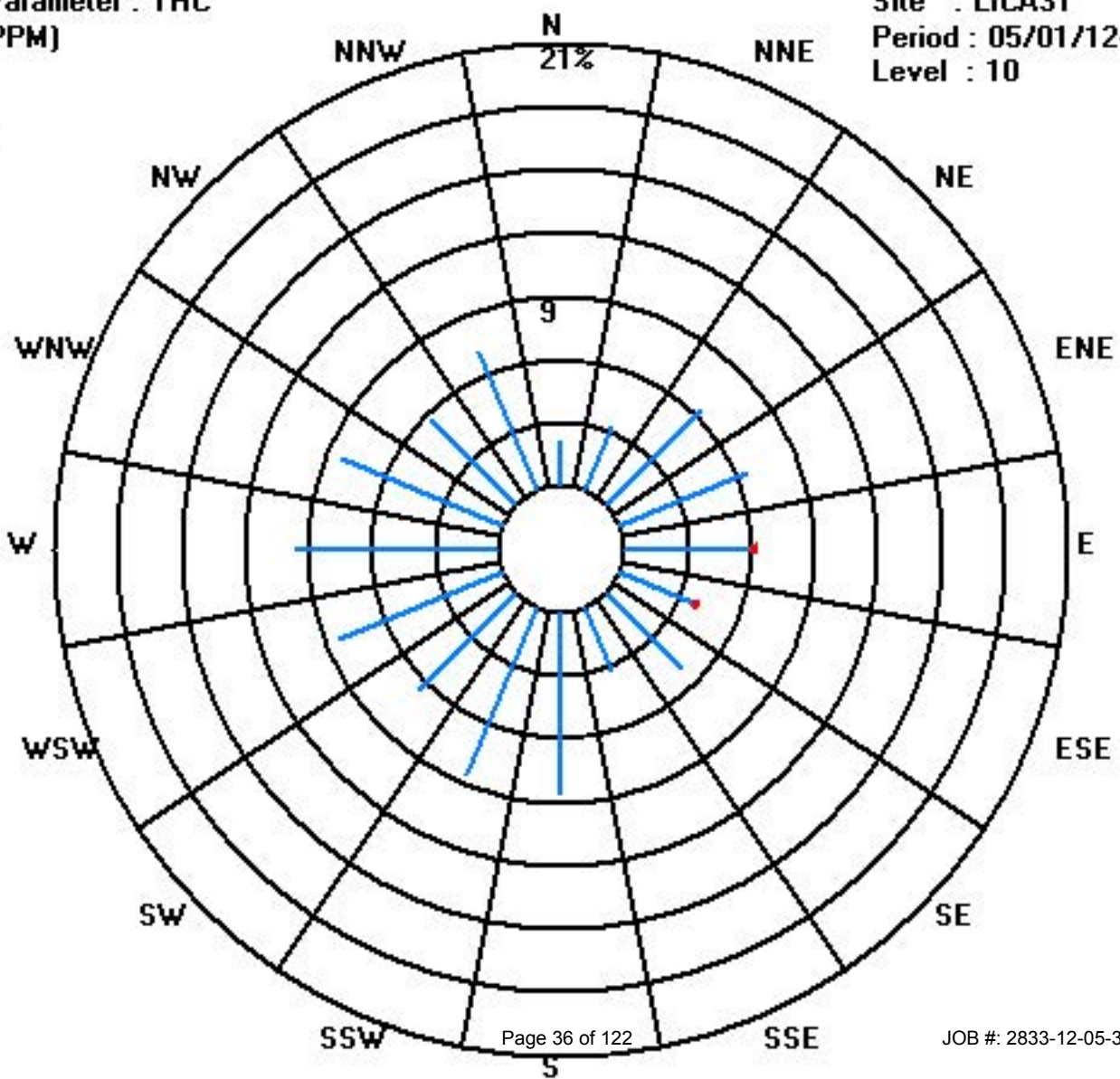
Calm : .00 %

Total # Operational Hours : 701

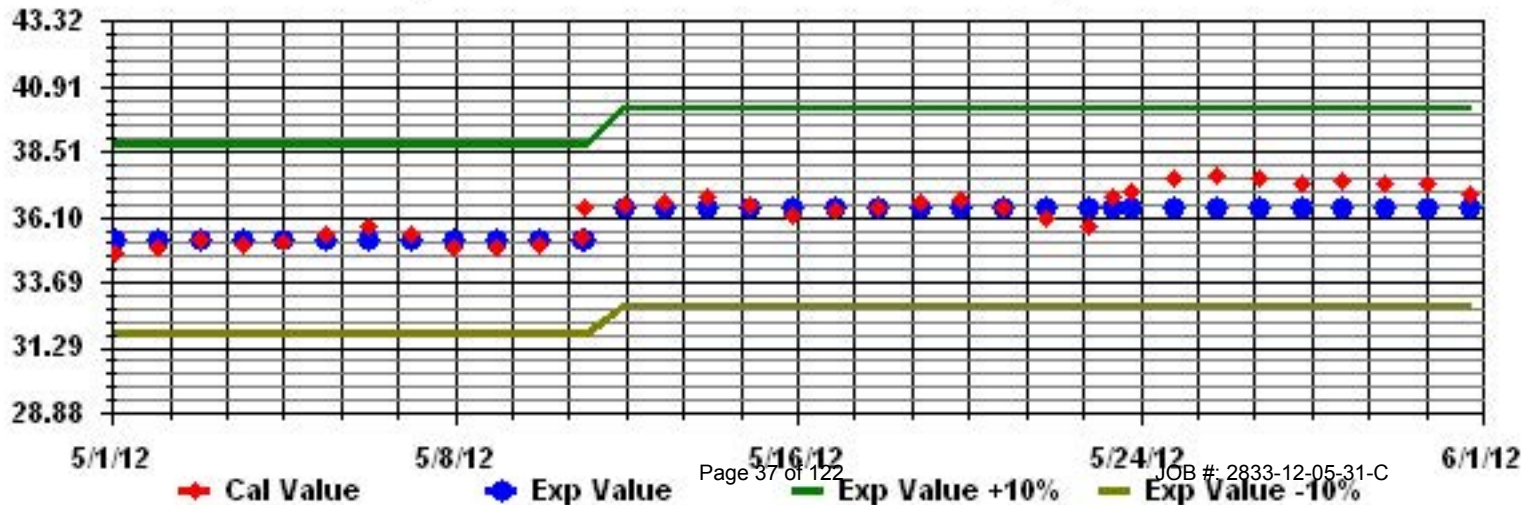
Class Limits (PPM)

Period : 05/01/12-05/31/12

Level : 10



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 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	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	34	IZS	31	29	27	26	26	26	26	27	29	32	36	39	40	39	40	39	37	36	34	33	30	29	40	32.4	24	
2	IZS	26	25	26	28	27	30	31	34	37	40	41	40	41	41	42	42	43	43	43	42	40	38	IZS	43	36.4	24	
3	38	34	32	29	29	29	22	26	34	36	37	38	38	37	36	37	39	38	38	37	36	35	IZS	33	39	34.3	24	
4	32	32	30	27	27	27	26	26	25	25	26	25	25	24	27	28	31	28	29	24	21	IZS	17	13	32	25.9	24	
5	10	11	13	13	13	13	12	15	22	25	24	25	37	39	39	42	48	49	48	47	IZS	43	42	43	49	29.3	24	
6	40	42	37	37	39	41	41	41	42	44	46	47	48	48	50	49	50	50	52	IZS	50	49	49	49	52	45.3	24	
7	47	47	49	49	47	42	34	40	44	50	52	53	53	54	54	55	56	58	IZS	55	52	51	50	48	58	49.6	24	
8	46	45	44	44	43	43	43	44	49	51	51	52	50	47	46	47	47	IZS	47	45	45	41	39	37	52	45.5	24	
9	36	39	35	41	48	50	54	56	57	57	57	58	58	56	55	55	IZS	53	51	50	48	46	43	42	58	49.8	24	
10	41	40	40	40	40	38	37	38	41	41	42	42	43	43	43	IZS	42	43	43	43	41	40	39	37	43	40.7	24	
11	35	35	34	33	35	36	37	40	41	42	43	44	44	45	IZS	45	44	44	C	44	42	41	39	39	45	40.1	24	
12	41	41	40	39	38	36	36	39	C	44	46	47	48	IZS	50	50	51	51	50	50	48	48	49	47	51	45.0	24	
13	46	46	46	44	44	44	41	46	49	54	54	54	IZS	52	53	54	55	54	52	50	49	49	48	49	55	49.3	24	
14	48	49	48	47	49	48	48	48	47	45	45	IZS	45	46	48	51	52	51	47	45	45	45	43	41	52	47.0	24	
15	41	40	35	32	32	32	34	35	37	40	IZS	45	47	50	52	52	52	53	52	49	47	44	42	41	53	42.8	24	
16	40	38	35	31	32	32	32	37	38	IZS	44	48	49	50	51	50	49	50	50	48	44	37	35	34	51	41.5	24	
17	38	47	48	50	49	47	47	48	IZS	48	49	49	49	49	50	50	50	50	48	46	46	44	42	41	50	47.2	24	
18	40	38	34	32	30	30	39	IZS	35	31	33	36	38	42	42	43	40	41	41	40	35	38	37	33	43	36.9	24	
19	27	27	28	28	27	28	IZS	30	30	33	35	35	36	36	35	35	35	35	35	34	33	32	29	30	36	31.9	24	
20	31	30	27	24	24	IZS	22	26	33	37	40	41	43	43	45	47	49	49	46	45	41	37	35	33	49	36.9	24	
21	33	33	30	28	IZS	28	27	30	32	39	42	43	48	48	48	47	49	49	48	44	38	38	39	39	49	39.1	24	
22	37	33	32	IZS	28	26	27	25	25	25	26	27	26	26	27	28	31	29	30	32	33	33	32	33	37	29.2	24	
23	32	33	IZS	33	33	33	35	37	37	39	40	39	42	39	37	34	36	35	43	43	40	36	35	31	43	36.6	24	
24	28	IZS	32	31	30	29	29	30	34	39	40	42	43	43	42	42	42	42	41	39	40	40	37	34	43	36.9	24	
25	IZS	30	36	38	38	38	31	34	37	38	39	43	C	C	C	C	C	44	42	41	41	39	38	IZS	44	38.1	24	
26	34	31	32	32	31	26	25	26	31	42	47	47	50	51	51	51	50	49	49	47	44	43	IZS	40	51	40.4	24	
27	38	38	37	36	34	33	35	36	39	45	46	48	48	48	48	48	48	49	48	46	44	IZS	47	48	49	42.9	24	
28	39	29	26	24	23	22	21	24	32	42	43	44	45	47	47	46	46	45	45	43	IZS	41	42	43	47	37.3	24	
29	43	45	45	43	37	35	33	32	35	40	45	49	50	51	52	51	51	51	51	IZS	47	45	44	42	52	44.2	24	
30	41	40	40	38	37	37	37	41	46	48	47	48	48	52	54	55	52	51	IZS	49	47	44	42	40	55	44.5	24	
31	37	33	29	24	23	19	20	28	36	39	41	46	46	45	44	44	45	IZS	46	45	43	41	39	37	46	37.0	24	
HOURLY MAX	48	49	49	50	49	50	54	56	57	57	57	58	58	56	55	55	56	58	52	55	52	51	50	49				
HOURLY AVG	37.0	36.3	35.0	34.1	33.8	33.2	32.7	34.4	36.7	40.0	41.7	42.9	43.9	44.5	45.1	45.4	45.6	45.6	44.7	43.4	41.9	41.1	39.3	38.1				

STATUS FLAG CODES

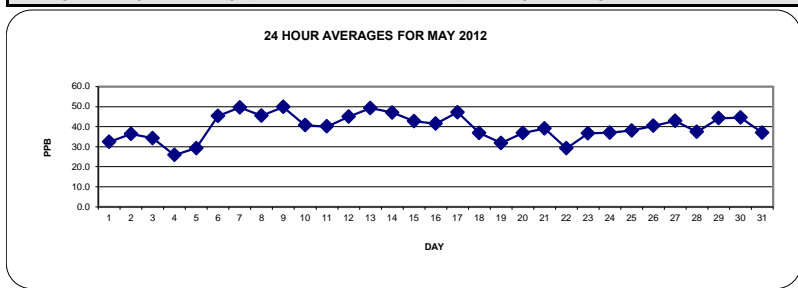
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

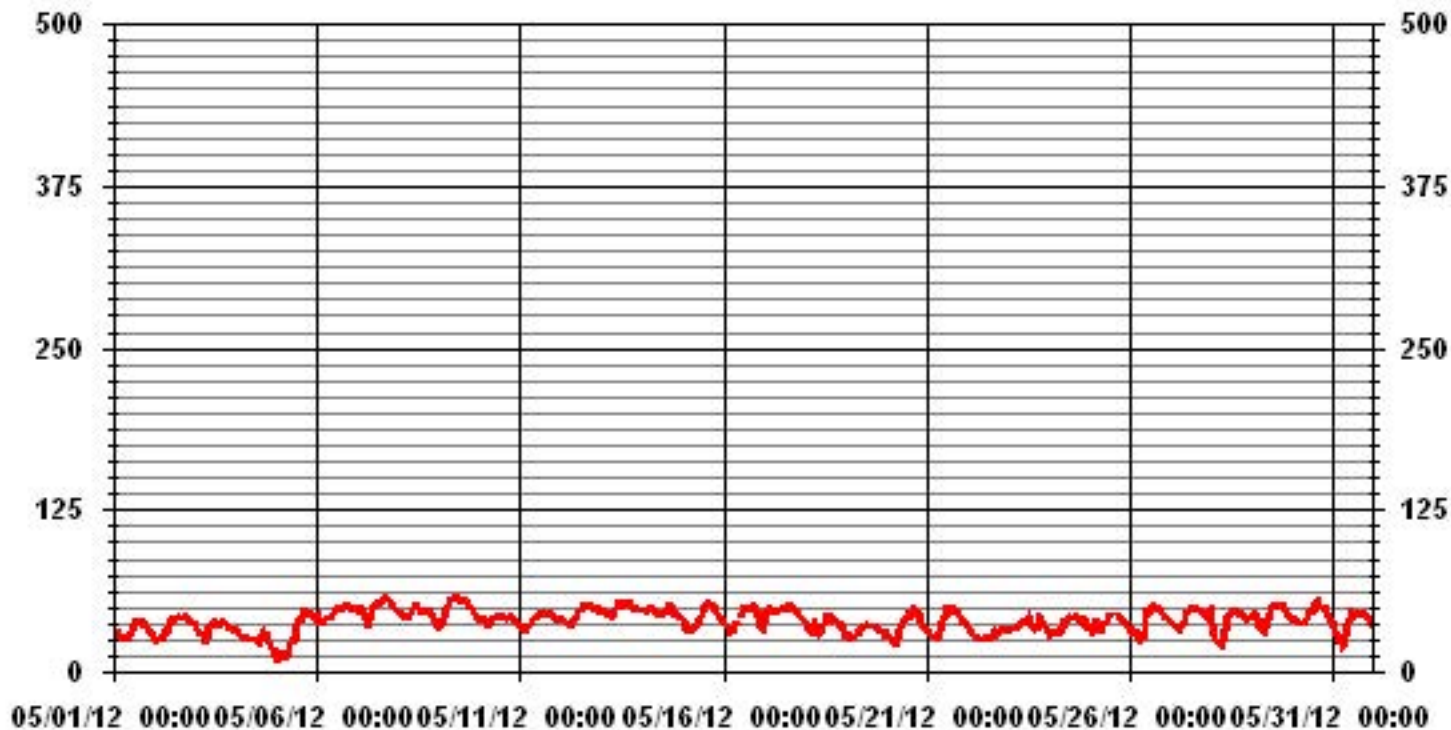
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	704				
MAXIMUM 1-HR AVERAGE:	58	PPB	@ HOUR(S)	VAR	ON DAY(S) 7, 9
MAXIMUM 24-HR AVERAGE:	49.8	PPB			ON DAY(S) 9
					VAR-VARIOUS
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	7	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	8.74		MONTHLY AVERAGE:	39.8	PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 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	35	IZS	33	30	28	27	26	28	28	28	30	34	37	41	41	40	41	41	40	38	35	33	32	30	41	33.7	24	
2	IZS	28	26	28	29	28	32	32	36	40	41	41	41	42	42	42	43	44	44	44	43	41	38	IZS	44	37.5	24	
3	38	37	34	30	30	31	26	27	37	38	39	39	39	38	37	38	39	39	39	38	37	35	IZS	34	39	35.6	24	
4	33	32	31	28	28	27	27	26	26	26	26	26	28	27	28	29	34	29	31	24	28	IZS	21	14	34	27.3	24	
5	11	13	13	13	15	15	13	P	24	28	28	28	39	40	41	46	50	51	50	48	IZS	43	44	45	51	31.7	23	
6	43	45	38	38	40	42	42	42	43	45	47	48	49	49	51	51	52	51	53	IZS	50	50	50	50	49	53	46.4	24
7	48	48	49	49	48	48	38	43	49	52	53	53	54	54	55	56	58	58	IZS	57	53	52	50	49	58	51.0	24	
8	47	46	45	44	44	43	43	47	51	52	52	52	52	48	47	47	48	IZS	47	46	46	43	39	38	52	46.4	24	
9	37	43	37	46	50	52	56	57	58	57	57	59	58	57	56	56	IZS	54	52	50	49	47	44	43	59	51.1	24	
10	42	41	41	40	41	39	37	41	42	42	43	43	44	45	44	IZS	43	44	43	44	42	41	39	38	45	41.7	24	
11	36	36	36	34	35	37	38	41	42	43	44	44	45	45	IZS	45	45	45	C	44	43	42	40	40	45	40.9	24	
12	41	41	42	40	38	37	37	41	C	C	47	48	48	IZS	50	51	52	51	51	50	49	49	49	48	52	45.7	24	
13	46	46	46	45	44	44	44	48	51	55	55	54	IZS	52	54	55	56	55	54	51	50	50	49	49	56	50.1	24	
14	49	49	48	47	49	48	48	48	49	46	45	IZS	45	115	50	53	M	53	50	46	45	46	45	42	115	50.7	23	
15	42	41	38	33	32	33	34	36	38	42	IZS	47	48	52	52	52	53	54	53	51	48	44	43	41	54	43.8	24	
16	41	40	37	32	33	33	35	38	40	IZS	46	49	50	51	51	51	50	51	51	49	47	43	37	39	51	43.2	24	
17	44	49	49	51	51	48	49	49	IZS	49	50	50	50	50	50	51	51	51	50	48	47	46	45	42	51	48.7	24	
18	40	39	36	33	31	34	42	IZS	39	37	41	40	42	43	44	44	42	42	43	42	40	40	39	36	44	39.5	24	
19	29	29	30	30	28	31	IZS	31	33	36	37	36	37	36	35	36	36	36	36	34	33	33	31	31	37	33.2	24	
20	32	32	30	25	27	IZS	27	29	38	39	41	43	43	45	47	50	50	50	49	46	44	39	36	35	50	39.0	24	
21	33	35	32	30	IZS	29	28	32	36	41	45	45	50	50	49	49	51	50	49	46	39	38	41	40	51	40.8	24	
22	39	36	33	IZS	29	27	27	27	25	26	28	27	27	27	28	29	32	31	32	33	34	33	33	34	39	30.3	24	
23	P	34	IZS	34	P	34	37	37	38	42	42	43	44	42	39	36	38	41	50	46	42	38	37	33	50	39.4	22	
24	29	IZS	33	33	31	30	31	32	38	40	42	43	44	45	43	43	43	42	42	41	41	40	40	36	45	38.3	24	
25	IZS	31	39	39	40	39	35	38	39	40	41	45	C	C	C	C	C	46	43	43	42	41	39	IZS	46	40.0	24	
26	35	33	33	33	33	28	27	29	34	49	49	50	52	52	52	52	51	51	50	49	45	44	IZS	41	52	42.3	24	
27	39	38	38	37	35	34	38	40	44	46	48	49	49	49	50	49	49	50	50	47	45	IZS	48	48	50	44.3	24	
28	48	33	27	25	25	23	23	28	40	45	44	46	47	48	48	47	47	47	47	45	IZS	42	43	43	48	39.6	24	
29	45	46	46	44	41	36	35	33	41	44	48	51	51	52	53	53	52	52	52	IZS	48	46	45	43	53	46.0	24	
30	41	41	41	40	39	39	39	38	44	49	49	49	50	55	55	56	56	53	IZS	51	50	46	44	42	56	46.4	24	
31	39	36	33	26	25	454	24	32	39	40	44	48	47	46	47	45	46	IZS	47	47	44	42	40	38	454	57.8	24	
HOURLY MAX	49	49	49	51	51	454	56	57	58	57	57	59	58	115	56	56	58	58	54	57	53	52	50	49				
HOURLY AVG	38.6	37.9	36.5	35.2	35.1	49.0	34.6	36.9	39.4	42.0	43.4	44.3	45.2	48.1	46.2	46.6	46.7	47.0	46.4	44.8	43.4	42.3	40.7	39.3				

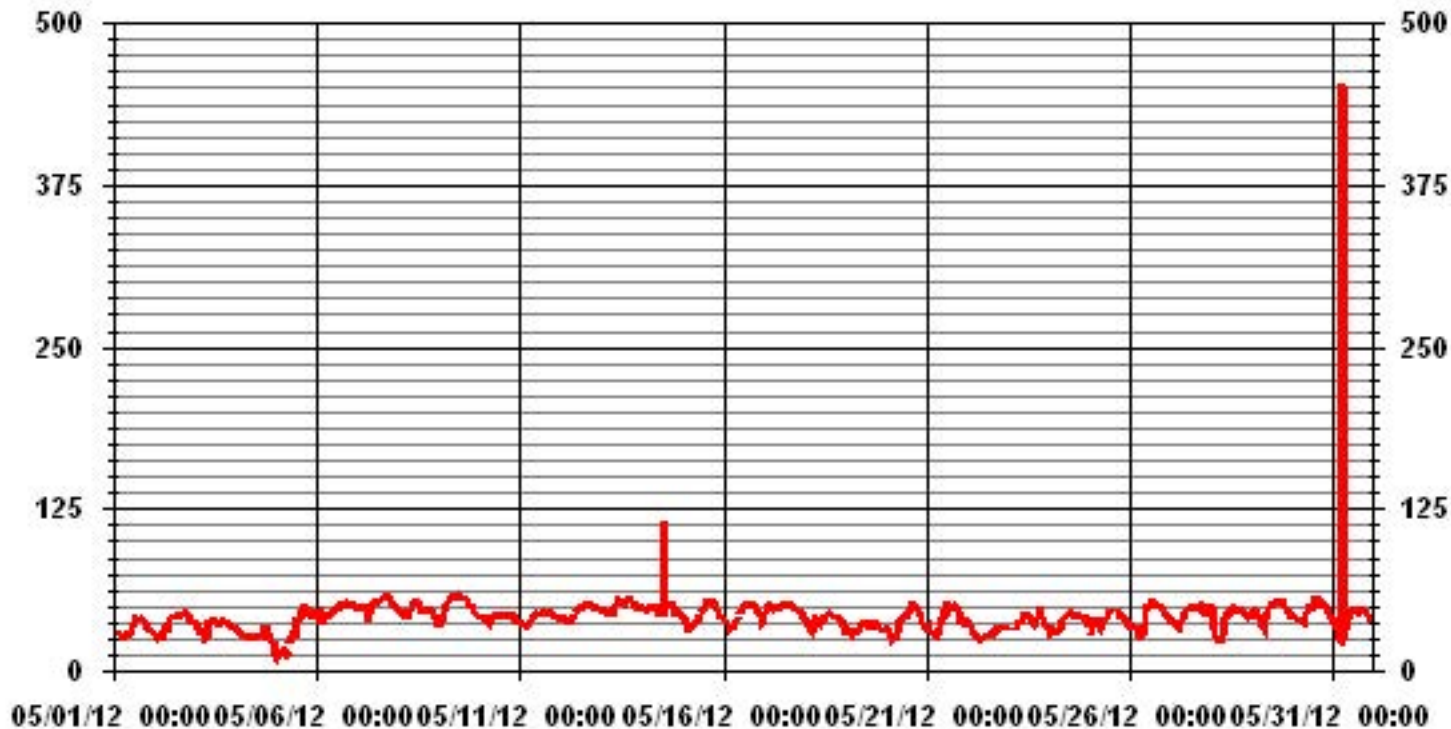
STATUS FLAG CODES

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:	699					
MAXIMUM INSTANTANEOUS VALUE:	454	PPB	@ HOUR(S)	5	ON DAY(S)	31
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	740	HRS	
MONTHLY CALIBRATION TIME:	8	HRS				
STANDARD DEVIATION:	17.96					

01 Hour Averages



LICA31
O3_ / WDR Joint Frequency Distribution (Percent)

May 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	2.28	3.56	5.70	6.41	6.13	3.99	3.56	2.99	7.70	7.70	5.42	6.56	8.41	7.41	4.70	5.27	87.87	
< 110	.00	.28	.57	.14	.14	.00	1.14	.28	.99	.99	1.14	1.71	.99	.85	.99	1.85	12.12	
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	2.28	3.85	6.27	6.56	6.27	3.99	4.70	3.28	8.70	8.70	6.56	8.27	9.41	8.27	5.70	7.13		

Calm : .00 %

Total # Operational Hours : 701

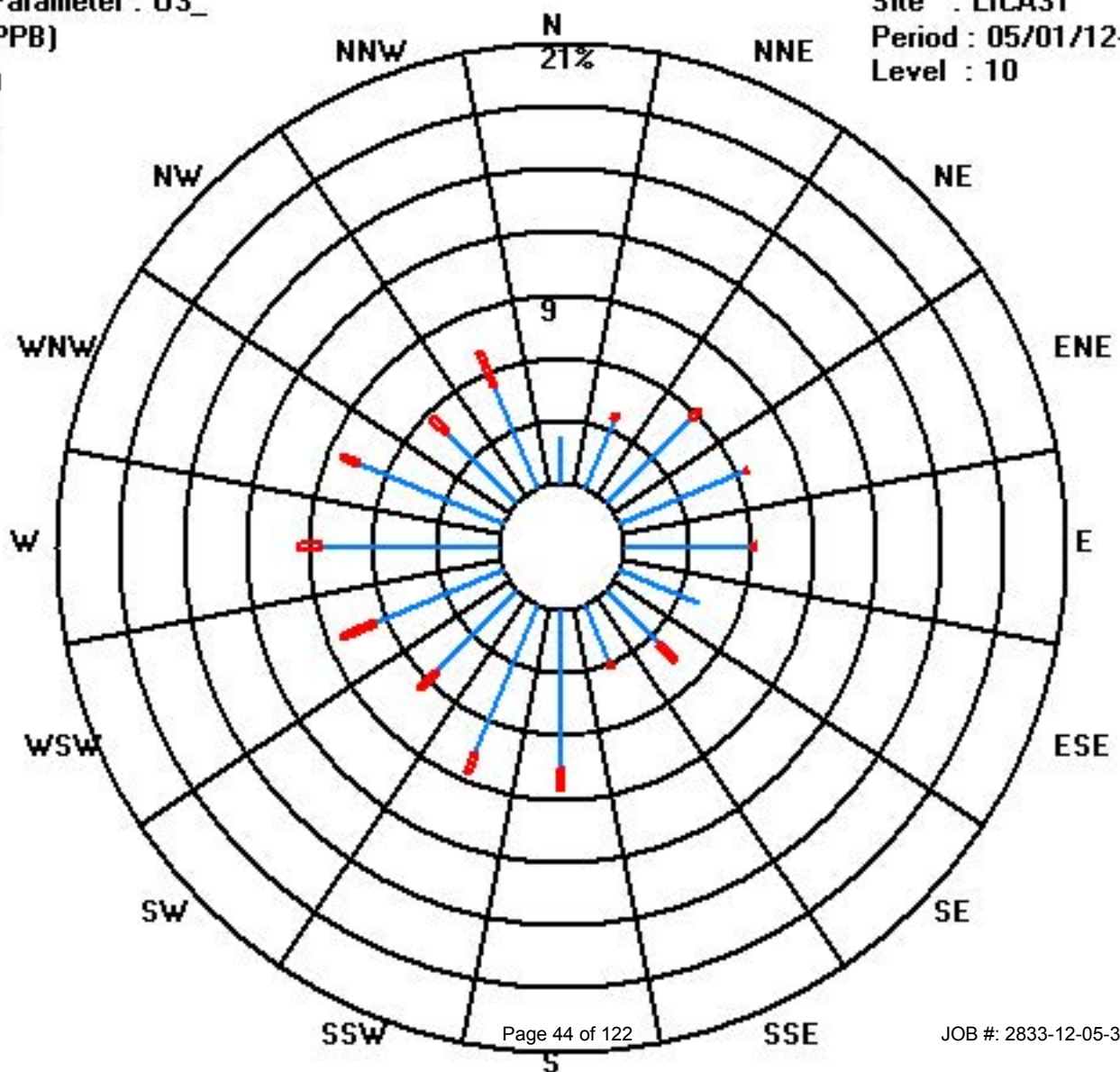
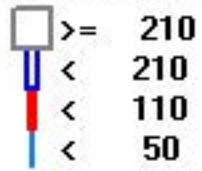
Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50	16	25	40	45	43	28	25	21	54	54	38	46	59	52	33	37	616	
< 110		2	4	1	1		8	2	7	7	8	12	7	6	7	13	85	
< 210																		
>= 210																		
Totals	16	27	44	46	44	28	33	23	61	61	46	58	66	58	40	50		

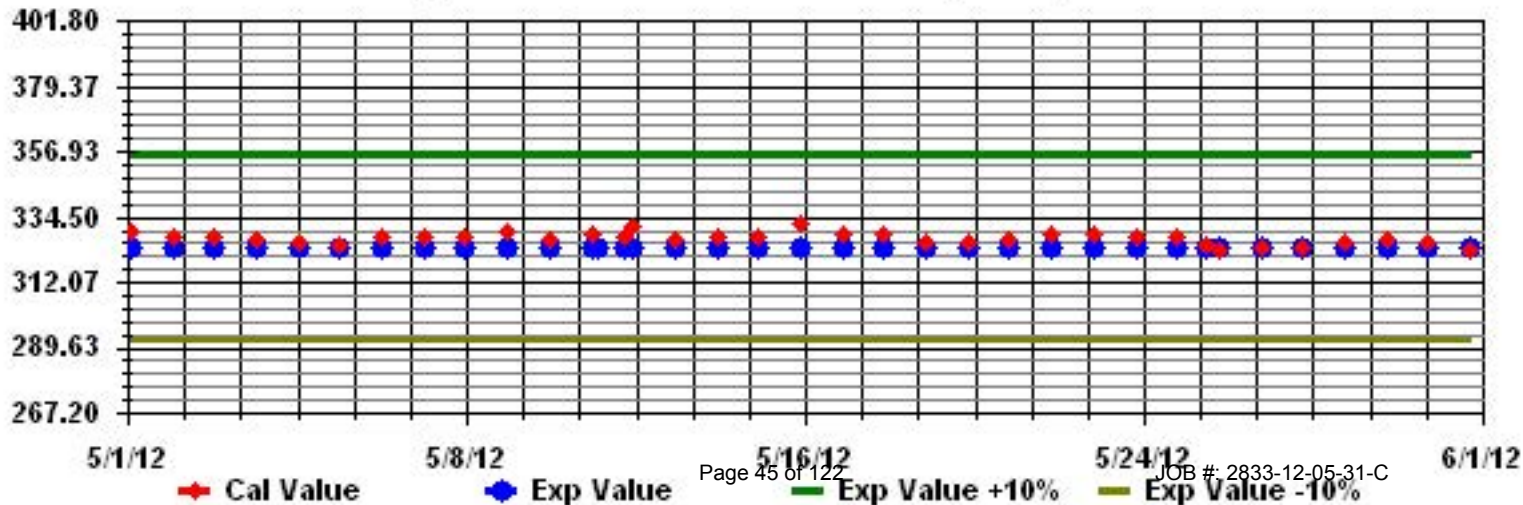
Calm : .00 %

Total # Operational Hours : 701

Class Limits (PPB)



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



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

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

STATUS FLAG CODES

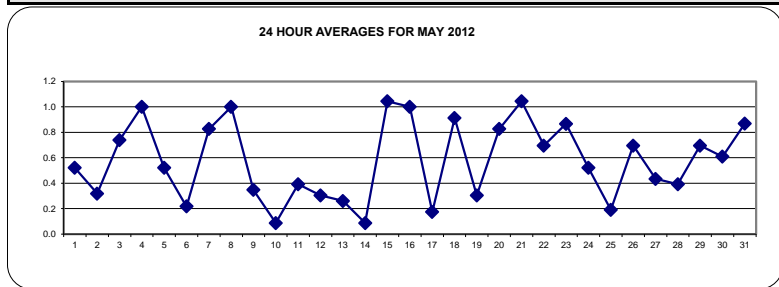
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MAINTENANCE
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

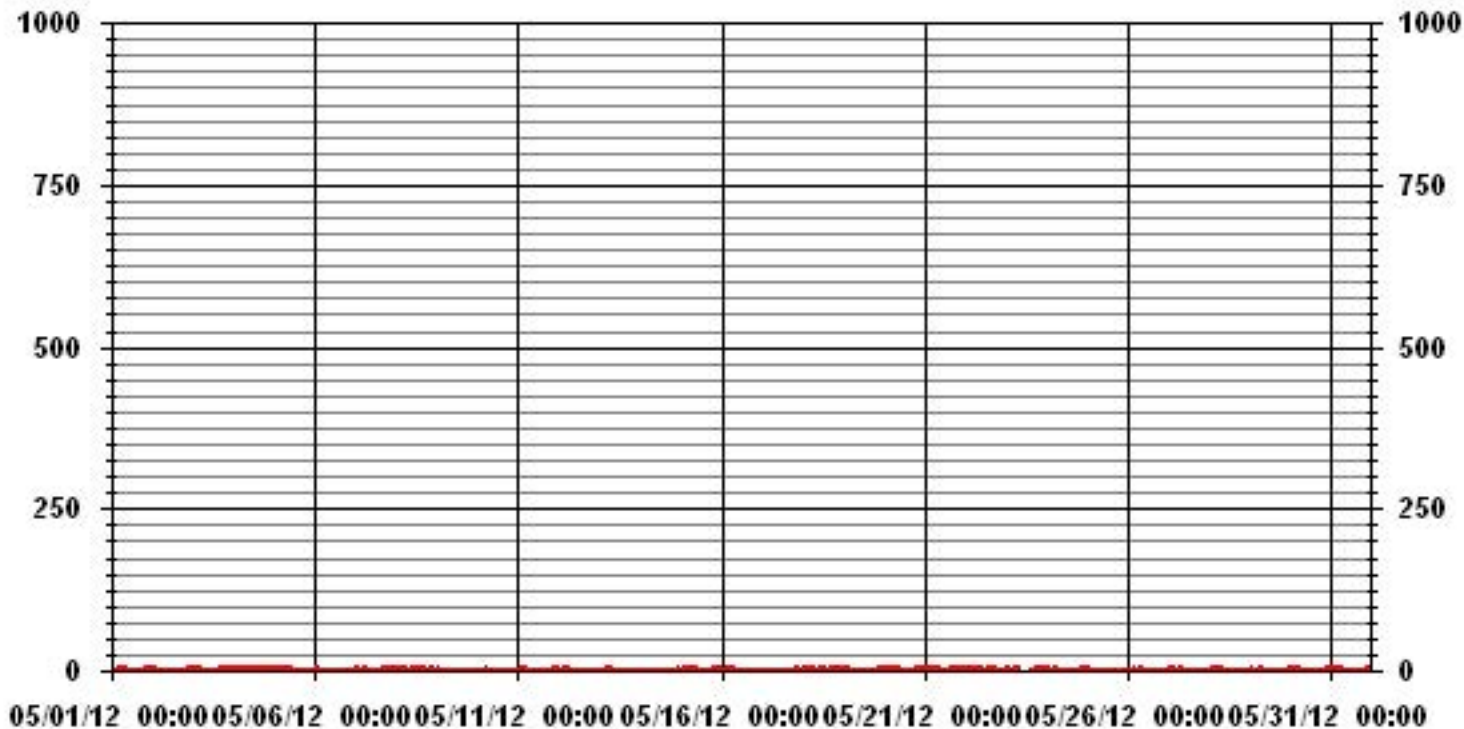
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	344					
MAXIMUM 1-HR AVERAGE:	5	PPB	@ HOUR(S)	5	ON DAY(S)	16
MAXIMUM 24-HR AVERAGE:	1.0	PPB			ON DAY(S)	VAR
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.68		MONTHLY AVERAGE:	0.58	PPB	



01 Hour Averages



— LICA31 IIO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 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 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	IZS	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	2	1.3	24	
2	IZS	1	1	2	1	1	1	1	1	1	1	1	1	1	18	1	1	1	1	1	2	2	2	IZS	18	2.0	24	
3	1	1	2	2	2	2	2	3	3	1	1	1	1	1	1	1	1	1	2	1	2	2	IZS	1	3	1.5	24	
4	1	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	IZS	2	2	3	1.9	24	
5	2	2	2	2	2	2	2	P	2	1	2	2	1	2	1	1	1	1	1	1	IZS	1	1	1	2	1.5	23	
6	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	3	1	1	3	1.1	24
7	2	2	2	1	2	3	6	3	4	1	1	1	2	1	3	2	1	2	IZS	2	2	2	2	2	6	2.1	24	
8	2	2	2	2	1	2	2	2	2	2	2	2	2	2	10	1	3	IZS	1	2	1	2	2	2	10	2.2	24	
9	2	2	3	1	1	1	1	1	1	2	1	1	1	1	1	1	IZS	1	1	2	1	2	1	1	3	1.3	24	
10	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	IZS	1	6	1	1	1	1	1	1	6	1.3	24	
11	2	1	1	2	1	1	1	1	1	1	1	1	1	1	IZS	0	1	1	1	1	2	3	1	2	3	1.2	24	
12	2	1	1	1	1	2	2	1	1	1	1	1	1	IZS	0	1	1	1	1	1	2	1	1	1	2	1.1	24	
13	1	1	1	1	2	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	3	1	2	1	3	1.2	24	
14	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	1	1	1	2	2	1	1	2	2	2	1.2	24	
15	2	2	3	4	4	3	2	2	2	2	IZS	1	1	1	1	1	M	1	3	2	3	2	2	2	4	2.1	23	
16	2	2	4	5	5	6	5	3	3	IZS	1	1	0	1	1	1	1	0	0	0	0	1	1	0	6	1.9	24	
17	1	0	0	0	1	0	0	1	IZS	1	10	1	1	1	1	2	2	2	1	3	1	2	2	1	10	1.5	24	
18	2	2	2	2	2	2	1	IZS	1	2	2	2	3	2	3	1	3	1	2	4	5	2	2	2	5	2.2	24	
19	2	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1.2	24	
20	1	1	2	3	3	IZS	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	2	3	4	4	1.7	24	
21	3	3	3	3	IZS	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2	1	1	3	1.7	24	
22	1	2	1	IZS	1	1	2	2	2	2	2	2	1	1	2	2	1	2	2	1	1	1	1	1	2	1.5	24	
23	P	1	IZS	1	P	1	1	1	C	C	C	C	C	C	C	C	C	2	2	2	2	2	2	2	2	1.6	22	
24	2	IZS	1	1	1	2	3	3	2	2	1	1	1	1	1	2	1	1	1	1	2	1	3	2	3	1.6	24	
25	IZS	2	1	1	1	1	2	1	1	1	1	1	1	1	M	1	M	1	1	1	1	2	2	IZS	2	1.2	22	
26	1	2	3	2	3	4	4	4	3	3	2	1	1	1	1	1	1	1	1	1	1	2	IZS	1	4	1.9	24	
27	2	1	2	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.3	24		
28	2	2	2	2	2	2	3	2	2	1	1	1	1	1	1	0	0	0	1	1	IZS	1	1	1	3	1.3	24	
29	2	1	1	2	2	2	3	3	3	2	2	1	1	1	1	1	1	1	1	1	IZS	1	1	2	3	1.6	24	
30	2	2	1	2	2	6	4	3	2	1	1	1	1	1	1	1	1	1	1	IZS	2	2	2	2	6	1.9	24	
31	2	2	3	3	4	5	3	3	3	1	1	5	1	1	1	1	1	1	IZS	1	1	2	2	2	5	2.2	24	
HOURLY MAX	3	3	4	5	5	6	6	4	4	3	10	5	3	2	18	2	3	6	3	4	5	3	3	4				
HOURLY AVG	1.7	1.5	1.7	1.8	1.9	2.0	2.1	1.9	1.8	1.4	1.6	1.3	1.1	1.2	2.1	1.1	1.2	1.3	1.2	1.4	1.7	1.7	1.7	1.5				

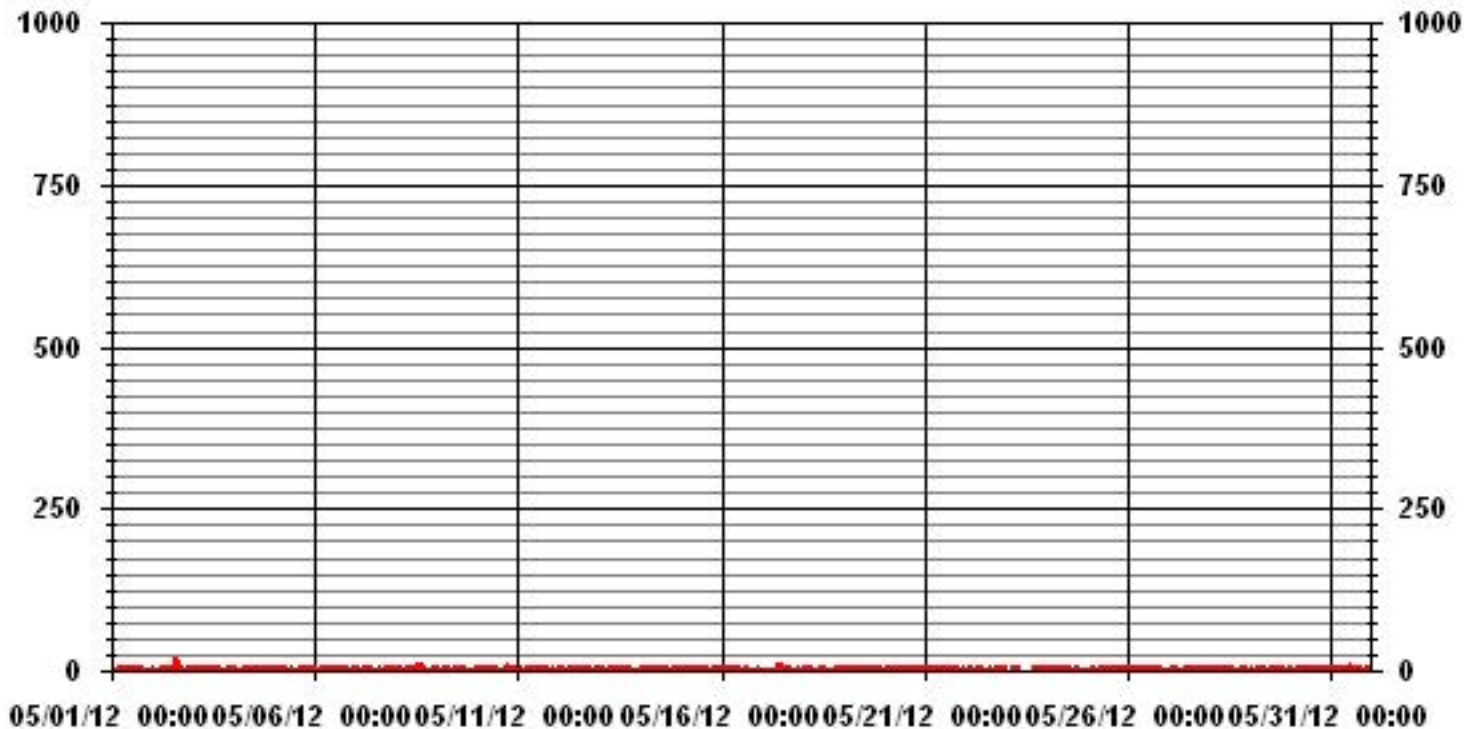
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	680					
MAXIMUM INSTANTANEOUS VALUE:	18	PPB	@ HOUR(S)	14	ON DAY(S)	2
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	738	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	1.15					

01 Hour Averages



— LICA31 NO2MAX PPB

LICA31
 NO2_ / WDR Joint Frequency Distribution (Percent)

May 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	2.28	3.43	5.86	6.58	6.29	4.00	5.00	3.29	8.72	8.72	6.58	8.44	9.58	8.29	5.72	7.15	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.28	3.43	5.86	6.58	6.29	4.00	5.00	3.29	8.72	8.72	6.58	8.44	9.58	8.29	5.72	7.15	

Calm : .00 %

Total # Operational Hours : 699

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	16	24	41	46	44	28	35	23	61	61	46	59	67	58	40	50	699
< 110																	
< 210																	
>= 210																	
Totals	16	24	41	46	44	28	35	23	61	61	46	59	67	58	40	50	

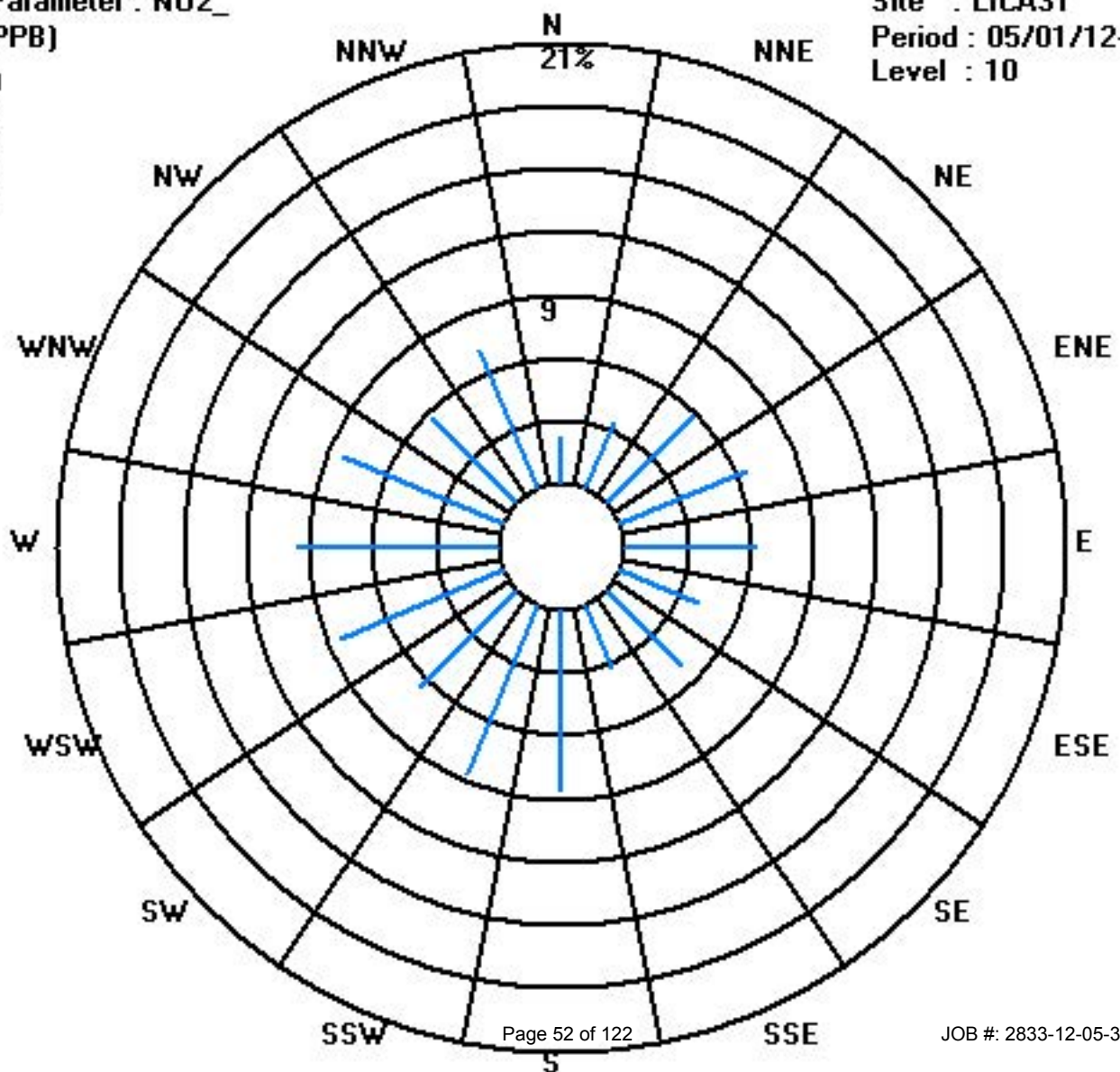
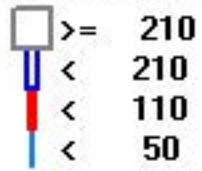
Calm : .00 %

Total # Operational Hours : 699

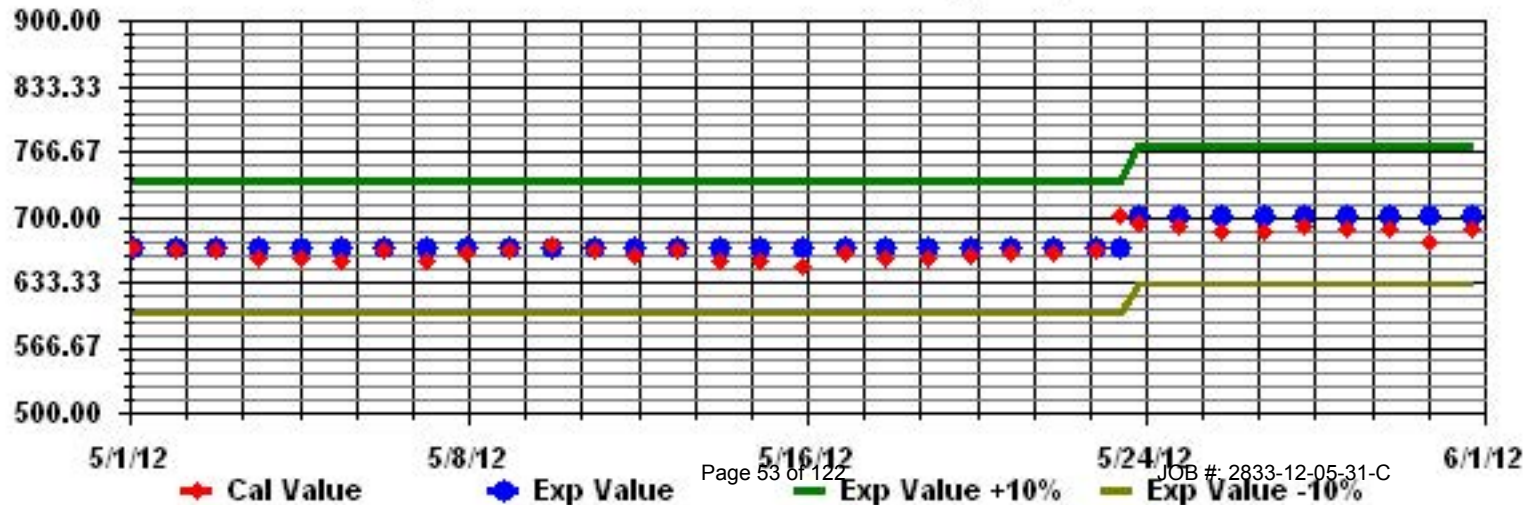
Class Limits (PPB)

Period : 05/01/12-05/31/12

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOICATION - ST. LINA

MAY 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	DAILY 24-HOUR				
	HOUR START	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
1	0	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	
2	IZS	2	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	IZS	2	1.0	23	
3	1	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	0.1	24	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	2	1	2	0.1	24	
5	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	IZS	1	0	0	1	1	0.8	24	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	2	1	1	1	1	2	0.2	24	
7	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	IZS	2	1	1	1	1	1	2	1.1	24	
8	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	IZS	1	0	0	0	0	0	1	1	0.7	24	
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	1	0.0	24	
10	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	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	1	0.0	24	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	2	1	1	0	0	0	0	1	0	0	0	2	0.2	24	
13	0	0	0	1	1	1	1	1	0	0	0	1	IZS	1	0	0	0	0	0	0	0	0	0	0	0	1	0.3	24	
14	0	0	0	0	0	0	0	0	0	0	0	IZS	2	1	1	0	0	1	1	0	0	1	1	1	1	2	0.4	24	
15	1	1	1	1	1	1	1	1	1	1	IZS	2	1	1	0	1	1	0	1	1	1	1	1	1	1	1	2	1.0	24
16	0	1	0	1	1	1	2	1	1	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.4	24	
17	0	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
18	0	0	0	0	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
19	0	0	0	0	0	0	IZS	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
20	0	0	0	0	0	IZS	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1	24	
21	0	0	0	0	IZS	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1	24	
22	0	0	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
23	0	0	IZS	1	0	0	0	0	C	C	C	C	C	C	C	C	2	0	0	0	0	0	0	0	0	2	0.2	24	
24	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	
25	IZS	2	1	1	1	1	1	1	1	1	0	0	1	1	1	1	M	4	5	6	6	5	4	IZS	6	2.1	24		
26	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	0.2	24
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	1	0.0	24	
28	2	2	2	2	2	2	2	1	1	1	1	2	2	1	2	2	2	1	2	2	1	IZS	1	1	1	2	1.6	24	
29	1	0	1	2	2	3	2	2	3	1	2	2	2	2	2	2	2	1	1	IZS	1	1	1	1	1	3	1.6	24	
30	1	1	1	1	1	1	2	2	1	1	0	1	2	2	2	2	3	2	IZS	0	0	0	0	0	3	1.1	24		
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	1	0	0	0	0	1	0.1	24		
HOURLY MAX	2	2	2	2	2	3	2	2	3	1	2	2	2	2	2	2	3	4	5	6	6	5	4	1					
HOURLY AVG	0.3	0.4	0.4	0.5	0.5	0.5	0.7	0.5	0.5	0.3	0.2	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.3					

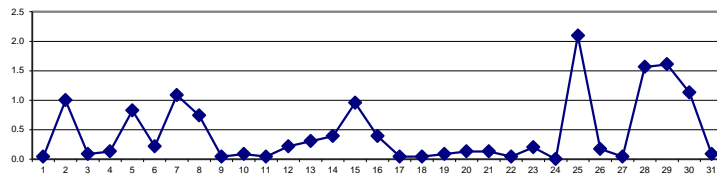
STATUS FLAG CODES

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

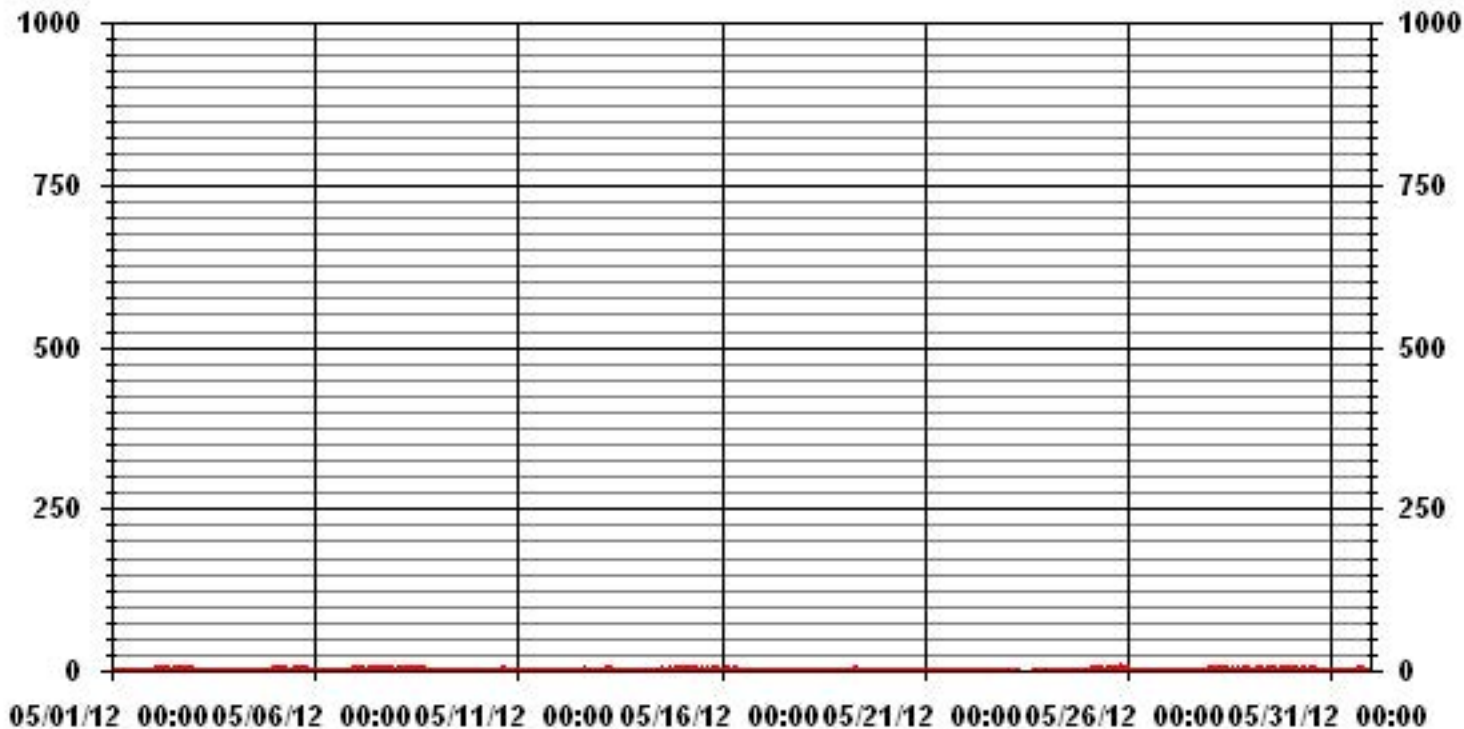
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	240					
MAXIMUM 1-HR AVERAGE:	6	PPB	@ HOUR(S)	19, 20	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	2.1	PPB			ON DAY(S)	25
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	0.76		MONTHLY AVERAGE:	0.45	PPB	

24 HOUR AVERAGES FOR MAY 2012



01 Hour Averages



— LICA31 NO_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 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 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	IZS	3	1	0	1	0	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0.4	24
2	IZS	3	2	1	2	1	1	1	1	2	2	2	1	1	1	6	1	1	1	1	1	1	2	IZS	3	6	1.6	24
3	3	1	1	0	0	0	1	1	1	1	1	0	0	0	1	1	0	0	1	0	0	0	IZS	3	3	0.7	24	
4	1	1	0	0	0	0	1	1	0	0	0	1	1	1	1	0	1	1	1	0	0	IZS	4	1	4	0.7	24	
5	2	1	1	1	1	2	2	P	1	1	1	1	1	2	1	2	1	1	2	1	IZS	3	1	1	3	1.4	23	
6	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	IZS	3	2	2	1	3	0.5	24
7	2	2	2	2	1	2	4	2	3	1	1	2	1	1	3	2	2	1	IZS	4	2	2	1	1	4	1.9	24	
8	1	1	1	2	2	1	2	2	2	1	2	1	1	2	17	2	2	IZS	2	1	0	0	1	0	17	2.0	24	
9	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	IZS	2	0	1	1	0	0	0	2	0.2	24	
10	0	0	0	0	0	1	1	0	0	0	0	1	1	1	IZS	2	15	1	1	1	1	1	1	1	15	1.3	24	
11	0	0	1	1	0	1	1	1	1	1	1	0	0	0	IZS	2	1	0	1	0	1	1	0	0	2	0.6	24	
12	1	0	0	0	0	0	1	0	0	0	0	0	0	IZS	3	2	1	1	1	1	1	1	1	1	3	0.7	24	
13	1	1	1	1	1	1	1	1	1	1	1	1	IZS	2	1	1	1	0	0	0	1	0	0	0	2	0.8	24	
14	0	0	0	0	0	0	0	0	0	1	0	IZS	3	1	1	1	1	2	1	1	1	1	1	1	3	0.7	24	
15	1	1	2	1	1	1	2	2	1	1	IZS	3	1	1	1	1	M	1	2	1	1	1	1	1	3	1.3	23	
16	1	1	1	1	2	2	3	2	2	IZS	2	1	1	1	1	0	0	0	0	0	1	0	0	0	3	1.0	24	
17	0	0	0	0	0	0	0	1	IZS	3	7	1	0	1	1	0	0	0	0	1	0	0	0	1	7	0.7	24	
18	0	0	0	0	0	0	0	IZS	2	1	1	1	1	1	2	1	1	0	1	1	2	1	0	0	2	0.7	24	
19	1	0	0	1	1	1	IZS	3	2	1	1	0	0	2	1	1	0	1	1	1	1	1	1	0	3	0.9	24	
20	0	0	1	1	1	IZS	3	1	1	1	1	1	0	0	1	0	0	0	0	0	0	1	1	1	3	0.7	24	
21	1	1	1	0	IZS	3	2	1	1	1	0	1	0	1	1	1	0	0	0	1	0	1	0	0	3	0.7	24	
22	0	1	0	IZS	2	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0	0	0	2	0.7	24	
23	P	0	IZS	3	P	1	1	1	C	C	C	C	C	C	C	C	C	0	0	0	0	0	0	0	3	0.5	22	
24	0	IZS	2	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0.3	24	
25	IZS	4	2	1	1	1	1	1	1	1	1	1	2	2	M	10	M	4	8	7	7	7	6	IZS	10	3.4	22	
26	2	0	1	0	1	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	2	2	0.6	24
27	1	1	0	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	IZS	2	1	2	0.7	24	
28	6	6	6	5	5	5	6	5	5	4	5	5	5	4	5	5	5	5	5	5	IZS	5	4	4	6	5.0	24	
29	4	4	7	7	7	5	4	4	5	3	3	3	4	3	3	3	3	2	3	IZS	3	2	2	2	7	3.7	24	
30	3	2	2	2	2	4	4	3	4	3	7	3	5	4	4	4	4	4	4	IZS	4	1	3	1	0	7	3.2	24
31	0	0	4	1	0	0	0	0	0	0	0	3	0	0	0	0	0	IZS	4	1	1	1	1	1	4	0.7	24	
HOURLY MAX	6	6	7	7	7	5	6	5	5	4	7	5	5	4	17	10	5	15	8	7	7	7	6	4				
HOURLY AVG	1.1	1.1	1.4	1.1	1.1	1.3	1.5	1.3	1.4	1.1	1.3	1.1	1.0	1.1	1.9	1.5	1.0	1.5	1.3	1.2	1.1	1.2	1.1	0.8				

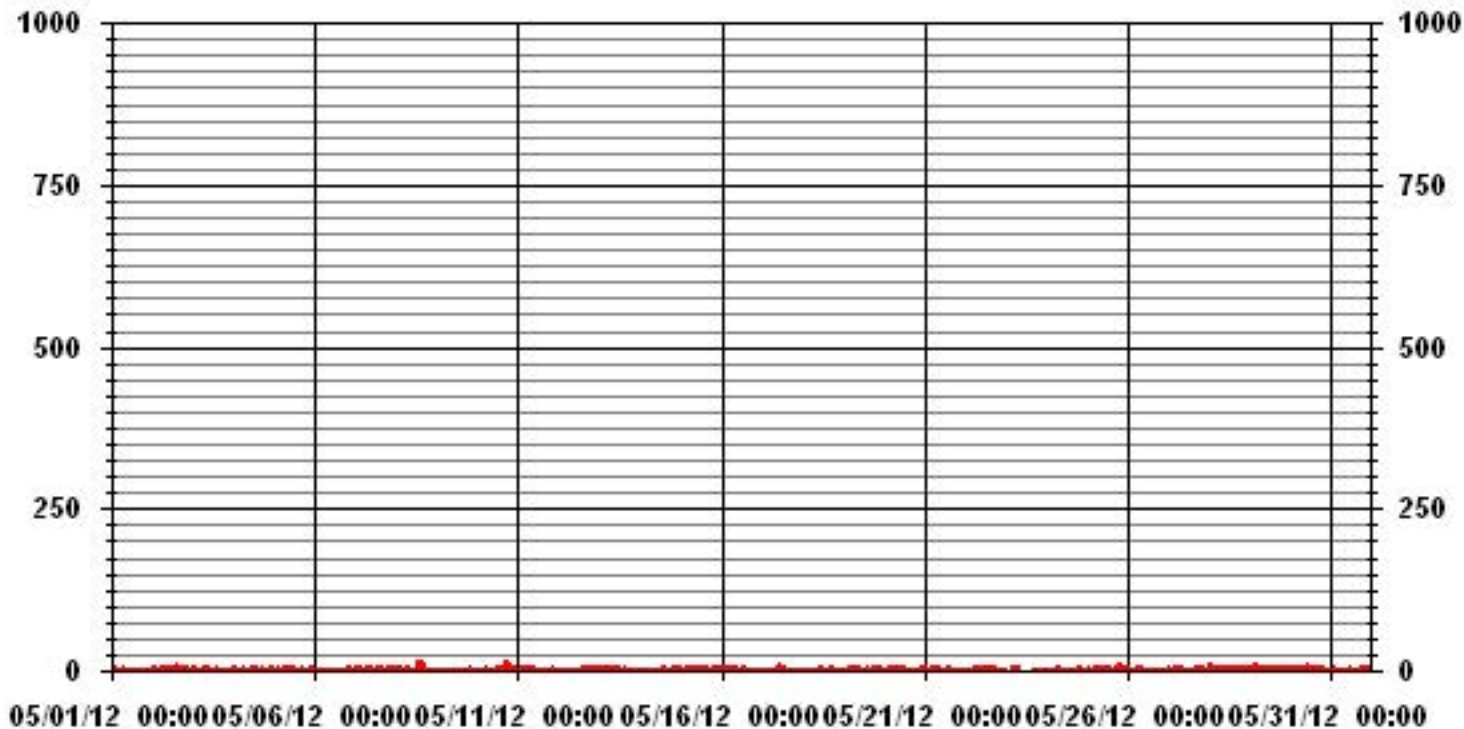
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	450					
MAXIMUM INSTANTANEOUS VALUE:	17	PPB	@ HOUR(S)	14	ON DAY(S)	8
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	738	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	1.67					

01 Hour Averages



LICA31
 NO_ / WDR Joint Frequency Distribution (Percent)

May 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	2.28	3.43	5.86	6.58	6.29	4.00	5.00	3.29	8.72	8.72	6.58	8.44	9.58	8.29	5.72	7.15	100.00	
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	2.28	3.43	5.86	6.58	6.29	4.00	5.00	3.29	8.72	8.72	6.58	8.44	9.58	8.29	5.72	7.15		

Calm : .00 %

Total # Operational Hours : 699

Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50	16	24	41	46	44	28	35	23	61	61	46	59	67	58	40	50	699	
< 110																		
< 210																		
>= 210																		
Totals	16	24	41	46	44	28	35	23	61	61	46	59	67	58	40	50		

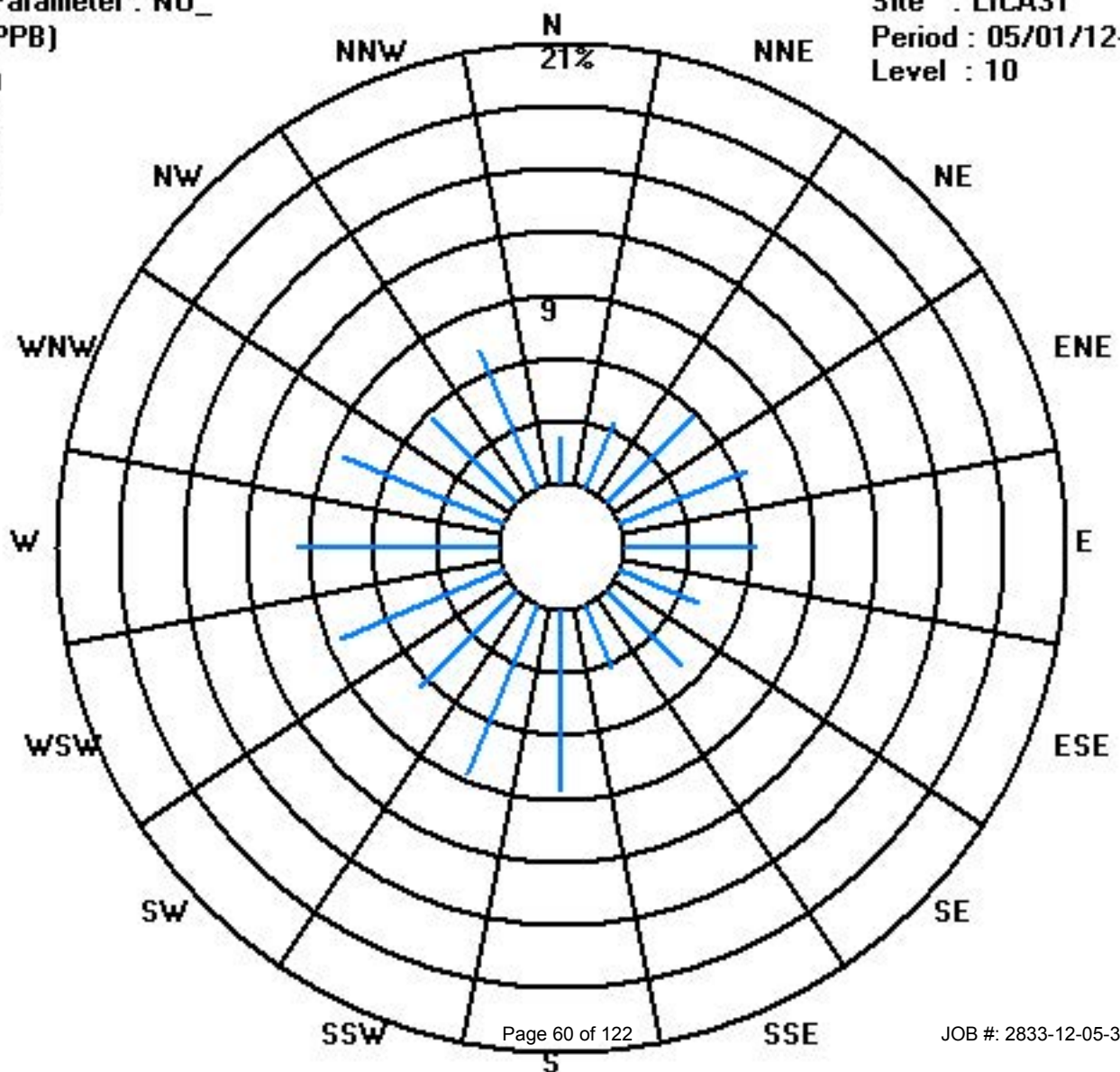
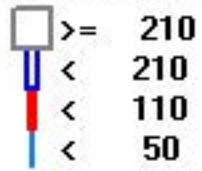
Calm : .00 %

Total # Operational Hours : 699

Class Limits (PPB)

Period : 05/01/12-05/31/12

Level : 10



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 2012

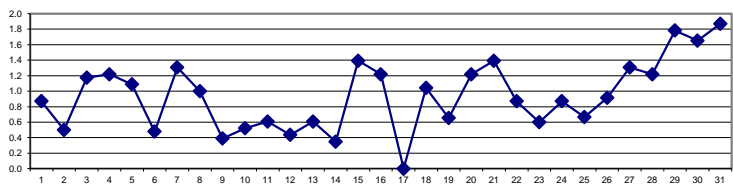
OXIDES OF NITROGEN hourly averages in ppb

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 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	IZS	2	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	1	1	2	0.9	24	
2	IZS	1	1	1	0	0	0	1	1	1	1	0	0	1	0	0	0	0	0	1	1	1	1	IZS	1	0.5	24	
3	2	1	1	1	1	1	1	3	2	1	1	1	0	1	1	1	1	1	1	1	1	1	1	IZS	2	3	1.2	24
4	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2	2	IZS	2	2	2	1.2	24	
5	2	2	2	2	1	2	2	2	1	1	1	1	1	1	0	0	0	0	1	0	IZS	1	1	1	2	1.1	24	
6	1	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	IZS	1	1	1	1	0.5	24	
7	1	2	1	1	1	2	4	3	2	1	0	1	1	0	1	1	1	1	IZS	2	1	1	1	1	4	1.3	24	
8	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	IZS	0	0	0	1	1	1	1	2	1.0	24
9	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	1	1	1	1	1	1	0.4	24	
10	1	0	0	0	0	1	1	1	0	0	0	1	0	1	0	IZS	1	1	1	1	0	1	0	1	1	0.5	24	
11	0	1	1	1	1	1	1	1	1	1	0	0	0	0	IZS	1	0	0	0	0	1	1	1	1	1	0.6	24	
12	1	0	1	1	1	1	1	1	0	0	0	0	0	IZS	1	0	0	0	0	0	1	1	0	0	1	0.4	24	
13	0	0	1	1	1	1	1	1	1	0	0	0	0	IZS	1	1	0	0	1	0	1	1	1	0	1	0.6	24	
14	0	0	0	0	1	0	1	0	0	0	0	IZS	1	0	0	1	1	0	0	1	1	1	1	1	1	0.3	24	
15	2	1	3	3	3	2	2	2	1	1	IZS	1	1	1	0	1	1	1	1	1	1	1	1	1	3	1.4	24	
16	1	1	2	4	5	6	4	2	2	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1.2	24	
17	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
18	0	0	1	1	0	0	0	IZS	2	2	2	2	2	1	1	1	1	1	1	1	2	1	1	1	2	1.0	24	
19	1	1	1	1	1	1	IZS	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	2	1	2	0.7	24	
20	1	1	1	2	2	IZS	3	2	1	1	1	1	0	0	1	0	1	1	1	1	1	2	2	3	3	1.2	24	
21	2	2	2	2	IZS	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1.4	24	
22	1	1	1	IZS	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	2	0.9	24	
23	1	1	IZS	1	0	0	0	0	C	C	C	C	C	C	C	C	1	1	0	1	1	1	0	1	1	0.6	24	
24	1	IZS	1	0	1	1	3	3	2	1	1	0	0	1	0	0	0	0	0	0	1	1	1	2	3	0.9	24	
25	IZS	2	1	0	0	1	1	1	0	0	0	0	0	0	2	0	M	1	1	1	1	1	1	IZS	2	0.7	24	
26	1	1	1	1	2	2	3	2	3	2	0	0	0	0	0	0	0	0	0	0	0	1	1	IZS	2	0.9	24	
27	2	1	2	2	2	3	2	1	2	1	1	1	1	1	1	1	1	0	1	1	1	IZS	1	1	3	1.3	24	
28	1	2	2	2	2	2	3	3	2	1	1	0	1	0	0	0	0	1	0	0	IZS	2	2	1	3	1.2	24	
29	2	1	1	2	2	3	4	4	3	2	2	1	1	1	1	1	1	1	1	IZS	2	1	2	2	4	1.8	24	
30	2	2	2	2	2	3	3	2	1	1	1	1	1	1	1	1	1	1	IZS	2	2	2	2	2	3	1.7	24	
31	2	2	3	3	3	4	4	4	2	1	1	1	1	1	1	1	1	IZS	2	1	1	1	1	2	4	1.9	24	
HOURLY MAX	2	2	3	4	5	6	4	4	3	2	2	2	2	1	2	1	1	1	2	2	2	2	2	3				
HOURLY AVG	1.1	1.0	1.3	1.3	1.3	1.5	1.7	1.6	1.3	0.8	0.7	0.6	0.5	0.6	0.6	0.5	0.6	0.6	0.5	0.6	0.9	1.0	1.0	1.1				

STATUS FLAG CODES

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

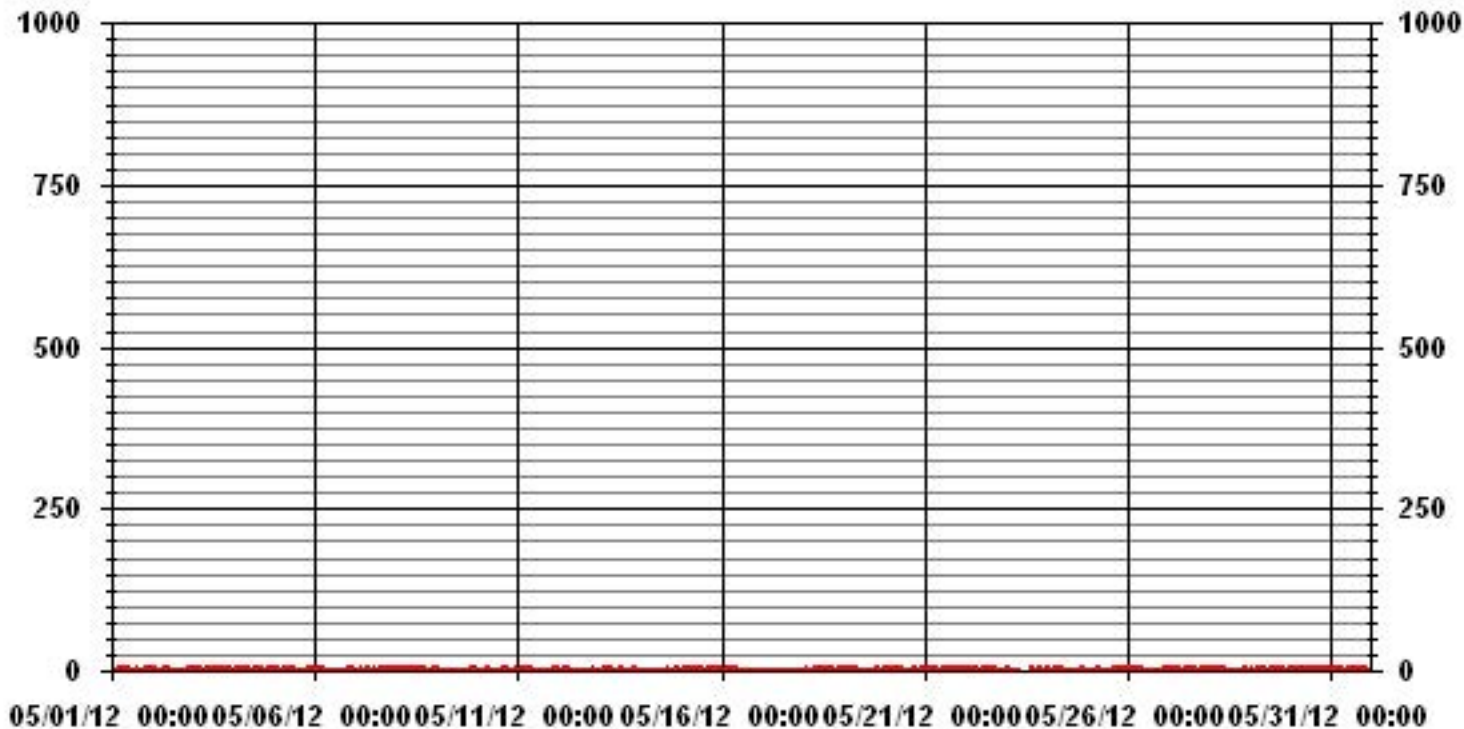
24 HOUR AVERAGES FOR MAY 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	489					
MAXIMUM 1-HR AVERAGE:	6	PPB	@ HOUR(S)	5	ON DAY(S)	16
MAXIMUM 24-HR AVERAGE:	1.9	PPB			ON DAY(S)	31
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	8	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	0.85		MONTHLY AVERAGE:	0.95	PPB	

01 Hour Averages



— LICA31 NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 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	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	IZS	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	1.7	24
2	IZS	2	2	2	1	1	1	1	1	2	1	1	1	19	1	1	1	1	1	2	2	2	2	IZS	19	2.1	24	
3	3	2	2	2	2	2	2	4	3	2	2	1	1	1	1	2	2	2	2	1	2	2	IZS	3	4	2.0	24	
4	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	IZS	3	3	3	2.0	24	
5	2	3	3	2	2	2	2	2	P	2	2	2	2	3	1	2	2	1	1	1	IZS	4	2	1	4	2.0	23	
6	2	2	2	2	2	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	IZS	2	3	1	2	3	1.4	24
7	2	3	2	1	2	3	9	4	6	1	2	1	3	1	5	2	2	2	IZS	3	2	2	2	2	9	2.7	24	
8	2	2	2	2	1	2	2	3	4	2	3	2	2	2	19	2	5	IZS	1	1	1	1	2	1	19	2.8	24	
9	1	1	2	0	0	0	0	0	0	1	1	0	0	0	0	0	IZS	2	1	2	1	2	1	1	2	0.7	24	
10	2	1	1	1	1	2	2	1	1	1	1	1	1	3	2	IZS	3	19	3	1	1	1	1	2	19	2.3	24	
11	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	IZS	2	1	1	1	1	3	3	2	2	3	1.6	24
12	2	1	1	2	2	2	2	1	1	1	1	1	1	1	IZS	2	1	1	1	1	1	2	1	1	1	2	1.3	24
13	1	1	1	1	2	2	2	2	1	1	2	1	IZS	2	1	1	1	2	2	2	5	1	2	1	5	1.6	24	
14	1	1	1	1	2	1	1	1	1	2	1	IZS	2	1	1	1	2	3	1	1	1	1	2	2	3	1.3	24	
15	2	2	4	4	4	3	2	2	2	2	IZS	2	2	2	1	1	M	2	4	2	3	2	2	2	4	2.4	23	
16	2	2	4	5	6	7	6	4	4	IZS	2	1	1	1	1	1	1	0	0	0	0	0	1	0	7	2.2	24	
17	1	0	0	0	1	0	1	1	IZS	1	15	1	0	1	1	1	1	0	2	1	1	1	0	15	1.3	24		
18	1	1	2	1	1	1	1	IZS	3	3	3	3	3	3	4	2	3	2	3	5	6	2	2	2	6	2.5	24	
19	2	1	2	2	1	1	IZS	3	3	2	1	1	1	3	1	1	1	2	1	1	2	2	3	2	3	1.7	24	
20	2	1	3	3	4	IZS	5	3	3	2	1	1	2	1	1	2	1	1	1	2	2	3	3	4	5	2.2	24	
21	4	3	4	3	IZS	4	3	3	3	2	2	2	1	1	2	2	1	1	2	2	2	2	2	1	4	2.3	24	
22	1	2	2	IZS	2	2	2	2	3	2	2	2	1	2	2	2	1	1	2	1	1	1	1	1	3	1.7	24	
23	P	2	IZS	2	P	1	1	1	C	C	C	C	C	C	C	C	C	1	1	2	2	2	2	1	2	1.5	22	
24	1	IZS	2	1	1	2	4	4	3	2	1	1	1	1	1	2	1	1	1	1	2	1	3	2	4	1.7	24	
25	IZS	4	2	1	1	1	2	1	1	1	1	1	2	1	M	1	M	2	2	2	2	3	2	IZS	4	1.7	22	
26	2	2	3	2	3	5	6	5	4	4	2	1	1	0	1	1	1	1	0	1	1	2	IZS	3	6	2.2	24	
27	3	2	2	2	3	3	3	2	3	1	1	1	1	2	1	1	1	1	2	1	2	IZS	3	2	3	1.9	24	
28	3	3	3	3	3	3	6	4	4	2	1	1	1	1	1	1	1	1	1	1	1	IZS	3	2	2	6	2.2	24
29	2	2	2	3	4	4	5	4	4	4	3	2	2	2	2	2	2	1	1	1	IZS	3	2	3	2	5	2.7	24
30	3	2	2	3	3	9	6	5	2	2	2	1	1	2	2	2	2	2	2	IZS	3	3	3	3	4	9	2.9	24
31	3	3	4	4	5	7	6	6	5	2	1	10	2	2	2	2	2	IZS	3	2	3	3	2	3	10	3.6	24	
HOURLY MAX	4	4	4	5	6	9	9	6	6	4	15	10	3	3	19	2	5	19	4	5	6	4	3	4				
HOURLY AVG	2.0	1.9	2.2	2.0	2.2	2.5	3.0	2.6	2.6	1.8	2.1	1.6	1.4	1.6	2.8	1.4	1.6	2.0	1.4	1.6	2.1	2.0	2.0	1.9				

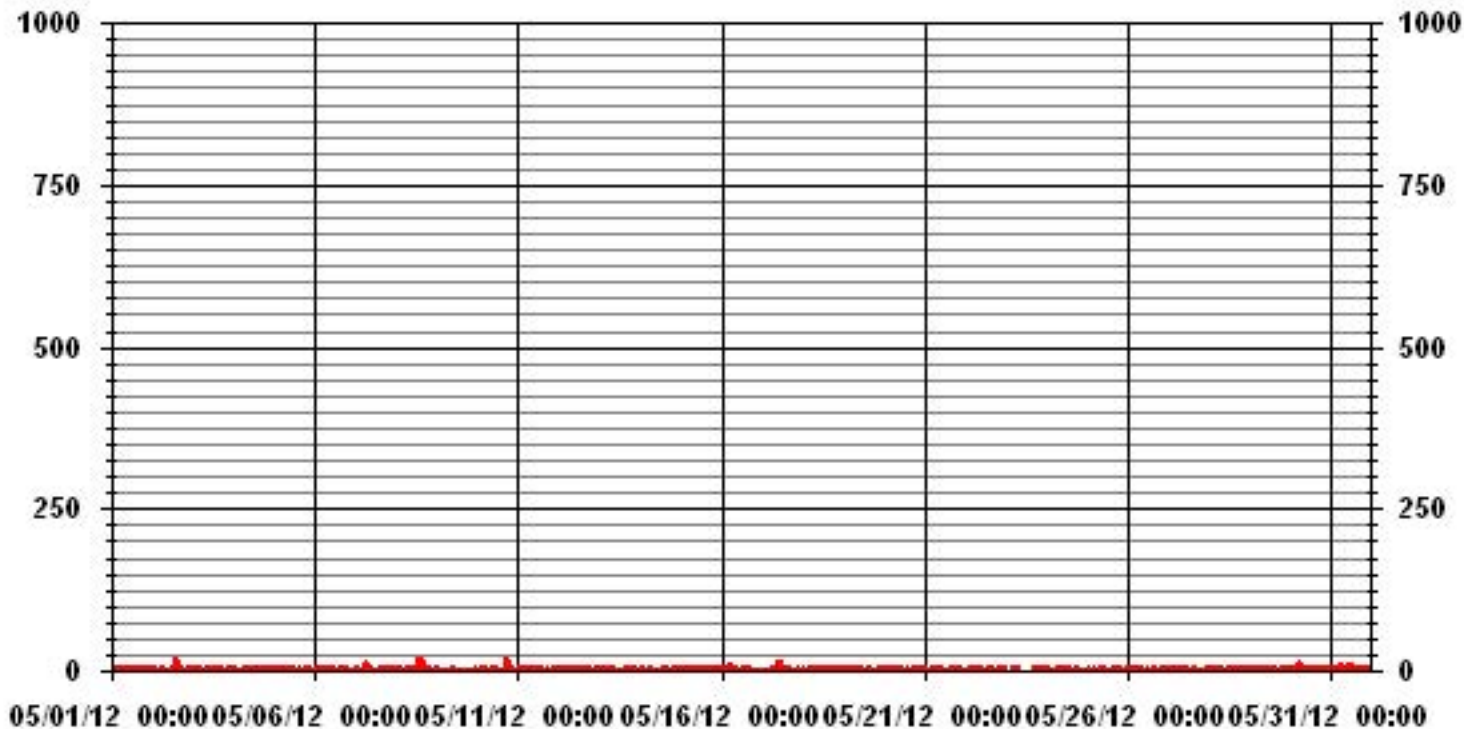
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	671					
MAXIMUM INSTANTANEOUS VALUE:	19	PPB	@ HOUR(S)	14	ON DAY(S)	8
IZS CALIBRATION TIME:	33	HRS	OPERATIONAL TIME:	738	HRS	
MONTHLY CALIBRATION TIME:	9	HRS				
STANDARD DEVIATION:	1.73					

01 Hour Averages



LICA31
 NOX_ / WDR Joint Frequency Distribution (Percent)

May 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	2.28	3.43	5.86	6.58	6.29	4.00	5.00	3.29	8.72	8.72	6.58	8.44	9.58	8.29	5.72	7.15	100.00	
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Totals	2.28	3.43	5.86	6.58	6.29	4.00	5.00	3.29	8.72	8.72	6.58	8.44	9.58	8.29	5.72	7.15		

Calm : .00 %

Total # Operational Hours : 699

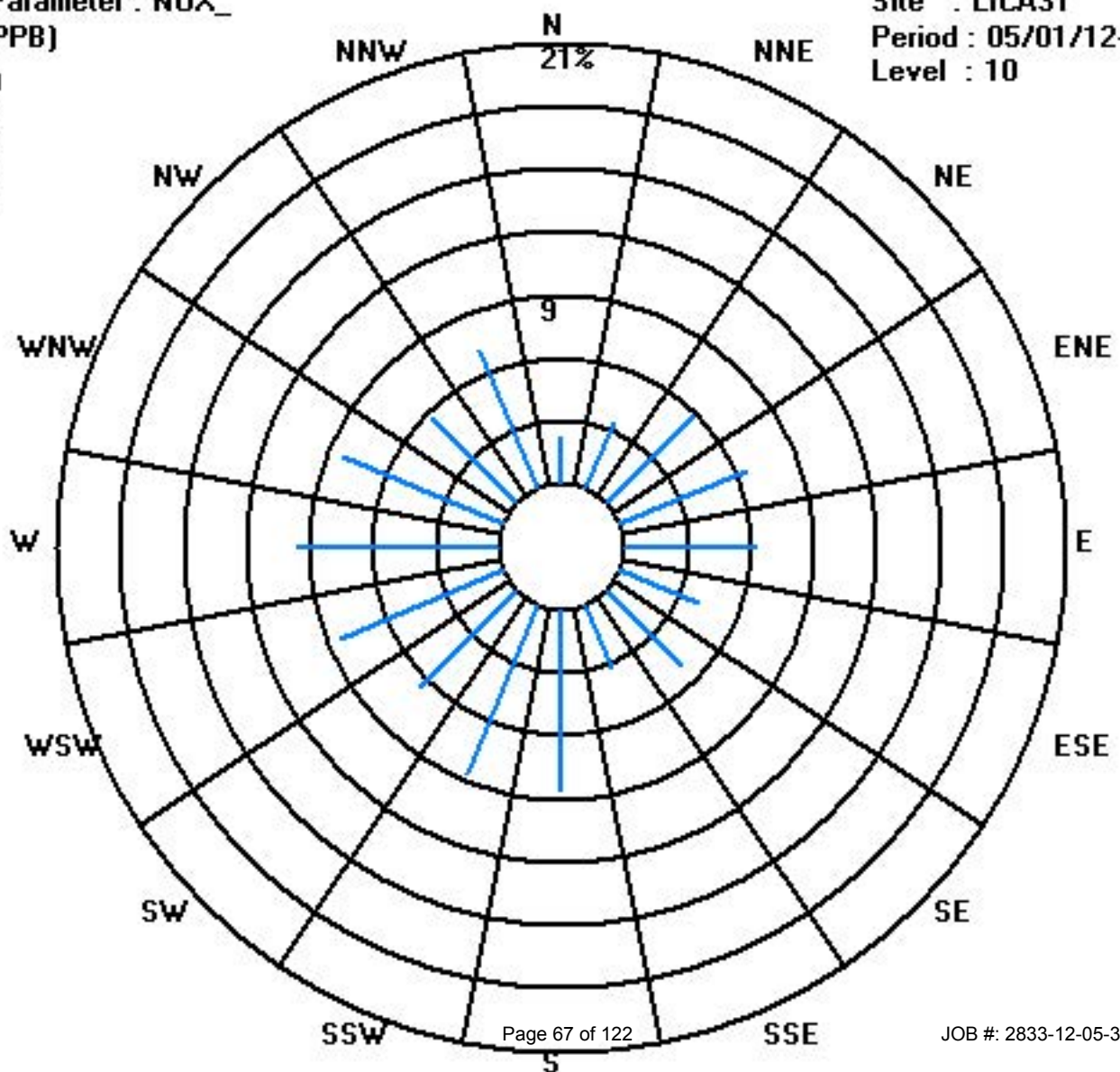
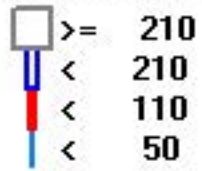
Distribution By Samples

		Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq	
< 50	16	24	41	46	44	28	35	23	61	61	46	59	67	58	40	50	699	
< 110																		
< 210																		
>= 210																		
Totals	16	24	41	46	44	28	35	23	61	61	46	59	67	58	40	50		

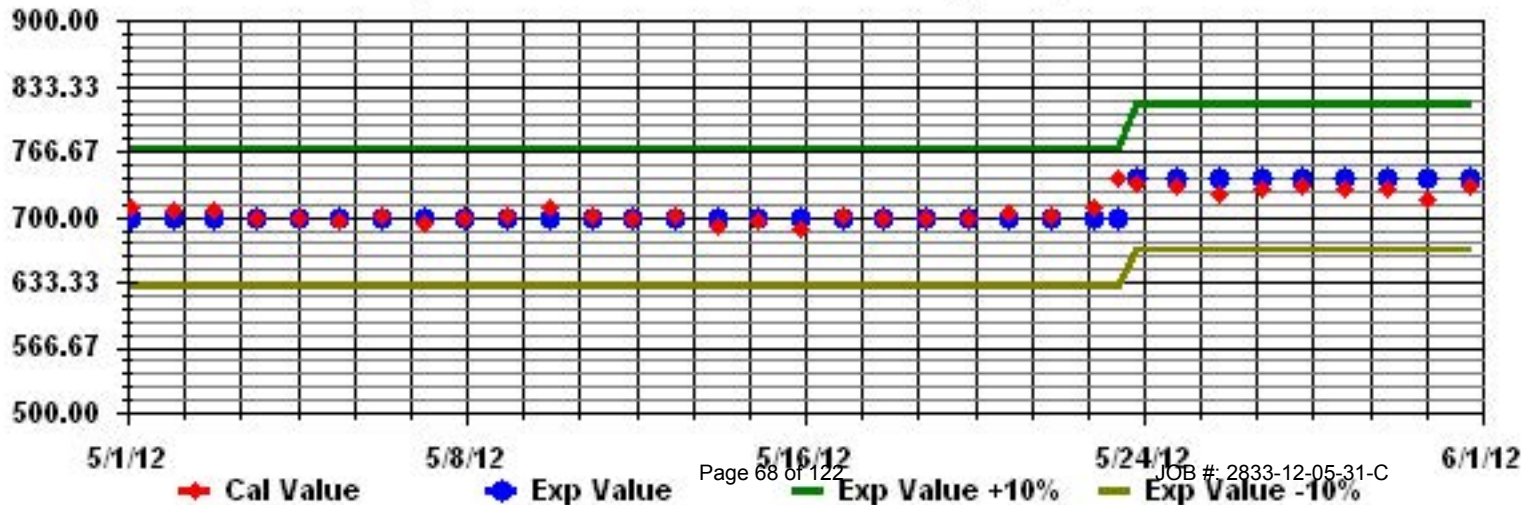
Calm : .00 %

Total # Operational Hours : 699

Class Limits (PPB)



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



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 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	
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	5.1	7.6	2.1	2.1	4	1.5	0.5	2.6	0	0	4.6	6.6	5.5	6.6	2.1	5.5	1.1	1.5	5.5	4	1.5	4.6	0	2.1	7.6	3.2	24		
2	1.1	2.6	0	0.5	2.6	1.5	1.5	0	6.1	2.6	0	3	3	0.5	4.6	1.1	6.1	0	4.6	2.6	2.1	4	10.1	5.1	10.1	2.7	24		
3	4.6	5.1	4	4.6	5.5	5.1	5.1	7.6	3	2.6	5.1	0.5	0	6.1	4.6	2.1	4.6	5.5	5.1	8.1	0.5	4.6	2.1	4	8.1	4.2	24		
4	0	0	0	4	2.1	1.5	2.1	2.6	0	6.1	6.6	3.6	1.5	3.6	3.1	0	2.1	1.5	5.5	7.1	2.6	2.6	1.1	4	7.1	2.6	24		
5	0	0	2.1	0	2.6	0	1.1	0	2.1	0	4.6	1.5	1.1	4.6	1.5	3	1.5	2.1	1.5	1.1	6.6	3.6	0	9.1	9.1	2.1	24		
6	3	3.1	3	4	5.1	0	3.6	0	0	5.1	1.1	5.1	1.1	2.6	6.6	3.6	3.1	3.6	3	5.1	3.6	6.1	3	6.6	3.3	24			
7	5.5	1.5	1.5	6.6	6	2.6	3	5.1	1.1	3.6	3	0.5	4	5.1	8.6	3.6	7.1	6.6	7.6	7.1	6.6	8	9.6	6.6	9.6	5.0	24		
8	8.1	10.1	7.1	6.6	8.1	4.6	6.6	2.1	8	7.6	11	7.6	6	7.1	4.6	6.6	7.6	6.1	6.6	5.5	6.1	6	4.6	8.6	11.0	6.8	24		
9	6.1	7.1	5.5	7.1	6.6	5.5	5.1	7.1	6.1	4.6	3.6	7.1	7.1	4	4	4	3.6	6.1	1.5	7.1	5.1	6.1	0	7.1	5.2	24			
10	0	3	4.6	3	4	2.1	1.1	1.1	1.1	3.6	1.1	1.5	1.1	3	1.1	4	2.1	4	2.1	1.5	4.6	4	0.5	2.6	4.6	2.4	24		
11	0	4.6	1.1	2.1	3.6	5.1	4	5.5	5.1	7.6	3	4	3.6	2.1	0.5	1.5	0.5	3	0	0	3.1	5.1	1.1	4.6	7.6	3.0	24		
12	2.1	1.1	4	3.6	1.5	4.6	3	4.6	2.1	5.1	1.1	6.6	8	6.6	6.6	3	4.6	0	3.6	6.6	7.6	3	10.1	5.1	10.1	4.3	24		
13	6.1	7.6	5.5	6.6	6.6	4	4.6	6.1	6.1	6.6	5.5	5.5	7.6	8	9.6	5.1	8	6.6	6.1	7.1	8	11.6	10.1	6.6	11.6	6.9	24		
14	7.6	7.1	5.5	6.6	5.5	4	3.1	3.6	8.6	1.5	2.6	0	2.1	3.6	8	3.6	4.6	7.6	3.6	5.1	6.1	0	4.6	6.1	8.6	4.6	24		
15	5.5	6.1	7.1	9.6	3	4	5.5	5.1	4.6	5.5	7.1	5.1	7.6	7.6	5.1	7.1	8.6	7.1	5.1	5.1	8	6.6	6.1	6.6	9.6	6.2	24		
16	5.5	9.1	11.6	13.6	14.6	22.5	21.5	15.5	18	9.1	8.6	9.1	8	9.1	8.6	5.5	7.1	0.5	9.6	10.5	8	7.1	6	9.5	22.5	10.3	24		
17	10.5	5.5	4	2.1	5.5	6.6	4.6	0.5	3	1.1	1.1	4	3.6	3.6	1.1	5.1	4.6	5.1	1.5	3	5.1	7.6	4.6	4.6	10.5	4.1	24		
18	0.5	4.6	8.6	1.5	3.1	5.1	2.6	7.1	6.1	1.5	3.1	3.6	1.5	5.5	6.1	5.1	6	3.6	8.1	7.6	4	4.6	3.1	8.6	8.6	4.6	24		
19	9.1	2.6	3.6	5.1	3.6	7.1	5.1	2.1	2.1	6.1	1.5	3.6	3.6	3.6	0	3	0	0	0	3	1.1	2.1	7.6	0	9.1	3.2	24		
20	12.6	7.1	3.6	6.6	5.5	0	3	0.5	0.5	3.6	5.5	4	4.6	2.6	8.6	6.1	4	6.1	5.1	5.5	8	9.1	8	6.6	12.6	5.3	24		
21	7.6	5.5	8.6	3	8.6	7.6	6.6	4	10.1	10.1	5.1	8.6	5.5	4	6.6	5.1	8.1	6.1	6.6	7.6	8	15.6	8	9.1	15.6	7.3	24		
22	7.1	7.1	6	6.6	7.6	6.6	5.1	2.6	4.6	5.5	5.5	3.6	4.6	9.1	5.1	4.6	4.6	3.1	7.6	3	2.1	4.6	2.6	0	9.1	5.0	24		
23	0.5	0.5	5.1	2.6	0.5	3.6	2.6	1.5	5.1	5.1	4	4.6	3	2.6	2.1	3.1	3.6	0.5	2.6	2.6	6.1	2.6	1.1	3	6.1	2.9	24		
24	8	6.1	5.5	5.5	4.6	0	10.4	8.6	4	3.6	3.1	3	4.5	0	3.5	4.6	6	8.1	3	0.5	4.6	8.5	7.1	4.1	10.4	4.9	24		
25	2.5	7	5.6	4	3.6	3.1	3.8	0	3.2	6	4.1	6.2	7.1	4	C	3.4	5.8	3.8	0.3	9.6	6	5.1	6.4	7.2	9.6	4.7	24		
26	5.9	5.2	8.6	4.7	5.1	7.9	9.1	5.1	10.4	8.1	3.9	6	5.1	8.6	6.9	6.8	3.9	8.2	6.1	6.8	5.2	9.3	6.9	6.9	10.4	6.7	24		
27	5.5	3.3	5.5	6.6	4.3	4.3	3	1.5	5.3	0	2.2	4.4	5.3	4.4	5.1	5.7	2.6	8	4.8	5.3	7.6	10.8	5.5	5.9	10.8	4.9	24		
28	4	8.6	6.6	5.8	2.9	0.8	4.5	7.8	4.5	4.6	5.5	6.8	5.8	5.1	5.4	4.5	8.9	1.5	4.9	5.7	5.7	5.3	7.1	5.9	8.9	5.3	24		
29	7.8	5.8	7.6	8.1	7.7	6.6	5.5	9.9	8.9	7.6	6.4	2.1	5.2	5.9	10	7.6	9.2	6.1	6.6	6.7	8.6	4.6	5.5	9.7	10.0	7.1	24		
30	8.4	7.1	5.4	6.1	6.7	5	5.4	3.7	3.4	3.7	4.3	5.6	5.1	2.1	6.1	3	5.7	10.3	2.8	5	4.2	9.7	8.4	10.5	10.5	5.7	24		
31	10.1	10.1	12.6	15.9	13.1	8	9.4	4	1.5	4.6	1.1	3.6	3.9	4	3.1	4.5	5.1	2.1	6.7	8	7.1	4	5.5	1.5	15.9	6.2	24		
HOURLY MAX	12.6	10.1	12.6	15.9	14.6	22.5	21.5	15.5	18.0	10.1	11.0	9.1	8.0	9.1	10.0	7.6	9.2	10.3	9.6	10.5	8.6	15.6	10.1	10.5					
HOURLY AVG	5.2	5.2	5.2	5.3	5.3	4.5	4.9	4.1	4.7	4.6	4.0	4.4	4.4	4.7	5.0	4.2	4.9	4.2	4.6	5.0	5.4	5.9	5.3	5.4					

STATUS FLAG CODES

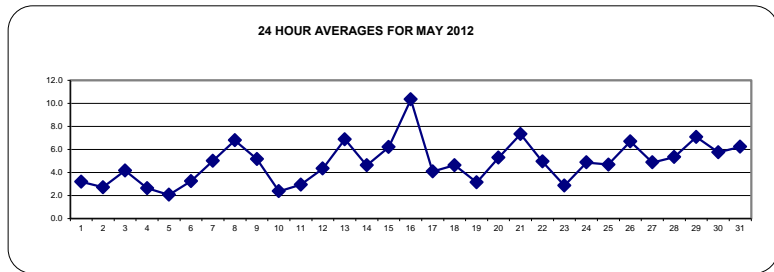
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

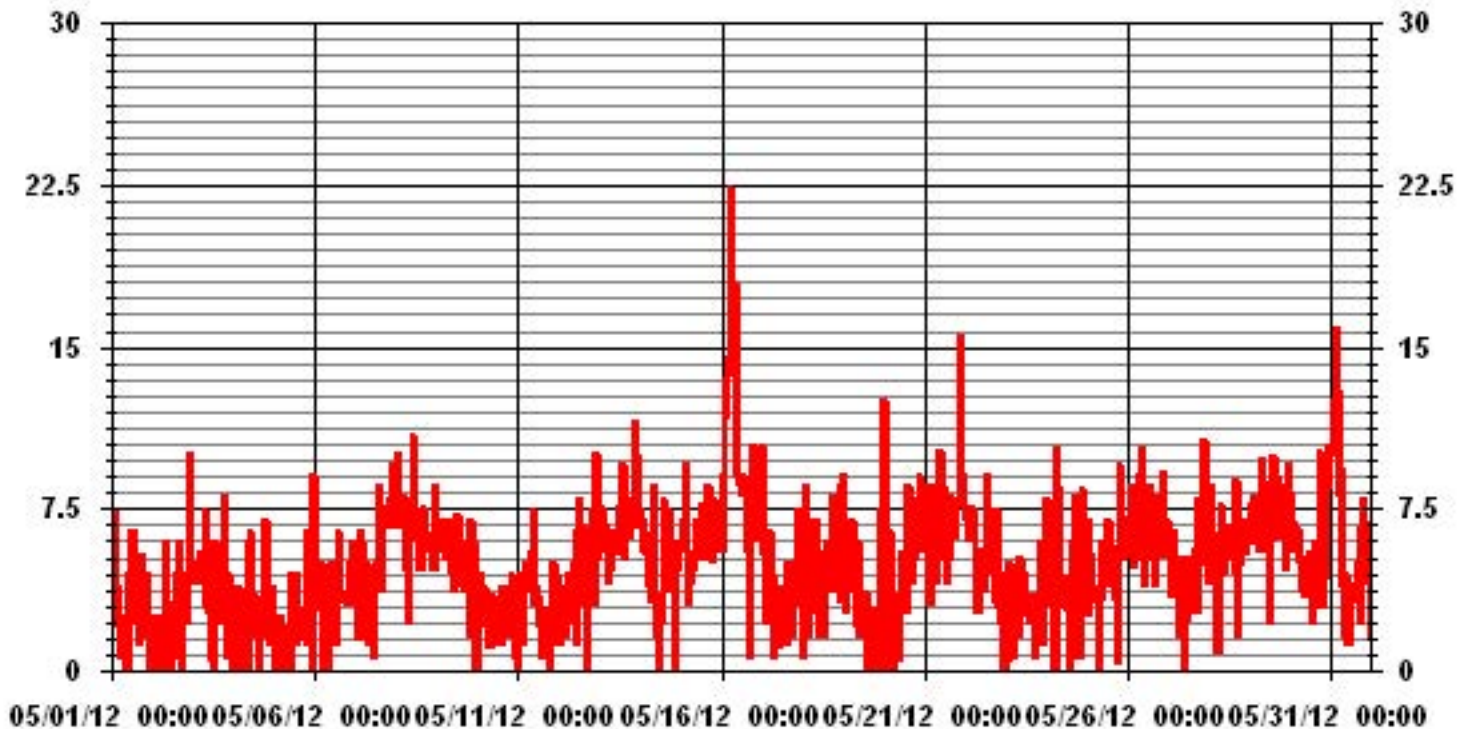
ALBERTA ENVIRONMENT: 1-HR - ug/m³ 24-HR 30 ug/m³

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-			
NUMBER OF 24-HR EXCEEDENCES:	0	PROPOSED CANADA WIDE GUIDELINE		
NUMBER OF NON-ZERO READINGS:	701			
MAXIMUM 1-HR AVERAGE:	22.5	UG/M ³ @ HOUR(S)	5	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	10.3	UG/M ³		ON DAY(S)
IZS CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744
MONTHLY CALIBRATION TIME:	1	HRS	AMD OPERATION UPTIME:	100.0
STANDARD DEVIATION:	2.95		MONTHLY AVERAGE:	4.86
				UG/M ³



01 Hour Averages



— LICA31 PM2 UG/M3

LICA31
 PM2 / WDR Joint Frequency Distribution (Percent)

May 2012

Distribution By % Of Samples

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

Wind Parameter : WDR
 Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	2.29	3.64	6.48	6.48	6.08	3.91	5.00	3.24	8.24	8.64	6.48	8.64	9.59	8.10	6.08	7.02	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	2.29	3.64	6.48	6.48	6.08	3.91	5.00	3.24	8.24	8.64	6.48	8.64	9.59	8.10	6.08	7.02	

Calm : .00 %

Total # Operational Hours : 740

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	17	27	48	48	45	29	37	24	61	64	48	64	71	60	45	52	740
< 60.0																	
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	17	27	48	48	45	29	37	24	61	64	48	64	71	60	45	52	

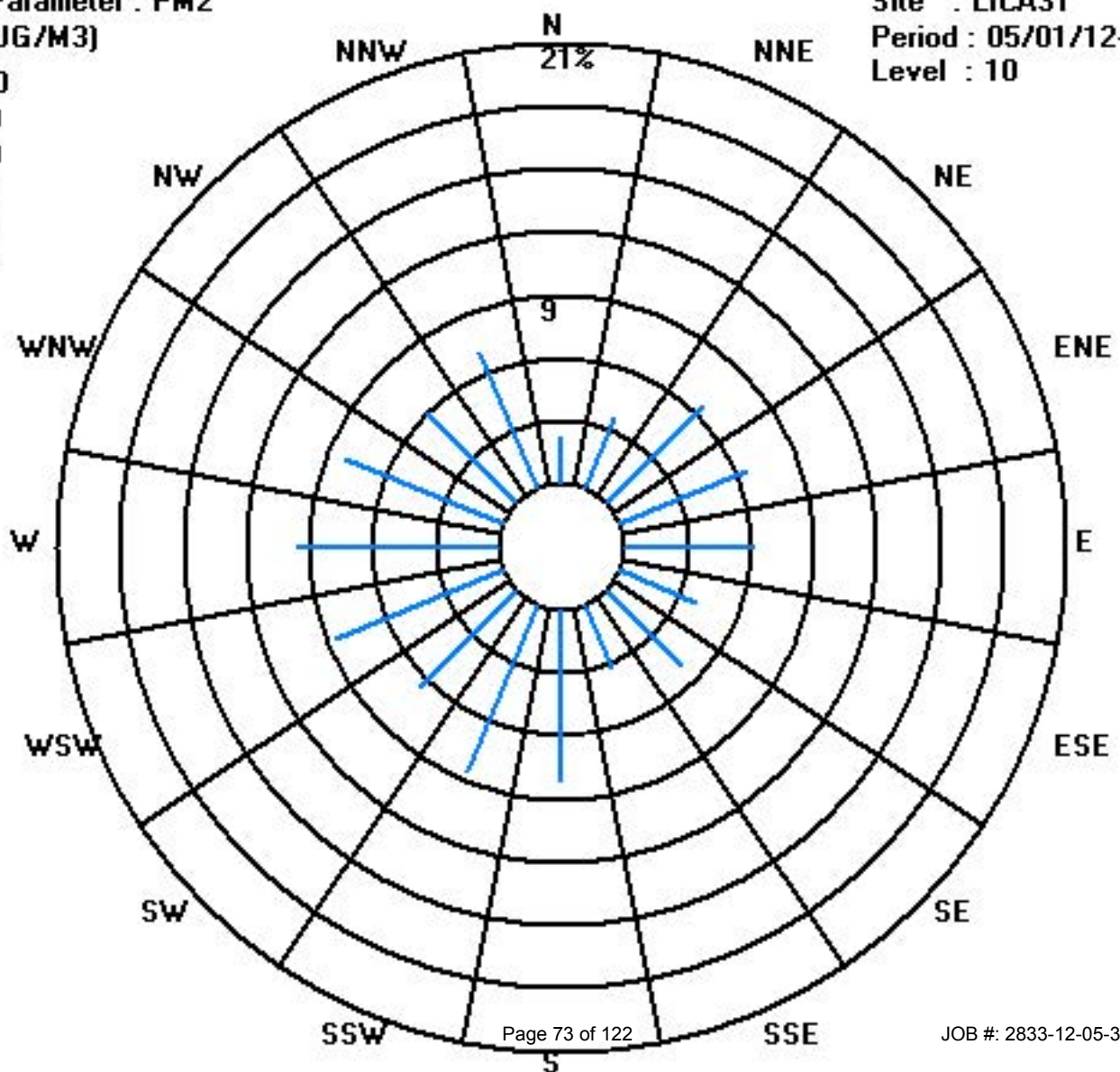
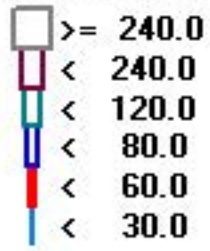
Calm : .00 %

Total # Operational Hours : 740

Class Limits (UG/M3)

Period : 05/01/12-05/31/12

Level : 10



Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA
MAY 2012

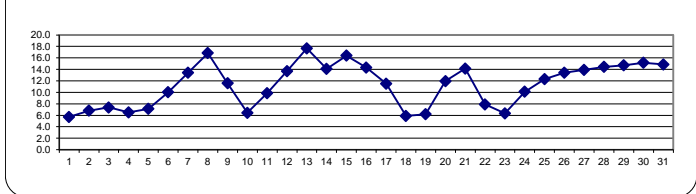
AMBIENT TEMPERATURE hourly averages (Degrees C)

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			
DAY	HR	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX	AVG.	RDGS.	
1		4.6	3.5	2.5	1.7	1.1	1.1	1.5	2.4	2.8	2.8	5.7	8.1	9.2	10.6	10.7	10.9	10.7	9.9	9	7.6	6.1	5.1	5	4.2	10.9	5.7	24	
2		2.7	1.3	0.5	0.8	1.3	1.9	3.6	5.1	6.8	8.5	9.4	9.9	10.3	10.6	11.3	12	11.4	11.1	10.4	9.5	8.1	6.7	5.4	4.7	12.0	6.8	24	
3		4.2	3	3.2	2.9	3	3.9	4.3	6.2	8.3	9.5	9.6	9.6	10.2	9.8	9.6	10.6	10.1	10.1	10	9.2	8.2	7.5	7	6.9	10.6	7.4	24	
4		6.7	6.4	5.6	5.1	4.8	4.7	4.7	4.9	5.2	5.6	6	6.5	7.3	7.5	8.1	8.6	9.1	9	9.1	7.7	7	6.3	5.7	4.8	9.1	6.5	24	
5		3.5	3.8	4	3.8	3.2	2.9	3.6	5	6.6	8.1	7.9	9.4	10.5	10.6	10.8	10.6	10	9.9	9.5	8.5	8.2	7.1	6.7	6.4	10.8	7.1	24	
6		5.4	5	4.9	4.4	3.5	3.7	6	8.5	10.4	11.8	13.1	13.9	14.4	15.1	15.2	14.6	14.2	14	13.4	12.1	10.4	9.5	8.7	8.1	15.2	10.0	24	
7		7.8	7.8	8.4	8	5.4	5.8	7.7	10.9	13.2	15	16.2	17	18	18.7	19	19.2	19.4	19.4	17.5	16.4	14.8	13.3	12.2	11.1	19.4	13.4	24	
8		10.2	9.6	9.2	9.3	9.6	10.1	11.5	13.4	15.7	18	19.6	20.9	21.8	21.6	22.3	22.9	23.3	23.3	22.8	21.1	19.2	17.4	16.1	15.1	23.3	16.8	24	
9		14	14	11	11	11.2	11.1	11.6	12.1	12.8	13.2	14.1	15.1	15.4	15.5	14.1	13.2	11.6	10.4	11.3	10.3	8.5	6.9	5.8	4.3	15.5	11.6	24	
10		3.9	3.8	2.9	1.7	1	2	3.9	5.8	7.5	8.3	8.8	9.6	9.2	8.8	7.5	9.1	9.3	9.4	9	7.9	6.7	6.5	6	5.5	9.6	6.4	24	
11		4.9	4.6	4.3	3.4	3	4.1	5.7	8	9.7	11.2	12.2	13.2	14.1	14.4	14.4	14.7	14.9	14.7	14.3	13.4	11.2	9.8	8.6	7.9	14.9	9.9	24	
12		7.6	6.6	5.7	4.9	4.5	5.6	8.2	10.9	12.9	14.5	16	16.8	17.4	18.6	19.7	20.3	20.2	20.4	19.8	18.6	16.2	15.5	14.6	12.9	20.4	13.7	24	
13		11.8	10.9	10.7	9.3	9	10.6	12.5	15.7	18.2	19.9	21.1	22.6	23.2	24.2	24.2	23.9	24	23.4	22.7	21	18.3	17.1	14.8	14.4	24.2	17.6	24	
14		13.1	13.4	12.6	11.3	11.1	10.9	11.5	12	12.8	13.7	14.6	15.7	16.6	17.6	18.1	18.5	18.4	17.3	16.3	14.5	12.9	12.6	11.9	10.7	18.5	14.1	24	
15		10.3	9.9	9	8.4	8.5	9.3	10.5	12	13.9	15.6	18.1	19.7	20.7	22.1	22.6	23.3	23.4	23.4	23.1	21.3	20	17.7	16	14.7	23.4	16.4	24	
16		13.9	12.3	11.4	10.4	9.7	10.5	11.5	14.4	15.7	17.6	18.3	20	20.7	20.7	22.1	19	17.7	17.2	16.3	14.7	13.5	11	9.1	8.8	8.8	20.7	14.3	24
17		8.6	8.4	7.5	7	6.5	6.5	8.8	10.3	11.8	12.9	13.9	14.7	15.5	16	16.3	17.1	15.5	15.2	13.9	12.5	11.1	9.6	9	7.3	17.1	11.5	24	
18		6.3	5.4	4.3	3.3	3.6	4.8	6.3	7.8	7.6	7.5	8.3	8.5	7.8	6.4	6.3	7.1	6.6	7	6.8	6.3	4.6	3.5	2.9	2.3	8.5	5.9	24	
19		1.6	1.2	1.1	1.1	1.1	2.8	2.7	2.5	3.6	5.1	7.2	8.8	9.4	10.1	10.2	11.1	11.2	11.1	10.7	10	7.9	6.7	5.5	5.4	11.2	6.2	24	
20		5.1	3.3	2.2	1.8	2.3	6.6	8.4	11.6	13.9	15.6	16.4	17.7	18.2	19	18.8	18.4	17.8	17.3	15.2	14	13	11.2	10	8.8	19.0	11.9	24	
21		8.2	7.6	6.1	5.2	4.6	6.5	8.5	12.1	14.7	17.7	18.8	19.5	20.3	20	19.8	19.6	19.7	18.8	18.2	16.6	15	14.3	13.9	13.4	20.3	14.1	24	
22		12.7	11.6	10.5	8.9	8.5	8.2	7.9	7.1	7.1	7.2	7.2	6.9	7.3	7.7	7.9	7.8	7.9	7.7	7.6	7.1	6.5	6.2	6.1	5.9	12.7	7.9	24	
23		5.7	5.5	5.2	5.1	4.8	4.7	4.7	4.8	4.8	4.7	4.8	5.8	6.5	6.9	8.1	8.9	9.4	8.4	8.3	8.1	7.4	6.8	6.4	5.9	9.4	6.3	24	
24		5.2	5	4.9	3.9	3.3	3.8	6.9	7.8	10.1	12	11.8	12.9	13	14.3	14.4	15.2	15.2	15.1	14.5	13.1	11.6	10.6	9.1	8.6	15.2	10.1	24	
25		7.7	7.6	8.8	8.4	8.3	10.6	8.4	13	15.4	16.1	14.8	17.2	17.4	13.8	16.3	15.9	17.1	16.5	12.3	12.3	10.8	10.1	9.1	7.5	17.4	12.3	24	
26		7	6.4	5.9	5.6	5.6	7.8	10.6	12.1	14.4	17.6	17.9	16.9	19.1	19.9	19.5	17.8	19.1	17.9	17.1	15.9	13.7	12.3	11.4	10.1	19.9	13.4	24	
27		9	8.5	7.8	7.3	6.7	8.1	11.1	14	14.4	15.2	16.1	16.9	17.8	18.6	19.1	19.2	18.8	18.7	17.2	15.1	14	13.1	13.4	13.7	19.2	13.9	24	
28		10.4	7.3	6.5	5.8	5.2	6.8	9.9	13	18.2	18.4	18	19.5	19.7	20.4	20.2	20.5	19.8	18.4	18.6	17.2	15.2	13.8	12.4	11.1	20.5	14.4	24	
29		10	10.1	9.5	8.5	6.5	7.8	10.7	13.5	16.2	17.2	18.3	19.5	19.3	19.7	20.2	19.4	19.7	19.4	18.5	16.8	15	13.7	12.8	11.2	20.2	14.7	24	
30		10.1	9.5	9.3	8.6	7.8	9.9	12	14.5	16.8	17.8	19.6	20.6	21.1	20.9	21.9	21.9	21.6	18.2	16.2	14.6	14.1	13.4	12.3	11.2	21.9	15.2	24	
31		9.7	8.8	8.2	7.7	7.7	8.4	11.4	15.2	17.5	18.5	19.5	20.4	20.9	21.1	19.4	17.5	18.9	18.9	18.2	17.3	14.9	13.2	11.8	11.4	21.1	14.9	24	
HOURLY MAX		14.0	14.0	12.6	11.3	11.2	11.1	12.5	15.7	18.2	19.9	21.1	22.6	23.2	24.2	24.2	23.9	24.0	23.4	23.1	21.3	20.0	17.7	16.1	15.1				
HOURLY AVG		7.8	7.2	6.6	6.0	5.6	6.5	8.0	9.9	11.6	12.8	13.7	14.6	15.2	15.5	15.6	15.7	15.7	15.2	14.4	13.2	11.7	10.5	9.7	8.8				

STATUS FLAG CODES

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

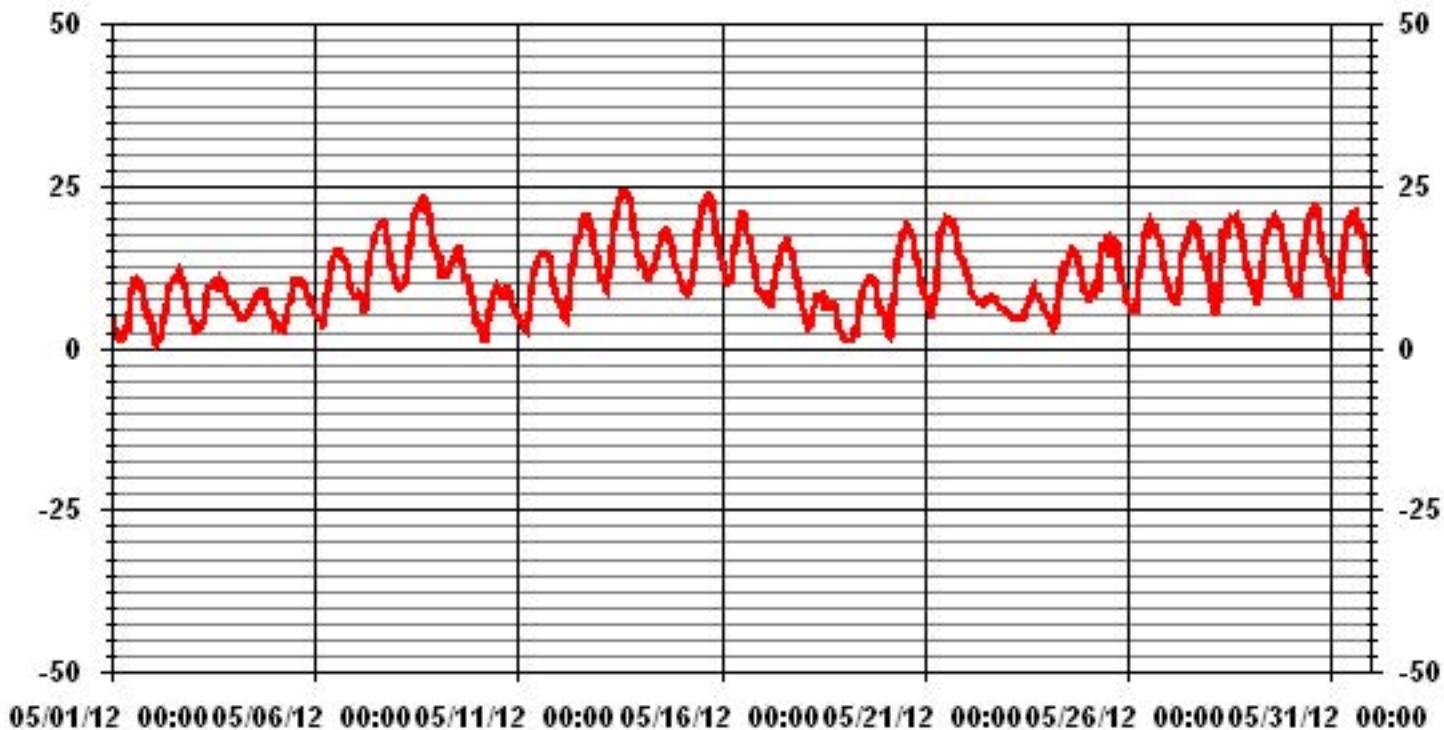
24 HOUR AVERAGES FOR MAY 2012



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	0.5 °C	@ HOUR(S)	2	ON DAY(S)	2
MAXIMUM 1-HR AVERAGE:	24.2 °C	@ HOUR(S)	13, 14	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	17.6 °C			ON DAY(S)	13
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS
STANDARD DEVIATION:	5.46		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	11.31	°C

01 Hour Averages



Barometric Pressure

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 2012

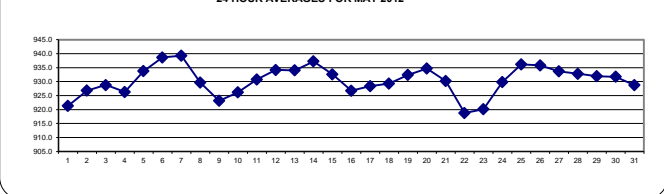
BAROMETRIC PRESSURE hourly averages (millibar)

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		919	919	918	919	919	919	919	920	920	921	921	922	922	923	923	923	923	923	923	923	923	923	923	923	924	924	921.3	24	
2		924	923	923	923	924	924	925	926	927	927	928	928	928	928	929	929	929	929	929	929	929	928	928	928	928	928	929	926.8	24
3		928	928	928	929	929	929	929	930	930	930	930	930	930	930	930	929	929	929	929	929	928	928	928	927	927	930	928.8	24	
4		926	926	925	925	924	924	924	925	925	925	925	926	926	926	927	927	927	927	928	928	928	928	929	929	929	929	926.3	24	
5		929	929	930	930	930	931	931	932	933	934	935	935	935	935	936	936	936	936	936	936	936	936	936	937	937	937	933.8	24	
6		936	936	936	936	936	937	937	938	939	939	940	940	940	940	940	940	940	940	940	940	940	940	940	939	939	940	938.7	24	
7		939	939	939	940	939	939	940	940	941	942	941	941	941	941	941	940	940	940	938	937	937	936	936	935	942	939.3	24		
8		935	934	934	933	933	933	932	932	932	932	931	931	931	930	929	929	928	928	927	926	924	924	923	922	922	935	929.7	24	
9		921	920	920	920	921	921	922	923	923	924	924	924	924	925	925	925	924	924	925	925	924	924	924	924	924	925	923.2	24	
10		924	924	925	925	925	925	926	926	927	926	927	927	926	927	927	927	927	927	927	927	927	927	927	927	927	927	926.2	24	
11		928	928	928	928	928	928	929	930	930	931	931	931	932	932	932	932	933	933	933	933	933	932	932	932	932	933	930.8	24	
12		933	933	933	933	933	934	935	935	936	936	936	936	936	935	935	935	935	934	934	933	932	933	933	932	936	934.2	24		
13		932	932	933	933	933	933	934	935	935	936	936	936	936	936	935	935	935	934	934	933	933	933	933	932	936	934.0	24		
14		933	933	934	934	934	935	936	936	937	937	938	939	939	940	940	940	940	940	939	939	938	938	938	937	940	937.3	24		
15		936	936	936	935	935	935	935	935	935	935	935	934	933	933	932	932	931	930	929	928	928	927	927	936	932.6	24			
16		927	927	927	926	925	925	926	927	927	928	928	928	928	928	927	927	927	926	926	926	926	926	926	926	926	928	926.8	24	
17		926	926	927	927	927	927	928	928	929	929	929	930	930	930	930	930	930	929	929	928	928	928	928	928	930	928.4	24		
18		928	927	927	928	928	928	929	929	929	930	930	930	930	930	930	930	930	930	931	930	930	929	929	931	931	929.3	24		
19		929	929	929	929	930	930	931	931	932	932	932	933	933	934	934	934	935	935	935	935	935	934	934	934	933	935	932.4	24	
20		933	933	933	933	933	934	935	936	936	937	937	937	937	937	936	936	935	934	934	933	933	932	932	932	937	934.7	24		
21		931	931	931	930	930	930	931	931	932	933	933	933	932	932	931	930	930	929	928	927	927	926	926	933	930.3	24			
22		925	924	923	922	921	921	920	919	919	918	918	918	918	917	917	917	917	917	917	917	917	917	916	916	925	918.8	24		
23		916	916	916	916	916	917	917	917	918	918	919	920	920	921	922	922	923	923	923	924	924	925	925	925	925	925	920.1	24	
24		925	925	925	925	925	926	927	928	929	930	930	931	931	932	932	932	933	933	933	933	933	933	933	933	933	933	929.9	24	
25		933	934	934	934	934	935	936	936	937	938	938	938	938	937	937	938	937	938	937	937	936	935	935	935	938	936.1	24		
26		935	934	934	934	934	934	935	936	937	938	938	937	938	938	937	937	937	936	936	935	934	934	934	934	934	938	935.8	24	
27		933	933	933	933	933	933	934	935	935	935	935	935	935	935	935	935	934	934	934	933	932	932	931	931	935	933.7	24		
28		931	930	930	930	930	930	931	932	933	934	934	934	934	935	935	935	935	935	935	935	933	932	932	932	935	932.8	24		
29		931	931	931	931	930	931	932	932	933	933	933	934	933	933	933	933	932	932	932	931	931	931	931	930	934	931.9	24		
30		930	930	930	930	930	930	931	932	933	933	933	933	934	933	933	934	934	933	932	932	931	931	930	930	934	931.8	24		
31		930	929	929	929	928	929	929	930	930	931	930	930	930	930	929	929	928	928	928	927	926	926	926	931	928.7	24			
HOURLY MAX		939	939	939	940	939	939	940	940	941	942	941	941	941	941	940	940	940	940	940	940	940	940	939	939					
HOURLY AVG		929	929	929	929	929	930	930	930	931	931	931	932	932	932	932	932	931	931	931	931	930	930	930	930					

STATUS FLAG CODES

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

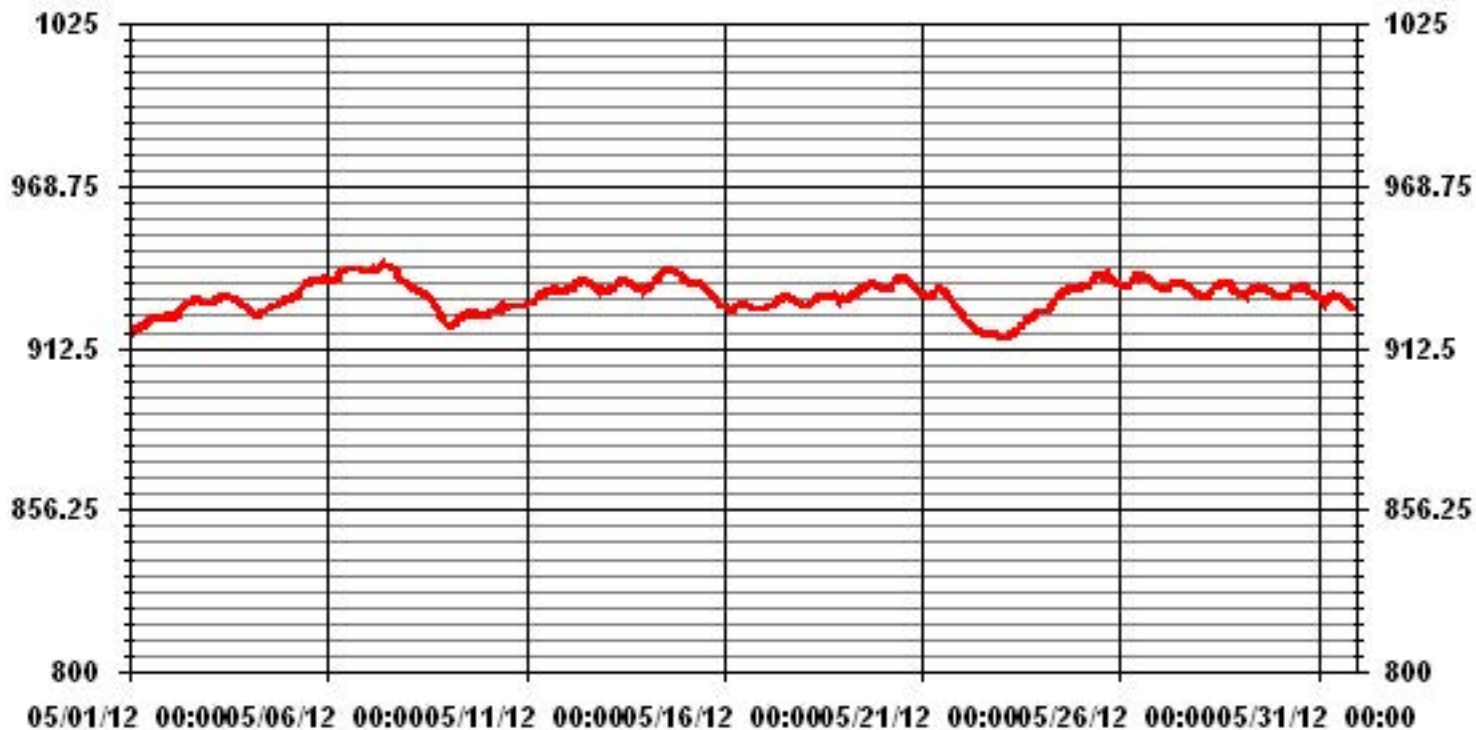
24 HOUR AVERAGES FOR MAY 2012



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	942	MB	@ HOUR(S)	9	ON DAY(S)	7
MAXIMUM 24-HR AVERAGE:	939.3	MB			ON DAY(S)	7
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
			AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	5.42		MONTHLY AVERAGE:	930	MB	

01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 2012

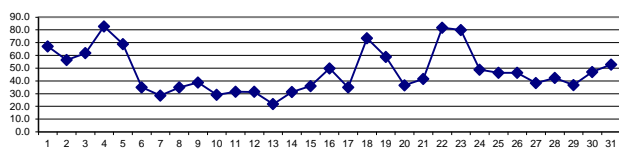
RELATIVE HUMIDITY hourly averages (%)

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			
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		65	71	75	80	85	88	90	90	88	84	72	62	56	47	44	45	44	48	52	56	62	65	68	73	90	67.1	24		
2		79	83	86	86	86	84	78	73	65	57	51	48	46	41	38	35	35	34	34	35	38	42	47	50	86	56.3	24		
3		51	58	70	78	82	82	79	73	64	55	52	51	50	52	55	52	53	54	55	57	61	63	66	68	82	61.7	24		
4		68	70	78	84	88	89	89	89	89	88	88	87	83	83	80	77	73	76	74	81	85	86	90	91	91	82.8	24		
5		91	91	91	91	91	91	91	91	91	87	84	71	48	46	44	43	44	42	43	48	49	60	62	64	91	68.9	24		
6		69	70	71	65	59	52	45	40	35	32	25	20	19	19	17	19	18	18	18	21	24	26	27	29	71	34.9	24		
7		31	31	30	31	37	41	43	34	29	21	19	19	19	19	19	20	20	20	25	27	32	37	39	42	43	28.5	24		
8		45	46	47	47	47	46	43	40	33	28	25	23	23	26	26	26	26	25	24	27	32	39	44	48	48	34.8	24		
9		51	46	56	53	44	39	39	43	42	42	40	36	31	30	34	35	35	37	26	28	32	35	36	41	56	38.8	24		
10		35	31	33	38	39	38	37	34	27	23	19	19	18	22	27	23	22	18	20	24	30	33	41	45	45	29.0	24		
11		47	49	49	48	47	44	40	33	29	26	24	22	20	20	20	19	19	20	22	24	28	32	35	37	49	31.4	24		
12		39	43	46	48	50	49	44	38	33	29	27	26	25	22	21	19	20	19	19	22	26	28	28	32	50	31.4	24		
13		35	37	35	39	40	35	34	24	20	14	13	11	11	10	11	11	12	13	16	19	21	26	26	40	21.8	24			
14		29	29	31	35	34	36	36	29	27	32	35	33	31	27	24	22	20	22	28	33	37	37	40	43	43	31.3	24		
15		43	45	50	54	57	56	52	48	41	37	30	28	27	23	21	20	20	20	21	26	29	34	38	42	57	35.9	24		
16		44	51	52	56	58	56	55	47	46	41	39	30	27	27	32	37	40	37	41	48	68	86	88	89	89	49.8	24		
17		72	51	44	50	58	60	51	40	33	24	20	15	15	16	15	14	15	16	20	24	30	38	51	64	72	34.8	24		
18		68	70	74	79	80	77	66	58	62	67	64	62	70	77	78	74	78	74	74	75	82	83	84	86	86	73.4	24		
19		88	89	89	87	86	82	84	87	81	70	58	49	43	39	36	33	32	30	30	32	39	45	51	51	89	58.8	24		
20		49	56	63	67	64	48	50	41	30	24	21	20	18	17	17	18	20	22	30	34	34	39	43	49	67	36.4	24		
21		51	53	58	60	62	58	55	48	44	38	34	30	23	24	26	28	27	30	32	38	41	46	46	45	62	41.5	24		
22		49	54	60	70	72	75	76	82	84	86	88	89	89	89	89	89	89	90	90	90	89	90	90	90	90	81.6	24		
23		90	90	90	91	90	90	90	89	88	87	87	84	79	78	72	70	65	71	61	63	68	72	74	78	91	79.9	24		
24		80	76	67	69	70	68	60	60	53	44	43	39	39	36	35	32	31	30	31	37	39	41	45	47	80	48.8	24		
25		54	54	53	53	52	46	59	46	40	36	37	28	25	42	33	33	33	37	54	53	57	58	62	69	69	46.4	24		
26		73	75	75	74	74	68	62	59	51	38	30	29	23	22	24	28	28	29	31	34	41	44	47	51	75	46.3	24		
27		53	54	56	58	59	56	50	46	40	31	27	26	25	26	25	25	26	26	29	35	38	38	35	33	59	38.2	24		
28		49	65	72	78	80	74	65	55	39	30	29	26	27	24	23	23	23	26	26	31	34	38	38	39	80	42.3	24		
29		40	34	36	41	54	53	48	46	40	37	34	30	30	28	26	27	26	24	26	32	37	41	43	48	54	36.7	24		
30		51	53	54	57	60	52	50	49	46	41	35	28	25	23	22	24	32	46	51	57	62	65	69	75	75	47.0	24		
31		81	85	86	87	80	75	68	52	41	37	33	27	28	35	41	38	37	40	50	57	61	63	87	87	52.8	24			
HOURLY MAX		91	91	91	91	91	91	91	91	91	88	88	89	89	89	89	89	89	90	90	90	89	90	90	91					
HOURLY AVG		57.1	58.4	60.5	63.0	64.0	61.5	59.0	54.3	49.4	44.7	41.4	37.7	35.2	34.9	34.5	34.2	34.3	35.2	36.7	40.3	44.9	49.0	52.1	55.1					

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

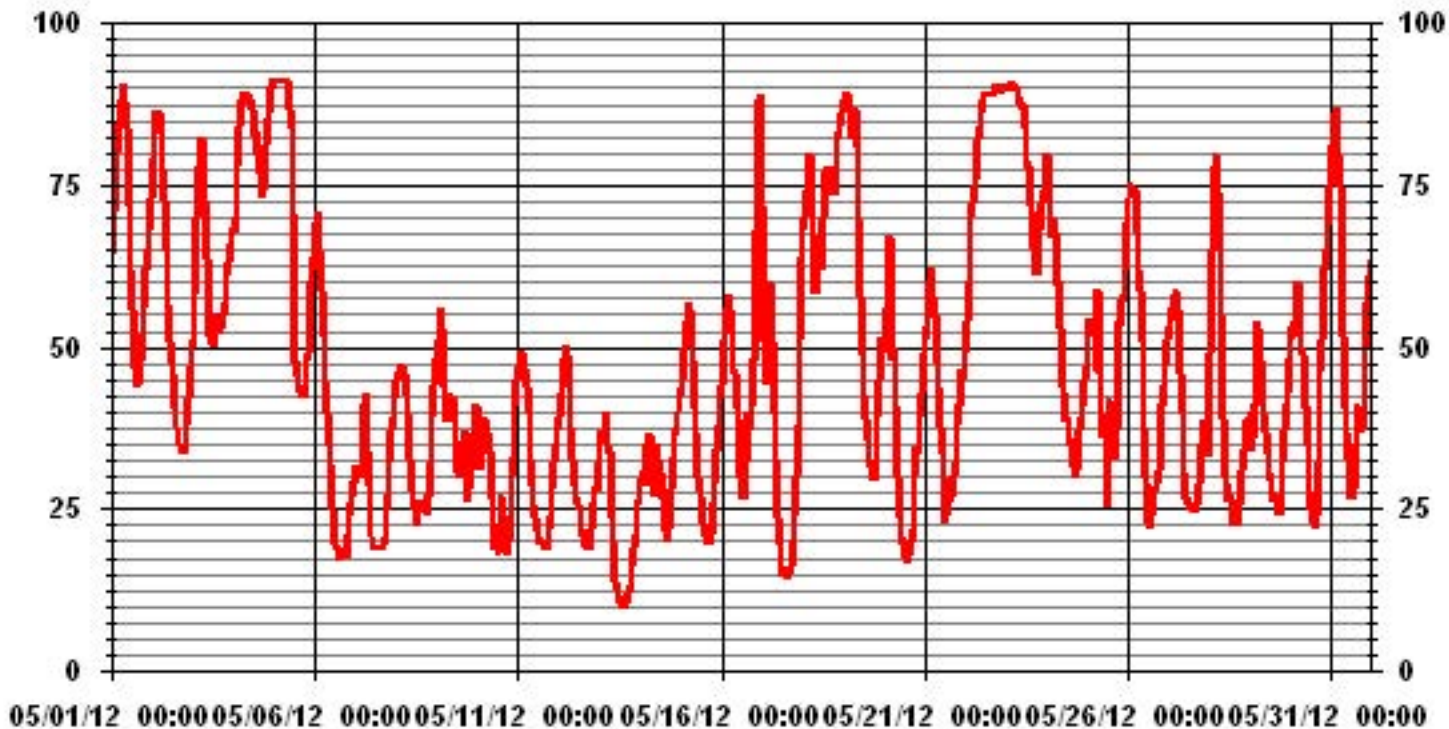
24 HOUR AVERAGES FOR MAY 2012



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	91	%	@ HOUR(S)	VAR	ON DAY(S)	4, 5
MAXIMUM 24-HR AVERAGE:	82.8	%			ON DAY(S)	4
					VAR-VARIOUS	
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	21.85		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	47.40	%	

01 Hour Averages



Precipitation

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 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	23:00	DAILY	DAILY		
HOUR START	HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	TOTAL	RDGS.		
DAY																														
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	0.5	0.9	0.9	0.1	0.1	0.2	0.4	0.1	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0	0.9	3.4	24	
5		0	0.1	0	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3	24		
6		0	0	0	0	0	0	0	0	0	0	0	0	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		0	0	0	0	0	0	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	3.6	1.6	0.1	0	3.6	5.3	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	0.1	0.2	0.3	0	0	0	0	0	0	0	0	0	0.3	0.6	24	
19		0	0	0	0	0	0	0.3	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4	24	
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0.2	0.1	0	0	0	0.7	0.8	2.4	2.1	3.6	1.7	2.3	1.8	2.6	1.2	1.5	1.3	1.8	1.8	2	1.6	1.8	3.6	31.3	24		
23		1.4	1.3	2	2	2.1	1.7	1.3	1.2	1.1	1.4	0.7	0.3	0.2	0.2	0.1	0	0	0.2	0	0	0	0	0	0	2.1	17.2	24		
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
31		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	24	
HOURLY MAX		1.4	1.3	2.0	2.0	2.1	1.7	1.3	1.2	1.1	2.4	2.1	3.6	1.7	2.3	1.8	2.6	1.2	1.5	1.3	1.8	3.6	2.0	1.6	1.8					

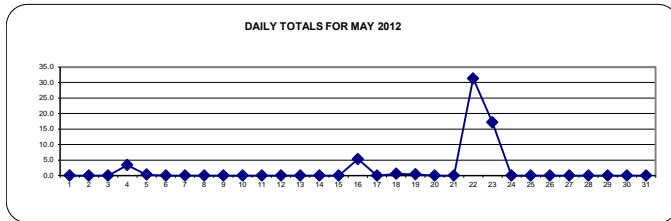
STATUS FLAG CODES

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

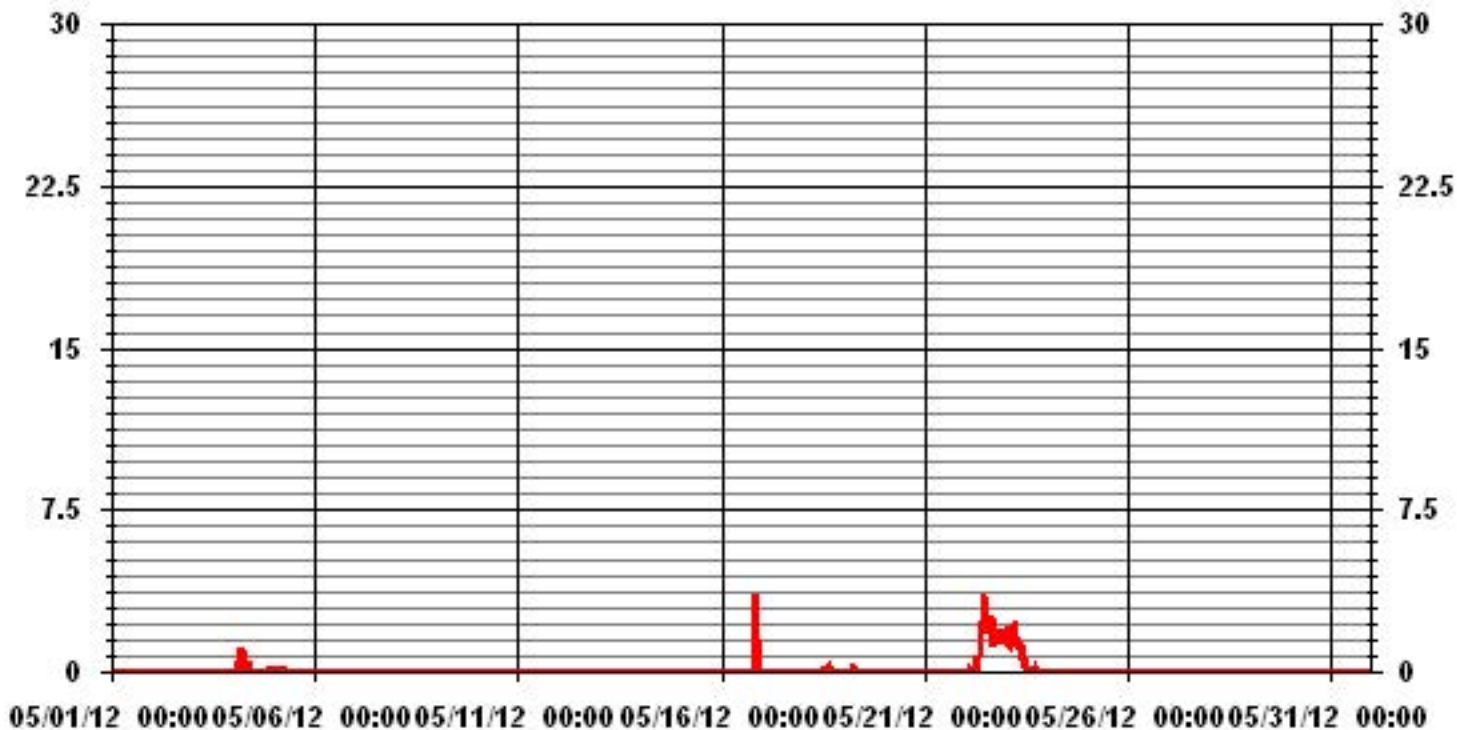
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	3.6	MM	HOURLY(S)	11	ON DAY(S)	22
MAXIMUM DAILY TOTAL	31.3	MM			ON DAY(S)	22
MONTHLY TOTAL	58.5	MM				
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:	744	HRS	
STANDARD DEVIATION:	0.37		AMD OPERATION UPTIME:	100.0	%	
			MONTHLY AVERAGE:	0.08	MM	

DAILY TOTALS FOR MAY 2012



01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

MAY 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	5.2	6.7	7.5	8.2	8.3	6.9	6.3	7.1	7.6	6.8	5	6.1	5	5.6	6.3	9.3	5.6	5.3	6.2	7.4	8.6	9.4	6.7	3.3	9.4	6.4	24	
2	5.3	8.3	7.8	5.7	7.3	7.9	5.6	5.5	5	5.5	5.2	6	7.2	8.1	9	5.9	10.3	10.7	12	11.7	8.8	7.1	5.4	5.7	12	6.9	24	
3	11	10	12.3	11.8	6.2	3.8	9.4	14.5	17.9	15.9	15.1	15.2	17.1	17.1	14.8	14.2	13.6	15.1	11.3	9	10.5	10.1	9.9	10.4	17.9	9.8	24	
4	12.8	10.7	10.7	7.7	6.2	6.5	7.6	9.9	9.2	10.6	9.5	9.2	8.3	6.7	7.7	10.6	10.3	7.2	8.8	15.3	6.1	8	2.7	17.9	17.9	6.8	24	
5	14.2	1.7	7.4	4.3	7.4	11.4	7.2	5.7	4.7	12.5	10.9	10.1	11.9	11.1	9.9	3.9	7.1	10.7	9	1.1	5.2	5.8	2.7	2.8	14.2	2.9	24	
6	4.3	7.1	10.3	12.1	12.6	13.5	12.6	14.1	11.7	12.1	13.7	13.2	11.8	10.6	9.6	6.9	5.6	5.1	7.1	9.4	12.5	11.6	13.2	14.9	14.9	8.4	24	
7	13.5	13.2	13.3	15.6	7	7.6	5.1	6.7	7.3	5.5	8.6	9.5	10	10.3	10.2	8.9	11	10.9	11.7	14.4	16.5	16.8	16.5	16	16.8	6.6	24	
8	14.5	12.8	14.9	14.4	13.5	12.3	11.6	15.4	9.1	9.9	5.4	9.7	7.9	8.3	9.9	5.5	7	8.4	9.5	10.3	11.6	9	8.4	10.3	15.4	4.5	24	
9	12.7	10.2	11.9	13.7	13.5	15	12.8	10.1	9.5	12	9.9	9.2	6.2	10.4	13.2	12.2	12.4	11	10.7	14.2	14.1	14.6	12	9.5	15	10.2	24	
10	12.2	15.6	12.6	10.2	10.3	12.8	14.7	13.3	6.5	9.5	11.3	9.7	12.4	7.7	5.7	2.4	9.2	3.5	7.1	4.1	6.1	4.9	4.2	6.7	15.6	5.4	24	
11	4	3.6	4.7	4.3	3.5	3.6	4.9	3.2	4.1	3	6.6	7.1	8.8	9.4	8.5	5.8	8	7.2	3.1	5.2	11.6	12.6	9.3	10.5	12.6	0.3	24	
12	9.9	9.8	8.8	9.1	9.2	7.7	7.6	3.8	4.5	4.6	10.6	9.5	7.6	8.5	7.8	10.8	9.4	2.6	3.5	4.6	11.3	12.3	10.4	10.9	12.3	2.3	24	
13	9.1	8.3	7.9	9.7	7.6	7	8.7	5.8	5.4	3.4	1.6	3.7	6.3	4.1	6.7	3	1.9	2.9	10.5	13.3	14.8	12.5	11.2	9	14.8	5.6	24	
14	7.8	8.7	8.4	7.3	9.2	9.6	10.7	11.4	14.7	15	16.7	14.9	17.5	16.3	15.3	14.1	14.2	11.3	9.5	14.8	12.8	8.5	6.1	6.7	17.5	8.2	24	
15	14.8	13.2	12.9	12.4	15.2	16.2	18.1	19.9	15.3	14.1	17.1	12.8	17	17.7	17.8	17.1	M	C	C	7.6	9.8	14.1	13.2	6.4	19.9	12.9	23	
16	1.4	5.6	7.4	6.9	7.4	5.7	7	6.8	7.4	8.4	9.2	11.3	11.1	14.5	16.9	16.1	16.1	16.8	15.1	10.4	7.6	5.9	4.3	2	16.9	6.9	24	
17	7.9	12.3	17.9	18.3	11.4	10.5	11.6	15.7	12	11.6	12.3	11.9	10.5	11.1	8.4	7.1	6.1	7	5.5	4.8	8.2	7.1	9.8	11.8	18.3	8.8	24	
18	10.6	9	4.7	5.6	3	5.6	10.9	11.7	8.5	5.7	6.5	4.5	3.9	8.9	7.7	5.2	5.3	3.5	2.8	2.5	6.8	7.9	8.8	8.2	11.7	3.8	24	
19	10.2	13.1	11.4	12.3	11.3	10.9	13	13.1	14.9	18.3	17.9	18.4	20.5	20	21	21.4	18.4	14.5	12.1	8.3	5.9	6.9	7.9	10.4	21.4	13.6	24	
20	9.8	8.6	7.8	6.6	7.3	4.8	5.4	6.3	7.8	7.7	8.4	9	11.2	7.4	8.3	5	4.5	4.3	4.3	5.5	8.5	9.8	10.5	11	11.2	3.2	24	
21	12.7	11.9	11	11.4	11.6	11.8	11.1	11.5	10.7	12.1	15	18.1	15	16.4	15.3	16.4	19.2	16.3	18	14.1	15.6	15.9	17.7	17.9	19.2	13.9	24	
22	17.3	16.4	17.2	17.7	18.3	19.8	18.9	16.8	17.1	17.7	20	20.9	19.4	19.2	20.6	18.7	17.4	13.6	15.8	17.4	17.4	17.3	17.1	16.1	20.9	17.6	24	
23	14.8	14.7	13.6	14.5	14.2	13.8	14.8	16.3	15.7	17	13.4	15	15.3	12.8	12.2	9.9	6.7	5.6	5.3	3.7	7.2	8.7	10.9	9.1	17	9.9	24	
24	7.3	6.9	8.4	8	7.7	7.3	8.4	7	6.7	9.9	9.7	8.7	7.8	6.8	7.5	7	7.5	9.2	8.6	5.2	4.8	6.2	7.8	7.9	9.9	6.6	24	
25	6.9	8.1	6	4.9	6	2.5	7.9	3.6	3.4	6.2	5.1	6.6	9.2	11.2	8.1	3.3	9.8	2.4	8.7	5.6	7.8	8.9	8.5	6.9	11.2	0.4	24	
26	7.5	6.6	7.2	7	6.6	5.7	5.4	6.7	7	6	6.1	2.9	5	9.4	10.4	9.3	12.6	13.6	10.6	9.5	9.5	9.6	9.8	10.2	13.6	7.5	24	
27	9.3	10.2	10.2	10.1	8.5	7.3	4.7	6.3	12.3	14.5	15.6	17	12.8	9.6	8.1	5.8	7.8	7.8	10.3	7.3	6.8	7.6	5.7	3	17	7.8	24	
28	8.3	11.4	9.8	8.8	10.8	10.5	8.7	6.1	2.1	5.5	7.6	8.7	8.3	8.3	6.8	6.2	6.9	5.3	6.3	5.9	9	10.4	11	9.9	11.4	5	24	
29	9.6	9.7	9.3	6.3	4.6	7.3	7.1	6.9	7	9.2	9	8.3	11.4	12.6	13.1	11.1	11.7	11.5	9.9	8.1	7.9	8.4	8.9	9	13.1	8.3	24	
30	9.4	9.9	10.1	9	8	6.3	4.9	4.1	4.6	8.5	6.4	8.5	10.7	9	8.2	6.3	13.7	20.9	15.5	7.8	5.3	8	9.2	7.5	20.9	7.9	24	
31	6.8	7.6	6.7	5.7	6.3	6.2	6.7	10.6	11.2	12.6	13.7	13.4	11.3	16.2	17.7	13.9	19.5	23.2	23.5	13.2	8.2	7.7	9.7	11.2	23.5	10.8	24	
HOURLY MAX	17.3	16.4	17.9	18.3	18.3	19.8	18.9	19.9	17.9	18.3	20.0	20.9	20.5	20.0	21.0	21.4	19.5	23.2	23.5	17.4	17.4	17.3	17.7	17.9				
HOURLY AVG	9.7	9.7	10.0	9.7	9.0	9.0	9.3	9.5	9.1	10.0	10.4	10.6	10.9	11.1	11.1	9.5	10.3	9.6	9.7	8.8	9.6	9.8	9.3	9.5				

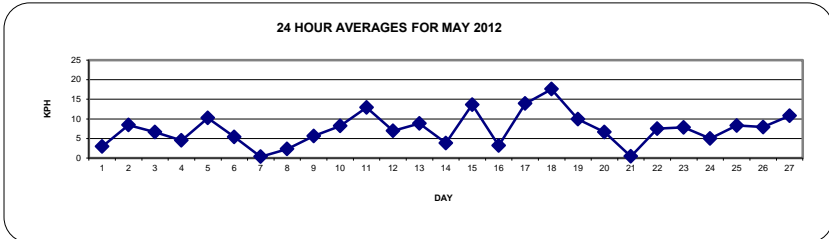
STATUS FLAG CODES

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

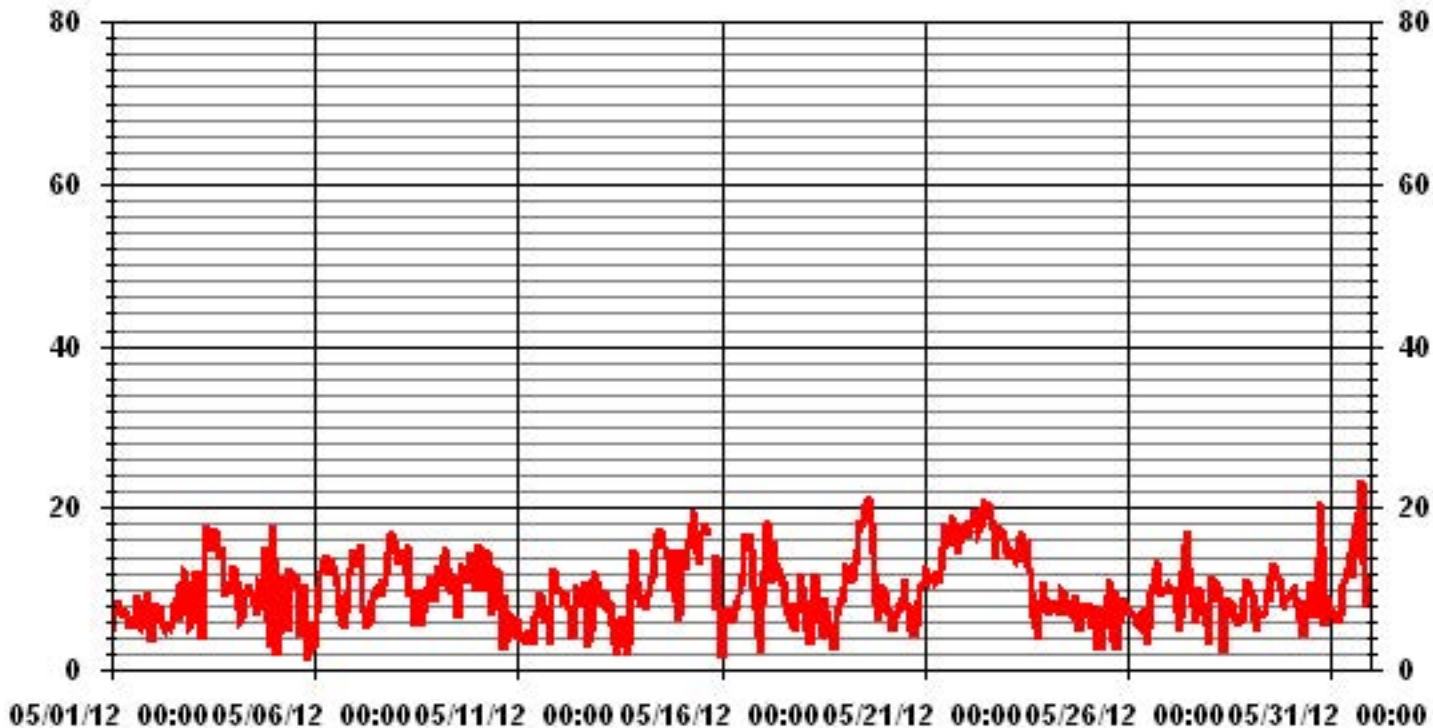
LAST CALIBRATION: May 15, 2012

MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	23.5 KPH	@ HOUR(S)	18	ON DAY(S)	31
MAXIMUM 24-HR AVERAGE:	17.6 KPH			ON DAY(S)	22
CALMS (≤ 0 KPH)	0.00 %	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	2 HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	4.14	MONTHLY AVERAGE:	9.80	KPH	



01 Hour Averages



— LICA31 WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST. LINA

MAY 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	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00		
DAY																										
1	20.2	15.8	15.8	17.1	16.9	26.7	19.3	21.5	27.2	29.2	34.6	26.9	26.7	27.8	26.9	26.5	24.1	33.1	17.8	14.7	14.3	15.1	28.7	28.8	34.6	
2	12.5	14.3	15.6	16.5	15.1	15.8	29.2	17.3	18	19.5	21.7	27	21.9	21.3	20.6	22.1	19.1	20.4	17.3	16.5	14	14.7	26.9	13.2	29.2	
3	17.5	18.2	21.9	24.1	19.1	9.7	27	25.4	38.3	41.4	44	46	46.2	43.4	37.7	37.5	34.2	41.4	38.8	27.4	27.2	28.3	27	34.8	46.2	
4	35.5	28.3	28.3	23	23.7	26.1	22.6	25.2	24.1	22.1	21	32.2	18.9	14.9	19.9	19.3	18.6	18.4	18	20.4	18	16.9	31.8	32.4	35.5	
5	20	26.9	31.8	17.5	23.2	22.4	19.1	0	21.7	22.4	20.8	22.8	28.5	23.5	20.6	34.6	33.8	20.4	20.4	20.6	11	11.6	14.7	10.5	34.6	
6	9.4	15.4	21.7	23	26.5	25.2	25.2	29.6	32.3	25.4	47.1	43.6	57.1	47.7	50.3	48.4	48.6	48.2	41.4	28.7	19.7	16.9	17.5	20	57.1	
7	19.7	18.9	16.5	18.7	18.6	9.4	10.3	13.4	25.4	22.6	26.5	23.9	31.4	31.6	35.7	33.3	26.9	28.3	18.9	20	21.7	21.7	22.3	21.5	35.7	
8	22.8	27.4	28.1	29.8	30	27.6	29.8	35.7	48.2	60.7	50.2	56.7	52.7	42.3	43.1	36.8	35.9	31.8	25.8	23	17.5	15.3	14.9	15.8	60.7	
9	15.4	25.2	31.1	30.7	43.4	44.2	62.8	54.7	45.1	45.8	51.7	44	43.6	42.7	36.6	35.3	41	40.7	30.9	31.6	20.8	20.6	21.3	19.5	62.8	
10	27.4	34.2	25.8	23.7	18.7	23	25	50.4	38.8	43.2	50.4	44.9	50.6	56.9	50.4	37.2	34	38.8	33.1	32.9	17.5	17.1	14.7	20.6	56.9	
11	20.4	15.6	16.5	19.7	35.1	39.9	35.9	38.1	42.5	32.2	40.1	53.8	49.9	42.9	49.7	45.6	41.4	34.8	39.7	16.7	14.7	15.8	15.1	14.9	53.8	
12	15.8	15.6	14.7	14.3	15.1	13	18.7	34.4	40.1	39.9	34.4	35.9	41.2	43.6	49.5	45.3	45.1	36.1	40.3	15.6	18	18.9	18.3	17.8	49.5	
13	17.5	14.2	16.2	16.2	15.2	15.6	14.9	16.2	19.7	23.9	34.8	41.4	37.5	39	44.7	30.2	26.7	35.2	26.5	20.4	20.2	21.5	19.9	18.2	44.7	
14	21	26.1	20.8	18	28.7	32.6	33.8	44.5	48.4	51.6	46.5	47.7	51	41.6	43.1	39.6	38.3	32.7	21.7	18.9	16.2	18.9	8.8	16.5	51.6	
15	19.3	18.9	19.9	20.2	23.9	30	37.2	39.2	35.5	32	38.1	40.5	44.2	44.9	39.6	35.7	M	C	C	14.7	31.1	34.4	25.6	22.4	44.9	
16	11.9	11	13.4	12.4	13.8	14	15.1	17.5	17.2	19.4	23.6	27.9	26.8	32.2	36.3	35.8	34.9	39.2	35.1	25.6	18.9	15.2	8.6	8.1	39.2	
17	24.9	32.7	45.4	45	31.6	23.1	28.2	35.9	31.6	27.8	29.8	35.2	26.4	34.2	31.7	26.5	18.9	20.2	15.4	11.4	21.2	22	22.2	24.3	45.4	
18	21.3	22.6	13.4	9.9	15.5	15.8	26.3	27.3	21.6	14.6	21.1	16.8	18.1	17.4	15.4	12.1	13.3	10.1	9.3	6.9	16.1	14.5	18.6	22.3	27.3	
19	16.2	19.5	18.9	22.8	24.1	22.4	28.2	28	34.3	39.6	43.3	45.5	51.4	47.9	45.4	52.9	42	37.3	33.2	19.9	9	10.1	10	15.6	52.9	
20	16	12.3	10.4	8.8	8.8	8.2	18.8	15.2	18.8	23.1	25.3	27.6	35.4	34.3	26.1	20.3	18.9	15.8	10.9	9.2	17.1	17.1	17.1	18.9	35.4	
21	22.6	24.9	18.5	18.2	22	21.6	21.6	25.6	23.6	31.4	34.1	45.2	34.8	37.7	35.8	36.2	39.3	35.1	36.5	33.2	35.4	35.1	45.4	36	45.4	
22	37.8	34.9	37.3	41	39.3	41.4	40.6	39	38.1	39.2	47.5	45.4	40.8	43	44.7	37.9	40.4	31.9	35.5	43.3	37.1	36.2	35.8	36.7	47.5	
23	0	33.5	30.6	31.3	0	31.4	34.1	37.7	37.9	37.9	33.4	35.5	39.2	30.1	38.7	25.6	17.4	18.6	32.6	6.6	11.4	13.9	18.5	15.9	39.2	
24	12.5	12.5	15.2	14.5	14.4	13.8	20.9	15.9	21.3	30.4	24.1	24.6	21.6	18.9	24.1	28.8	23.8	21.5	27.1	16.1	8.7	9.7	13.5	16	30.4	
25	12.8	20	25.3	8	8.5	6.6	20.3	13.6	12.5	20.8	19.5	21.2	23.2	34.1	22.7	20.9	26.8	30.4	24	20.3	11.9	15	15.1	15.6	34.1	
26	12.2	12.7	11.5	11.6	10	8.8	18.7	14.6	18	17.4	19.5	14.5	20.6	26.1	25.6	24	28.3	27.8	22.3	21.6	15.9	18.8	18.5	19.2	28.3	
27	14.4	16.2	15.9	17.2	16.6	14.5	10.9	20.5	29.6	35.4	43	43.6	31.4	29.3	27.9	28.6	21.8	23.4	28.1	12.4	9.3	10.3	9.1	4.2	43.6	
28	22.2	21.6	24.8	21.8	17.3	16.9	16.2	12	8.9	18.3	24.1	27	26.6	27.1	24.2	26.8	21.7	16.4	18.6	11.7	15.4	18	18.7	19.2	27.1	
29	17	17.2	14.9	11.7	12.7	13.5	15.6	15.2	19.3	23.1	23.6	27.5	35	33.4	40.8	31.5	32	28.2	22.3	18.3	13	12.7	13.7	13.4	40.8	
30	11.9	13.4	14.5	15.8	12.4	12.4	12.4	12	14.5	21.9	24.9	26.1	32.2	27.9	25.3	21.6	35.7	44.8	31.6	20.5	11.6	17.4	18.4	15.4	44.8	
31	10.2	11	9.5	8.3	10.6	10.2	18	27.6	28.5	32.4	36.8	40	34.3	35.5	40.7	36.3	41.1	43.8	43.7	25.9	20	12.5	19.1	19.1	43.8	
PEAK	37.8	34.9	45.4	45.0	43.4	44.2	62.8	54.7	48.4	60.7	51.7	56.7	57.1	56.9	50.4	52.9	48.6	48.2	43.7	43.3	37.1	36.2	45.4	36.7		

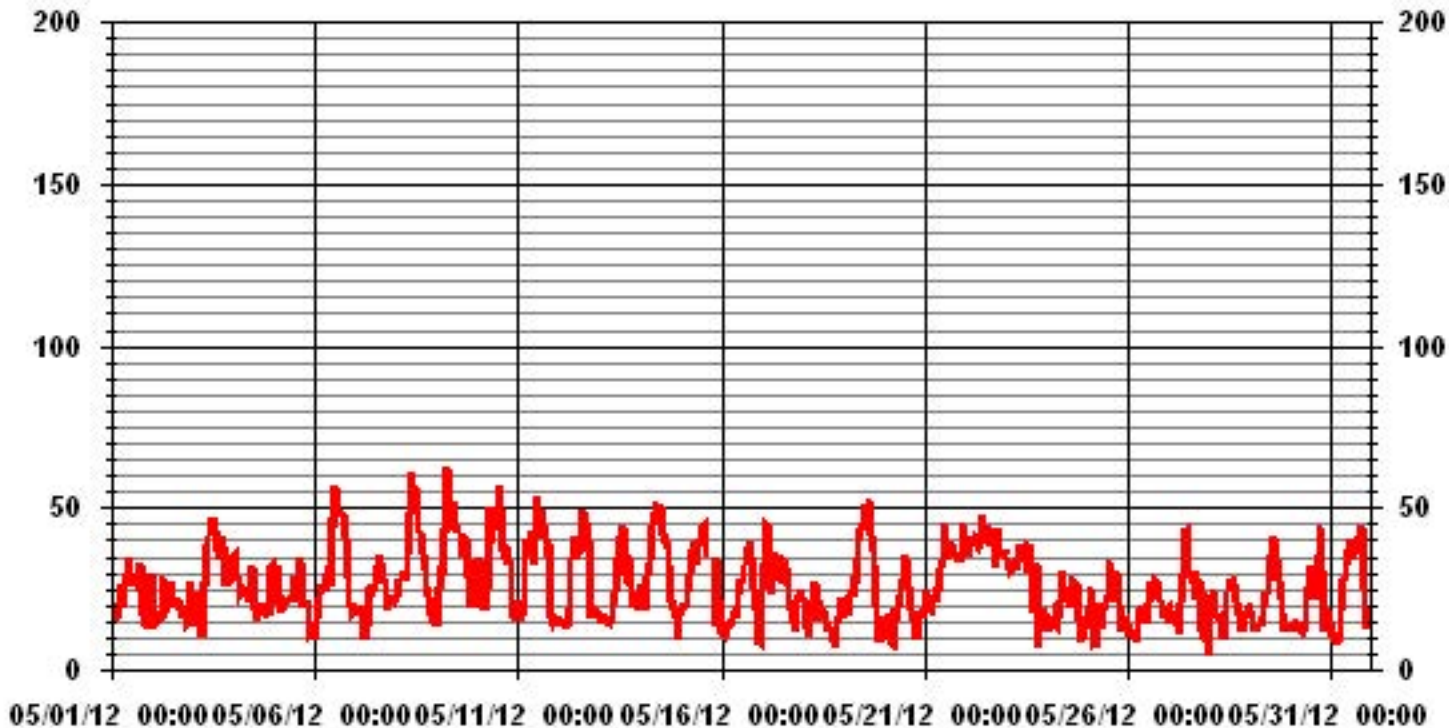
STATUS FLAG CODES

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	62.8	KPH	@ HOUR(S)	6
			ON DAY(S)	9

01 Hour Averages



LICA31
WSP / WDR Joint Frequency Distribution (Percent)

May 2012

Distribution By % Of Samples

Logger Id : 31
Site Name : LICA31
Parameter : WSP
Units : KPH

Wind Parameter : WDR
Instrument Height : 10 Meters

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	.40	.80	1.61	.80	.80	.53	1.21	.26	1.75	1.75	.53	1.21	1.48	1.75	1.07	1.34	17.40
< 12.0	1.48	1.88	2.56	2.69	3.77	2.15	2.83	2.56	4.31	4.58	3.91	5.26	5.12	4.18	3.50	4.31	55.19
< 20.0	.40	.94	2.29	2.56	1.48	1.21	1.07	.40	2.15	2.29	2.02	1.75	2.83	1.75	1.48	1.34	26.04
< 29.0	.00	.00	.00	.40	.00	.00	.00	.00	.00	.00	.00	.40	.13	.40	.00	.00	1.34
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.29	3.64	6.47	6.47	6.07	3.91	5.12	3.23	8.23	8.63	6.47	8.63	9.58	8.09	6.07	7.01	

Calm : .00 %

Total # Operational Hours : 741

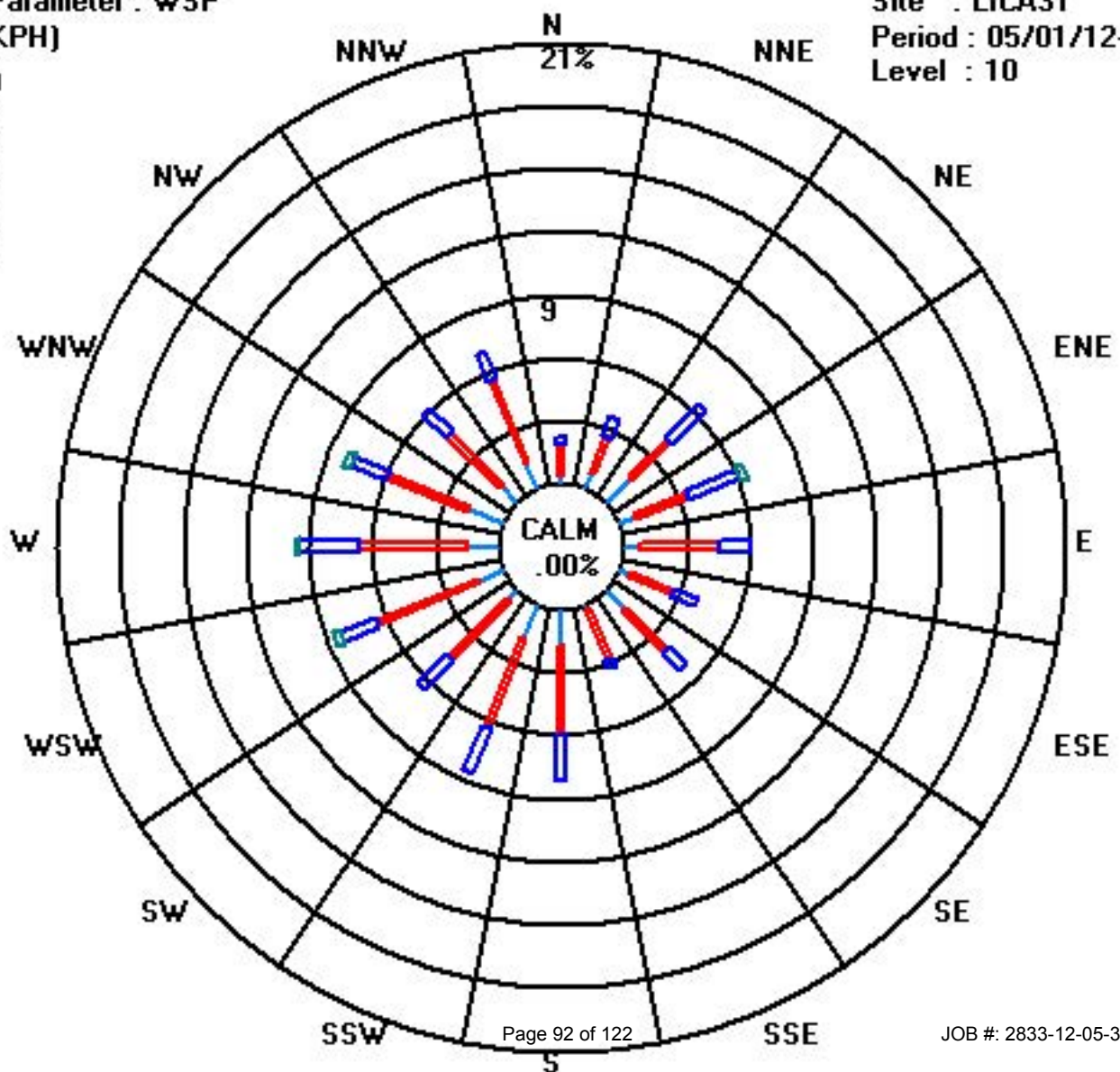
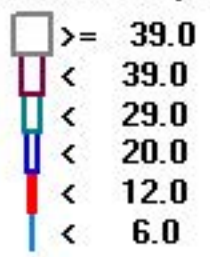
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	3	6	12	6	6	4	9	2	13	13	4	9	11	13	8	10	129
< 12.0	11	14	19	20	28	16	21	19	32	34	29	39	38	31	26	32	409
< 20.0	3	7	17	19	11	9	8	3	16	17	15	13	21	13	11	10	193
< 29.0				3								3	1	3			10
< 39.0																	
>= 39.0																	
Totals	17	27	48	48	45	29	38	24	61	64	48	64	71	60	45	52	

Calm : .00 %

Total # Operational Hours : 741

Class Limits (KPH)



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

MAY 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 AVG	
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.
DAY 1	345	330	327	330	341	343	347	332	339	340	360	1	349	342	333	328	323	333	327	296	305	304	308	278	330	NNW	24
2	307	315	319	288	273	286	303	324	303	280	273	245	299	240	250	289	280	268	268	276	289	293	263	263	281	W	24
3	260	270	227	218	212	130	81	102	125	179	179	178	178	177	175	171	169	178	180	200	209	198	193	192	181	S	24
4	189	196	195	197	188	185	201	206	208	222	225	245	234	252	239	254	256	240	256	269	39	99	64	276	227	SW	24
5	291	352	270	123	146	19	80	71	178	180	321	223	239	202	182	173	324	274	256	128	281	285	193	206	241	WSW	24
6	213	263	293	310	310	310	316	317	298	241	260	261	268	259	265	283	263	247	243	219	211	203	207	214	264	W	24
7	215	214	205	201	246	229	214	211	185	334	337	325	309	305	305	155	130	128	123	243	236	235	229	230	227	SW	24
8	220	209	216	210	206	205	191	179	205	174	180	185	217	267	261	279	307	320	340	15	34	11	10	351	228	SW	24
9	335	248	261	248	266	285	291	303	290	276	276	263	272	258	258	249	237	244	237	235	211	209	220	291	259	WSW	24
10	309	309	301	293	269	265	263	263	316	261	262	258	260	256	283	237	175	53	36	61	93	89	167	156	274	W	24
11	173	119	146	179	198	200	215	277	262	287	269	296	317	331	283	304	1	19	41	93	107	111	106	95	62	ENE	24
12	94	113	107	118	128	133	154	199	241	248	222	227	252	260	248	269	256	296	250	101	90	58	67	85	156	SSE	24
13	80	98	91	105	91	97	108	81	91	51	215	335	324	342	343	320	316	50	42	63	60	55	76	70	66	ENE	24
14	53	33	48	68	29	44	9	347	336	358	6	10	18	20	24	27	28	36	312	284	281	256	180	184	8	N	24
15	240	243	241	238	229	222	211	207	162	180	200	185	191	197	202	204	M	C	C	192	156	157	163	180	201	SSW	23
16	185	45	32	46	59	27	303	286	315	302	299	317	335	340	335	345	326	332	322	303	299	180	191	195	330	NNW	24
17	327	339	320	331	325	314	324	328	323	342	346	338	339	350	330	332	327	298	282	284	280	343	67	91	332	NNW	24
18	70	72	42	30	284	330	317	337	3	28	15	40	334	281	288	295	330	343	308	257	231	269	274	270	329	NNW	24
19	254	263	267	272	280	273	270	270	273	275	286	291	286	287	285	279	287	297	294	295	275	263	252	265	279	W	24
20	268	248	245	227	233	250	226	228	224	233	238	244	248	255	238	242	180	140	78	74	77	85	83	73	225	SW	24
21	88	80	64	60	70	82	74	91	96	97	94	90	113	108	117	107	118	125	111	100	87	91	101	98	96	E	24
22	92	79	76	71	73	73	76	68	67	65	66	70	68	67	72	73	72	62	64	66	57	51	49	48	68	ENE	24
23	47	44	42	41	38	40	38	42	39	41	35	35	35	33	25	17	40	44	43	296	289	292	297	300	29	NNE	24
24	305	326	356	15	23	22	34	43	48	64	62	35	37	54	342	356	346	345	348	32	15	358	18	30	17	NNE	24
25	38	20	54	129	146	176	340	31	46	295	317	299	279	35	132	145	236	36	79	193	168	183	195	206	139	SE	24
26	195	206	221	229	225	213	209	199	197	209	177	162	185	200	191	177	196	170	177	158	150	151	160	170	186	S	24
27	172	173	170	166	165	159	145	99	120	125	142	138	125	98	90	88	60	71	102	116	143	130	104	49	128	SE	24
28	113	172	199	206	224	229	234	254	247	109	98	89	80	68	123	102	114	133	123	135	124	144	154	158	150	SSE	24
29	151	143	144	176	78	73	132	93	121	148	143	176	139	140	146	135	143	163	142	141	141	167	176	182	144	SE	24
30	176	177	182	197	194	188	191	200	178	151	188	193	199	179	208	216	227	249	241	212	208	224	229	244	207	SSW	24
31	240	234	221	210	197	215	253	294	309	290	278	288	301	255	278	284	257	253	256	265	261	257	252	264	309	NW	24
HOURLY AVG	345	352	356	331	341	343	347	347	339	358	360	338	349	350	343	356	346	345	348	303	305	358	308	351			

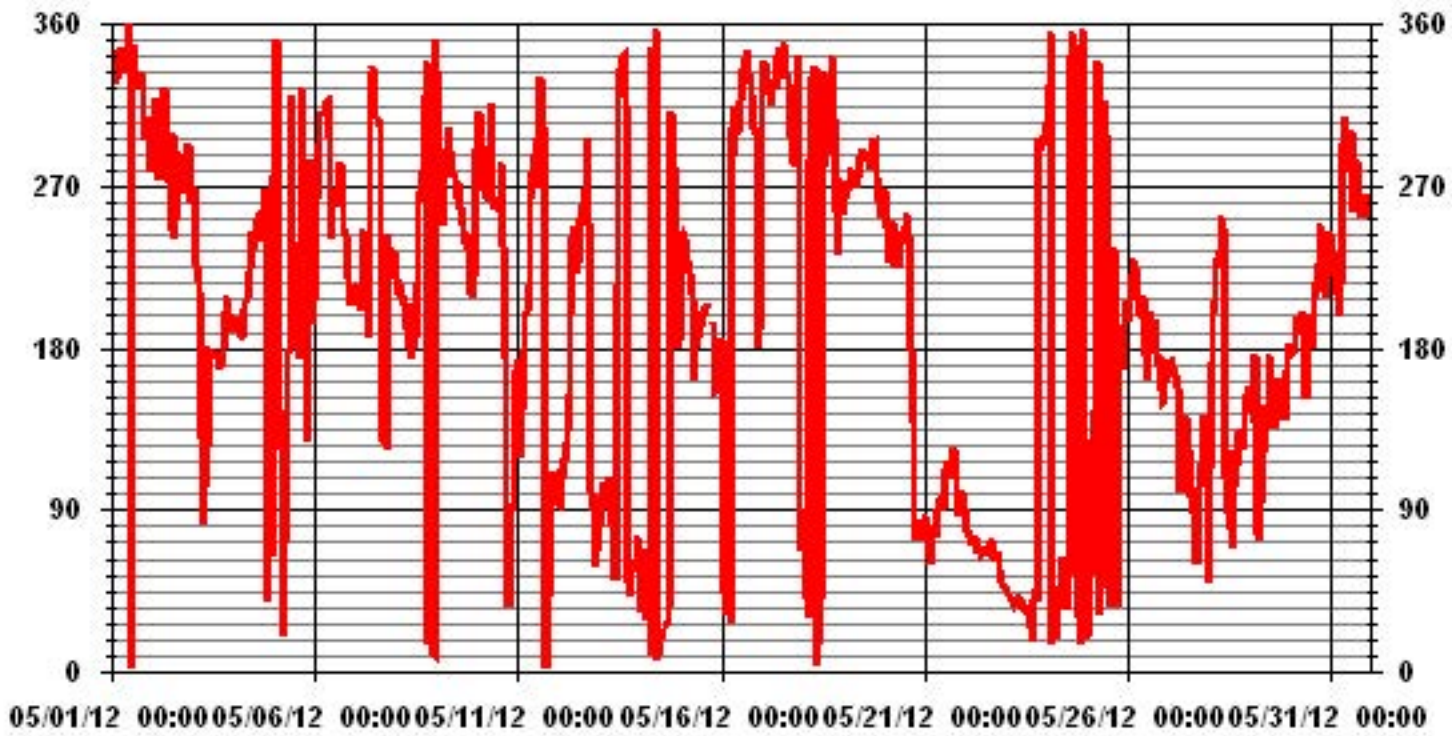
STATUS FLAG CODES

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

LAST CALIBRATION:	May 15, 2012
DECLINATION :	19 DEGREES FROM MAGNETIC NORTH

MONTHLY CALIBRATION TIME:	2 HRS	OPERATIONAL TIME:	743 HRS
STANDARD DEVIATION:	96.96	AMD OPERATION UPTIME:	99.9 %
		MONTHLY AVERAGE:	245 DEG

01 Hour Averages



— LICA31 WDR DEG

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - ST.LINA

MAY 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	38	23	19	20	22	31	36	38	38	41	61	54	56	58	54	36	53	54	36	20	12	9	30	55	
2	29	13	20	32	22	16	34	40	46	46	52	48	41	35	33	62	20	33	7	5	8	17	25	21	
3	9	10	40	49	19	12	9	12	19	29	27	25	24	22	26	29	28	25	30	28	20	24	28	27	
4	25	25	25	31	38	38	33	24	29	20	19	25	25	26	24	16	15	28	20	10	47	11	41	5	
5	18	67	55	47	52	40	22	17	33	16	51	35	24	17	52	63	65	23	61	49	20	12	35	17	
6	29	22	12	11	12	11	13	13	23	24	28	33	41	50	55	62	60	54	43	22	9	7	6	6	
7	7	7	4	5	13	5	7	12	36	28	39	40	41	45	52	48	32	31	38	30	13	18	26	30	
8	41	50	40	44	48	52	52	40	56	65	84	64	58	49	41	59	50	36	21	12	8	12	10	8	
9	3	42	36	19	24	28	38	51	47	41	47	46	68	44	28	30	24	44	29	23	22	14	35	20	
10	12	13	13	13	9	9	11	43	62	52	47	57	43	53	64	71	43	53	58	67	36	45	43	23	
11	40	51	36	40	60	59	52	77	77	78	64	66	59	54	51	68	57	59	72	46	4	4	7	6	
12	8	8	13	8	8	13	19	64	70	70	41	47	57	57	62	53	56	82	81	47	9	11	14	9	
13	14	10	16	9	15	15	17	39	45	67	85	74	67	78	67	76	73	73	32	12	12	12	11	23	
14	31	31	29	31	32	26	36	43	38	33	32	31	28	29	32	35	34	44	58	4	3	19	12	21	
15	6	10	11	11	16	28	30	26	15	24	23	32	25	25	24	27	M	C	C	14	19	16	15	30	
16	42	27	9	13	13	19	14	17	20	20	23	25	24	23	19	20	19	18	16	14	16	25	23	23	
17	30	17	14	17	17	14	16	18	21	25	25	26	30	26	40	42	29	22	16	10	12	20	19	16	
18	15	18	19	12	31	20	18	21	23	27	32	44	36	17	17	21	19	29	25	12	13	9	11	19	
19	8	7	9	12	13	13	14	15	15	17	18	19	19	19	18	19	18	18	17	14	8	6	3	6	
20	7	5	5	6	6	9	21	16	25	37	30	34	32	41	32	35	54	38	19	8	14	14	13	13	
21	13	13	11	11	14	15	17	20	21	23	24	21	26	22	20	20	18	19	16	16	17	17	16	16	
22	17	17	17	17	17	17	17	18	17	17	17	17	17	17	18	17	19	18	18	18	18	17	17	17	
23	17	17	17	17	17	17	17	18	18	18	18	19	18	18	20	19	20	23	45	9	9	9	10	9	
24	9	9	13	13	11	11	18	20	24	26	24	30	30	37	31	35	38	23	22	15	12	11	11	12	
25	12	12	25	18	9	18	17	25	46	35	34	35	35	23	28	51	22	38	19	23	8	10	12	12	
26	9	12	8	6	8	8	15	17	22	31	28	52	58	31	31	24	24	19	19	15	11	13	12	12	
27	9	8	8	10	11	14	20	24	21	22	22	21	27	33	33	37	33	28	20	8	6	5	3	7	
28	20	13	17	17	11	8	11	17	47	43	34	33	38	38	54	46	41	21	23	14	9	12	12	12	
29	10	10	10	15	32	16	18	21	24	30	30	38	30	28	26	25	27	20	19	13	9	8	7	9	
30	6	6	7	11	11	14	21	25	34	25	36	33	27	40	38	50	24	15	14	18	16	17	12	8	
31	5	5	6	9	13	12	12	19	21	23	25	25	25	18	20	19	16	13	12	12	8	4	6	9	

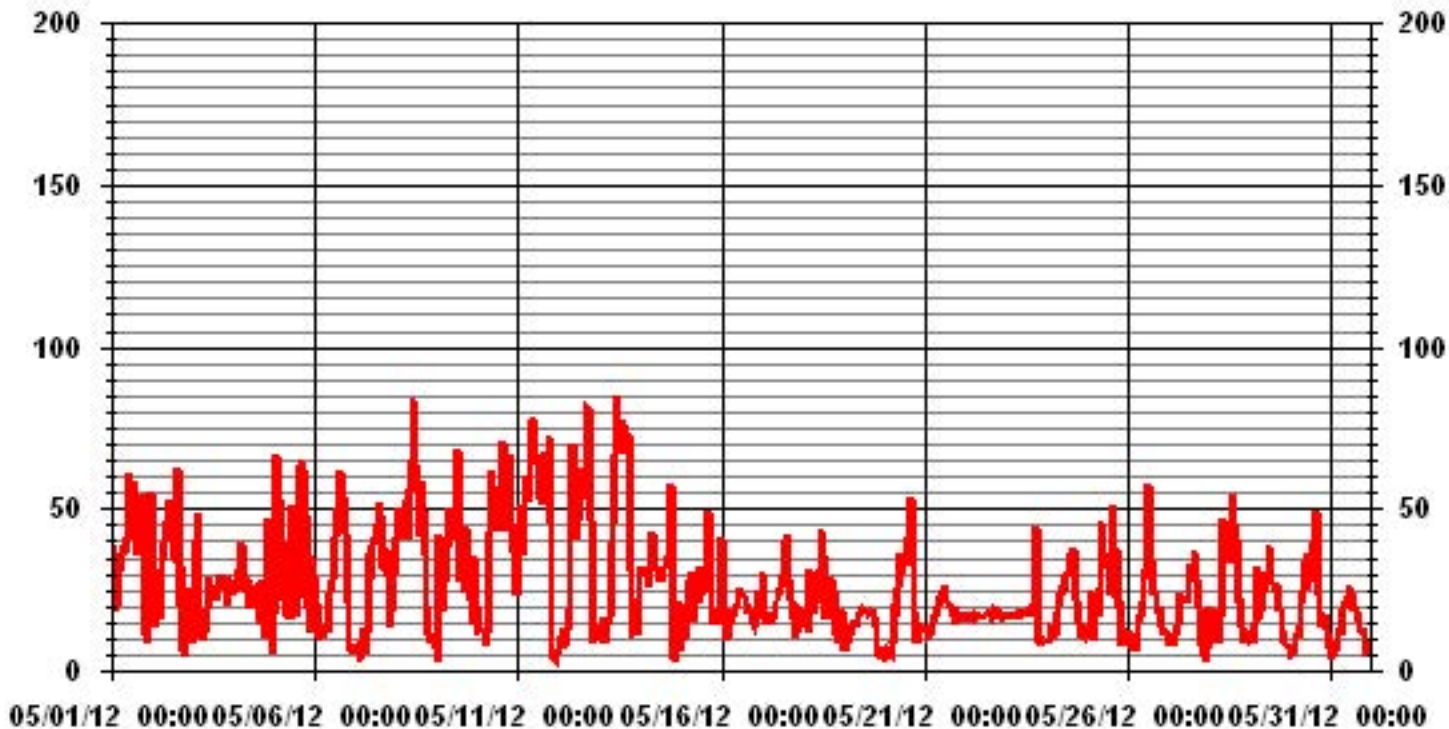
STATUS FLAG CODES

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

LAST CALIBRATION: June 17, 2010

CALIBRATION TIME: 2 HRS OPERATIONAL TIME: 744 HRS

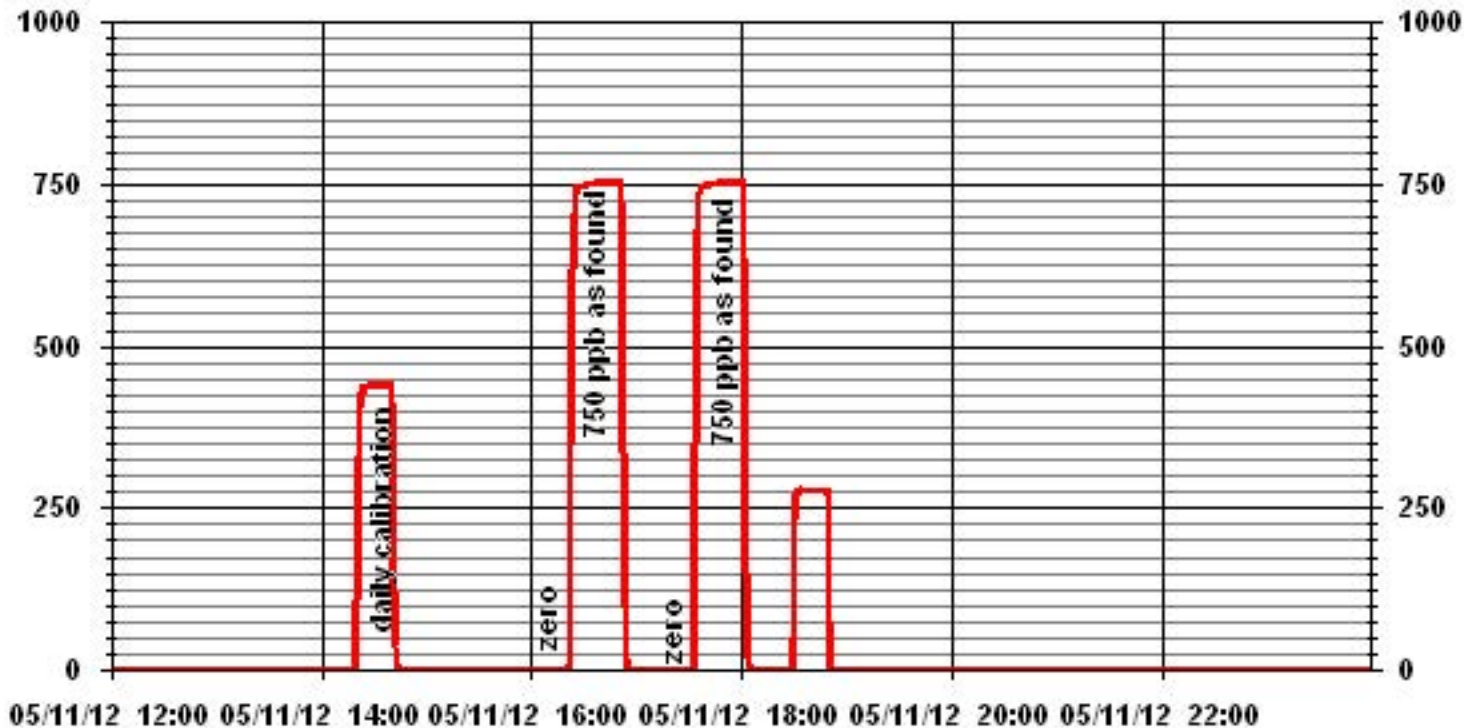
01 Hour Averages



Calibration Reports

Sulphur Dioxide

01 Minute Averages



SO2 Calibration Report

Station Information

Calibration Date	May 25, 2012	Previous Calibration	May 11, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	12:31	End Time (MST)	16:22
Reason:	Monthly Calibration		
Barometric Pressure	938 mBar	Station Temperature	23 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 ppb				
Sample Flow / Box Temp	521 ccm	30.9 Deg C	520 ccm	31.3 Deg C	
HVPS / Lamp Setting	540	2280	540	2281	
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	82.9	1.041	82.9	1.048	

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	743	1.0098
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	0.7	Auto Zero	0.5
Auto Span	277.0	Auto Span	278.0
Sample Lines Connected		Sample Lines Connected	YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9991
Current Correction Factor Before Span Adjust:	1.0098
Percent Change:	-1.1%

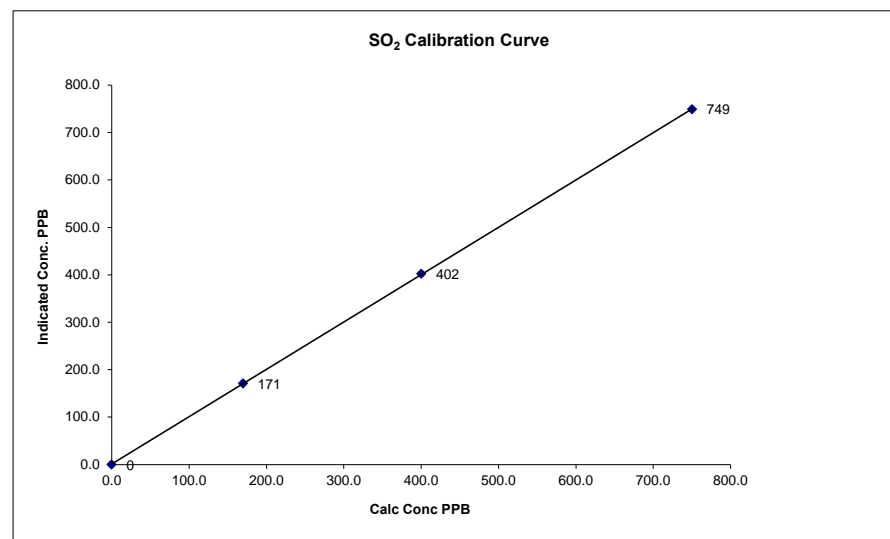
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

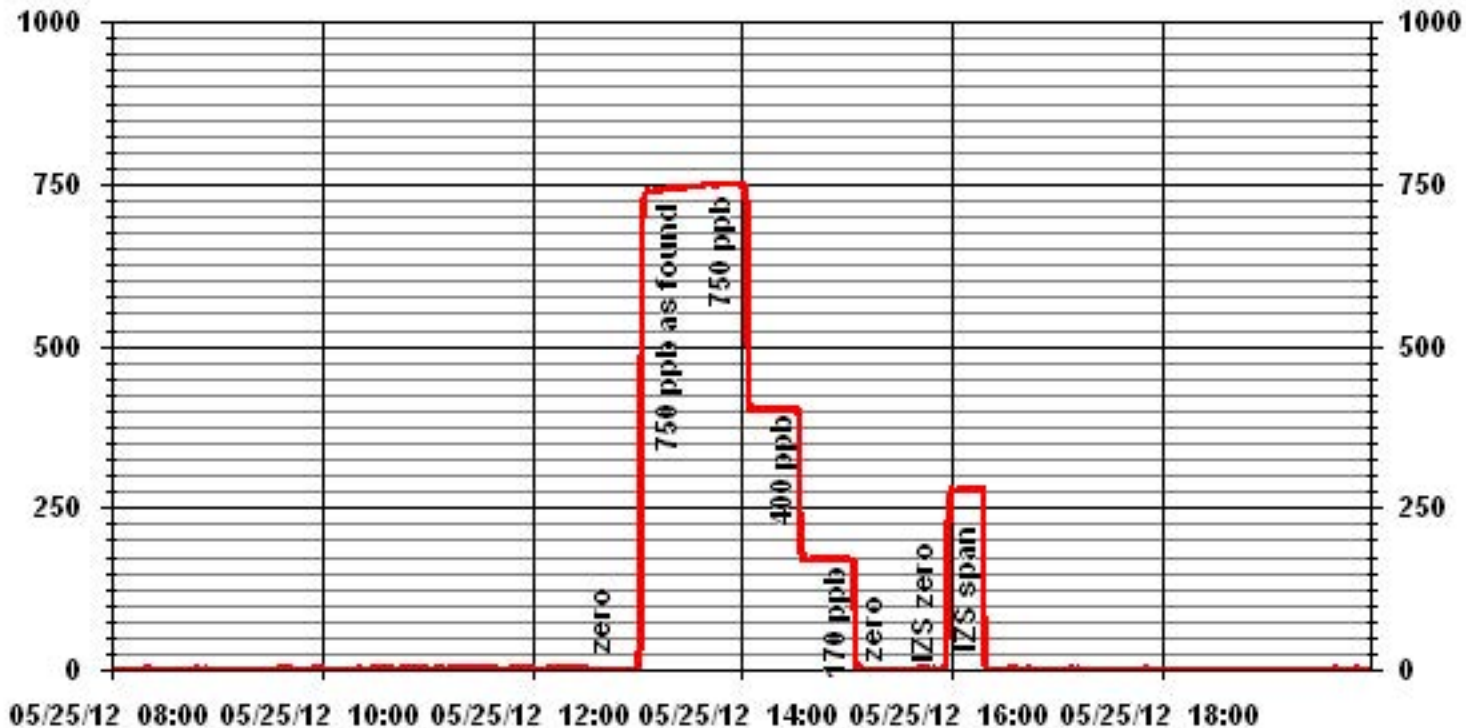
Calibration Date	May 25, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST. LINA
Start Time (MST)	12:31
End Time (MST)	16:22

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	May 23, 2012	Previous Calibration	April 19, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST.LINA		
Start Time (MST)	8:36	End Time (MST)	12:32
Reason:	Monthly Calibration		
Barometric Pressure	918 mBar	Station Temperature	22 Deg C
Cal Gas	10 ppm	Gas Cyl. #	LL42648
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 :	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 :	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 - 100	ppb	
Sample Flow / Box Temp	527 ccm 31.9 Deg C	528 ccm 32.9 Deg C	
HVPS / Lamp Setting	518 2343	518 2341	
PMT / RxCell Temp	8.4 Deg C 50 Deg C	8.4 Deg C 50 Deg C	
Converter / IZS Temp	315 Deg C 45 Deg C	315.5 Deg C 45.0 Deg C	
Offset / Slope	79.1 1.022	83.1 1.021	

Calibration Data

Dilution Flow Rate	Source Gas Flow Rate	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4997	0	0	2	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	40	1.0000
4988	11.5	23	24	0.9584
5000	0	0	1	NA
Sum of Least Squares				0.9975
New Correction Factor				1.0000

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	2.7		0.7
Auto Span	44.5		41.2
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%

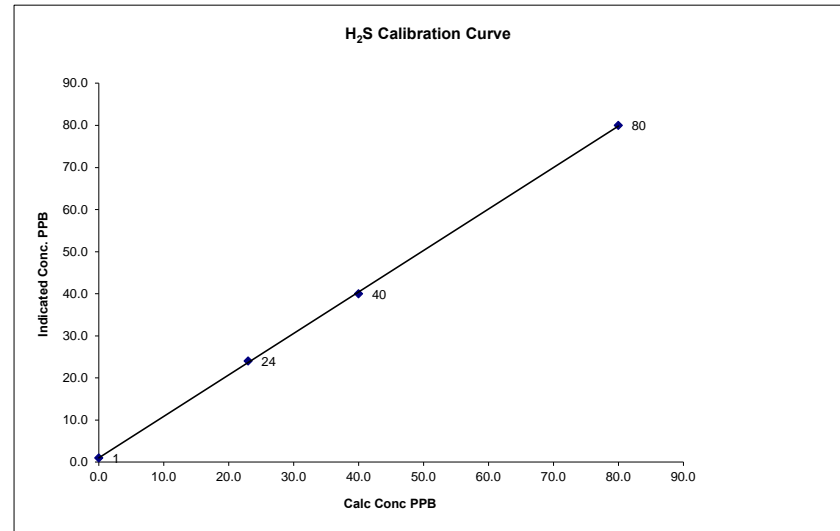
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

H₂S Calibration Curve

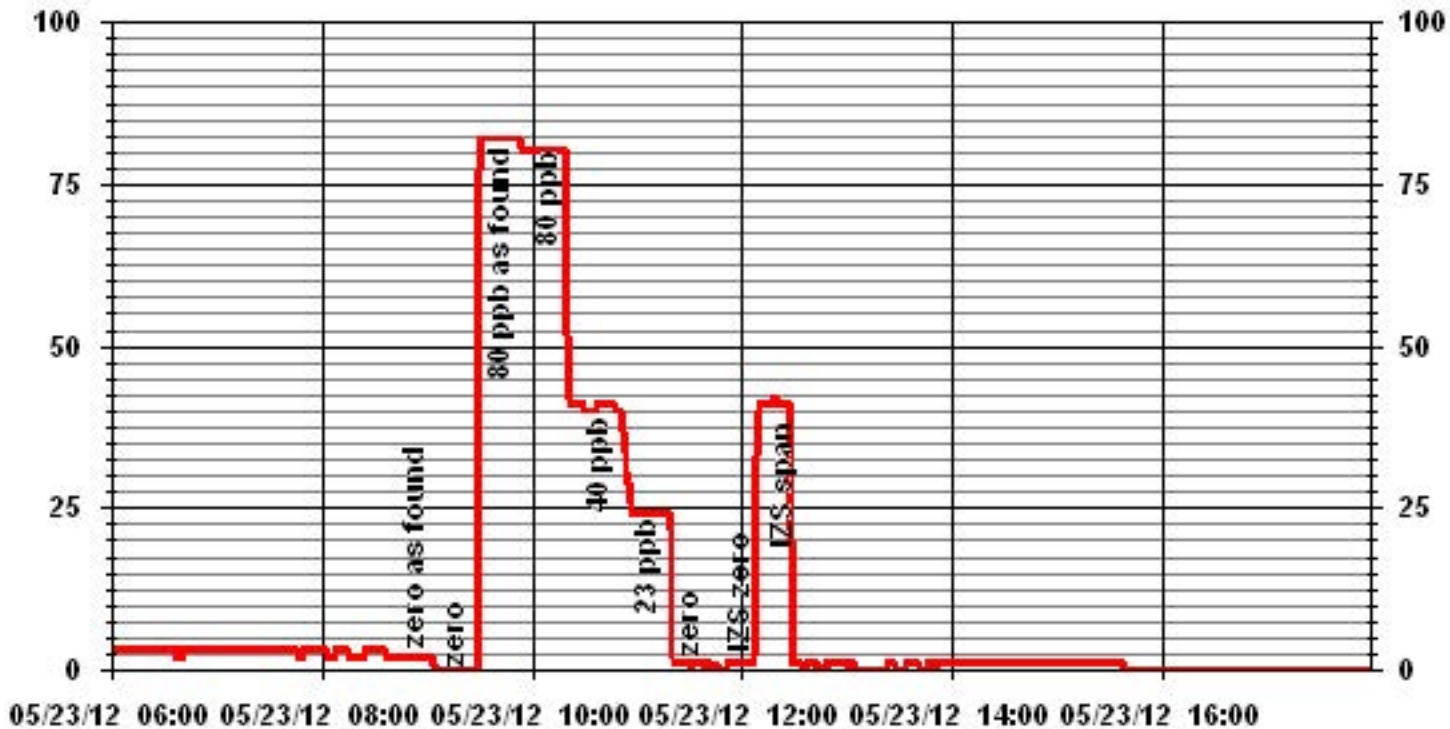
Calibration Date	May 23, 2012
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION
Plant / Location	ST.LINA
Start Time (MST)	8:36
End Time (MST)	12:32

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999908
0	1		Intercept	(0.85 to 1.15)	0.985610
23	24	0.9584		(± 3% F.S.)	1.009925
40	40	1.0000			
80	80	1.0002			



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	May 23, 2012	Previous Calibration	April 19, 2012
Company:	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location:	ST. LINA		
Start Time (MST)	11:51	End Time (MST)	15:46
Reason:	Monthly Calibration		
Barometric Pressure:	920 mBar	Station Temperature:	23 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
--------------	----------	-------	-----------	--------	------------------

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	2.0	NA
2000	0.0	0.0	0.0	NA
2000	74.0	41.4	40.9	1.0128
2000	74.0	41.4	41.6	0.9958
2000	37.0	21.1	21.1	1.0000
2000	20.0	11.5	11.5	1.0000
2000	0.0	0.0	0.0	NA
New Correction Factor:				0.9958

Percent Change

Previous Calibration Correction Factor:	0.9939
Current Correction Factor Before Span Adjust:	1.0128
Percent Change:	-1.9%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	-0.2	0.0
Auto Span	35.8	36.9
Sample Lines Connected	YES	

Cylinder Pressures			
Span	1900 psi	Hydrogen 400 psi	Zero Air 34 psi

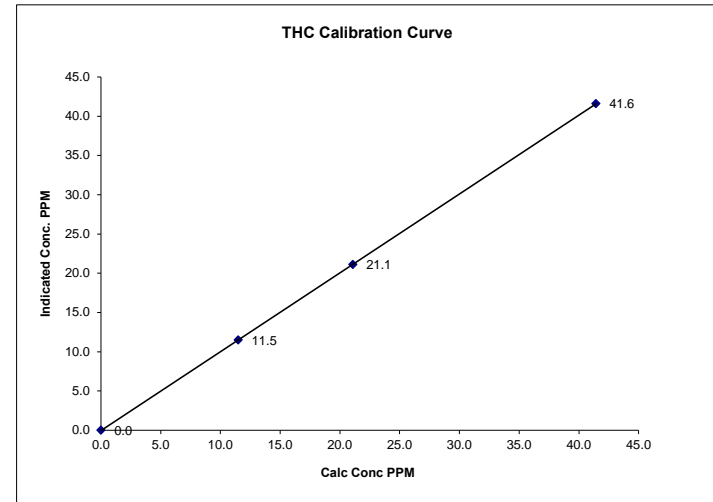
Notes: **NA : Not Applicable**

Calibration Performed by: Ting Xu

THC Calibration Curve

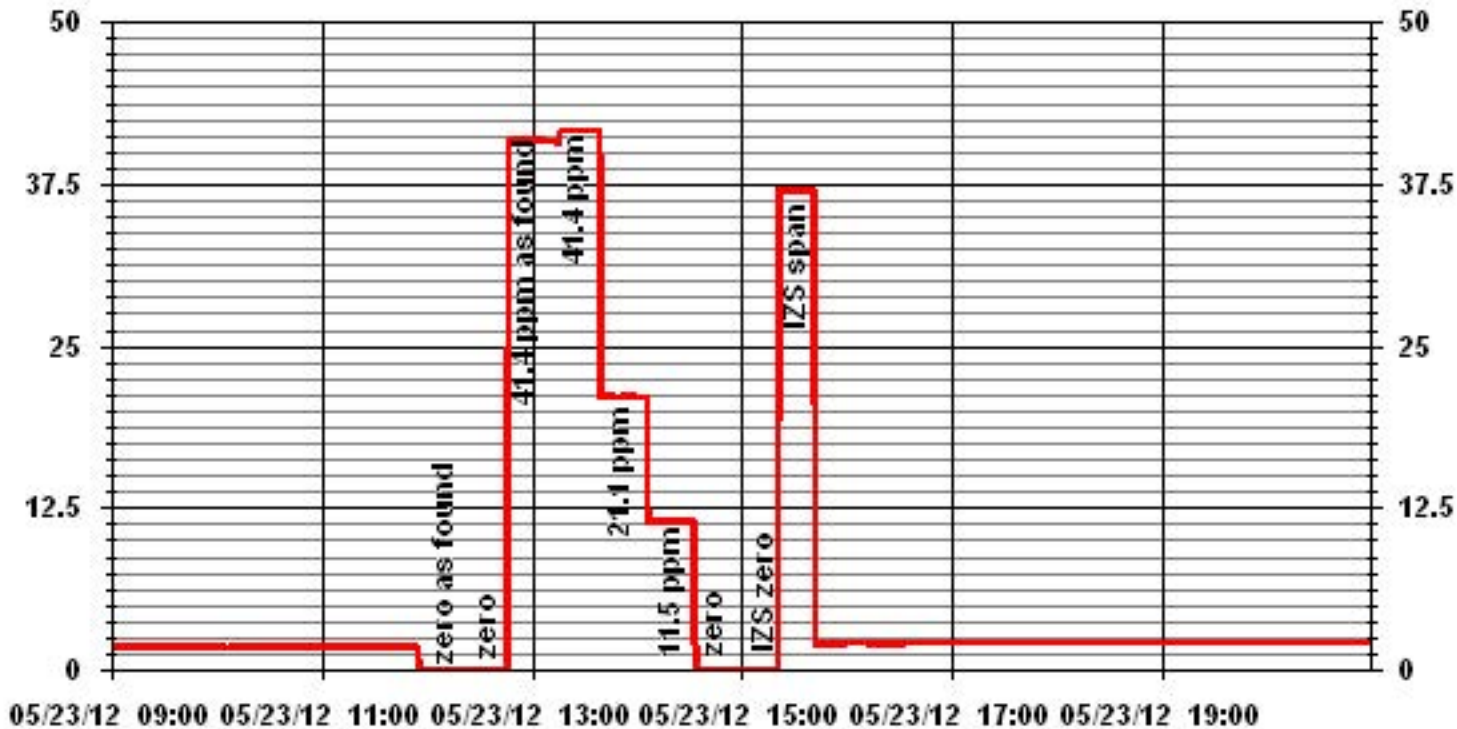
Calibration Date	May 23, 2012		
Company	LAKELAND INDUSTRY & COMMUNITY ASSOCIATION		
Plant / Location	ST. LINA		
Start Time (MST)	11:51	End Time (MST)	15:46

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	0.999995	1.004356	-0.03252
11.5	11.5	0.9996			
21.1	21.1	0.9994			
41.4	41.6	0.9958			



Notes:

01 Minute Averages



Nitrogen Dioxide

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	May 23, 2012		Previous Calibration		April 19, 2012	
Company	LICA		Plant/Location		St. Lina	
Start Time (MST)	8:36		End Time (MST)		16:06	
Reason:	Monthly Calibration					
Barometric Pressure	918 mBar	Station Temperature	22 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:	Envionics 6100	S/N:	4760		
DAS Make / Model:	ESC 8832	S/N :	AO717		
Chart Recorder Make / Model:	NA	S/N:	NA		
Flow Meter:	Envionics 6100	S/N :	4760		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 1000			ppb			
Sample Flow/Conv. Temp	477 ccm	316	Deg C	473 ccm	316	Deg C	
Ozone Flow / Vacuum	71 ccm	5.0	*Hg-A	71 ccm	5	*Hg-A	
HVPS / A ZERO	662 Volts	18.9	MV	662 Volts	19.2	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	29.2 Deg C	42.2	Deg C	30.3 Deg C	42.3	Deg C	
Offset	1.5 NOx	0.5	NO	1.5 NOx	0.2	NO	
Slope	1.383 NOx	1.374	NO	1.449 NOx	1.428	NO	
NO2 COEF / Conv Efficiency	NA	0.993		NA	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.									
4921	75.6	NA	750	749	NA	715	718	-2	1.0496	1.0446
4921	75.6	NA	750	749	NA	752	749	3	0.9980	1.0000
4961	35.3	NA	350	350	NA	349	348	2	1.0041	1.0079
4977	17.2	NA	171	170	NA	171	170	1	1.0000	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		
4920	75.6	NA	751	749	NA	754	748	7	NA	NA
4920	75.6	600	751	NA	517	753	238	515	1.0039	99.61%
4920	75.6	600	751	NA	516	752	239	513	1.0058	99.41%
4919	75.6	300	751	NA	262	753	493	261	1.0038	99.61%
4919	75.6	120	751	NA	108	755	647	107	1.0093	99.01%

Linearity OK?	Yes	No	Sum of Least Squares Correction Factors:	NOx= 0.999	NO= 1.001	NO2= 1.006
				NOx= 0.9980	NO= 1.0000	NO2= 1.0058
			Average Converter Efficiency=	99.34%		

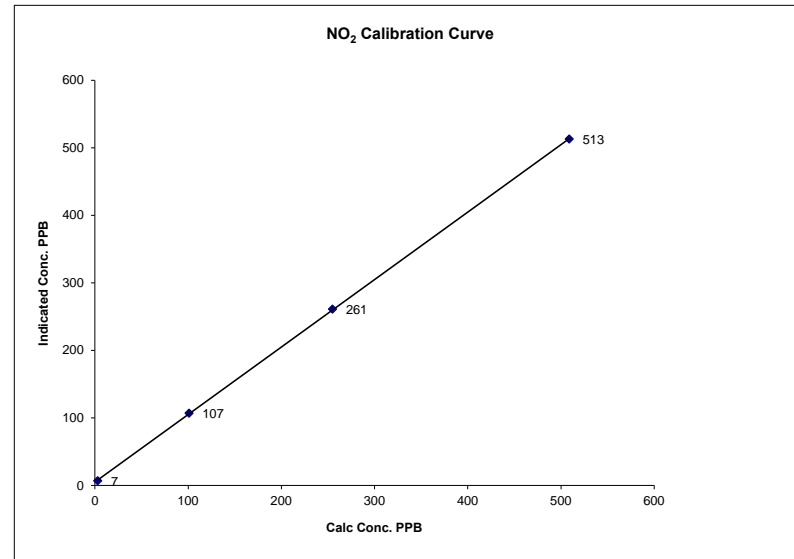
IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	0.6 NOx	0.4 NO2		0.5 NOx	-0.8 NO2		
Auto Span	710 NOx	665 NO2		740 NOx	701 NO2		
	Sample Lines Connected YES						
Percent Change from Previous Calibration	NOx -5.0%	NO -4.5%		NO2 -0.2%			
Notes	NA : Not Applicable						
	Additional GPT was done for O3 claibration. O3 set point 450, NO=367, NO2=387, NOx=754						
Calibration Performed by:	Ting Xu						

NO2 Calibration Curve

Calibration Date	May 23, 2012	
Company	LICA	
Plant / Location	St. Lina	
Start Time (MST)	8:36	End Time (MST) 16:06

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999974
3	7	N/A	Intercept	(± 3% F.S.)	0.998931
101	107	0.9439			5.23193
255	261	0.9770			
509	513	0.9922			

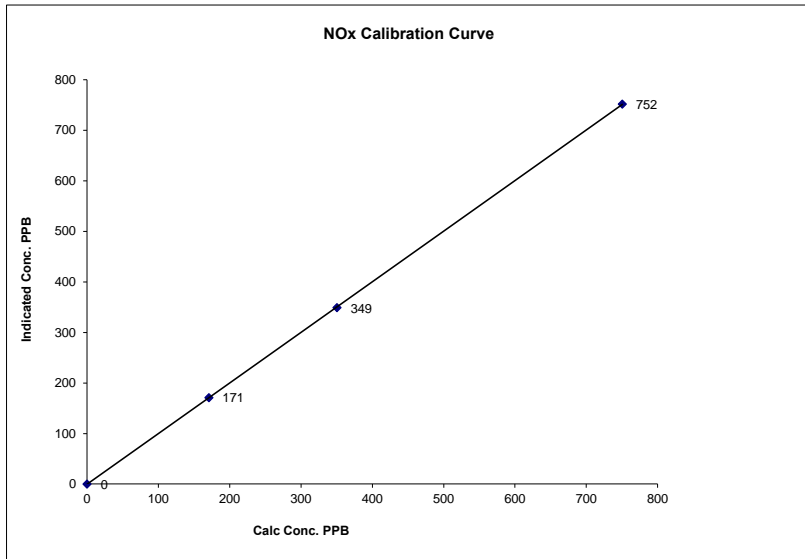


Notes:

NOx Calibration Curve

Calibration Date	May 23, 2012		
Company	LICA		
Plant / Location	St. Lina		
Start Time (MST)	8:36	End Time (MST)	16:06

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999989
0	0	N/A	Slope (0.85 to 1.15)	1.001905
171	171	0.9990	Intercept (± 3% F.S.)	-0.53570
350	349	1.0041		
750	752	0.9980		

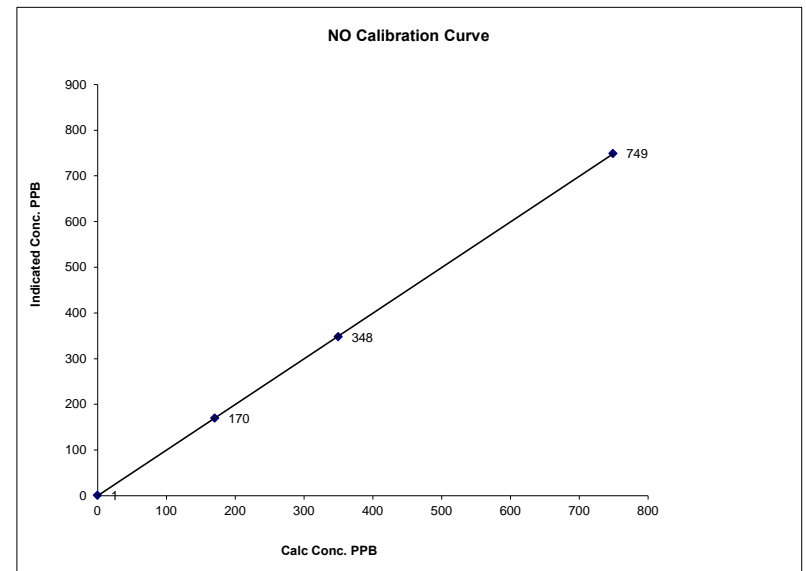


Notes:

NO Calibration Curve

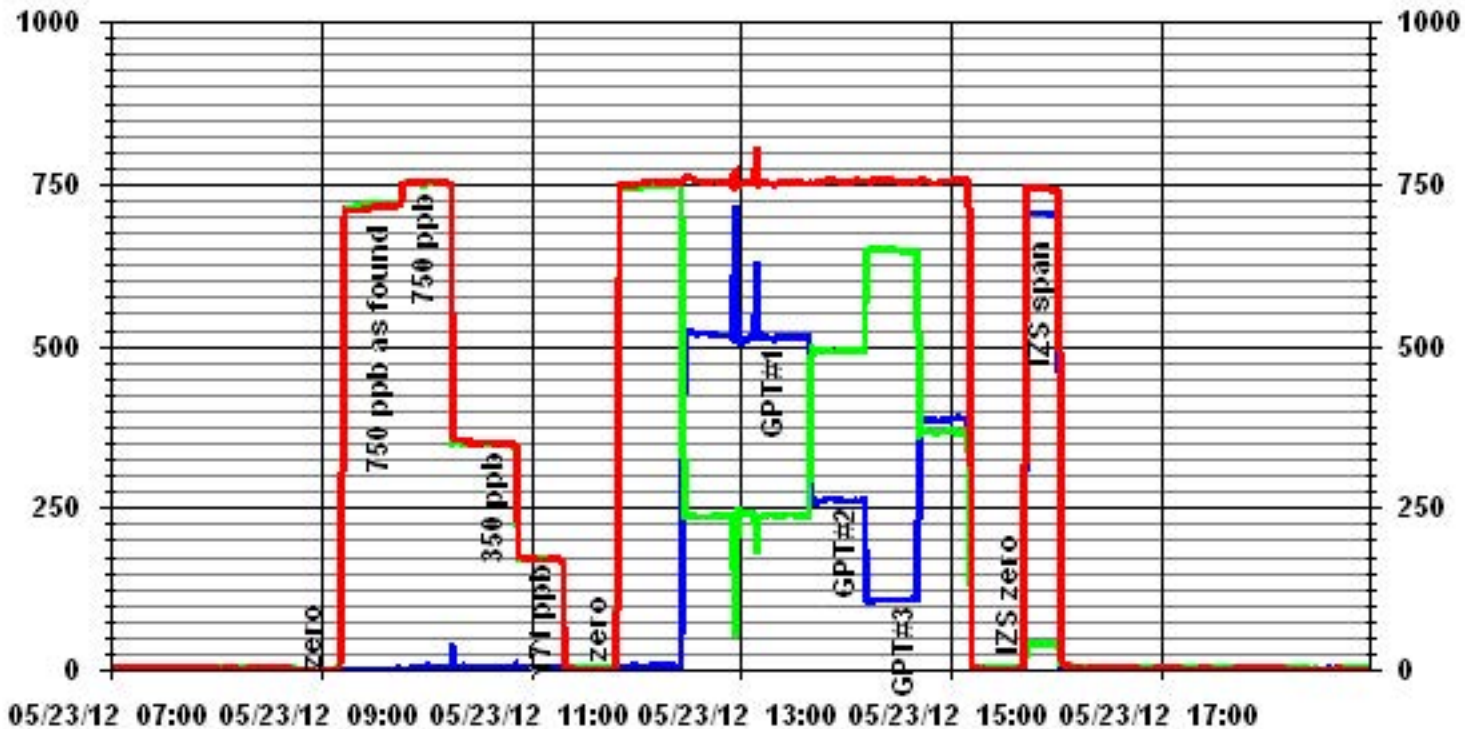
Calibration Date	May 23, 2012		
Company	LICA		
Plant / Location	St. Lina		
Start Time (MST)	8:36	End Time (MST)	16:06

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	0.999988
0	1	N/A	Slope (0.85 to 1.15)	1.001505
170	170	1.0028	Intercept (± 3% F.S.)	-3.2877
350	348	1.0050		
749	749	0.9999		



Notes:

01 Minute Averages



— LICA31 NOX_ PPB

— LICA31 NO_ PPB

— LICA31 NO2_ PPB

Ozone

O₃ Calibration Report
Station Information

Calibration Date	May 25, 2012	Previous Calibration	April 20, 2012
Company	Lakeland Industry & Community Association		
Plant / Location	St. Lina		
Start Time (MST)	12:31	End Time (MST)	16:22
Reason:	Monthly Calibration		
Barometric Pressure	938 mBar	Station Temperature	23 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:	EnviroNics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	AO 717		

Analyzer Settings

	Before Calibration			After Calibration		
Concentration Range	0 - 500 ppb					
Cell A Flow / Cell B Flow	830 ccm	862 ccm	839 ccm	871 ccm		
Pressure	696 mmHg			708 mmHg		
Bench Temp	56.8 Deg C			56.8 Deg C		
O3 Lamp / Box Temp	80 Deg C	33.3 Deg C	80 Deg C	33.8 Deg C		
Offset / Slope	0.1	1.003	0.1	0.991		

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	381	385	0.9896
4994	450	381	381	1.0000
4994	300	255	254	1.0039
4994	120	101	101	1.0000
4994	0	0	0	N/A
			Sum of Least Squares	N/A
			New Correction Factor	1.0000

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.8	0.6
Auto Span	328	325
Sample Lines Connected		YES
Percent Change from Previous Calibration		0.8%

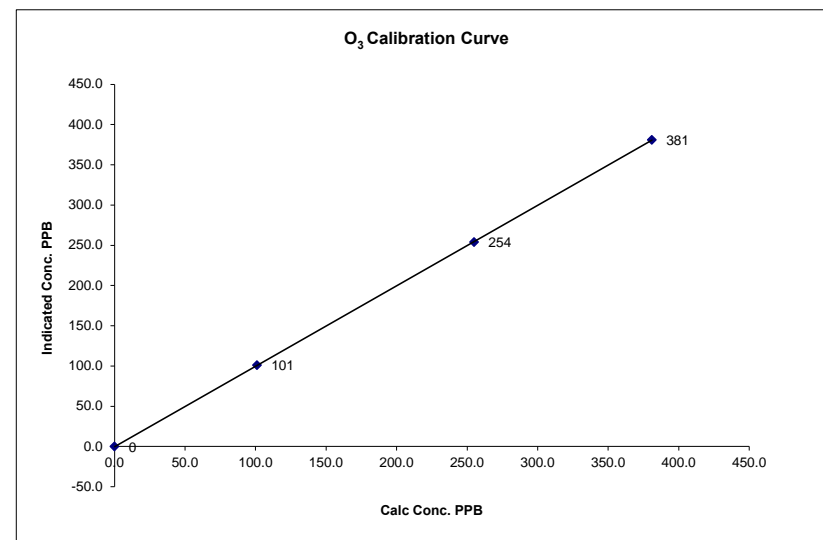
Note: **NA: Not Applicable**

Calibration Performed by: Ting Xu

O₃ Calibration Curve

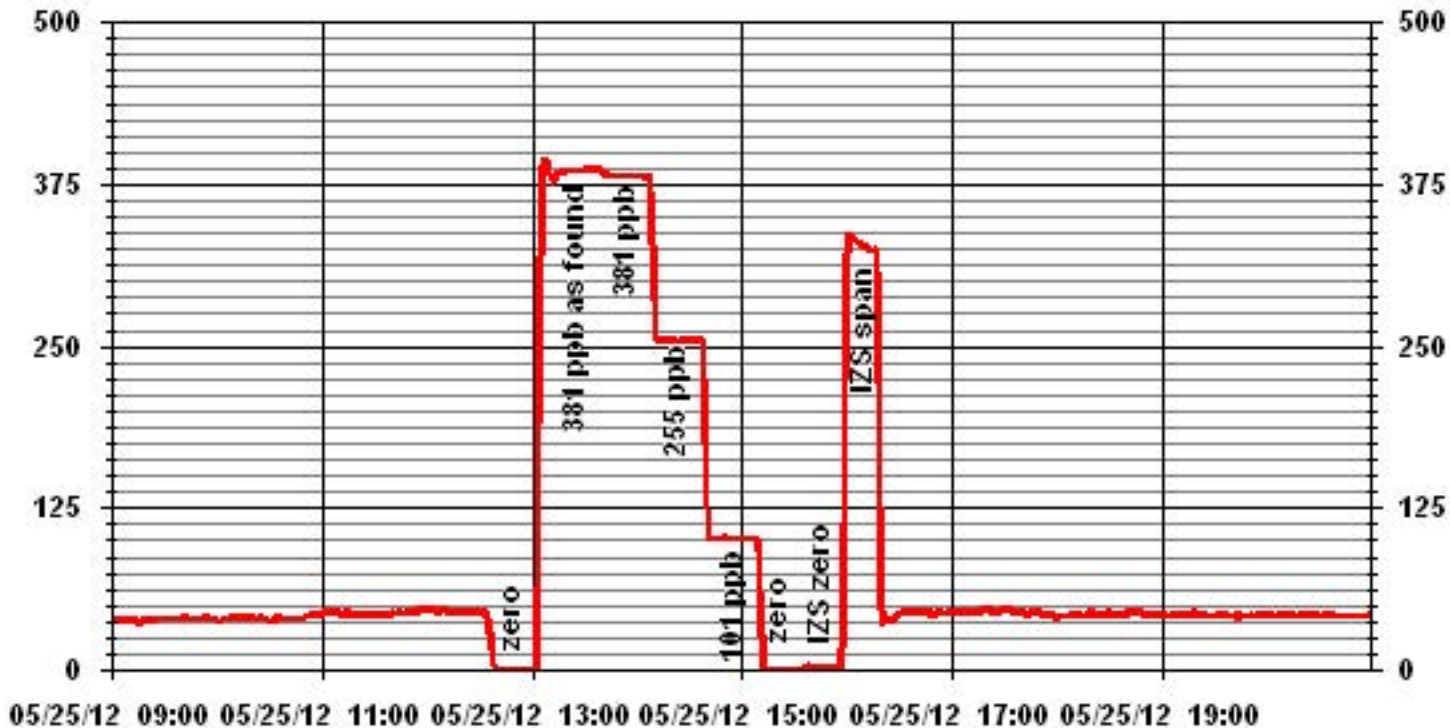
Calibration Date	May 25, 2012
Company	Lakeland Industry & Community Association
Plant / Location	St. Lina
Start Time (MST)	12:31
End Time (MST)	16:22

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995)	0.999992
0	0	n/a	Intercept	(± 3% F.S.)	-0.095904
101	101	1.0000			0.999164
255	254	1.0039			
381	381	1.0000			



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOMÒ 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	May 25, 2012	Make/Model:	Streamline FTS
Station Name:	Lica St. Lina (CASA # 31)	Serial Number:	LO 091099, Hi 091001
Location:	St. Lina Station	Cell s/n:	NA
Operator:	LICA	Thermometer s/	Station Temp. Sensor

	<u>Sampler</u>		<u>Set-up and current Sampler readings</u>
Make/Model	Thermo Scientific Series 1405F	F-Main Set Pt (l/min)	3.00
Unit #	NA	F-Aux Set Pt (l/min)	13.67
Unit s/n	1405A207691003	Filter Load (%)	27.2%
Firmware Ver.	1.55	K _o Factor	15634.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	17.05
		Press (ATM)	0.927

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 <0.10µg	0.005	Warnings	None
Pump Vacuum <0.4atm	0.29	Pump Gauge (inHg)	NA
Temperature/Pressure			
Measured Temp (± 2 °C)	16.2	D °C	0.9
Measured Press (± 0.01atm)	0.925	DATM	0.002
Flow Audit			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	0.60%
Measured Main Flow (l/min)	3.00	Flow Adjusted to Measured?	YES
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	0.44%
Measured Bypass Flow (l/min)	13.53	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: 14:08 **Finish Time:** 15:15

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

Comments: _____

Wind System

Meteorological Sensor Audit Report Station Information

Audit Date	May 15, 2012	Previous Audit	-
Company	CNRL		
Plant / Location	Wolf Lake		
Start Time (MST)	17:45	End Time (MST)	18:45
Reason:	Installation Calibration		
Translator make/model:	RM Young 5103VK	S/N:	56589
DAS make/model:	ESC 8832	S/N:	AO717

Wind Speed

Sensor make/model:	RM Young 5103VK	S/N:	56589
Calibrator:	RM Young 18802	Variable speed motor	CA 03309
Output voltage range:	0-1 vdc	Output signal range:	0-200 kph
Sensor height:	>10M		

Wind Speed Audit Data

RPM	Wind Speed Actual	Indicated WS - CW	Indicated WS-CCW	Correction Factor
0	0.0	0	0	-
1000	17.6	17.8	17.7	0.99
2000	35.3	35.5	35.6	0.99
3000	52.9	53.3	53.4	0.99
4000	70.6	71.1	71.2	0.99
5000	88.2	88.9	88.9	0.99
6000	105.8	106.7	106.7	0.99
7000	123.5	124.5	124.5	0.99
8000	141.1	142.3	142.3	0.99
9000	158.8	160.1	160.1	0.99
10000	176.4	177.9	177.9	0.99
Average Correction Factor				0.99

Wind Direction

Sensor make/model:	RM Young 5103VK	S/N:	56589
Calibrator:	RM Young 18802	Direction wheel	N/A
Output voltage range:	0-1vdc	Output signal range:	0 - 360 degree
Sensor height:	>10M		

Wind Direction Audit Data

Wind Direction	Indicated	Correction Factor
0	354.9	NA
45	42.3	1.06
90	88.8	1.01
135	134.7	1.00
180	181.4	0.99
225	225.8	1.00
270	270.1	1.00
315	321.9	0.98
360	354.9	NA
Average Correction Factor		1.01

Remarks:

Audit Performed by: Limin Li / Theo McLaren / Ting Xu

Lakeland Industry & Community Association

Cold Lake Monitoring Site

Ambient Air Monitoring

Data Report

For

May 2012

Prepared By:



June 22, 2012

Lakeland Industry & Community Association

Cold Lake Monitoring Site

Ambient Air Monitoring

Table of Contents	Page		Page
Introduction	3	Calibration Reports	108
Calibration Procedure	4	• Sulphur Dioxide	109
Monthly Continuous Summary	5	• Total Reduced Sulphur	112
Monthly Non-Continuous Summary	6	• Total Hydrocarbons	115
Volatile Organics Data Summary	7	• Particulate Matter 2.5	118
Polycyclic Aromatic Hydrocarbons Data Summary	8	• Nitrogen Dioxide	120
General Monthly Summary	9	• Ozone	124
Continuous Monitoring	13	Passive Bubble Maps	127
• Monthly Summaries, Graphs & Wind Roses	14	Passive Field Data	132
○ Air Quality Index	15	• Field Notes	133
○ Sulphur Dioxide	17	Passive Monitoring Laboratory Analysis	135
○ Total Reduced Sulphur	25	Volatile Organics Laboratory Analysis	143
○ Total Hydrocarbons	33	Polycyclic Aromatic Hydrocarbons Laboratory Analysis	196
○ Particulate Matter 2.5	41		
○ Nitrogen Dioxide	46		
○ Nitric Oxide	54		
○ Oxides of Nitrogen	61		
○ Ozone	69		
○ Ambient Temperature	77		
○ Relative Humidity	80		
○ Vector Wind Speed	83		
○ Vector Wind Direction	90		
○ Standard Deviation Wind Direction	93		
Non-Continuous Monitoring	96		
Volatile Organics	101		
Polycyclic Aromatic Hydrocarbons	104		

Introduction

The following Ambient Air Monitoring report was prepared for:

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

Monitoring Location: Cold Lake
Data Period: May 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 – May 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	0.03	2	6	6	7.1	304(WNW)	0.2	5, 6	100.0
TRS (PPB)	-	-	-	-	0.00	0	ALL	ALL	VAR	VAR	0.0	ALL	99.7
NO ₂ (PPB)	159	-	0	-	1.96	9	7	5	0.4	107(ESE)	3.0	7	99.9
NO (PPB)	-	-	-	-	0.20	11	9	9	17	340(NNW)	0.8	9	99.9
NO _x (PPB)	-	-	-	-	2.18	14	9	9	17	340(NNW)	3.3	7	99.9
O ₃ (PPB)	82	-	0	-	37.56	62	8	11, 12	10.6, 11.9	173(S), 190(S)	49.1	9	100.0
THC (PPM)	-	-	-	-	2.01	3.2	25, 26	6, 6	0.5, 1.9	345(NNW), 168(SSE)	2.2	26	99.9
PM 2.5 (UG/M ³)	-	30	-	0	6.55	57.5	30	14	5.4	159(SSE)	16.9	13	98.5
TEMPERATURE (DEG C)	-	-	-	-	10.84	24.2	13	15	16	275(W)	16.4	8	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	52.37	100	5	VAR	VAR	VAR	86.0	4	100.0
VECTOR WS (KPH)	-	-	-	-	7.16	23.8	14	9	-	309(NW)	12.4	22	100.0
VECTOR WD (DEGREES)	-	-	-	-	334(NNW)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS NA: NOT AVAILABLE

Monthly Non-Continuous Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

Passive Ambient Monitoring Network – May 2012

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION PASSIVE NETWORK			
NETWORK MAXIMUM			NETWORK AVERAGE
PARAMETER	STATION	READING (PPB)	READING (PPB)
SO ₂	#14	1.0	0.27
H ₂ S	#27	0.23	0.09
NO ₂	#28	2.0	0.6
O ₃	#32	34.9	30.8

Volatile Organics Data Summary

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION – COLD LAKE

Xontech Model 910A – May 3rd, 2012

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

Xontech Model 910A – May 9th, 2012

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

Xontech Model 910A – May 15th, 2012

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

Xontech Model 910A – May 21st, 2012

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

Xontech Model 910A – May 27th, 2012

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

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

PUF cartridge – May 3rd, 2012

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

PUF cartridge – May 9th, 2012

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

PUF cartridge – May 15th, 2012

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

PUF cartridge – May 21st, 2012

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

PUF cartridge – May 27th, 2012

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

General Monthly Summary - Cold Lake

Equipment Operation

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

AQM STATION – LICA – COLD LAKE

Sulphur Dioxide (PPB)

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

No operational issues were observed during the month. The inlet filter was changed before the monthly calibration was started on May 8th. 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 May 8th. 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 May 8th. 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 May 8th. The H2 gas cylinder was replaced on May 22nd. 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 May 8th. 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 May 8th. Both the Teom filter and the FDMS filter were changed on May 8th. 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. Eleven 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 the sample inlet were cleaned on May 8th. A field camera was installed and mounted on the wind tower on May 15th.

General Monthly Summary - Cold Lake

AQM STATION – LICA – COLD LAKE

Air Quality Index (AQI)

The AQI data was adjusted to reflect regular monthly and daily calibrations, maintenance, and downtime. One hundred and seven hours of AQI value recorded in May 2012 was within the Fair range: one hundred and one values were due to ozone, and six values were due to PM2.5. All others were within the Good range. The highest AQI value for ozone was 34 at hour 17 on May 13rd. The highest AQI value for PM2.5 was 39 on May 30th, hour of 14.

Passive Network

The 10% duplicate sampling program was run this month.

Both the NO₂ sample and the SO₂ sample installed at the station #6 were damaged.

The O₃ sample installed at the station #8 was damaged.

Volatile Organics (VOCs)

The volatile organics were sampled from May 3rd to May 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.

Polycyclic Aromatic Hydrocarbons (PAHs)

The PAHs scheduled to be sampled on May 3rd to May 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.

Continuous Monitoring

Monthly Summaries, Graphs & Wind Roses

Air Quality Index

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 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		1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX	
1	17	15	13	14	14	14	15	15	16	17	18	18	-	18	18	19	20	19	19	17	14	16	15	16	20		
2	15	16	15	15	14	13	14	16	19	22	22	-	22	23	24	25	26	27	26	23	17	20	20	20	27		
3	19	19	18	13	11	15	16	18	18	19	-	22	22	-	20	20	21	21	20	19	17	17	20	19	22		
4	19	18	18	18	17	16	14	14	14	-	14	13	13	12	11	11	10	10	10	9	8	7	9	9	19		
5	19	19	16	19	16	16	19	-	24	25	28	29	30	31	31	30	30	28	28	25	23	17	13	31			
6	9	9	8	7	6	5	-	15	22	-	26	29	30	31	31	31	32	31	26	24	24	24	23	32			
7	17	14	15	13	23	-	24	25	-	-	-	-	-	-	-	-	28	25	24	23	25	24	23	28			
8	23	19	13	10	-	12	23	27	30	28	32	33	33	34	34	33	31	32	30	27	23	21	22	34			
9	22	22	22	22	22	20	19	-	22	-	23	23	24	24	23	24	-	23	23	21	21	20	19	24			
10	20	18	-	17	17	17	18	20	22	22	23	23	24	24	24	24	25	24	24	23	18	15	15	18	25		
11	17	-	17	17	17	18	19	21	22	23	24	25	25	25	26	27	28	29	28	28	24	18	20	21	29		
12	18	12	13	10	16	18	21	24	27	29	32	33	33	32	31	33	34	32	29	26	26	20	-	34			
13	22	22	21	21	22	23	26	26	26	24	23	23	22	22	-	23	22	22	20	15	12	-	10	26			
14	14	18	18	17	15	15	17	17	19	22	22	23	25	25	28	27	25	25	25	25	-	24	23	28			
15	20	19	19	18	13	15	16	19	24	22	27	27	28	28	28	27	27	27	26	25	-	21	19	19	28		
16	20	20	18	21	20	20	20	19	22	24	24	24	25	25	25	25	26	25	24	-	22	20	14	19	26		
17	18	12	7	7	6	7	10	12	14	17	17	18	17	18	18	19	21	-	18	16	14	12	13	21			
18	11	9	9	11	10	10	14	18	18	19	18	20	21	20	19	19	-	19	18	17	14	14	12	21			
19	11	9	10	8	8	-	12	14	16	19	20	22	22	22	23	23	-	24	22	21	18	13	16	15	24		
20	14	12	10	9	10	12	15	16	17	20	21	22	22	23	22	-	23	22	21	19	18	18	18	18	23		
21	18	17	17	17	17	17	17	17	17	16	16	16	16	16	-	16	18	19	19	18	18	19	20	19	20		
22	20	20	20	19	19	20	21	20	21	19	20	19	-	18	21	22	24	23	23	19	10	9	9	24			
23	5	4	3	5	5	8	17	18	20	22	22	23	-	24	24	25	26	24	22	20	18	15	15	26			
24	13	11	9	8	6	5	7	14	20	21	22	-	23	22	23	25	24	25	-	23	18	17	12	10	25		
25	8	10	8	6	10	13	17	21	-	25	27	-	27	27	27	28	28	27	20	18	20	19	19	28			
26	14	12	8	6	7	6	14	19	23	-	25	25	26	26	27	27	27	25	20	13	32	11	14	32			
27	13	10	9	7	6	7	6	11	-	19	23	24	24	25	25	24	25	24	24	23	21	20	22	20	25		
28	15	11	11	9	6	7	16	-	16	18	21	23	25	25	26	27	28	29	28	25	18	14	14	19	29		
29	15	11	8	8	8	8	8	6	21	24	25	27	28	28	28	39	28	28	28	28	34	27	20	17	36		
30	11	10	11	10	11	16	16	16	18	22	24	26	31	26	25	24	26	25	14	31	25	18	11	17	31		
31	23	22	22	21	23	23	26	27	30	28	32	33	33	33	39	34	33	34	32	34	27	32	24	23			
PEAK	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03		

STATUS FLAG CODES NA - NOT APPLICABLE

V - VARIOUS

AQI CLASS	OZONE (O ₃)					PARTICULATE MATTER 2.5 (PM2)					NITROGEN DIOXIDE (NO ₂)					SULPHUR DIOXIDE (SO ₂)					FREQUENCY	
	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%	MAX AQI	HR	DAY	HRS	%
VERY POOR (101-255)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
POOR (51-100)	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	0	0.0%
FAIR (26-50)	101	13.6%	36	17	13	6	0.8%	39	14	30	0	0.0%	-	-	-	0	0.0%	-	-	-	107	14.4%
GOOD (1-25)	557	74.9%	-	-	-	30	4.0%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	587	78.9%
OVERALL	658	88.4%	-	-	-	36	4.8%	-	-	-	0	0.0%	-	-	-	0	0.0%	-	-	-	694	93.3%
UNAVAILABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	6.7%

Sulphur Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 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	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	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
3	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
4	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
5	0	0	0	0	0	0	0	0	0	IZS	0	0	0	1	1	1	0	0	1	1	0	0	0	0	0	1	0.2	24
6	0	0	0	0	0	1	2	IZS	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.2	24
7	0	0	0	0	0	0	IZS	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.1	24
8	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0.0	24
9	0	0	0	0	IZS	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.1	24
10	1	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24
11	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
12	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
13	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	IZS	1	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	IZS	0	0.0	24
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0.0	24
17	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	IZS	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	IZS	0	0	0	0	0	0.0	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0.0	24
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0.0	24
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0.0	24
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0.0	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0.0	24
25	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0.0	24
27	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
28	0	0	0	0	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
29	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
30	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
31	0	0	0	0	0	IZS	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24
HOURLY MAX	1	0	0	0	0	1	2	1	1	1	1	0	1	1	1	0	0	1	1	0	0	1	0	0				
HOURLY AVG	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	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

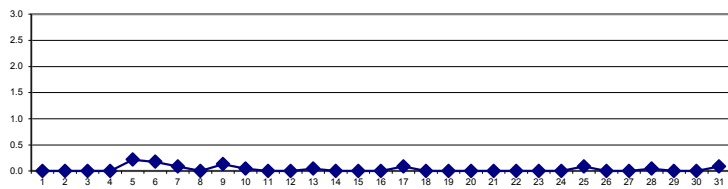
OBJECTIVE LIMIT:

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

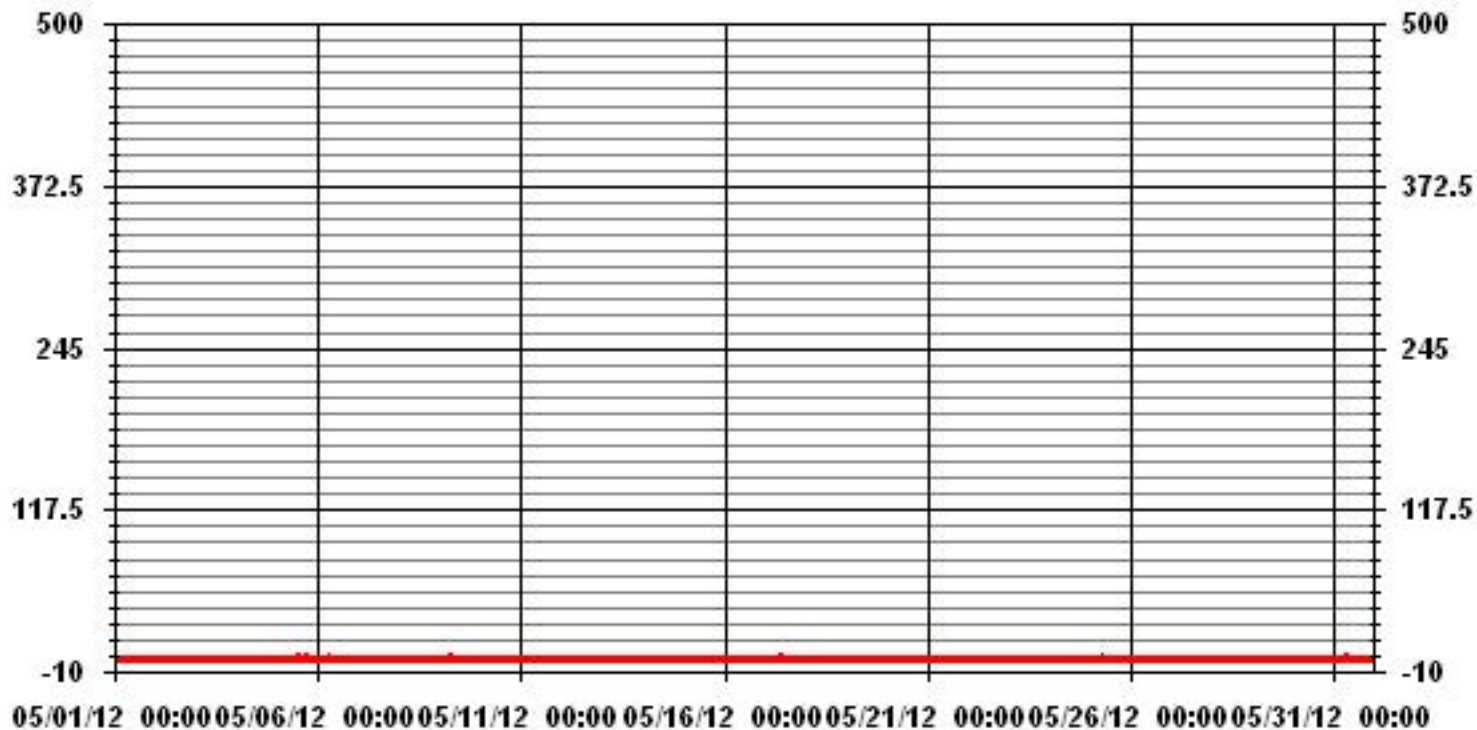
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0
NUMBER OF 24-HR EXCEEDENCES:	0
NUMBER OF NON-ZERO READINGS:	22
MAXIMUM 1-HR AVERAGE:	2 PPB @ HOUR(S) 6 ON DAY(S) 6
MAXIMUM 24-HR AVERAGE:	0.2 PPB ON DAY(S) 5, 6
IZS CALIBRATION TIME:	32 HRS
OPERATIONAL TIME:	744 HRS
MONTHLY CALIBRATION TIME:	4 HRS
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.19
MONTHLY AVERAGE:	0.03 PPB

24 HOUR AVERAGES FOR MAY 2012



01 Hour Averages



— LICA SO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 2012

SULPHUR DIOXIDE MAX instantaneous maximum 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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
2	0	0	0	0	1	0	0	0	0	0	0	0	IZS	0	0	0	1	0	1	0	1	1	1	1	1	1	1	0.3	24
3	1	1	0	0	0	1	0	0	0	0	0	IZS	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.2	24
4	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
5	0	0	0	0	0	0	0	1	IZS	1	1	1	1	2	2	1	1	1	2	1	0	1	0	1	0	2	0.7	24	
6	0	0	0	0	1	2	IZS	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	2	0.6	24		
7	0	0	0	0	0	0	IZS	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0.2	24	
8	0	1	0	1	0	IZS	1	1	1	1	1	1	1	C	C	C	C	1	0	1	0	0	0	0	1	0.6	24		
9	1	1	1	0	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	0.8	24		
10	1	1	0	IZS	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	
11	0	0	IZS	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	24	
12	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.0	24	
13	IZS	0	0	1	1	0	0	0	1	0	0	1	0	0	0	0	1	1	1	1	1	0	1	0	IZS	1	0.4	24	
14	0	0	0	0	1	1	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	IZS	0	0.3	24	
15	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	1	0	0	1	0	0	0.2	24	
16	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	IZS	0	1	0	1	0.7	24	
17	0	1	0	1	0	1	0	0	2	2	1	1	0	1	1	1	1	1	0	IZS	1	0	0	0	0	2	0.7	24	
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0.0	24	
19	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	1	0.0	24	
20	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	IZS	1	1	1	1	1	0	0	0	1	0.3	24	
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	1	0	1	0	0	0	0	0	0	1	0.1	24	
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0.0	24	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	1	0	0	0	0	0	0	0	1	0.0	24	
24	0	0	0	0	0	0	0	1	0	0	0	1	IZS	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
25	0	0	0	0	0	0	1	2	2	1	1	IZS	0	1	1	1	0	1	1	1	1	1	0	0	2	0.6	24		
26	0	0	0	0	0	0	0	1	1	1	1	IZS	1	1	1	0	0	0	1	0	1	1	1	0	0	1	0.4	24	
27	0	0	0	0	0	0	0	1	0	IZS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1	24	
28	0	0	0	0	0	0	1	1	IZS	2	1	1	1	1	1	1	1	1	1	1	1	1	0	0	2	0.7	24		
29	0	0	0	0	0	0	1	IZS	1	0	1	0	0	0	1	1	1	0	1	1	1	1	0	0	1	1	0.4	24	
30	0	0	0	0	0	0	IZS	1	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0.2	24		
31	0	0	0	1	0	IZS	1	1	2	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0.3	24		
HOURLY MAX	1	1	1	1	1	2	2	2	2	2	1	1	2	2	1	1	1	1	2	1	1	1	1	1	1	1			
HOURLY AVG	0.1	0.3	0.1	0.1	0.1	0.2	0.3	0.4	0.6	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.1	0.1				

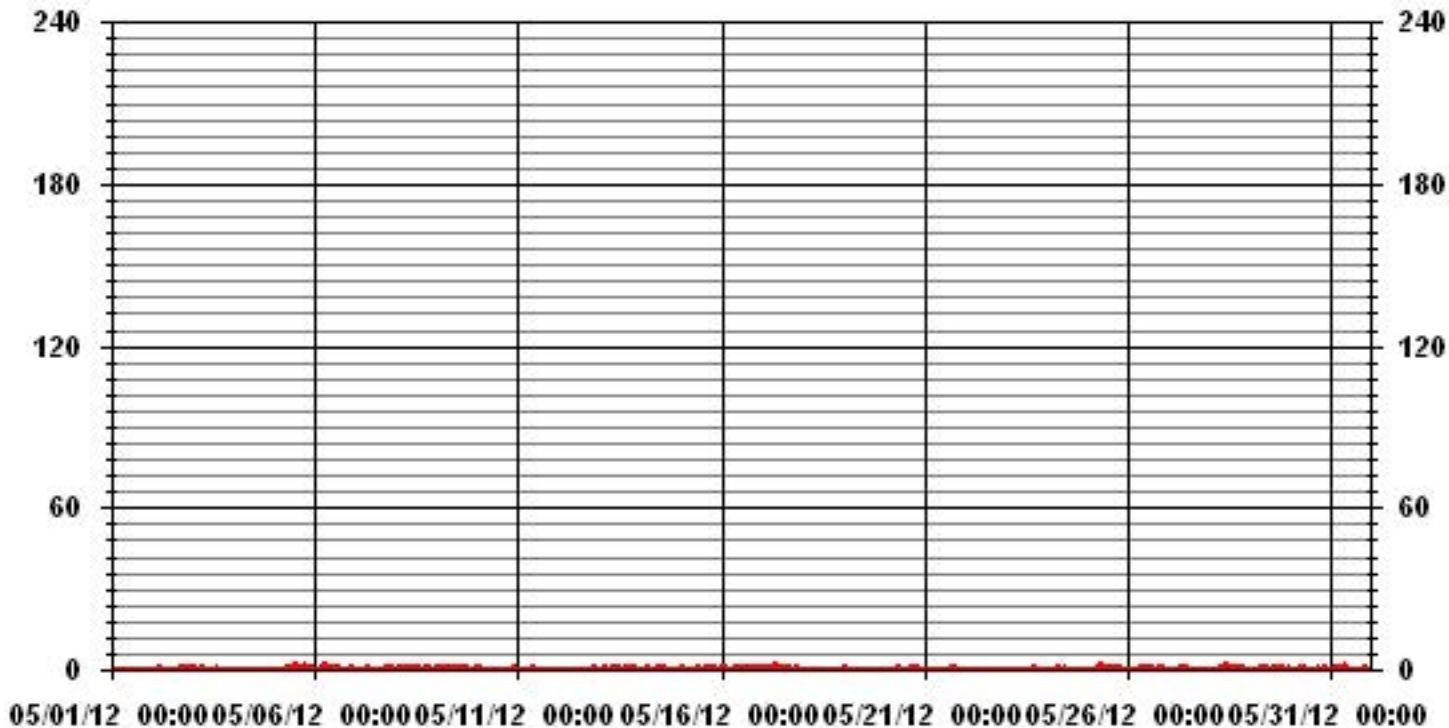
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	194					
MAXIMUM INSTANTANEOUS VALUE:	2	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744 HRS		
MONTHLY CALIBRATION TIME:	4 HRS					
STANDARD DEVIATION:	0.49					

01 Hour Averages



LICA
 SO2_ / WDR Joint Frequency Distribution (Percent)

May 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	2.54	6.63	7.62	6.07	10.45	7.76	10.73	3.24	1.55	2.68	5.93	10.02	10.73	5.79	5.50	2.68	100.00
< 60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 170	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 340	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.54	6.63	7.62	6.07	10.45	7.76	10.73	3.24	1.55	2.68	5.93	10.02	10.73	5.79	5.50	2.68	

Calm : .00 %

Total # Operational Hours : 708

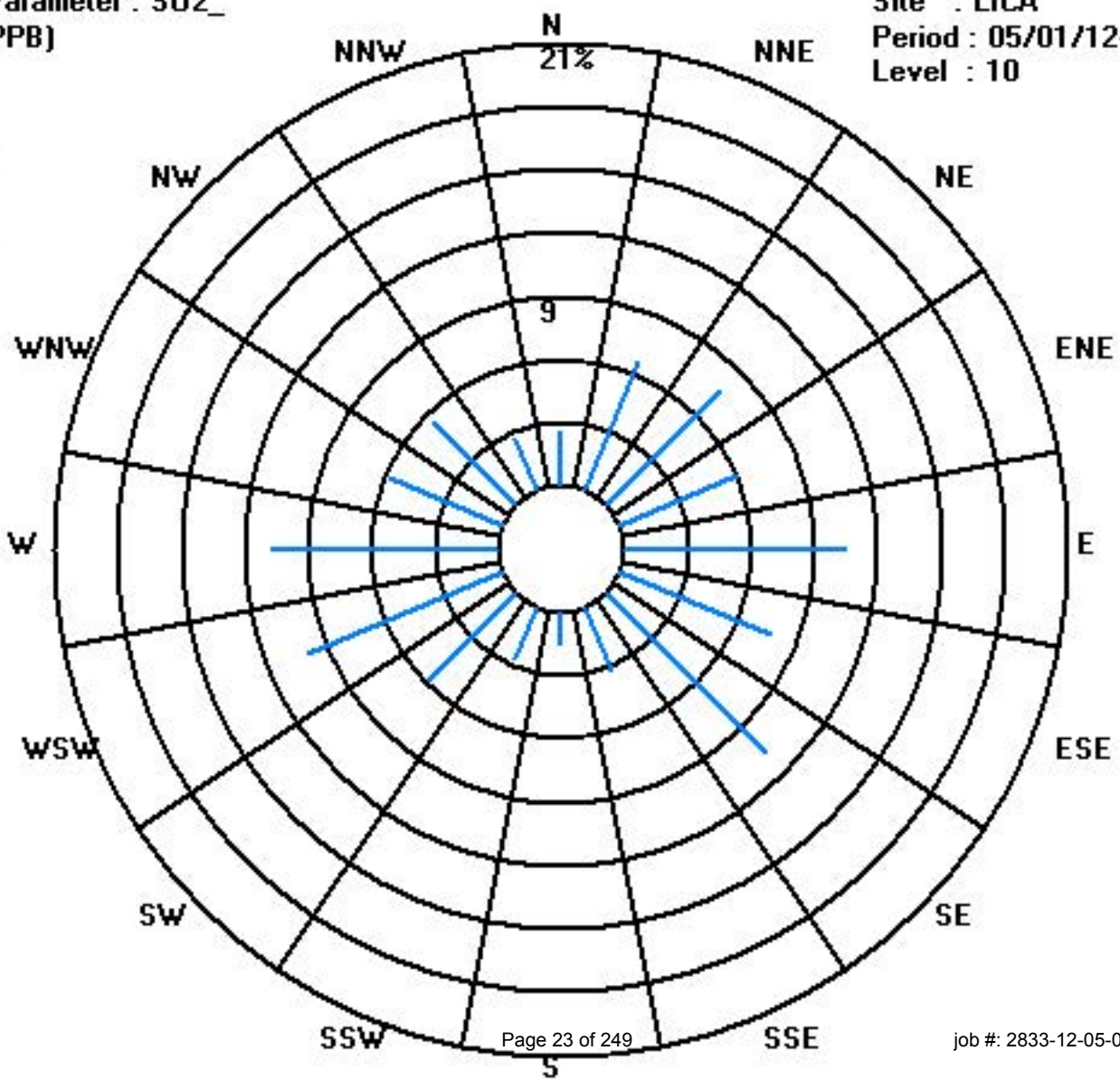
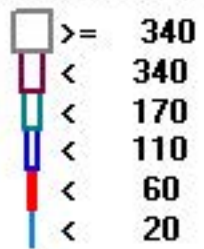
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 20	18	47	54	43	74	55	76	23	11	19	42	71	76	41	39	19	708
< 60																	
< 110																	
< 170																	
< 340																	
>= 340																	
Totals	18	47	54	43	74	55	76	23	11	19	42	71	76	41	39	19	

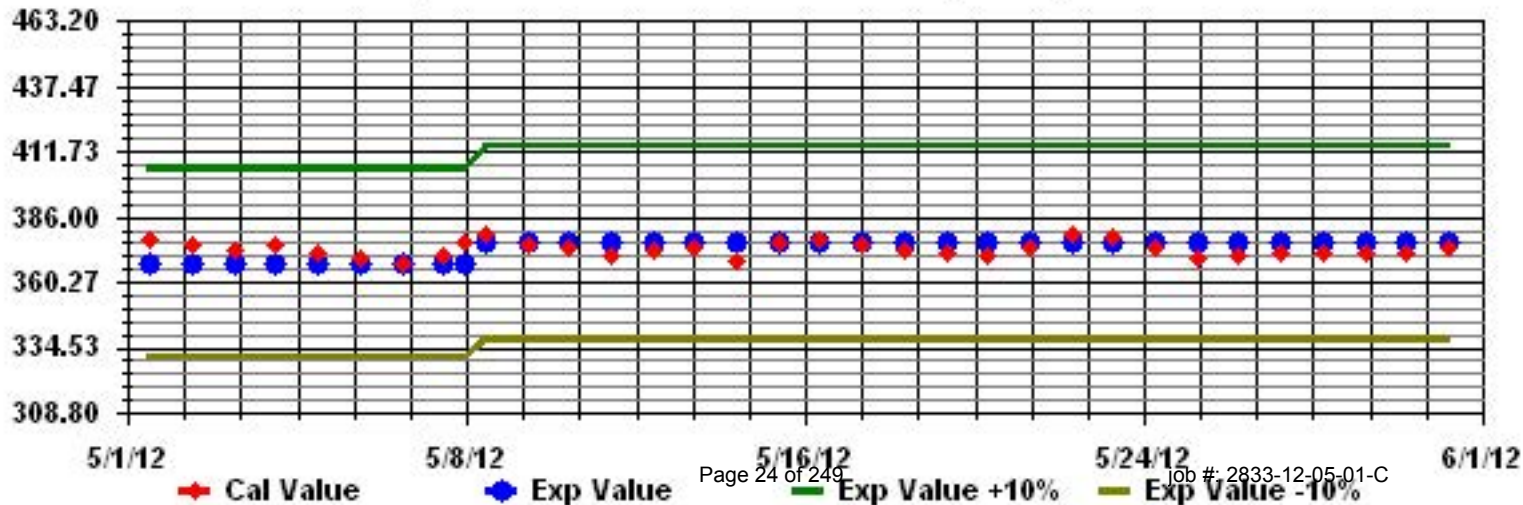
Calm : .00 %

Total # Operational Hours : 708

Class Limits (PPB)



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



Total Reduced Sulphur

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

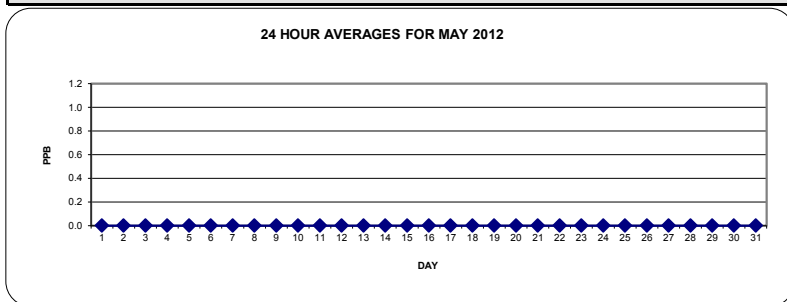
MAY 2012

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	RDGS.		
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.		
DAY																												
1	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
2	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
3	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
4	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
5	0	0	0	0	0	0	0	0	IZS	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	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
7	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
8	0	0	0	0	0	IZS	0	0	C	C	C	C	0	0	0	0	M	M	0	0	0	0	0	0	0	0.0	22	
9	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
10	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
11	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
12	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
13	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0.0	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	IZS	0	0.0	24	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0.0	24	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0.0	24	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24	
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0.0	24
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0.0	24
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	IZS	0	0	0	0	0	0	0	0	0	0	0	0.0	24
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0.0	24
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IZS	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	IZS	0	0	0	0	0	0	0	0	0	0	0	0.0	24
27	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
28	0	0	0	0	0	0	0	0	0	IZS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
29	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
30	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
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	24
HOURLY MAX	0	0	0	0	0	0	0	0	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

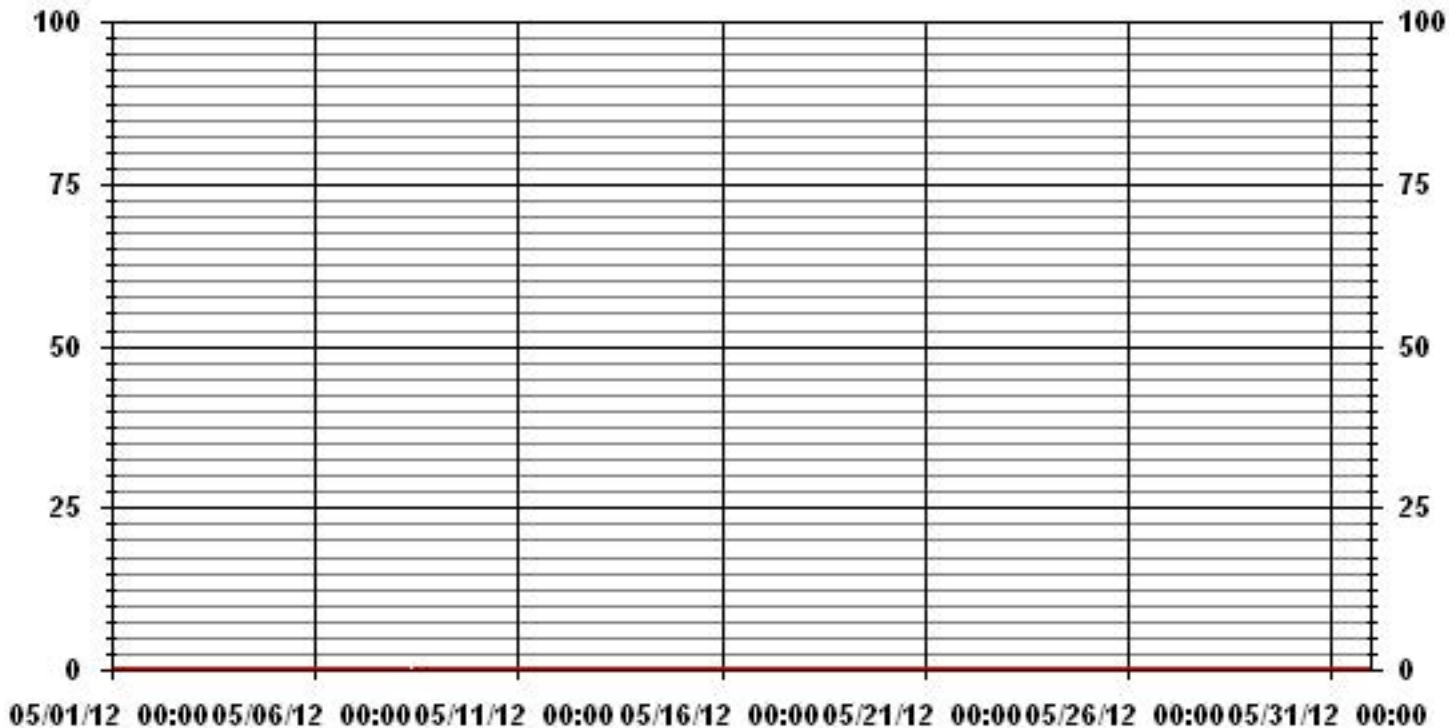
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



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)
MAXIMUM 24-HR AVERAGE:	0.0	PPB			ON DAY(S)
				VAR-VARIOUS	ALL
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	742	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	99.7	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	PPB

01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 2012

TOTAL REDUCED SULPHUR MAX instantaneous maximum in ppb

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

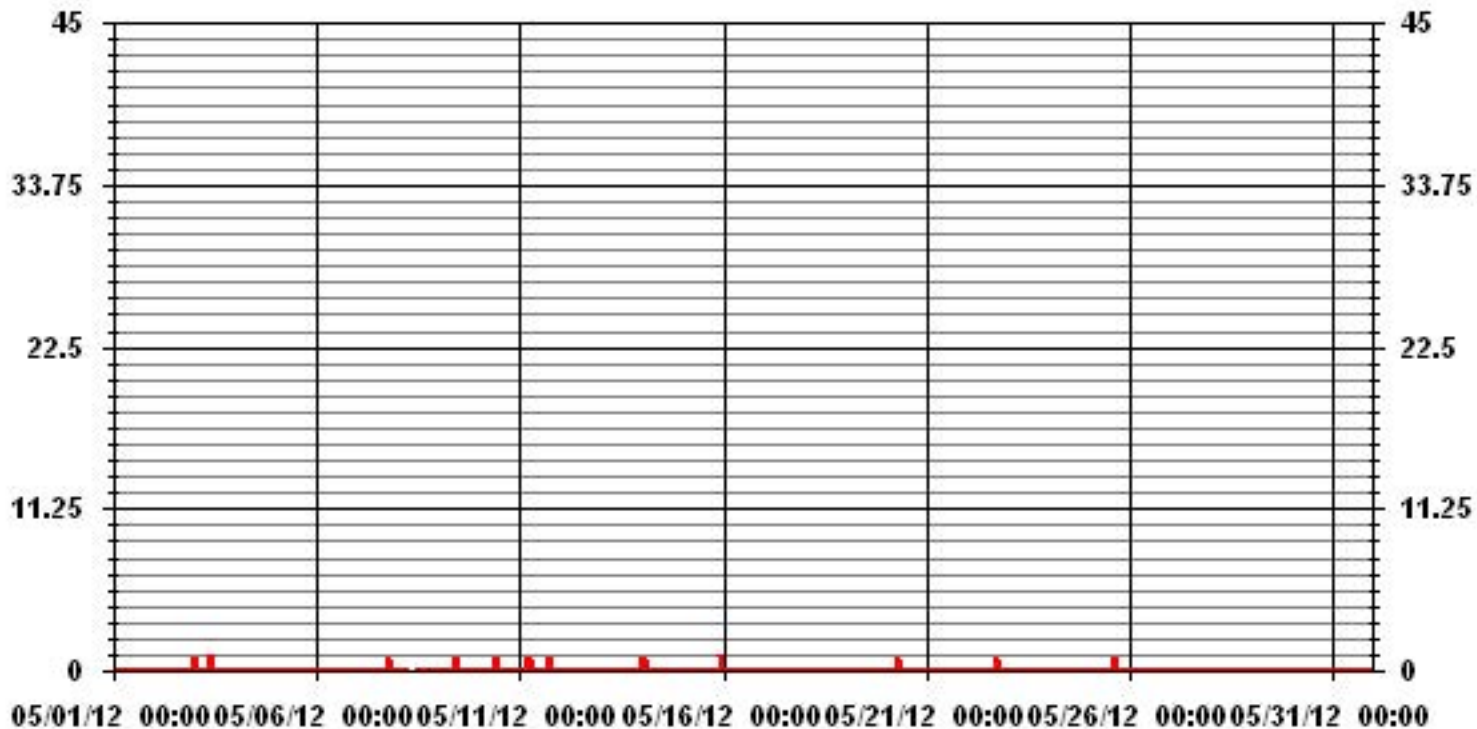
STATUS FLAG CODES

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:	12					
MAXIMUM INSTANTANEOUS VALUE:	1	PPB	@ HOUR(S)	VAR	ON DAY(S)	VAR
				VAR - VARIOUS		
IZS CALIBRATION TIME:	32			OPERATIONAL TIME:	742	
MONTHLY CALIBRATION TIME:	5					
STANDARD DEVIATION:	0.13					

01 Hour Averages



LICA
 TRS_ / WDR Joint Frequency Distribution (Percent)

May 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	2.54	6.65	7.64	6.09	10.48	7.79	10.76	2.97	1.55	2.69	5.94	10.05	10.76	5.80	5.52	2.69	100.00
< 10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.54	6.65	7.64	6.09	10.48	7.79	10.76	2.97	1.55	2.69	5.94	10.05	10.76	5.80	5.52	2.69	

Calm : .00 %

Total # Operational Hours : 706

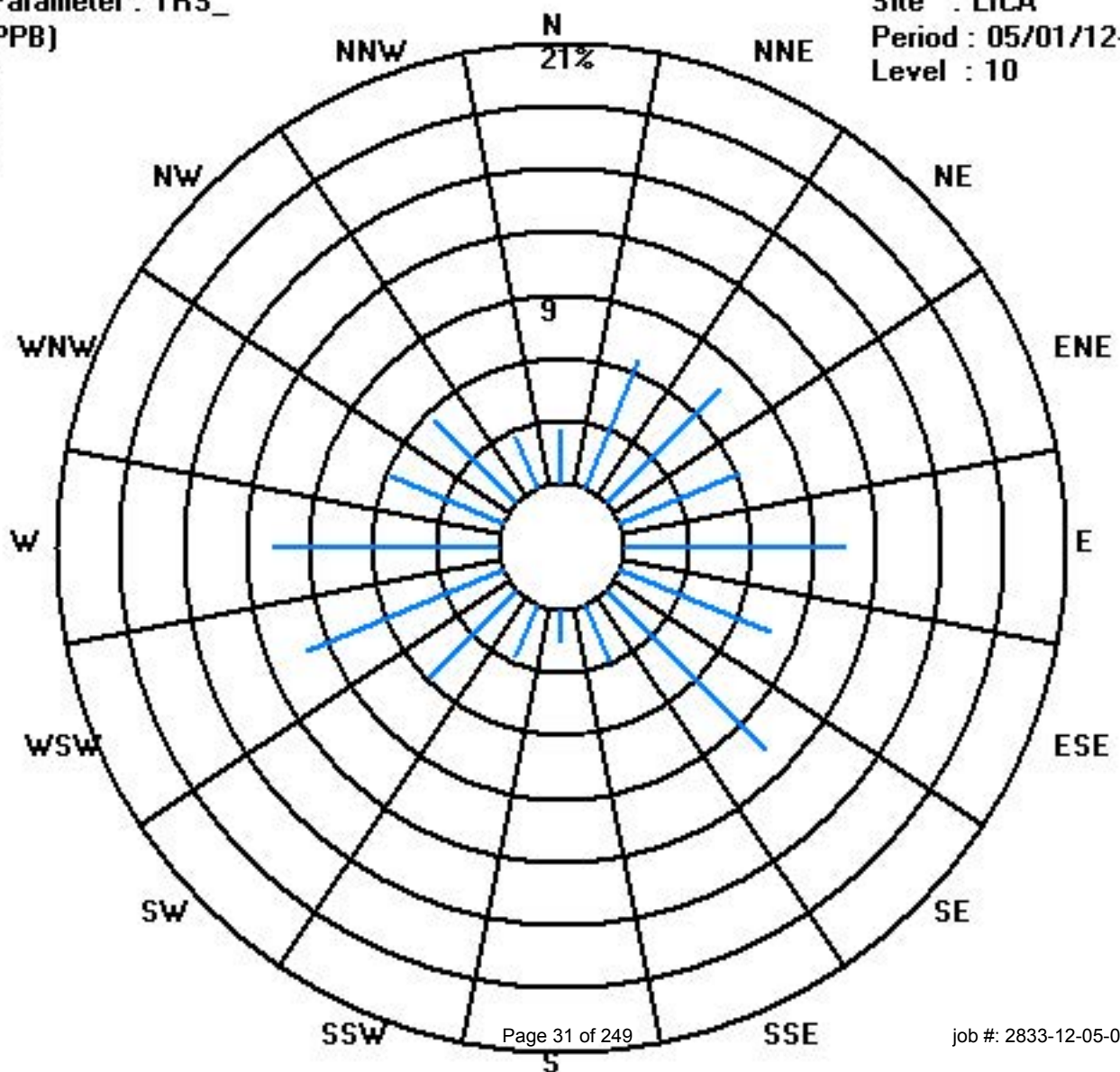
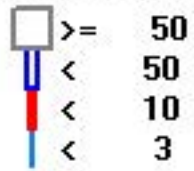
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3	18	47	54	43	74	55	76	21	11	19	42	71	76	41	39	19	706
< 10																	
< 50																	
>= 50																	
Totals	18	47	54	43	74	55	76	21	11	19	42	71	76	41	39	19	

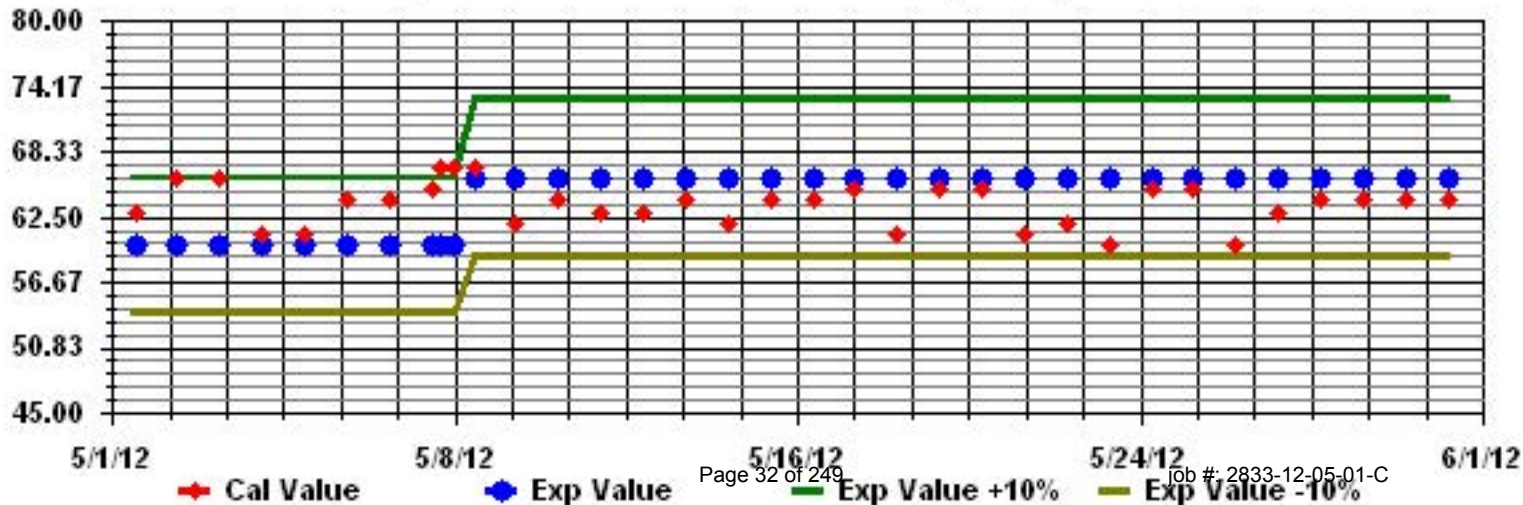
Calm : .00 %

Total # Operational Hours : 706

Class Limits (PPB)



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



Total Hydrocarbons

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 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	HOURLY MAX	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.		
1		1.9	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	1.9	1.9	1.9	2	1.9	1.9	1.9	2.0	1.9	24		
2		1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	1.9	1.9	2.0	1.9	24		
3		1.9	1.9	2	2	2	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	24		
4		1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	24		
5		1.9	1.9	1.9	2	1.9	1.9	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	1.8	1.9	2	2	2.0	1.9	24		
6		2	1.9	2	1.9	2.1	2.4	2.4	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	2.3	2.4	2.0	24			
7		2.4	2.4	2.5	2.4	2.5	2.7	1.9	2.5	2	1.9	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	2	2	2	2.1	2.2	2.7	2.0	24		
8		2.3	2.3	2.3	2.2	2.1	1.9	2	2	2	2	2	2	2	2	2	1.9	1.9	1.9	1.9	2	2	2	2.1	2.2	2.3	2.1	23		
9		2.3	2.2	2.3	2.3	1.9	2.6	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	2	2	2	2	2.6	2.0	24		
10		2	2	2	1.9	2.1	2.2	2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.2	2.0	24	
11		2.1	2.1	1.9	2	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2.1	2.4	2.4	2.0	24		
12		2.6	1.9	2	2.1	2.1	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	2.1	2.1	2.2	2.6	2.0	24	
13		1.9	2.3	2.4	2.4	2.5	2.4	2.4	2.2	2.1	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	2.2	1.9	2.5	2.1	24	
14		2.1	2.1	2.2	2.1	2.2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	1.9	2	2.2	2.0	24		
15		2	1.9	1.9	2	2	2	2.1	2.1	2	1.9	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	1.9	24		
16		2	2	2	2	2.1	2.1	2.1	2	2	2.2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2.1	2	2.2	2.0	24	
17		2	2	2	2	2	2	2	2.2	2	2	2	2	2	1.9	2	2	2	2	1.9	1.9	1.9	1.9	2	2	2	2.2	2.0	24	
18		2	2	2.1	2	2	2	2.4	2.3	2.1	2	2	2	2	2	2	2	2	2	1.9	1.9	1.9	1.9	2	2.1	2.2	2.2	2.4	2.1	24
19		2.3	2.5	2.7	2.6	2.4	2.4	2.2	2	2	2	2	2	2	2	2	2	2	2	1.9	1.9	1.9	1.9	2	2.1	2.1	2.7	2.1	24	
20		2.3	2.3	2.3	2.4	2.3	2.2	2.2	2.2	2.1	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2.4	2.1	24	
21		2	2	2	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	24	
22		1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	1.9	1.9	1.9	2.0	1.9	24	
23		2	2	2	2	2	2	2	2	2	2	2	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2.0	2.0	24		
24		2	2.1	2.2	2.3	2.2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2.3	2.0	24		
25		2	2	2	2	2	2.2	3.2	2.3	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2	3.2	2.0	24		
26		2.1	2.1	2.2	2.3	2.4	2.6	3.2	2.6	2.5	2.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2.1	2.1	2.2	2.4	3.2	2.2	24
27		2.6	2.6	2.6	2.6	2.6	2.5	2.3	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	2	2	2	2.1	2.1	2.6	2.1	24	
28		2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.4	1.9	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2.4	2.1	24	
29		2	2.1	2.1	2.1	2.1	2.2	2.2	1.9	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.2	2.2	2.2	2.1	24	
30		2.3	2.3	2.3	2.4	2.4	2.6	1.9	2.2	2.1	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.6	2.0	24	
31		2.2	2.3	2.5	2.5	2.5	1.9	2.3	2.2	2	2.1	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	2.5	2.1	24		
HOURLY MAX		2.6	2.6	2.7	2.6	2.6	2.7	3.2	2.6	2.5	2.3	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.4					
HOURLY AVG		2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1					

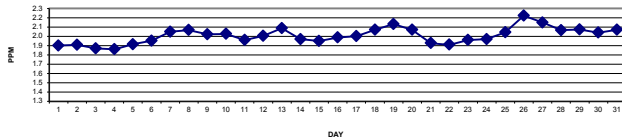
STATUS FLAG CODES

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
BB	- BELOW BACKGROUND OF 1.5 PPM		

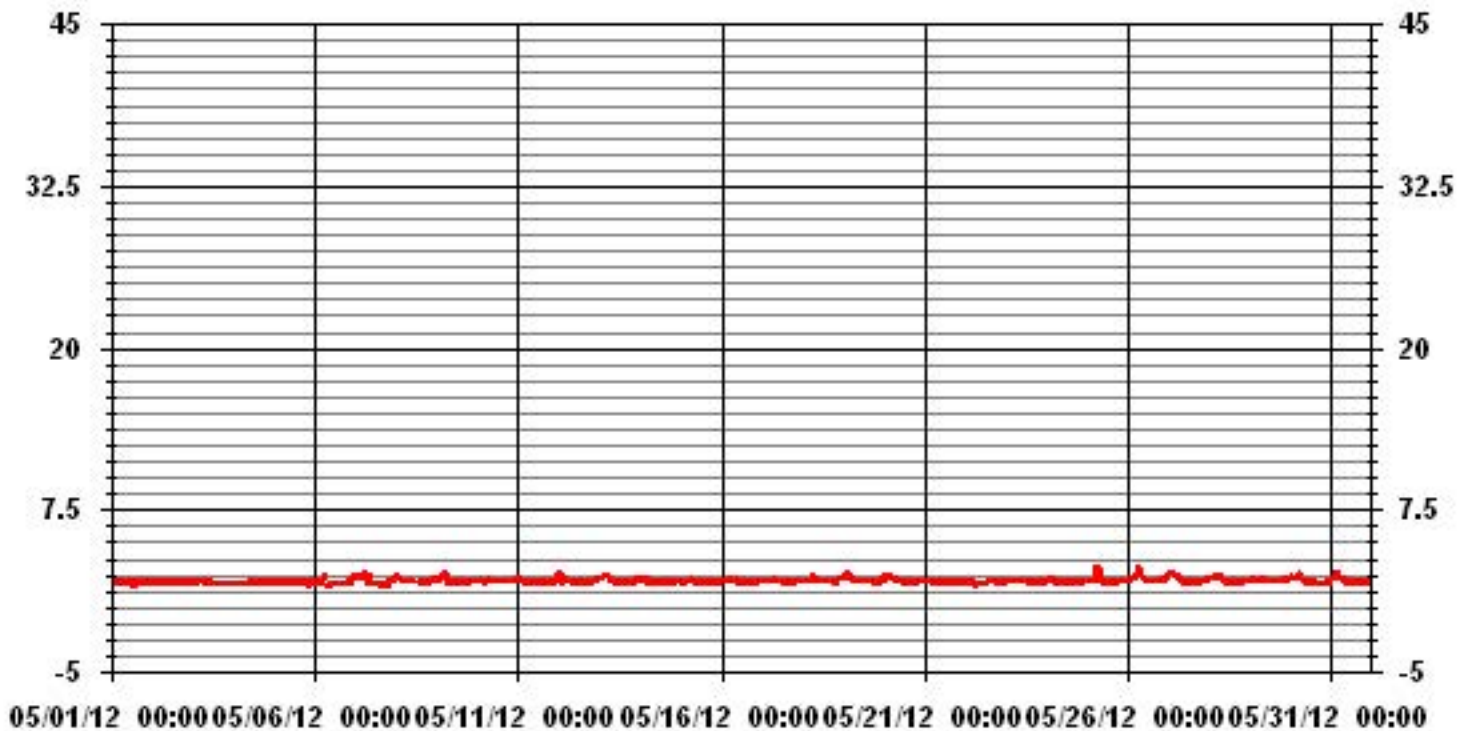
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	706		
MAXIMUM 1-HR AVERAGE:	3.2 PPM	@ HOUR(S)	6,6 ON DAY(S)
MAXIMUM 24-HR AVERAGE:	2.2 PPM		26 ON DAY(S)
IZS CALIBRATION TIME:	32 HRS	OPERATIONAL TIME:	743 HRS
MONTHLY CALIBRATION TIME:	5 HRS	AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	0.18	MONTHLY AVERAGE:	2.01 PPM

24 AVERAGES FOR MAY 2012



01 Hour Averages



— LICA — THC — PPM

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 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	0:00	MAX.	AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	1.9	1.9	2	1.9	1.9	1.9	1.9	2.1	1.9	1.9	1.9	1.9	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.3	1.9	1.9	2	2.3	1.9	24	
2	2	1.9	1.9	1.9	2	1.9	2	2.1	1.9	1.9	1.9	IZS	1.9	2	2.1	2.2	1.9	1.9	2	2	2.1	2.1	2	2	2.2	2.0	24	
3	2	2	2	2.1	2.1	2	2	2.3	2	2	IZS	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	2.3	1.9	24	
4	1.8	1.8	1.8	1.9	1.9	1.8	1.9	2.1	1.9	IZS	1.9	2	1.9	1.9	2	1.9	1.9	1.9	1.9	2	2	2	1.9	1.9	2.1	1.9	24	
5	2	2	2	2.2	2	2	2	2	IZS	1.9	1.9	2.1	2.1	2	2	2	2	2.1	2.2	2.2	1.9	2	2.3	2.3	2.3	2.1	24	
6	2	2	2.1	2.1	2.3	2.7	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.1	1.9	1.9	1.9	2	3.4	2.6	3.4	2.1	24			
7	2.6	2.5	2.5	2.5	2.6	2.9	IZS	2.9	2.2	2	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.1	2.1	2.2	2.3	2.9	2.2	24		
8	2.4	2.4	2.4	2.3	2.2	IZS	2	2.1	2	2	C	C	C	C	C	2	M	2	2	2.1	2.1	2	2.2	2.4	2.4	2.2	23	
9	2.3	2.4	2.5	2.5	IZS	3	2.2	2	2.1	2.1	2.1	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1	3	2.2	24	
10	2	2	2	IZS	2	2.3	2.3	2.1	2	2.1	2.1	2	2	2	2	2	2	2	2.1	2.1	2.1	2.2	2.3	2.3	2.1	24		
11	2.1	2.1	IZS	2	2	1.9	2	2	2	2	1.9	1.9	1.9	1.9	2.2	1.9	1.9	1.9	1.9	2	2.1	2.2	2.2	2.6	2.6	2.0	24	
12	2.7	IZS	2.1	2.2	2.2	2.1	2	2	2.2	2.2	2	2.6	2.3	2	1.9	1.9	2	1.9	1.9	2	2.2	2.1	2.4	2.4	2.7	2.1	24	
13	IZS	2.4	2.5	2.5	2.6	2.5	2.4	2.4	2.2	2.1	2	2	1.9	2	1.9	1.9	1.9	2	2	1.9	2	2.3	2.4	IZS	2.6	2.2	24	
14	2.3	2.2	2.4	2.2	2.2	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	1.9	1.9	2	2	2	2.1	2.1	IZS	2.1	2.5	2.1	24	
15	2.1	2	2	2	2	2.1	2.2	2.4	2.1	2	2	2	4.6	1.9	2	2	1.9	1.9	2.1	1.9	2	IZS	2	2	4.6	2.1	24	
16	2.1	2	2	2.1	2.1	2.2	2.2	3.1	2.2	2.4	2.1	2	2	2	2.1	2	2	2	1.9	2	IZS	2.2	2.1	2	3.1	2.1	24	
17	2	2.3	2.1	2.1	2.3	2.3	2.1	2.4	2.4	2	2	2.1	2	2	2.4	2.1	2	2	2	IZS	2	2.1	2.1	2	2.4	2.1	24	
18	2	2.1	2.1	2.1	2.1	2.2	2.8	2.4	2.3	2	2	2	2	2	2.1	2	2.1	2	IZS	2	2.1	2.3	2.3	2.2	2.8	2.1	24	
19	2.4	2.7	2.8	2.6	2.6	2.4	2.4	2	2.1	2.1	2.1	2	2.1	2	2	2	2	IZS	1.9	2	2	2	2.1	2.2	2.8	2.2	24	
20	2.3	2.4	2.4	2.4	2.4	2.2	2.3	2.3	2.3	2.1	2.1	2	2	2	2	2	IZS	1.9	2	2	2	2.1	2	2	2.4	2.1	24	
21	2	2.1	2.1	2.1	2.1	2	1.9	2	1.9	2.9	2	2	1.9	2	2	IZS	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.9	2.0	24	
22	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	1.9	1.9	1.9	2.6	C	2	IZS	2.3	2	2.1	2	2	2	2	2	2.2	2	2.6	2.0	24
23	2	2	2	2	2	2	2	2	2	2	2	2	2	IZS	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	2	2	2	2.0	24	
24	2.1	2.3	2.4	2.4	2.4	2.2	2	2	1.9	1.9	1.9	1.9	IZS	1.9	1.9	2	2	2	1.9	1.9	2	2	2	2	2.4	2.0	24	
25	2	2	2	2.1	2.4	3.6	4.1	2.7	2	2	2	IZS	2	2	2	2	2	2	2	2	2	2	2.1	2.2	2.1	4.1	2.2	24
26	2.2	2.2	2.2	2.4	2.4	3.3	3.9	2.8	2.5	2.5	IZS	2.1	2.1	2	2	2	2	2	2	2	2.1	2.2	2.3	2.5	2.5	3.9	2.4	24
27	2.7	2.9	2.7	2.7	2.6	2.6	2.5	2.3	2.2	IZS	2	2.9	2	2.1	2	2.1	2	2	2	2	2	2	2.2	2.4	2.2	2.9	2.3	24
28	2.3	2.3	2.3	2.4	2.4	2.5	2.4	2.6	IZS	2.1	2	2	2	2	2	2	2	2.1	2	2	2	2.1	2.1	2	2	2.6	2.2	24
29	2.1	2.5	2.1	2.2	2.2	2.2	2.3	IZS	2.2	2.1	2.1	2	2	2	2.1	2.1	2.1	2	2	2.2	2.1	2.2	2.4	2.3	2.5	2.2	24	
30	2.4	2.4	2.5	2.4	2.5	2.6	IZS	2.4	2.3	2.1	2	1.9	1.9	1.9	2	1.9	1.9	1.9	1.9	1.9	2	1.9	2	2.2	2.6	2.1	24	
31	2.3	2.5	2.5	2.6	2.6	IZS	2.6	2.5	2.1	2.2	2.1	1.9	2	2	2	1.9	2	2	2	2	2	1.9	2.1	2.4	2.6	2.2	24	
HOURLY MAX	3	3	3	3	3	4	4	3	3	3	2	3	5	2	3	2	2	2	2	2	2	2	3	3				
HOURLY AVG	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2			

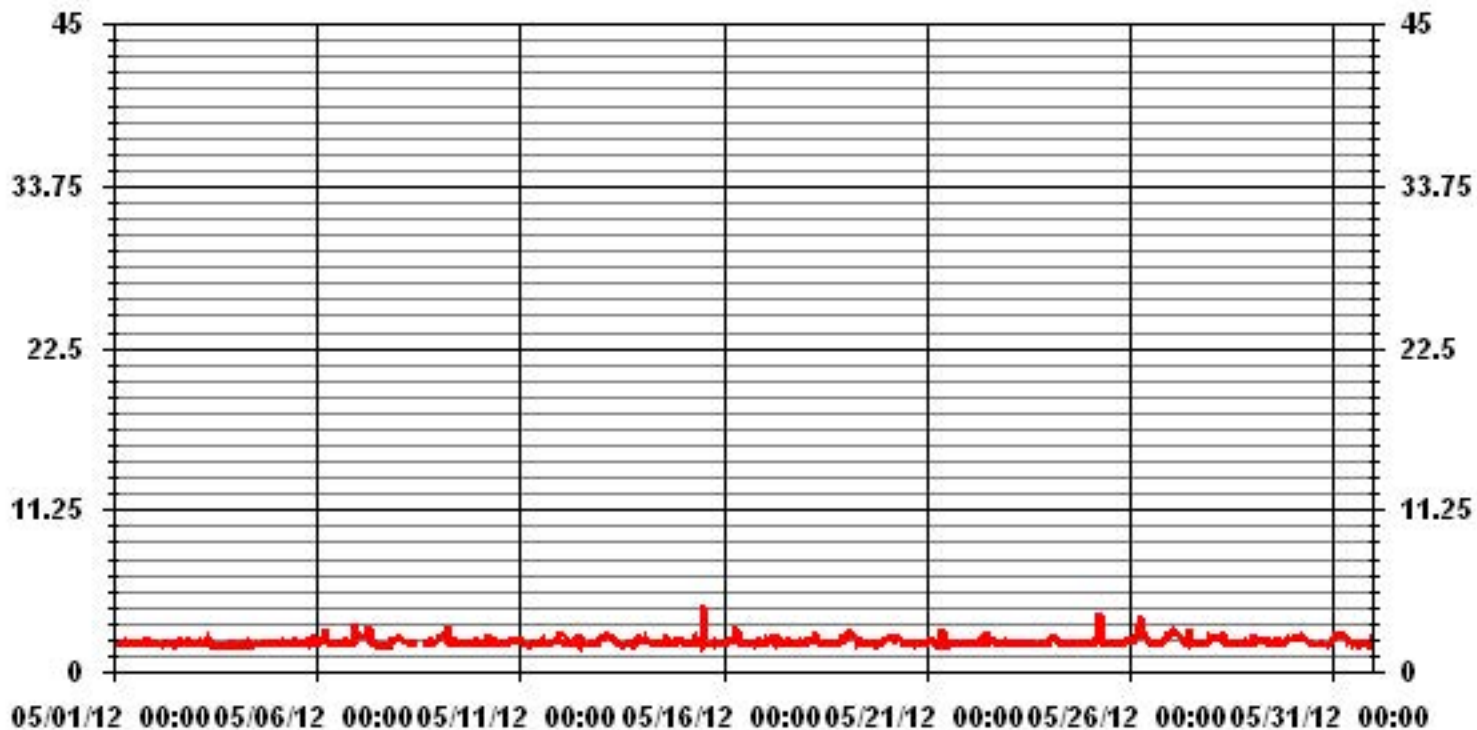
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705					
MAXIMUM INSTANTANEOUS VALUE:	4.6	PPM	@ HOUR(S)	12	ON DAY(S)	15
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	6	HRS				
STANDARD DEVIATION:	0.27					

01 Hour Averages



— LICA THCMAX PPM

LICA
 THC / WD Joint Frequency Distribution (Percent)

May 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	2.54	6.65	7.64	6.09	10.33	7.79	10.76	2.97	1.55	2.69	5.94	10.05	10.76	5.80	5.52	2.54	99.71
< 10.0	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.14	.28
< 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 50.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.54	6.65	7.64	6.09	10.33	7.79	10.76	3.11	1.55	2.69	5.94	10.05	10.76	5.80	5.52	2.69	

Calm : .00 %

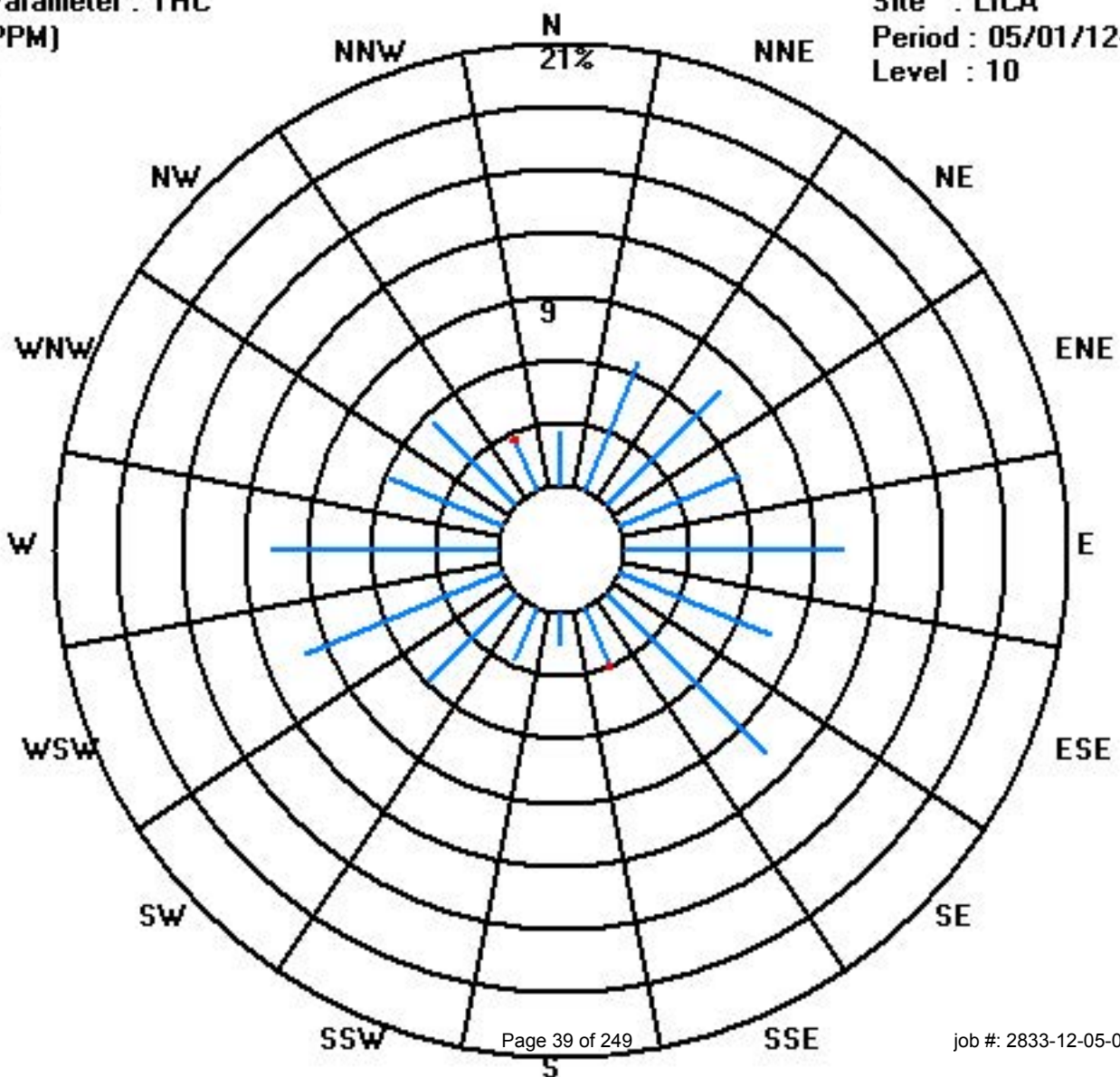
Total # Operational Hours : 706

Distribution By Samples

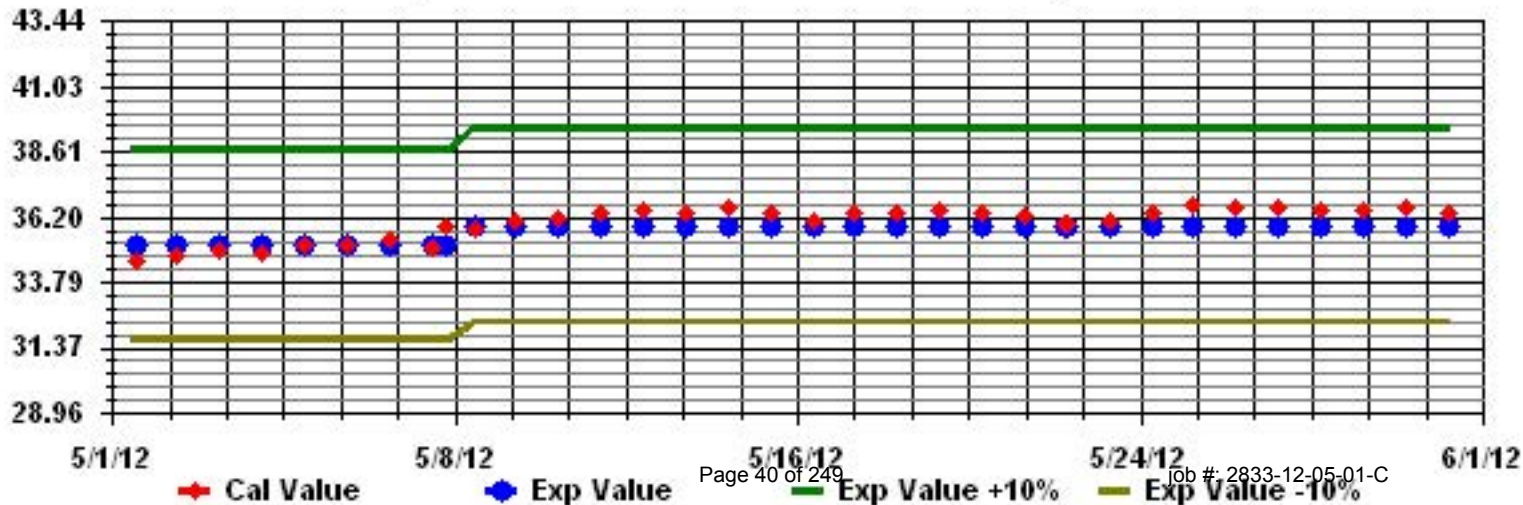
	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 3.0	18	47	54	43	73	55	76	21	11	19	42	71	76	41	39	18	704
< 10.0								1								1	2
< 50.0																	
>= 50.0																	
Totals	18	47	54	43	73	55	76	22	11	19	42	71	76	41	39	19	

Calm : .00 %

Total # Operational Hours : 706



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



Particulate Matter 2.5

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 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	
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	5	2.9	1.4	1	2.5	0	4.4	0	2.5	0	5	0	1.9	2.9	5.5	4.4	4.4	0	0.4	2.5	6	4.4	5.5	2.9	6.0	2.7	24		
2	0	0	1.4	0.5	0	0	0	1.9	4	5.5	1	1.9	4.4	3.4	3.4	5	1	5	6	2.9	10.5	10.9	15.5	5	15.5	3.7	24		
3	6	5	6	1.9	6	6	5.9	1.9	7.5	4	0	5	9	N	4.9	4	4.4	3.4	3.4	5	4.5	3.4	1.9	2.5	9.0	4.4	23		
4	3	2.5	2.9	4.5	3.4	1.9	3.5	0.5	0	5.1	1.9	5.5	0	3	2.3	0.1	1.9	2.6	0.7	3.6	3.2	2.7	1.2	2.7	5.5	2.4	24		
5	1.7	0.4	0	3.6	1.4	1.6	1.9	2.5	4.4	4.3	3.8	3.2	2.8	9.3	2.3	5.7	2.8	0	1.6	6.6	3.3	2.3	2.2	2.1	9.3	2.9	24		
6	0	0	3.9	2.9	3.1	4.8	4.7	4.5	4.2	6.5	4.6	3.6	1	2.9	9.1	3.9	9	7.7	9.4	1.7	4.2	6.2	6.4	6	9.4	4.6	24		
7	3.4	9	6.3	4.3	4.2	2.5	7.6	5.4	7.5	N	7.1	8.5	0.2	0	7.7	5.3	9.3	7.6	8.5	7.2	8.6	16.1	12.8	3.4	16.1	6.6	23		
8	10.1	8.4	7.3	5.5	4.1	1.4	4.6	4.8	10.1	7.5	8.6	12.4	C	6.1	9.9	8.2	4.5	4.8	6.8	7.3	9.4	8.6	7	7.9	12.4	7.2	24		
9	8.4	9.9	6.9	12	7.7	11	9.3	6	7.4	3.6	7.9	7.4	5	2.5	4.4	3.4	6.4	6.4	8.4	6	5.9	6.6	2.5	10.4	12.0	6.9	24		
10	1.3	0	5	0	0.4	0	0	N	2.5	N	1.9	1.4	2.9	0	4	0	N	5.5	0	2.5	5	4.4	2.5	0	5.5	1.9	21		
11	5	3.4	1	0	1	0	1.4	0	3.4	1	3.4	9.4	6.9	1.9	4.4	2.9	7.5	0	2.5	0	5	2.9	7.9	3.4	9.4	3.1	24		
12	4	0	9	0	3.4	1.4	7	2.9	7.5	6	10.9	4.4	5	0	6.5	4	6.5	9	7.9	7.5	13.5	10.5	5.5	8.4	13.5	5.9	24		
13	10.9	10.5	9.4	7.5	9.4	6	6.9	8.4	7.5	13.5	12.5	11.5	9.9	12.5	17.5	16	20.5	43	39	29.5	30.5	30.5	24.5	17	43.0	16.9	24		
14	12.5	13	10.5	18	20	11.5	5	4.4	4	0	0	0	1.9	5.5	N	2.5	2.9	0	3.4	6.4	4	7.5	5	8.4	20.0	6.4	23		
15	4	7.9	9	18	12.5	6.5	18.5	12.5	8.4	13	16	9.4	16.5	9	18.5	18.5	7	10.5	17.5	13.4	11.5	6.4	5.5	10	18.5	11.7	24		
16	17.5	16	13.5	12.5	15.5	18	19	23	29	20.5	15.5	7.9	6	18.5	12.5	15	13.5	9	7	6.5	8.4	10.9	13	13.5	29.0	14.2	24		
17	9.9	12	10.5	5	2.9	6.5	6.5	3.4	0	0	4	1.4	5.5	6	6.9	4	2.5	3.4	2.9	6	5.5	9.4	1.9	2.9	12.0	5.0	24		
18	0	4	4.4	1.4	5	5	1.9	1.4	0.5	1.4	1.4	2.5	3.4	1	2.5	5	1.9	1.4	0	5.5	2.5	5.5	5	5.5	5.5	2.8	24		
19	8.4	7.5	9.4	9.9	10.5	8.4	9	2.9	7.9	3.4	6	0	4	0	0	0	1.9	N	4.4	1.9	5	1	2.9	1.9	10.5	4.6	23		
20	2.9	0	6	1	6.5	N	5	1.9	4	0	3.4	1.9	5.5	6.5	7.9	0	9	3.4	7.9	9	7.5	9.9	19	3.4	19.0	5.3	23		
21	9.4	6	6	1.9	3.4	1.4	1.4	6.5	6.9	5	6.5	6	5	1.9	6	4.4	7.9	7.5	8.4	4.4	7.5	3.4	4	2.9	9.4	5.2	24		
22	4	4	7.9	1.9	4.4	3.4	2.9	2.5	6.5	12	1.9	2.9	6.9	4	0.5	4	5.5	5	4	3.4	2.5	7.5	4	5	12.0	4.4	24		
23	5	3.4	1.9	1	5	4.4	2.5	4	4.4	3.4	3.4	2.9	5	3.4	6	5	4.4	6.9	0.5	7.9	5	6.5	2.9	1.9	7.9	4.0	24		
24	6.5	4.4	4	6.5	4.4	1	2.9	3.4	1.9	4	4	5.5	1.4	2.9	3.4	2.9	1	7.9	8.4	7.5	5.5	5.5	6	2.5	8.4	4.3	24		
25	5.5	2.5	4	6	4	6.5	7.9	4.4	5	6	1.4	4.4	7.9	6.5	6.9	7.9	5	9.4	N	5	7.5	7.9	5.5	6.5	9.4	5.8	23		
26	4.4	12	9.9	7.5	11.5	8.4	11.5	13.5	7.5	5.5	2	5	4.4	N	1.9	7.9	4.4	10.9	6.5	6	7.9	7.9	6	9	13.5	7.5	23		
27	9.4	14.5	7	6	8.4	2.9	6.5	7.9	5.5	N	10.5	4.4	4	7.9	6.5	2.5	6	6.5	8.4	9.9	13	43	13.4	13	43.0	9.4	23		
28	15.5	6.5	6.5	7.9	7	7.9	5.5	7.5	9.4	21	5.5	5.5	9.9	4	8.4	6.5	13.9	7.5	9.4	8.4	10.5	4.4	9	7.5	21.0	8.5	24		
29	9.4	2.9	7	4.4	5.5	5.5	6.9	4.4	9	11.5	13	9.4	16.5	7.9	13.9	7.9	1.4	9.4	6	9.9	15	12	9.4	9	16.5	8.6	24		
30	8.4	7	9	9	7.5	9.9	7.5	16	7	6.5	7	10.5	12.5	57.5	16	14.5	17	13.5	47	13.9	9	10.5	6.9	57.5	13.9	24			
31	9.9	11.5	9.9	13	7.5	13	15.5	3.4	6.5	7.9	7	9	17	41.5	27.4	14.4	12	7.5	3.4	9.9	6	9.4	6	5	41.5	11.4	24		
HOURLY MAX	18	16	14	18	20	18	19	23	29	21	16	12	17	42	58	19	21	43	39	47	31	43	25	17					
HOURLY AVG	6.5	6.0	6.4	5.6	6.1	5.1	6.3	5.1	6.5	6.4	5.7	5.1	6.0	6.3	9.0	6.0	6.4	7.3	6.9	8.1	8.0	8.9	7.2	6.0					

STATUS FLAG CODES

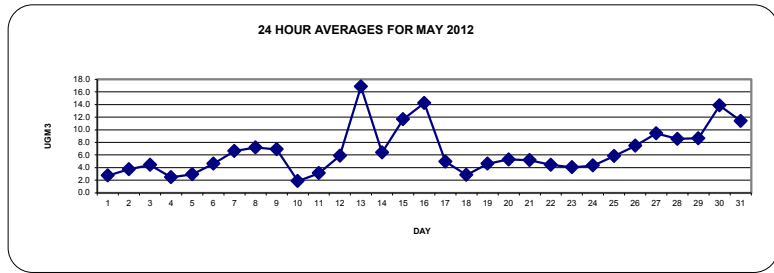
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

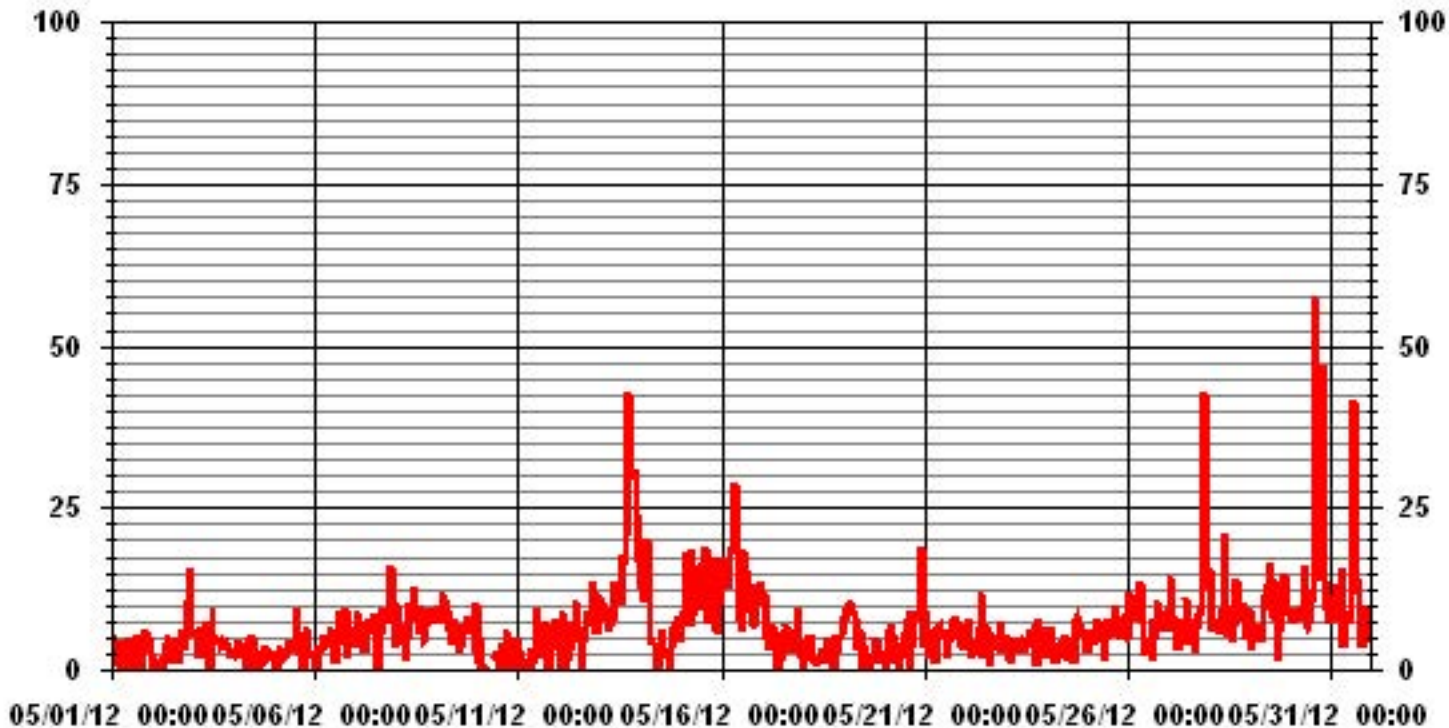
ALBERTA ENVIRONMENT: 1-HR - ug/m³ 24-HR 30 ug/m³

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	-			
NUMBER OF 24-HR EXCEEDENCES:	0	PROPOSED CANADA WIDE GUIDELINE		
NUMBER OF NON-ZERO READINGS:	683			
MAXIMUM 1-HR AVERAGE:	57.5 UG/M ³	@ HOUR(S)	14	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	16.9 UG/M ³			ON DAY(S)
IZS CALIBRATION TIME:	0 HRS	OPERATIONAL TIME:	733 HRS	
MONTHLY CALIBRATION TIME:	1 HRS	AMD OPERATION UPTIME:	98.5 %	
STANDARD DEVIATION:	5.88	MONTHLY AVERAGE:	6.55 UG/M ³	



01 Hour Averages



LICA
PM2 / WD Joint Frequency Distribution (Percent)

May 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	2.59	6.69	7.78	6.01	10.51	7.92	10.24	3.14	1.63	2.86	5.73	9.97	10.24	5.60	5.32	2.59	98.90
< 60.0	.00	.00	.00	.00	.00	.00	.13	.13	.00	.00	.27	.13	.13	.13	.13	.00	1.09
< 80.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 120.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 240.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.59	6.69	7.78	6.01	10.51	7.92	10.38	3.27	1.63	2.86	6.01	10.10	10.38	5.73	5.46	2.59	

Calm : .00 %

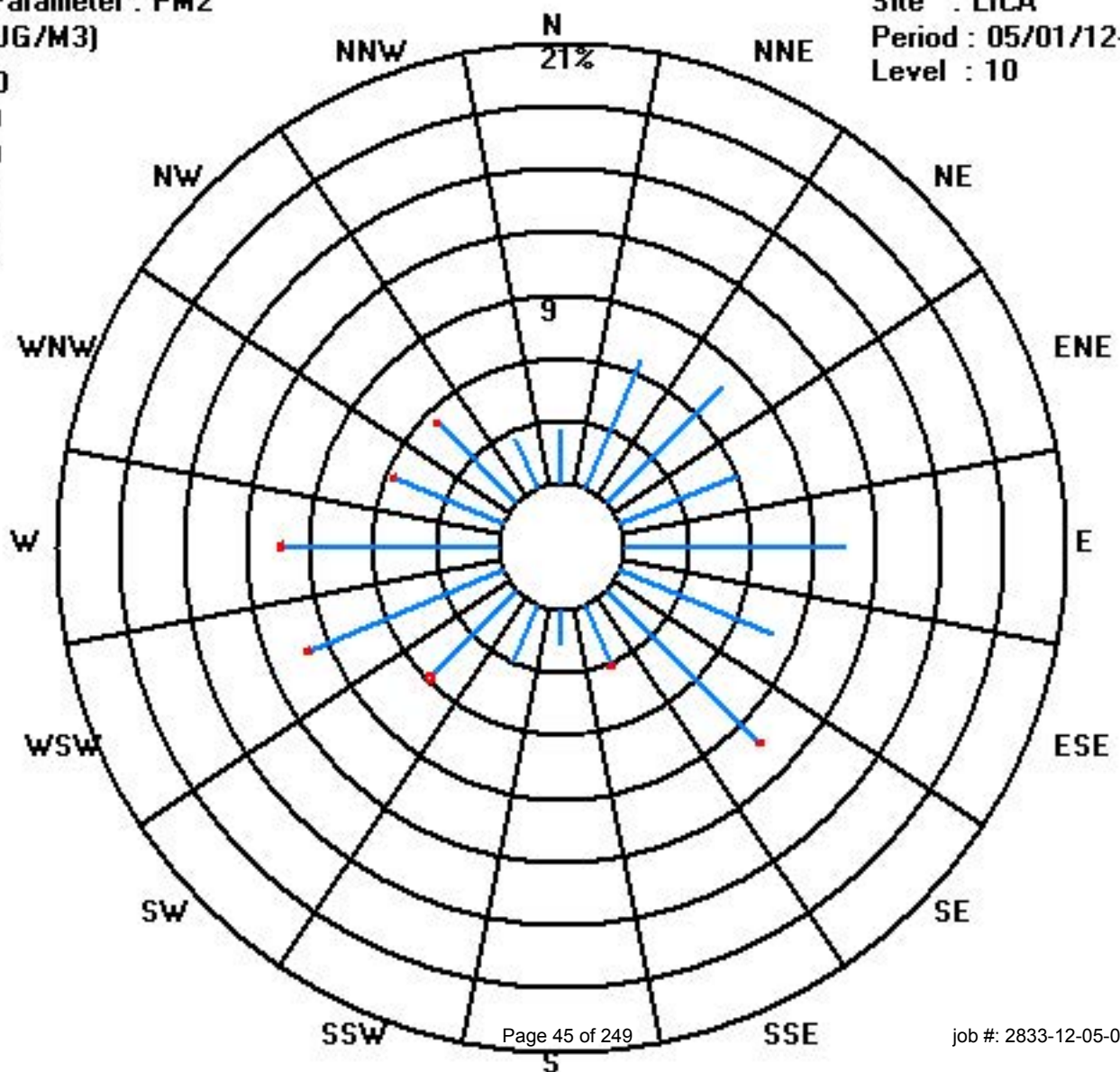
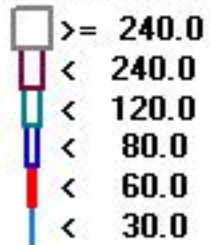
Total # Operational Hours : 732

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 30.0	19	49	57	44	77	58	75	23	12	21	42	73	75	41	39	19	724
< 60.0							1	1			2	1	1	1	1		8
< 80.0																	
< 120.0																	
< 240.0																	
>= 240.0																	
Totals	19	49	57	44	77	58	76	24	12	21	44	74	76	42	40	19	

Calm : .00 %

Total # Operational Hours : 732



Nitrogen Dioxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 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	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	1	1	2	2	2	2	2	1	1	1	1	1	IZS	1	1	1	1	1	2	3	6	2	2	2	6	1.7	24	
2	1	1	1	2	3	4	2	1	1	1	1	IZS	1	1	1	1	1	1	1	3	8	5	3	2	8	2.0	24	
3	2	2	1	3	7	4	3	1	1	1	IZS	1	1	1	1	1	1	1	2	5	3	1	1	7	2.0	24		
4	1	1	1	1	1	2	4	4	2	IZS	2	2	3	2	3	2	2	3	2	2	3	2	2	1	4	2.1	24	
5	1	1	1	1	3	2	3	2	IZS	2	1	2	3	4	3	2	2	3	2	3	1	1	1	2	4	2.0	24	
6	2	2	3	3	4	6	4	IZS	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	6	1.9	24	
7	6	4	4	4	5	9	IZS	8	4	2	1	1	1	1	1	1	1	1	1	3	2	4	2	2	9	3.0	24	
8	2	3	3	4	2	IZS	2	1	C	C	C	C	C	C	C	1	1	M	1	1	2	3	2	2	4	2.0	23	
9	2	3	3	4	IZS	4	2	2	1	3	4	1	1	1	1	1	1	2	1	1	1	3	2	2	4	2.0	24	
10	2	2	1	IZS	1	2	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	2	3	1.5	24
11	1	2	IZS	2	1	2	2	1	1	1	1	1	1	1	1	1	0	0	0	1	5	4	2	3	5	1.5	24	
12	3	IZS	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	6	6	1.9	24	
13	IZS	4	4	4	6	5	5	4	3	1	1	1	1	1	0	1	1	2	2	2	4	5	5	IZS	6	2.8	24	
14	4	4	4	4	3	2	1	1	0	0	0	1	1	1	1	1	1	1	2	3	5	6	IZS	5	6	2.2	24	
15	2	1	1	2	4	4	2	2	1	1	1	1	1	1	2	1	2	1	1	1	1	IZS	1	1	4	1.5	24	
16	2	2	1	2	4	5	5	5	3	2	1	1	1	1	1	1	1	1	1	1	IZS	2	2	2	5	2.0	24	
17	1	2	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	IZS	2	2	3	2	3	1.3	24	
18	2	2	1	1	2	4	3	2	1	1	1	1	1	1	2	1	1	1	IZS	2	2	4	5	3	5	1.9	24	
19	4	5	6	4	3	3	2	1	1	1	1	1	1	1	0	1	1	IZS	1	1	1	1	2	4	6	2.0	24	
20	4	4	4	4	4	4	4	3	2	1	1	1	1	1	1	1	IZS	1	3	3	4	5	5	2	5	2.7	24	
21	2	2	3	2	3	4	2	1	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	4	1.5	24	
22	1	1	1	1	1	2	2	2	2	1	1	1	1	2	IZS	2	2	2	1	1	1	1	1	1	2	1.3	24	
23	1	1	1	1	1	1	1	2	1	1	1	1	1	2	IZS	2	1	1	2	1	1	1	4	2	1	4	1.3	24
24	2	3	4	4	7	6	2	2	1	1	0	0	IZS	1	1	1	1	1	1	2	1	2	2	2	7	2.0	24	
25	1	1	1	1	3	4	7	6	2	1	1	IZS	1	1	1	1	2	1	1	1	2	3	3	2	7	2.0	24	
26	2	2	2	2	2	2	3	2	2	2	IZS	1	1	1	1	1	1	1	1	1	3	3	2	2	3	1.7	24	
27	3	5	4	4	5	5	5	2	1	IZS	1	1	1	1	1	1	1	1	1	2	5	4	6	3	6	2.7	24	
28	2	2	1	2	3	3	5	5	IZS	3	1	1	1	0	0	1	0	1	1	2	1	2	1	2	5	1.7	24	
29	2	3	1	2	5	7	2	IZS	2	1	1	1	1	1	1	1	1	1	1	2	3	3	3	3	7	2.1	24	
30	3	3	2	2	3	4	IZS	4	6	1	1	1	1	1	1	1	1	1	1	1	2	3	3	3	6	2.1	24	
31	3	3	3	3	3	IZS	4	5	4	3	1	1	1	1	1	1	1	1	1	1	1	2	2	3	5	2.1	24	
HOURLY MAX	6	5	6	4	7	9	7	8	6	3	4	2	3	4	3	2	2	3	3	3	8	6	6	6				
HOURLY AVG	2.2	2.4	2.3	2.5	3.1	3.6	2.9	2.6	1.7	1.3	1.1	1.0	1.2	1.1	1.1	1.1	1.1	1.2	1.2	1.7	2.7	2.9	2.5	2.3				

STATUS FLAG CODES

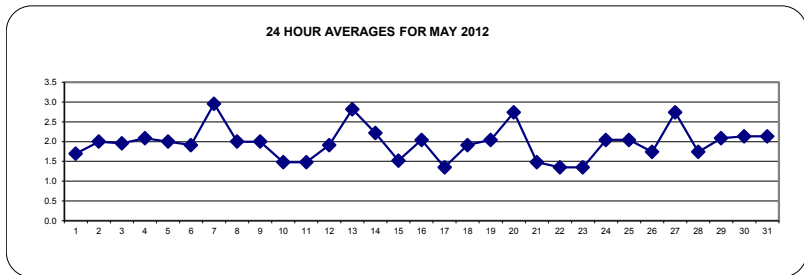
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

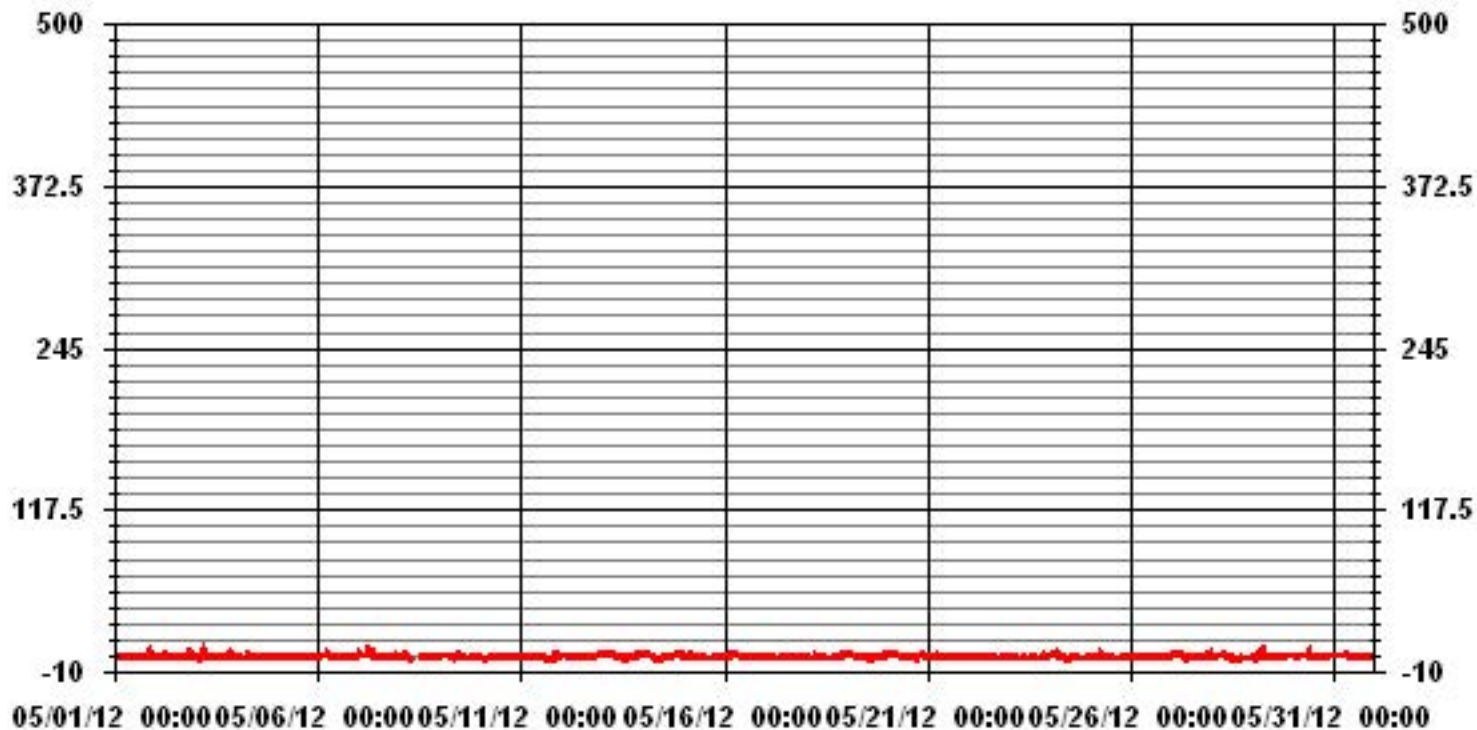
ALBERTA ENVIRONMENT: 1-HR 159 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0					
NUMBER OF NON-ZERO READINGS:	692					
MAXIMUM 1-HR AVERAGE:	9	PPB	@ HOUR(S)	5	ON DAY(S)	7
MAXIMUM 24-HR AVERAGE:	3.0	PPB			ON DAY(S)	7
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	6	HRS	AMD OPERATION UPTIME:	99.9	%	
STANDARD DEVIATION:	1.37		MONTHLY AVERAGE:	1.96	PPB	



01 Hour Averages



— LICA NO2_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 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 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	6	3	3	3	4	3	4	3	2	1	1	2	IZS	2	2	2	2	3	4	5	12	4	2	7	12	3.5	24	
2	3	4	2	3	5	7	3	3	1	1	1	IZS	1	1	4	4	3	3	2	5	37	12	5	7	37	5.1	24	
3	5	3	2	9	12	12	14	3	2	28	IZS	1	2	3	7	2	3	2	4	3	19	10	2	2	28	6.5	24	
4	1	3	2	2	4	4	6	9	3	IZS	3	10	14	5	10	3	5	5	3	6	3	13	3	2	14	5.2	24	
5	2	3	1	4	6	4	4	4	IZS	3	2	3	4	4	7	3	3	3	3	5	7	2	2	6	7	3.7	24	
6	5	4	5	5	5	7	6	IZS	2	3	1	1	1	1	2	5	1	1	1	4	4	5	5	7	3.3	24		
7	10	5	5	8	13	12	IZS	12	7	3	2	1	3	1	1	3	2	1	3	8	4	6	3	3	13	5.0	24	
8	3	6	4	7	3	IZS	2	C	C	C	C	C	C	C	2	1	M	2	2	4	8	2	2	4	8	3.5	23	
9	2	4	4	5	IZS	7	5	18	9	18	34	2	3	2	2	2	2	2	1	2	3	5	3	3	34	6.0	24	
10	3	3	2	IZS	1	4	4	3	2	1	2	1	2	3	5	2	1	1	2	2	3	3	4	4	5	2.5	24	
11	2	2	IZS	2	2	2	3	2	2	2	1	1	2	1	1	1	1	1	1	11	13	8	4	3	13	3.0	24	
12	4	IZS	4	4	3	9	3	5	7	3	1	2	1	2	1	1	1	1	1	2	6	5	4	8	9	3.4	24	
13	IZS	5	8	7	9	7	6	5	3	3	2	1	2	1	1	1	2	2	2	3	7	7	10	IZS	10	4.3	24	
14	7	4	6	6	5	3	2	2	1	1	1	1	1	1	1	2	2	2	16	7	8	9	IZS	8	16	4.2	24	
15	4	3	1	3	8	8	3	32	2	1	1	2	2	2	5	2	4	2	4	2	3	IZS	2	2	32	4.3	24	
16	3	2	2	7	6	7	9	15	4	5	2	2	2	3	3	2	4	3	1	2	IZS	2	5	2	15	4.0	24	
17	2	3	3	2	2	2	3	3	2	5	2	1	5	2	2	2	2	3	2	IZS	3	3	3	3	5	2.6	24	
18	4	3	2	3	5	6	4	4	2	2	7	2	2	2	3	2	2	2	IZS	2	4	6	8	4	8	3.5	24	
19	7	8	8	6	5	4	3	1	2	1	2	1	2	1	1	1	1	IZS	1	1	2	3	3	4	8	3.0	24	
20	5	5	5	5	6	5	4	4	3	2	2	1	1	1	1	1	IZS	1	5	6	7	7	7	4	7	3.8	24	
21	3	4	5	3	5	7	5	5	2	1	1	1	2	5	1	IZS	2	2	2	2	2	1	1	1	7	2.7	24	
22	1	1	1	2	2	7	4	6	9	4	2	2	2	5	IZS	4	3	30	2	2	1	2	1	1	30	4.1	24	
23	2	2	1	1	3	2	2	3	2	2	2	2	5	IZS	5	2	3	7	3	5	4	5	5	2	7	3.0	24	
24	2	4	5	5	11	10	5	6	4	4	2	1	IZS	4	2	2	6	1	3	3	3	3	3	3	11	4.0	24	
25	2	3	2	4	5	9	9	23	4	3	2	IZS	1	3	3	2	7	5	1	3	5	5	7	3	23	4.8	24	
26	4	9	3	3	2	3	4	4	3	21	IZS	8	1	2	3	2	2	3	1	2	7	6	5	3	21	4.4	24	
27	5	11	5	6	10	8	9	3	2	IZS	1	8	2	3	3	1	3	3	5	5	6	6	11	6	11	5.3	24	
28	3	3	2	3	5	4	8	7	IZS	6	2	2	2	1	1	18	2	3	2	11	8	5	2	5	18	4.6	24	
29	3	12	3	4	10	10	5	IZS	10	2	4	2	2	3	3	4	2	2	2	2	6	5	5	3	12	4.5	24	
30	5	4	3	3	4	5	IZS	8	7	2	2	2	1	1	4	2	1	1	1	2	3	4	4	4	8	3.2	24	
31	5	4	5	4	4	IZS	6	10	5	5	3	1	1	1	4	1	2	1	1	2	1	3	3	4	10	3.3	24	
HOURLY MAX	10	12	8	9	13	12	14	32	10	28	34	10	14	5	10	18	7	30	16	11	37	13	11	8				
HOURLY AVG	3.8	4.3	3.5	4.3	5.5	6.1	5.0	7.3	3.7	4.8	3.1	2.3	2.5	2.3	3.0	2.6	2.7	3.3	2.7	3.9	6.6	5.2	4.1	3.9				

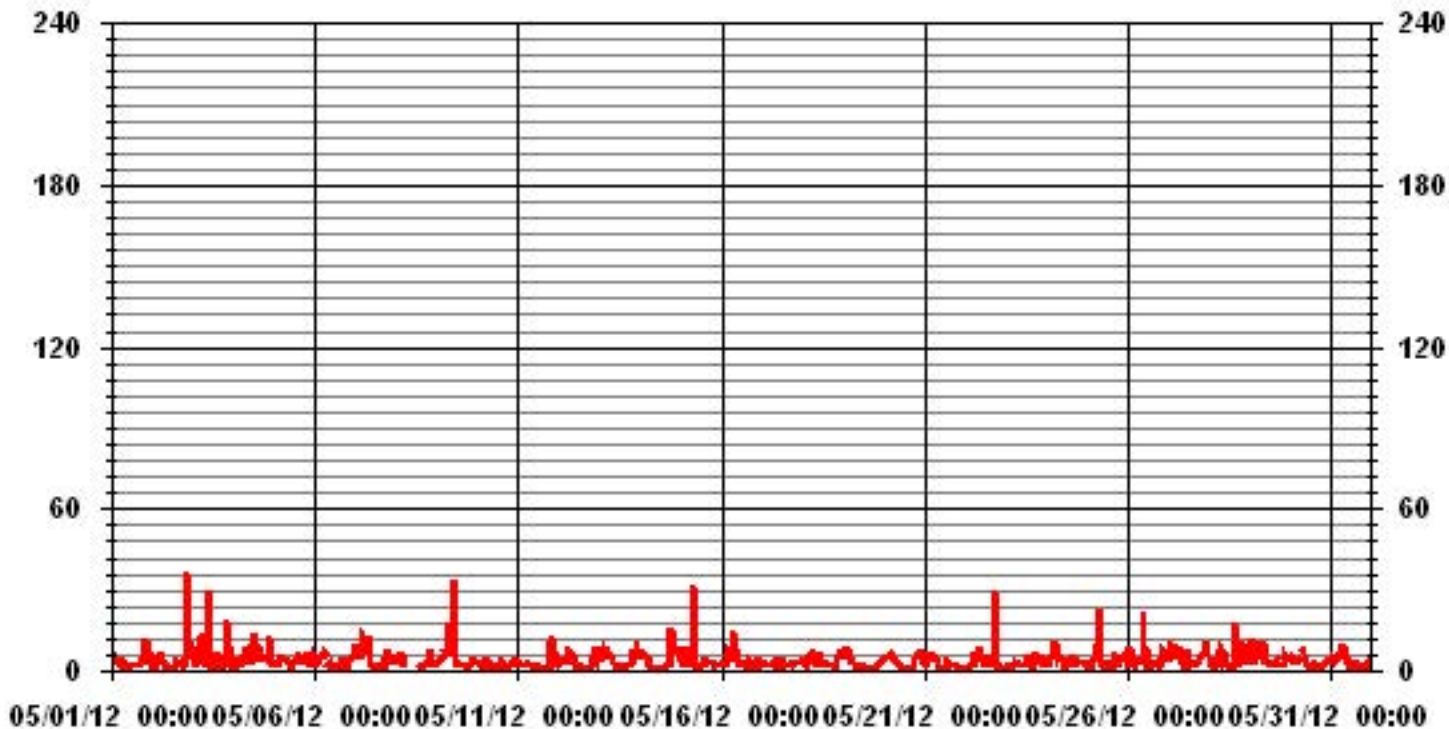
STATUS FLAG CODES

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:	704					
MAXIMUM INSTANTANEOUS VALUE:	37	PPB	@ HOUR(S)	20	ON DAY(S)	2
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	3.81					

01 Hour Averages



LICA
 NO2_ / WD Joint Frequency Distribution (Percent)

May 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	2.55	6.66	7.65	6.09	10.49	7.80	10.78	3.12	1.41	2.55	5.95	10.07	10.78	5.81	5.53	2.69	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.55	6.66	7.65	6.09	10.49	7.80	10.78	3.12	1.41	2.55	5.95	10.07	10.78	5.81	5.53	2.69	

Calm : .00 %

Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	18	47	54	43	74	55	76	22	10	18	42	71	76	41	39	19	705
< 110																	
< 210																	
>= 210																	
Totals	18	47	54	43	74	55	76	22	10	18	42	71	76	41	39	19	

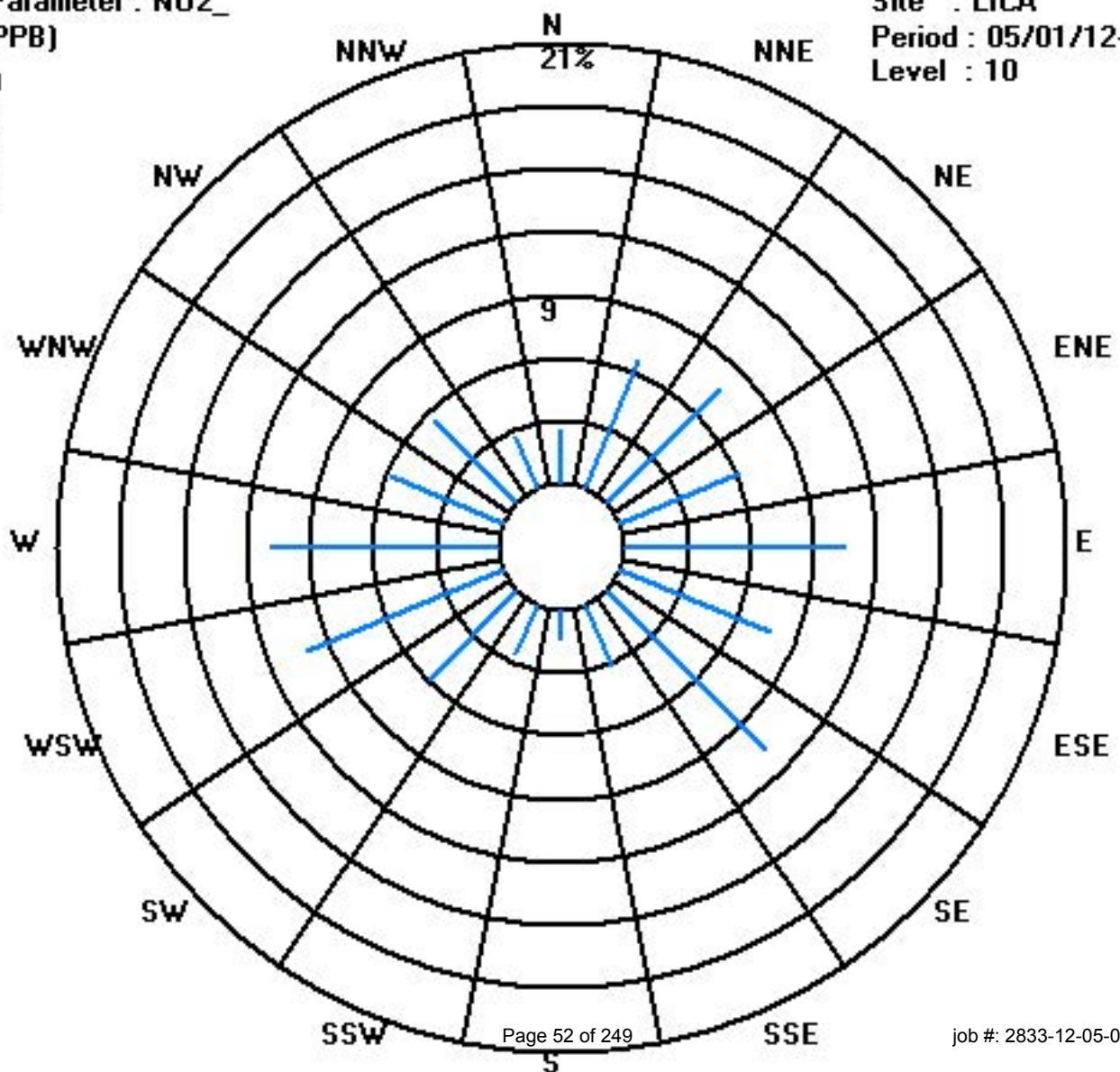
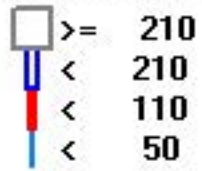
Calm : .00 %

Total # Operational Hours : 705

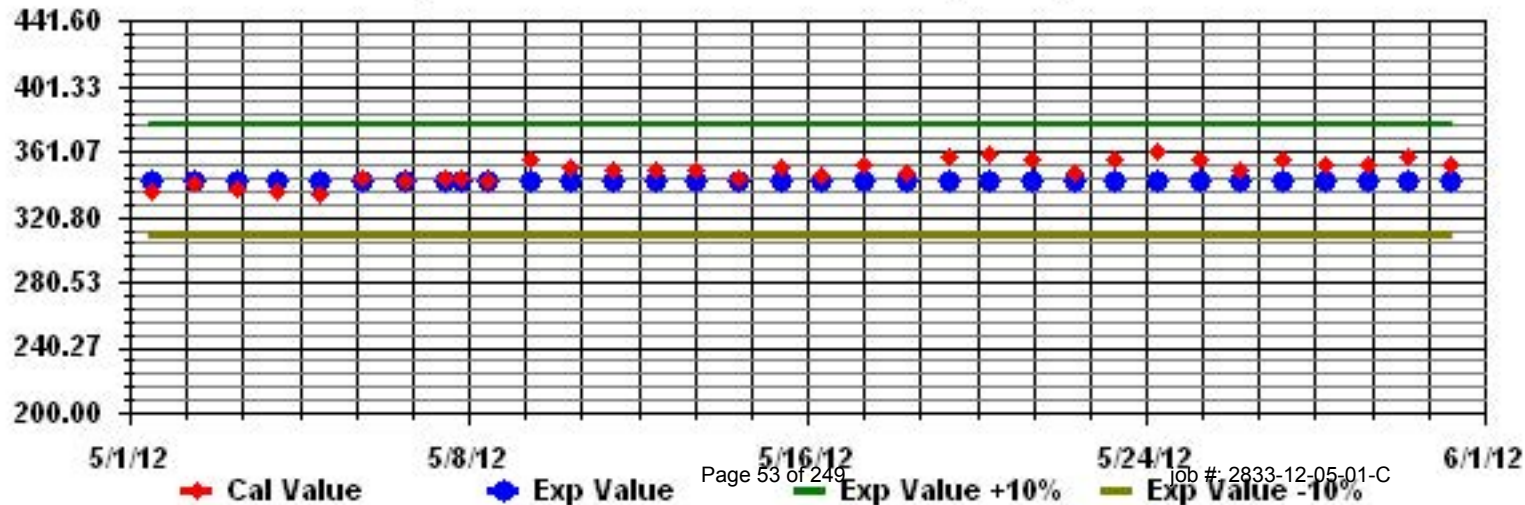
Class Limits (PPB)

Period : 05/01/12-05/31/12

Level : 10



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



Nitric Oxide

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 2012

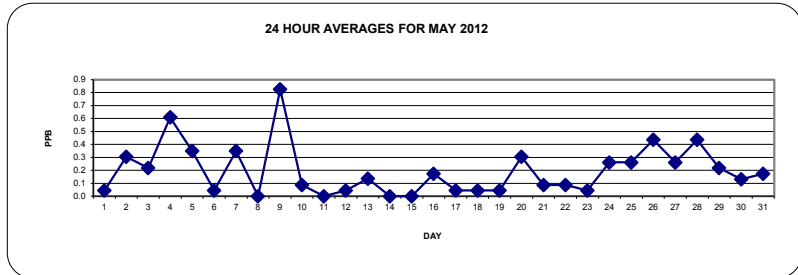
NITRIC OXIDE hourly averages in ppb

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

STATUS FLAG CODES

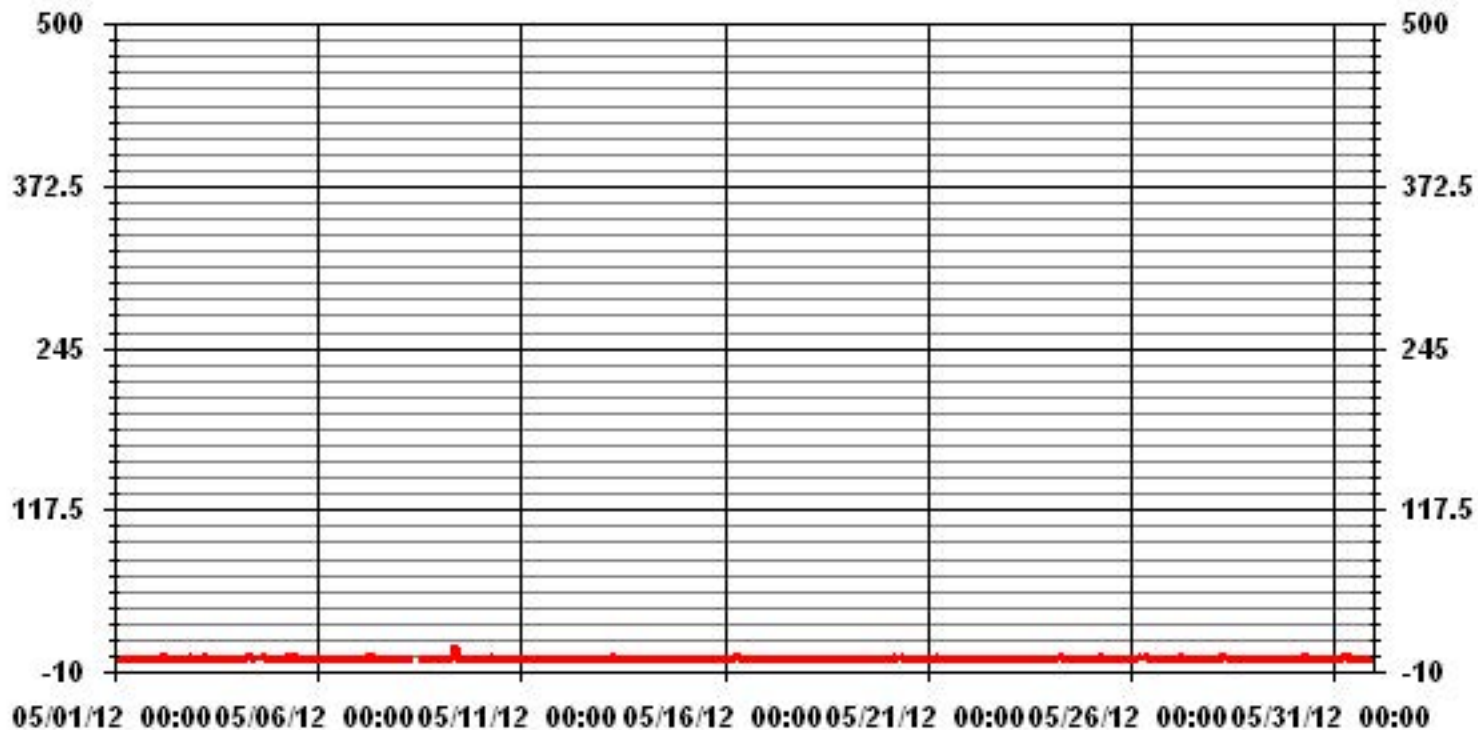
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	101
MAXIMUM 1-HR AVERAGE:	11 PPB @ HOUR(S) 9 ON DAY(S) 9
MAXIMUM 24-HR AVERAGE:	0.8 PPB ON DAY(S) 9
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
STANDARD DEVIATION:	0.64
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
MONTHLY AVERAGE:	0.20 PPB

01 Hour Averages



— LICA NO-PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 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 MAX.	24-HOUR AVG.	RDGS.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00				
DAY																												
1	1	1	0	0	2	1	1	6	1	1	4	2	IZS	2	4	2	1	2	5	1	4	1	1	3	3	6	2.0	24
2	1	2	1	2	3	2	2	9	1	1	1	IZS	3	1	1	1	9	1	1	27	1	3	2	2	27	3.3	24	
3	5	1	1	1	4	10	10	3	1	23	IZS	1	3	2	1	1	2	1	2	1	22	3	1	1	23	4.3	24	
4	0	1	0	0	1	1	2	5	6	IZS	1	5	9	3	16	2	4	5	1	9	1	18	1	1	18	4.0	24	
5	1	2	1	4	3	1	3	5	IZS	1	1	2	3	2	3	1	1	1	0	2	4	0	0	5	5	2.0	24	
6	1	1	1	1	1	1	1	IZS	1	1	1	0	1	0	3	1	1	0	0	0	1	0	0	1	3	0.8	24	
7	0	0	0	1	4	16	IZS	6	2	1	1	1	1	0	0	2	0	0	0	1	0	0	0	0	16	1.6	24	
8	0	1	1	1	0	IZS	1	C	C	C	C	C	C	C	0	0	M	1	0	1	7	0	0	3	7	1.1	23	
9	0	0	0	1	IZS	1	1	25	11	38	26	1	1	1	1	0	0	0	0	1	0	0	0	0	38	4.7	24	
10	0	0	0	IZS	0	1	1	1	1	0	1	0	1	4	1	1	0	1	1	1	1	0	0	0	4	0.7	24	
11	0	0	IZS	0	0	1	1	1	1	1	1	1	2	0	0	0	1	0	0	4	6	1	0	0	6	0.9	24	
12	0	IZS	0	0	0	3	1	3	2	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	3	0.6	24	
13	IZS	0	1	0	1	1	2	2	1	1	1	0	1	0	0	0	0	0	0	0	0	0	1	IZS	2	0.5	24	
14	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	1	1	1	1	1	1	1	1	0.4	24	
15	1	1	0	1	4	4	2	1	1	1	1	2	2	1	2	1	2	1	2	1	2	1	IZS	0	1	4	1.5	24
16	3	0	0	1	1	1	4	6	1	6	1	0	1	1	5	1	1	1	1	0	IZS	0	0	0	6	1.5	24	
17	0	0	0	0	0	0	0	1	1	4	1	1	6	3	1	1	2	2	4	IZS	0	0	0	0	6	1.2	24	
18	1	0	1	1	1	3	1	2	1	2	7	1	1	2	1	1	1	0	IZS	0	0	0	0	0	7	1.2	24	
19	0	1	0	0	0	1	1	0	0	0	1	1	1	1	0	0	0	0	IZS	0	0	0	0	0	1	0.3	24	
20	0	0	1	1	1	2	2	3	2	1	1	1	0	1	1	0	0	IZS	0	3	2	2	0	2	1	3	1.2	24
21	0	1	1	1	1	2	2	5	1	3	1	1	1	3	3	IZS	1	3	1	1	1	0	1	0	5	1.5	24	
22	0	0	0	0	1	1	3	4	4	3	1	1	6	2	IZS	3	3	3	1	1	1	1	1	1	6	1.8	24	
23	1	1	1	1	1	1	1	5	2	1	1	1	4	IZS	4	2	3	4	1	5	0	1	0	0	5	1.8	24	
24	1	1	3	5	4	4	1	4	3	2	2	1	IZS	1	1	1	2	1	1	1	0	1	1	1	5	1.8	24	
25	0	1	1	1	2	4	5	12	2	2	1	IZS	7	1	2	1	3	4	0	1	0	0	1	1	12	2.3	24	
26	1	12	0	1	1	2	5	1	1	28	IZS	5	1	1	1	2	1	2	1	1	1	3	1	0	28	3.1	24	
27	0	6	1	1	2	4	5	1	1	IZS	1	1	3	2	6	1	1	0	1	0	3	0	5	1	6	2.0	24	
28	0	1	1	0	1	3	5	7	IZS	3	1	1	1	0	0	15	2	2	1	12	6	3	0	0	15	2.8	24	
29	0	7	0	1	3	4	7	IZS	12	1	3	1	1	1	1	5	0	0	1	0	1	2	0	12	2.3	24		
30	0	0	1	1	1	3	IZS	3	2	1	1	0	0	4	5	1	0	0	0	0	0	0	0	0	5	1.0	24	
31	0	0	1	1	1	IZS	3	4	2	2	1	0	1	0	4	1	1	1	0	0	0	0	1	1	4	1.1	24	
HOURLY MAX	5	12	3	5	4	16	10	25	12	38	26	5	9	4	16	15	5	9	5	12	27	18	5	5				
HOURLY AVG	0.6	1.4	0.6	0.9	1.5	2.7	2.5	4.5	2.3	4.6	2.3	1.1	2.2	1.4	2.2	1.5	1.4	1.5	0.9	1.6	3.0	1.1	0.7	0.8				

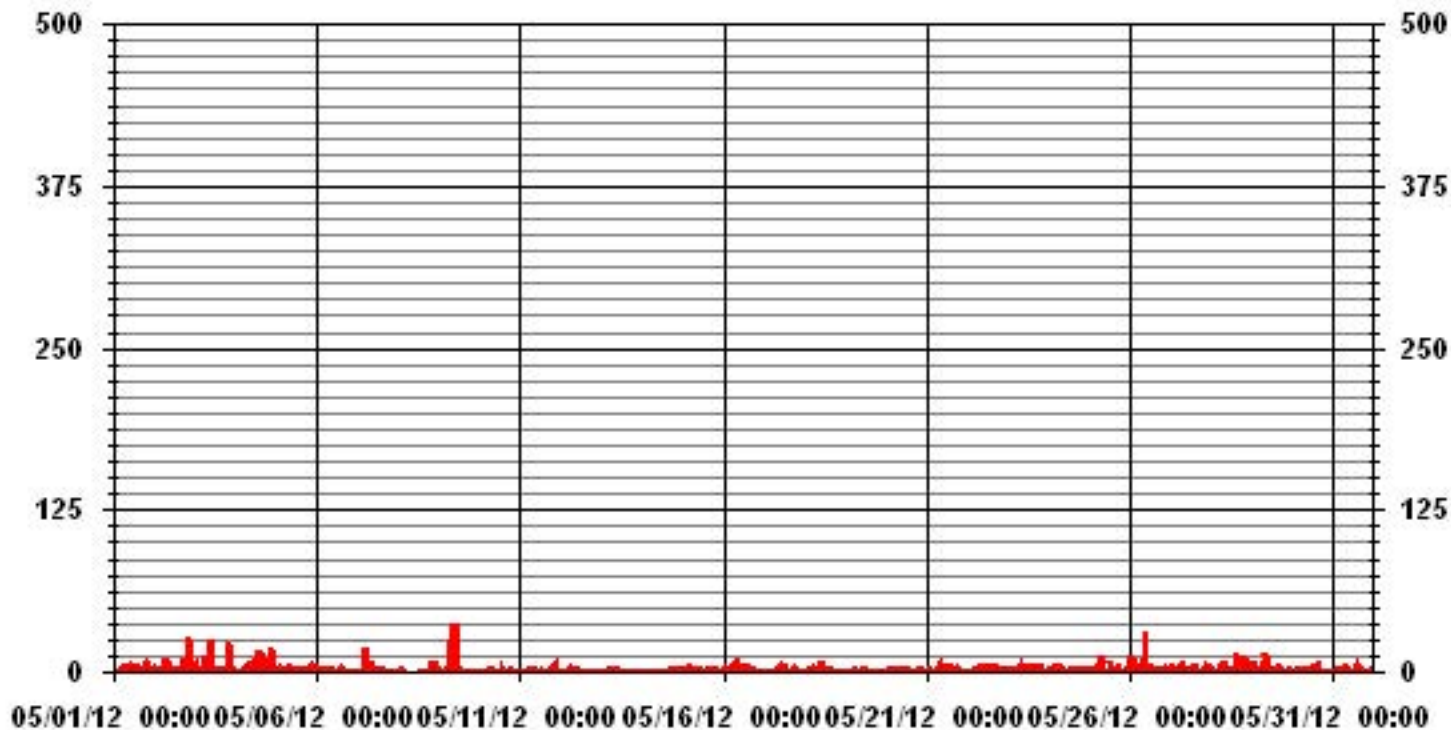
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	495					
MAXIMUM INSTANTANEOUS VALUE:	38	PPB	@ HOUR(S)	9	ON DAY(S)	9
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	3.36					

01 Hour Averages



— LICA NOMAX PPB

LICA
 NO_ / WD Joint Frequency Distribution (Percent)

May 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	2.55	6.66	7.65	6.09	10.49	7.80	10.78	3.12	1.41	2.55	5.95	10.07	10.78	5.81	5.53	2.69	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.55	6.66	7.65	6.09	10.49	7.80	10.78	3.12	1.41	2.55	5.95	10.07	10.78	5.81	5.53	2.69	

Calm : .00 %

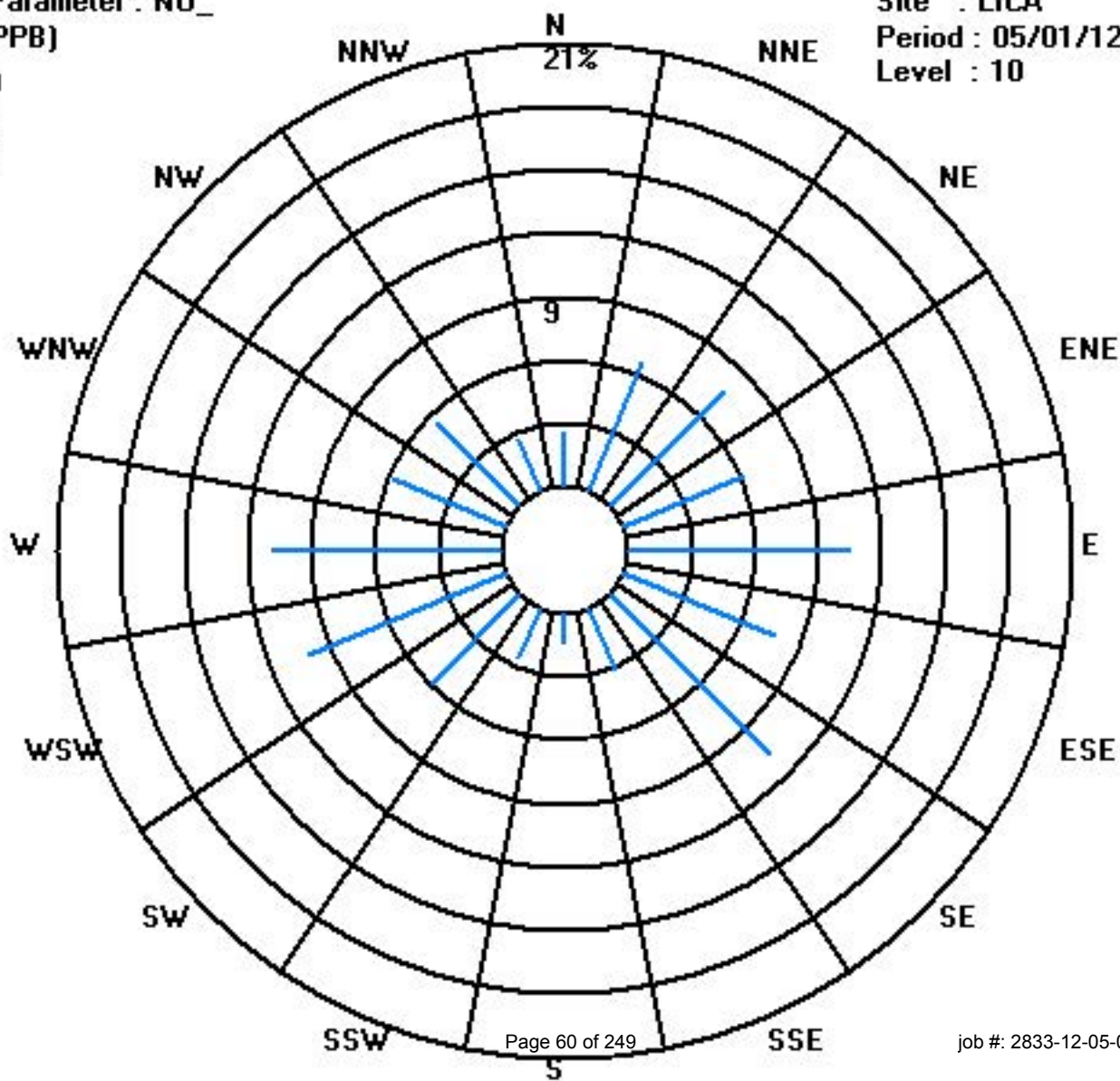
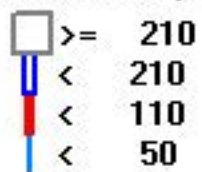
Total # Operational Hours : 705

Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	18	47	54	43	74	55	76	22	10	18	42	71	76	41	39	19	705
< 110																	
< 210																	
>= 210																	
Totals	18	47	54	43	74	55	76	22	10	18	42	71	76	41	39	19	

Calm : .00 %

Total # Operational Hours : 705



Oxides of Nitrogen

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 2012

OXIDES OF NITROGEN hourly averages in ppb

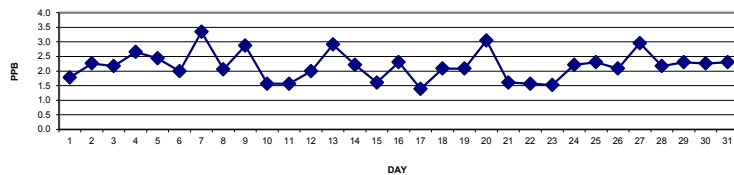
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR	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	1	1	2	2	2	2	2	2	1	1	1	1	IZS	1	1	1	1	1	2	3	6	2	2	3	6	1.8	24	
2	1	2	1	2	3	5	3	2	1	1	1	IZS	1	1	1	1	1	1	1	3	10	5	3	2	10	2.3	24	
3	2	2	1	3	7	5	4	2	1	2	IZS	1	1	1	1	1	1	1	2	6	3	1	1	7	2.2	24		
4	1	1	1	1	2	2	4	5	2	IZS	2	3	5	3	4	2	3	4	3	3	3	4	2	1	5	2.7	24	
5	1	2	1	2	3	3	4	3	IZS	2	2	2	4	6	4	2	2	3	2	3	1	1	1	2	6	2.4	24	
6	2	2	3	3	4	6	5	IZS	1	2	1	1	1	1	1	1	1	1	1	1	1	2	2	3	6	2.0	24	
7	6	4	4	4	6	12	IZS	12	5	2	1	1	1	1	1	1	1	1	1	3	2	4	2	2	12	3.3	24	
8	2	3	3	4	2	IZS	2	2	C	C	C	C	C	C	1	1	M	1	1	2	3	2	2	2	4	2.1	23	
9	2	3	3	4	IZS	5	2	4	3	14	8	1	1	1	1	1	1	2	1	1	1	3	2	2	14	2.9	24	
10	2	2	1	IZS	1	2	4	3	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	2	4	1.6	24	
11	1	2	IZS	2	1	2	2	2	1	1	1	1	1	1	1	1	0	0	1	5	4	2	3	5	1.6	24		
12	3	IZS	3	3	2	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	3	3	3	6	6	2.0	24	
13	IZS	4	4	4	6	5	6	5	3	2	1	1	1	1	0	1	1	2	2	1	4	5	5	IZS	6	2.9	24	
14	4	3	4	4	3	2	1	1	0	0	0	1	1	1	1	1	1	1	2	3	5	6	IZS	6	6	2.2	24	
15	2	1	1	2	5	4	2	3	1	1	1	1	1	1	2	1	1	2	1	1	1	1	IZS	1	5	1.6	24	
16	2	2	1	2	4	6	7	6	3	3	1	1	2	1	1	1	1	1	1	1	IZS	2	2	2	7	2.3	24	
17	1	2	2	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	IZS	2	2	3	2	3	1.4	24	
18	2	2	1	1	2	5	3	3	1	1	2	1	1	1	2	2	1	1	IZS	2	2	4	5	3	5	2.1	24	
19	4	5	6	4	3	3	3	1	1	1	1	1	1	1	0	1	1	IZS	1	1	1	2	2	4	6	2.1	24	
20	4	4	4	4	4	5	5	5	3	2	2	1	1	1	1	1	IZS	1	3	3	4	5	5	2	5	3.0	24	
21	2	2	3	2	3	5	3	2	1	1	1	1	1	1	1	IZS	1	1	1	1	1	1	1	1	5	1.6	24	
22	1	1	1	1	1	2	2	3	2	2	2	1	2	2	IZS	3	2	2	2	1	1	1	1	1	3	1.6	24	
23	1	1	1	1	1	1	1	2	1	1	1	1	3	IZS	3	1	2	2	2	1	2	1	4	2	1	4	1.5	24
24	2	3	4	4	8	7	3	2	2	1	0	0	IZS	1	1	1	1	1	1	2	1	2	2	2	8	2.2	24	
25	1	1	1	1	3	5	9	8	2	1	1	IZS	1	1	2	1	2	1	1	1	2	3	3	2	9	2.3	24	
26	2	3	2	2	2	3	4	3	3	4	IZS	2	1	1	1	1	1	1	1	1	3	3	2	2	4	2.1	24	
27	3	5	4	4	6	7	6	2	1	IZS	1	1	1	1	1	1	1	1	1	3	5	4	6	3	7	3.0	24	
28	2	2	1	2	3	5	7	7	IZS	4	1	1	1	0	0	2	1	1	1	2	2	2	1	2	7	2.2	24	
29	2	4	1	2	5	9	3	IZS	3	1	1	1	1	1	1	1	1	1	1	2	3	3	3	3	9	2.3	24	
30	3	3	2	2	3	5	IZS	5	7	1	1	1	1	1	1	1	1	1	1	1	2	3	3	3	7	2.3	24	
31	3	3	4	3	3	IZS	5	6	5	4	1	1	1	1	1	1	1	1	1	1	1	1	2	3	6	2.3	24	
HOURLY MAX	6	5	6	4	8	12	9	12	7	14	8	3	5	6	4	3	3	4	3	3	10	6	6	6				
HOURLY AVG	2.2	2.5	2.3	2.5	3.3	4.4	3.6	3.6	2.1	2.1	1.4	1.1	1.4	1.2	1.3	1.2	1.2	1.3	1.2	1.8	2.8	2.9	2.5	2.4				

STATUS FLAG CODES

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

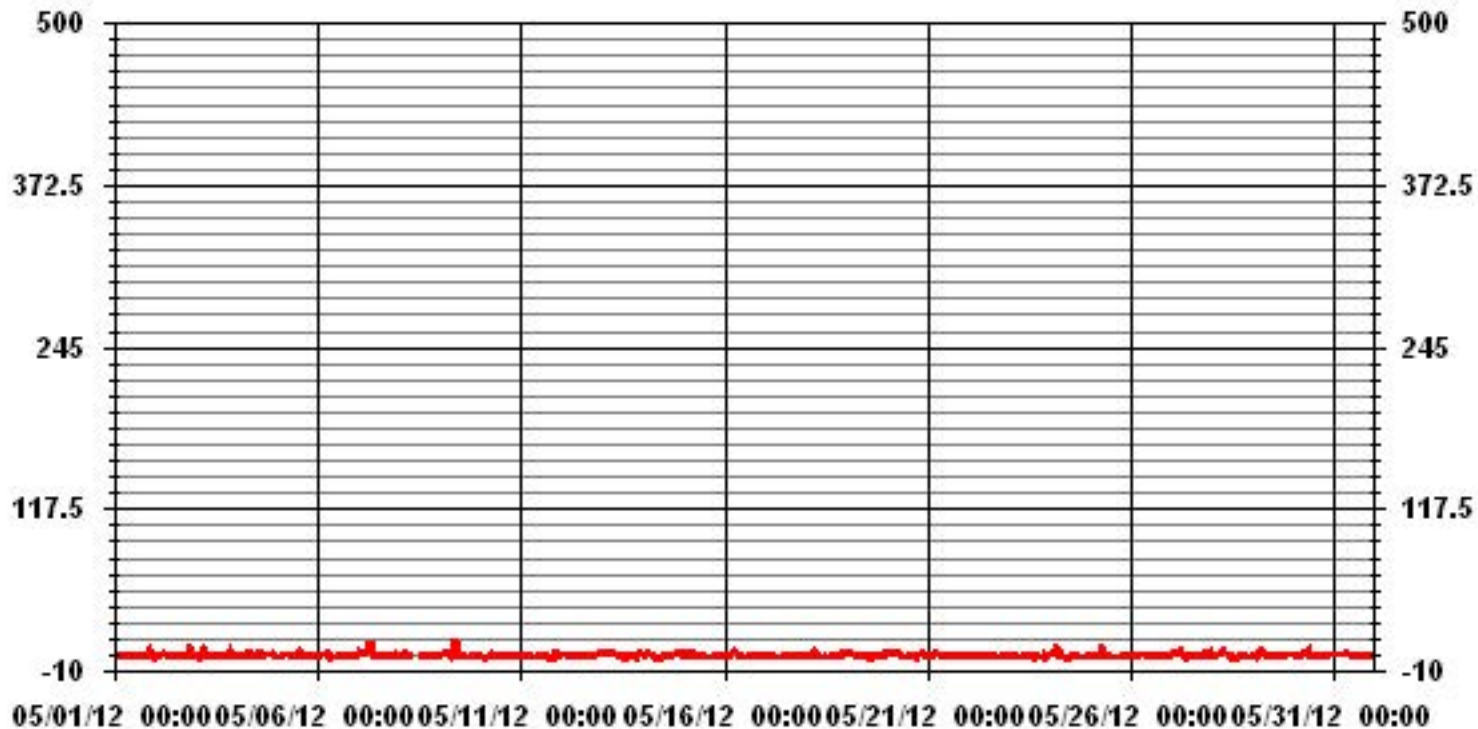
24 HOUR AVERAGES FOR MAY 2012



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	694
MAXIMUM 1-HR AVERAGE:	14 PPB @ HOUR(S) 9 ON DAY(S) 9
MAXIMUM 24-HR AVERAGE:	3.3 PPB ON DAY(S) 7
IZS CALIBRATION TIME:	32 HRS
MONTHLY CALIBRATION TIME:	6 HRS
OPERATIONAL TIME:	743 HRS
AMD OPERATION UPTIME:	99.9 %
STANDARD DEVIATION:	1.69
MONTHLY AVERAGE:	2.18 PPB

01 Hour Averages



— LICA NOX_ PPB

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 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 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	7	3	3	3	6	3	5	6	4	2	3	2	IZS	2	4	4	2	4	7	5	15	4	3	9	15	4.6	24	
2	3	5	3	4	8	10	5	7	2	1	2	IZS	4	2	5	4	3	5	3	5	56	13	7	8	56	7.2	24	
3	9	4	2	9	13	22	22	4	3	32	IZS	2	3	3	8	3	3	2	5	4	40	13	3	3	40	9.2	24	
4	1	4	2	2	5	4	7	12	8	IZS	4	15	22	8	14	4	6	9	4	12	4	24	4	3	24	7.7	24	
5	2	5	2	6	8	4	6	7	IZS	4	2	4	6	6	8	3	3	4	3	5	10	2	2	9	10	4.8	24	
6	5	5	5	6	6	7	6	IZS	2	3	1	1	1	1	3	2	5	1	1	1	4	4	5	5	7	3.5	24	
7	10	5	5	9	17	26	IZS	19	9	4	2	2	3	1	2	4	2	1	3	9	4	6	3	3	26	6.5	24	
8	3	6	5	7	3	IZS	3	C	C	C	C	C	C	C	2	1	M	2	2	5	11	2	2	7	11	4.1	23	
9	2	4	4	5	IZS	7	5	33	11	38	50	2	4	2	2	2	2	2	1	3	3	5	3	3	50	8.4	24	
10	3	3	2	IZS	1	4	5	4	2	1	2	1	3	3	6	2	1	1	2	2	4	3	4	4	6	2.7	24	
11	2	2	IZS	2	2	3	3	3	2	2	2	2	2	1	1	1	1	1	1	13	14	8	4	3	14	3.3	24	
12	4	IZS	4	4	3	11	3	6	9	3	2	2	1	2	1	2	1	1	1	2	6	5	4	8	11	3.7	24	
13	IZS	5	8	7	10	7	7	7	4	3	2	2	2	1	1	1	2	2	2	3	7	7	10	IZS	10	4.5	24	
14	7	4	6	6	5	3	2	2	1	1	1	1	1	1	1	2	2	2	17	9	8	10	IZS	8	17	4.3	24	
15	4	4	1	3	9	10	5	33	2	1	1	3	3	3	7	3	6	2	4	3	5	IZS	2	2	33	5.0	24	
16	6	2	2	8	6	8	13	21	5	8	2	2	3	3	4	2	5	3	2	2	IZS	2	5	2	21	5.0	24	
17	2	3	3	2	2	2	3	3	2	8	3	1	5	2	3	2	4	5	5	IZS	3	3	3	3	8	3.1	24	
18	4	3	3	3	6	9	5	6	2	3	12	3	2	2	3	2	2	2	IZS	2	4	6	8	4	12	4.2	24	
19	7	8	8	6	5	5	4	1	2	1	2	2	2	2	1	1	1	IZS	1	1	2	3	3	4	8	3.1	24	
20	5	5	5	5	6	6	6	7	4	3	2	2	1	1	1	1	IZS	1	6	8	8	7	7	4	8	4.4	24	
21	3	4	5	3	6	8	7	7	3	3	2	2	2	6	2	IZS	2	2	2	3	2	2	1	1	8	3.4	24	
22	1	1	1	2	2	8	6	9	13	7	3	2	5	7	IZS	6	5	33	2	2	2	2	2	2	33	5.3	24	
23	2	2	2	2	4	3	3	6	3	2	2	3	6	IZS	8	3	5	10	3	8	4	6	5	2	10	4.1	24	
24	3	4	7	9	15	13	6	10	6	6	3	2	IZS	4	2	2	7	2	3	3	4	3	4	4	15	5.3	24	
25	2	3	2	5	6	12	14	34	6	3	3	IZS	3	4	4	2	10	8	1	3	5	5	7	3	34	6.3	24	
26	4	19	4	4	4	5	7	5	4	43	IZS	12	1	2	4	3	3	3	2	2	8	9	5	3	43	6.8	24	
27	5	15	5	6	11	12	14	4	3	IZS	1	10	4	4	5	1	3	4	6	5	8	6	15	7	15	6.7	24	
28	3	3	2	3	6	7	13	12	IZS	9	2	2	3	1	1	31	4	4	3	22	10	8	2	5	31	6.8	24	
29	3	19	3	4	13	14	7	IZS	21	2	5	3	3	4	3	5	2	2	2	2	6	5	5	3	21	5.9	24	
30	5	4	3	4	5	7	IZS	10	9	2	2	2	1	4	8	2	2	1	1	2	3	4	4	4	10	3.9	24	
31	5	4	5	4	5	IZS	9	13	6	7	4	1	2	1	5	2	2	2	1	2	1	3	3	4	13	4.0	24	
HOURLY MAX	10	19	8	9	17	26	22	34	21	43	50	15	22	8	14	31	10	33	17	22	56	24	15	9				
HOURLY AVG	4.1	5.3	3.7	4.8	6.6	8.3	6.9	10.4	5.3	7.2	4.4	3.1	3.5	2.9	4.0	3.4	3.3	4.0	3.2	4.9	8.7	6.0	4.5	4.3				

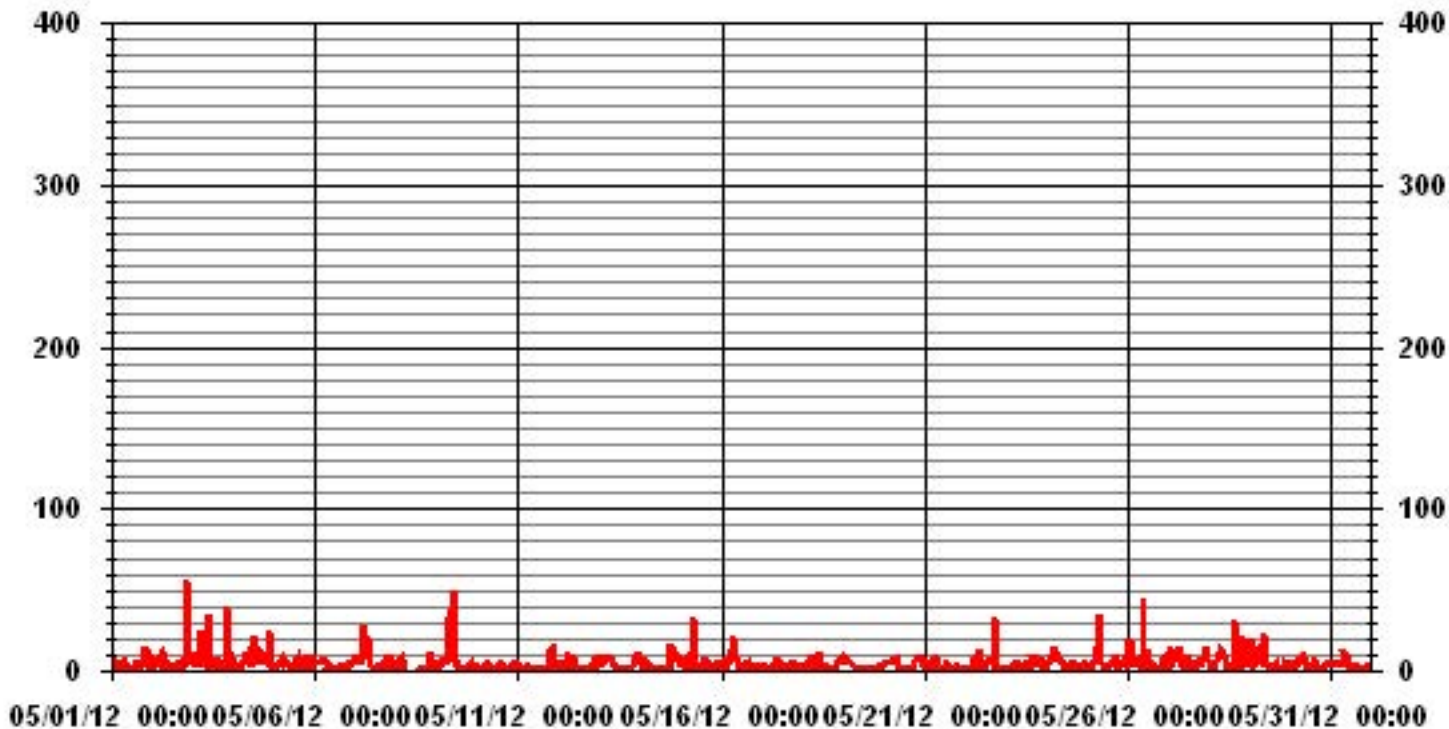
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	704					
MAXIMUM INSTANTANEOUS VALUE:	56	PPB	@ HOUR(S)	20	ON DAY(S)	2
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	743	HRS	
MONTHLY CALIBRATION TIME:	7	HRS				
STANDARD DEVIATION:	5.66					

01 Hour Averages



LICA
 NOX_ / WD Joint Frequency Distribution (Percent)

May 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	2.55	6.66	7.65	6.09	10.49	7.80	10.78	3.12	1.41	2.55	5.95	10.07	10.78	5.81	5.53	2.69	100.00
< 110	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.55	6.66	7.65	6.09	10.49	7.80	10.78	3.12	1.41	2.55	5.95	10.07	10.78	5.81	5.53	2.69	

Calm : .00 %

Total # Operational Hours : 705

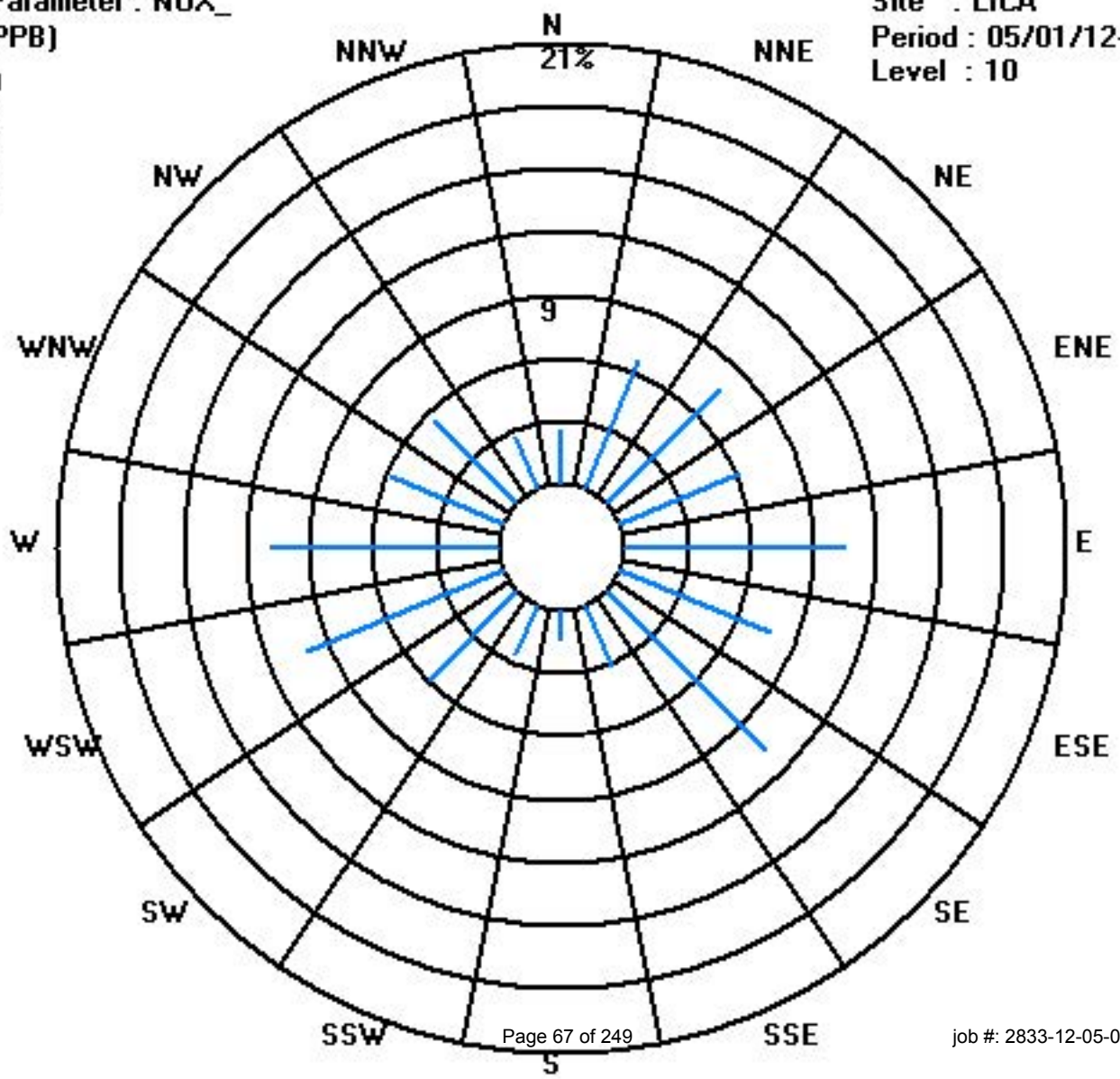
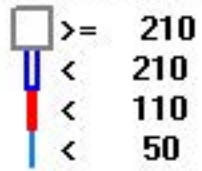
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	18	47	54	43	74	55	76	22	10	18	42	71	76	41	39	19	705
< 110																	
< 210																	
>= 210																	
Totals	18	47	54	43	74	55	76	22	10	18	42	71	76	41	39	19	

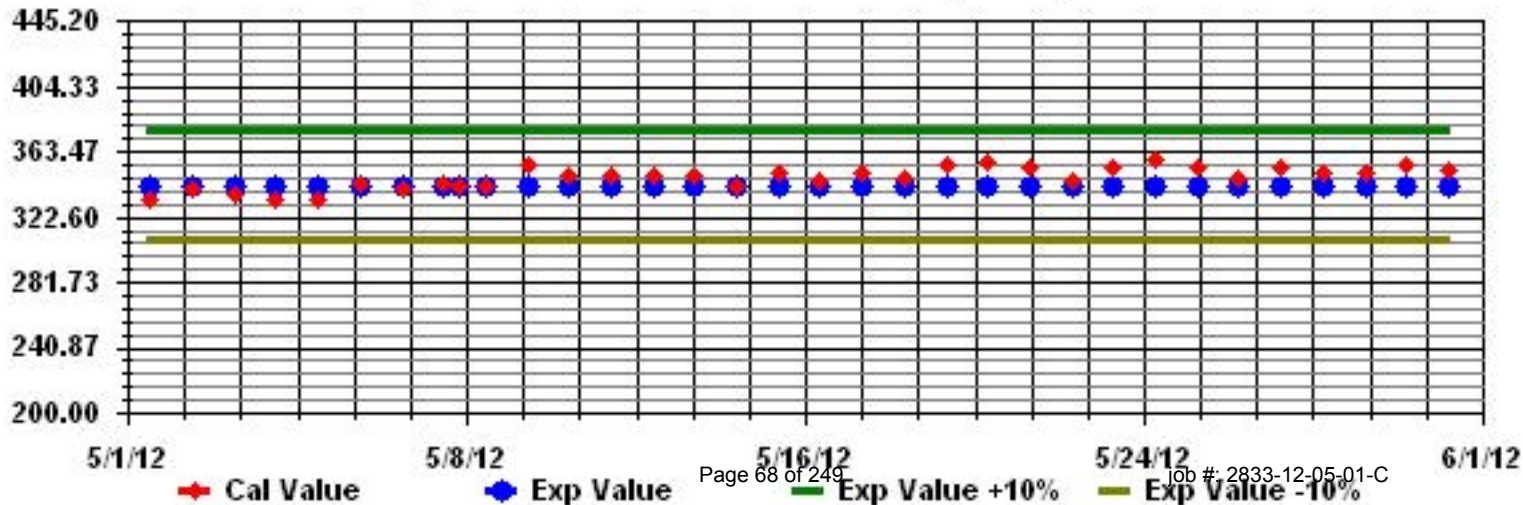
Calm : .00 %

Total # Operational Hours : 705

Class Limits (PPB)



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



Ozone

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 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	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	33	29	25	28	28	27	29	30	31	34	35	36	IZS	36	36	38	39	38	37	34	28	31	30	31	39	32.3	24	
2	29	31	30	29	27	26	27	32	38	43	43	IZS	44	46	48	50	51	52	51	46	33	39	40	39	52	38.9	24	
3	38	37	35	25	21	29	31	35	36	38	IZS	43	44	43	40	40	41	41	40	38	34	34	39	38	44	36.5	24	
4	37	36	36	35	34	31	28	27	28	IZS	27	26	25	24	22	22	20	19	19	17	16	13	17	18	37	25.1	24	
5	18	17	15	15	14	13	10	12	IZS	29	29	29	28	26	30	33	37	40	43	40	39	46	43	46	46	28.3	24	
6	38	38	31	37	32	32	37	IZS	47	50	53	55	56	57	57	56	56	56	54	53	49	45	33	25	57	45.5	24	
7	18	17	16	14	12	10	IZS	30	44	47	51	55	56	57	57	57	58	58	57	51	47	47	47	45	58	41.3	24	
8	33	28	30	26	45	IZS	47	49	53	55	58	62	C	C	C	C	53	50	47	46	49	47	45	62	46.6	24		
9	45	38	26	19	IZS	24	45	52	56	54	58	60	59	59	61	61	59	57	58	56	52	45	42	44	61	49.1	24	
10	44	43	43	IZS	43	39	37	41	43	43	45	46	47	47	46	47	45	45	45	42	42	41	39	38	47	43.1	24	
11	39	36	IZS	34	33	33	36	40	43	44	45	46	47	48	48	49	48	48	48	46	36	30	30	35	49	41.0	24	
12	34	IZS	33	34	34	35	38	42	44	46	47	49	50	50	51	52	54	55	54	53	47	35	40	41	55	44.3	24	
13	IZS	36	24	26	19	31	36	42	48	52	55	58	59	59	58	57	60	61	58	55	43	34	35	IZS	61	45.7	24	
14	43	44	42	42	43	45	51	51	51	48	46	45	44	44	44	44	45	43	44	43	40	29	23	IZS	20	51	42.2	24
15	28	36	36	33	29	30	34	34	38	44	44	45	49	50	54	52	50	50	50	49	49	IZS	47	45	54	42.4	24	
16	40	38	38	35	26	20	26	32	37	43	52	52	53	54	53	52	52	52	51	50	IZS	42	37	38	54	42.3	24	
17	39	40	35	41	39	40	39	38	43	47	48	48	49	49	50	50	51	50	48	IZS	44	39	27	37	51	43.1	24	
18	35	24	14	14	11	13	20	23	27	33	34	34	35	33	35	35	38	41	IZS	36	31	27	24	25	41	27.9	24	
19	21	17	17	21	20	20	27	35	35	37	36	39	41	39	38	37	37	IZS	38	36	33	27	27	23	41	30.5	24	
20	22	18	19	15	16	19	23	27	31	37	40	43	44	44	45	46	IZS	48	43	41	35	25	25	30	48	32.0	24	
21	27	24	20	18	20	23	29	32	34	39	42	44	44	45	44	IZS	46	44	41	38	36	36	36	35	46	34.7	24	
22	35	34	33	33	33	33	34	32	33	33	32	32	32	32	IZS	31	35	37	37	36	36	37	39	38	39	34.2	24	
23	39	39	39	37	37	40	42	39	42	41	37	39	38	IZS	36	42	44	48	46	46	37	20	18	17	48	37.5	24	
24	9	5	3	4	10	15	33	36	40	43	43	45	IZS	47	48	49	51	47	43	40	39	36	29	29	51	32.3	24	
25	26	21	18	15	11	8	13	28	40	42	43	IZS	46	44	46	49	47	49	49	45	36	33	23	20	49	32.7	24	
26	15	10	7	6	4	3	14	25	33	41	IZS	49	52	52	52	52	52	53	53	52	40	36	39	38	53	33.8	24	
27	28	19	15	11	9	11	28	38	45	IZS	50	50	51	51	52	52	52	52	50	40	25	22	16	28	52	34.6	24	
28	26	19	17	14	8	5	11	22	IZS	38	46	47	48	49	49	47	49	47	48	45	41	40	44	40	49	34.8	24	
29	29	22	21	17	11	14	31	IZS	32	35	41	46	49	50	51	52	53	55	54	50	35	27	28	38	55	36.6	24	
30	29	21	15	15	10	9	IZS	41	47	50	52	53	53	53	52	54	53	54	53	53	52	40	33	31	54	40.1	24	
31	28	22	20	19	12	IZS	26	31	32	35	44	48	53	53	52	51	50	48	51	49	48	49	35	21	23	53	36.8	24
HOURLY MAX	45	44	43	42	45	45	51	52	56	55	58	62	62	59	61	61	60	61	58	56	52	49	47	46				
HOURLY AVG	30.8	28.0	25.1	23.7	23.0	23.4	30.4	34.3	39.7	42.1	44.0	45.7	46.8	46.2	46.7	46.8	47.2	48.2	47.0	44.1	38.6	34.5	33.2	33.3				

STATUS FLAG CODES

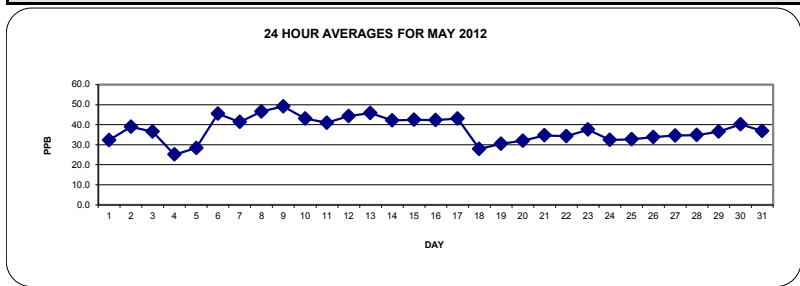
S	- OUT OF SERVICE	IZS	- IZS - DAILY ZERO/SPAN CHECK
N	- INVALID DATA	M	- MISSING DATA
D	- INSTRUMENT DRIFT	P	- POWER FAILURE
C	- CALIBRATION	NA	- NOT APPLICABLE

OBJECTIVE LIMIT:

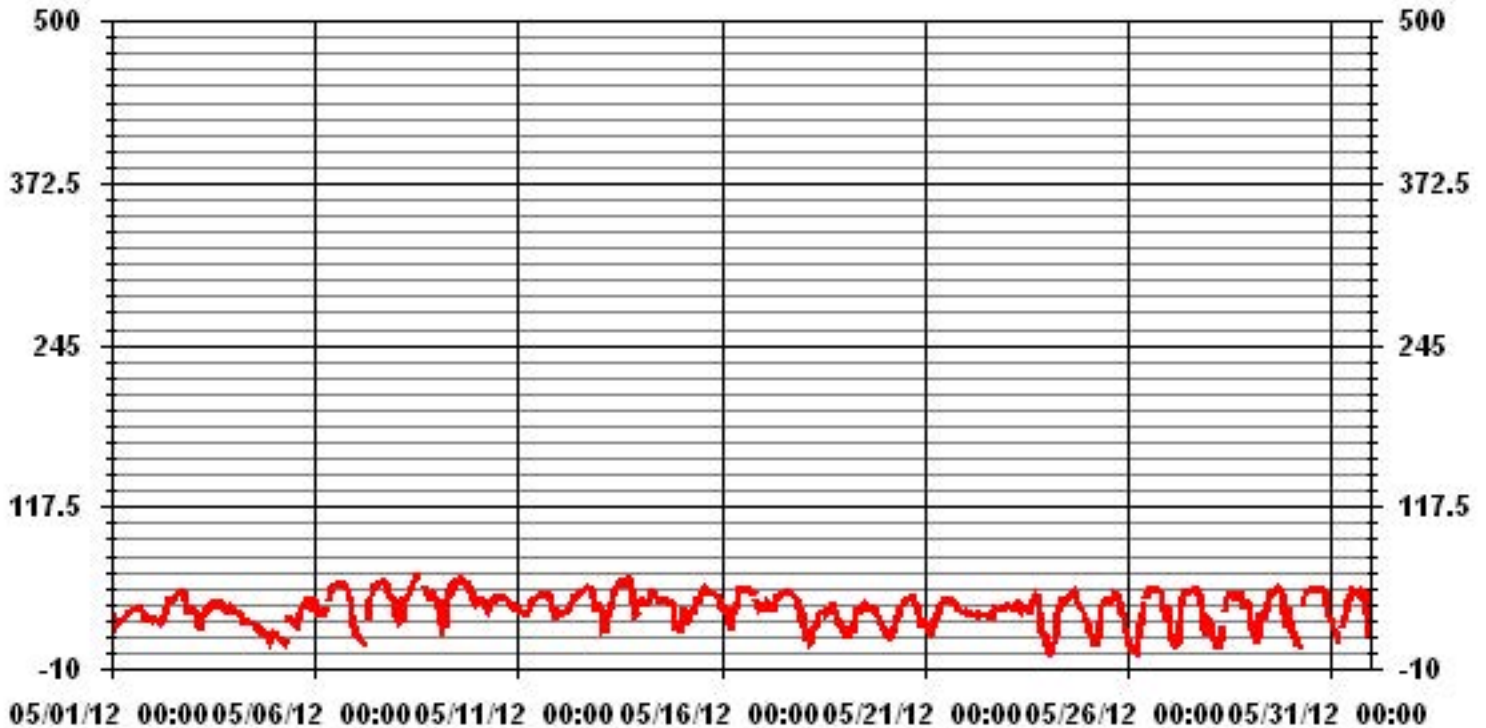
ALBERTA ENVIRONMENT: 1-HR 82 PPB

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDENCES:	0				
NUMBER OF NON-ZERO READINGS:	708				
MAXIMUM 1-HR AVERAGE:	62	PPB	@ HOUR(S)	11, 12	ON DAY(S) 8
MAXIMUM 24-HR AVERAGE:	49.1	PPB			ON DAY(S) 9
					VAR-VARIOUS
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS
MONTHLY CALIBRATION TIME:	4	HRS	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	12.51		MONTHLY AVERAGE:	37.56	PPB



01 Hour Averages



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 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	36	37	30	30	29	29	31	32	33	35	37	37	IZS	36	38	40	41	40	39	40	32	32	31	33	41	34.7	24	
2	31	32	32	31	28	27	30	37	41	44	45	IZS	45	48	49	52	54	54	50	43	43	43	41	54	41.5	24		
3	39	38	37	35	32	32	33	36	38	42	IZS	45	45	44	42	41	42	42	41	39	37	38	40	40	45	39.0	24	
4	38	37	36	36	35	33	30	29	29	IZS	28	27	26	25	23	22	22	21	20	19	17	17	19	19	38	26.4	24	
5	19	19	17	17	15	14	14	19	IZS	31	30	30	30	29	32	35	41	43	45	46	50	49	46	52	52	31.4	24	
6	44	49	38	40	34	37	39	IZS	49	53	55	56	57	59	58	58	59	57	56	54	51	48	44	31	59	49.0	24	
7	24	23	21	19	16	17	IZS	42	47	51	53	56	57	57	58	59	59	59	59	58	51	51	50	48	59	45.0	24	
8	46	42	39	42	48	IZS	49	51	55	57	61	64	64	C	C	C	C	55	51	50	50	51	50	47	64	51.2	24	
9	46	43	38	31	IZS	37	50	56	58	59	60	62	61	60	62	62	61	58	59	58	57	50	45	46	62	53.0	24	
10	46	44	45	IZS	44	43	40	42	44	44	47	47	48	48	48	49	46	46	46	44	44	43	41	41	49	44.8	24	
11	41	37	IZS	36	34	33	38	42	44	45	46	47	48	49	49	49	49	49	49	48	45	35	34	37	49	42.8	24	
12	35	IZS	35	36	36	36	40	44	46	47	49	50	51	51	52	53	54	56	55	55	52	40	45	44	56	46.2	24	
13	IZS	39	35	34	26	35	39	46	50	54	58	59	60	60	59	58	63	63	60	57	53	39	45	IZS	63	49.6	24	
14	45	46	43	43	45	50	53	52	53	50	47	46	45	45	46	47	44	46	44	44	37	27	IZS	33	53	44.8	24	
15	37	38	38	36	31	34	35	35	43	46	45	48	52	53	58	54	52	52	51	50	49	IZS	48	48	58	44.9	24	
16	43	39	40	38	31	28	32	35	40	49	55	54	55	56	55	53	53	53	52	51	IZS	46	41	40	56	45.2	24	
17	49	49	38	43	43	43	42	43	46	49	50	50	50	51	52	52	51	50	IZS	46	45	32	41	52	46.3	24		
18	38	32	18	20	15	20	25	26	31	35	35	35	36	36	37	38	44	45	IZS	38	35	31	29	27	45	31.6	24	
19	24	20	20	23	23	23	32	37	36	38	40	41	42	40	40	37	39	IZS	39	37	36	30	29	26	42	32.7	24	
20	25	21	23	19	21	23	26	31	37	39	42	45	45	45	46	48	IZS	49	46	44	38	31	34	36	49	35.4	24	
21	32	30	24	25	27	27	33	35	37	42	44	45	46	47	46	IZS	47	47	42	42	37	37	36	36	47	37.6	24	
22	35	35	33	33	34	34	35	34	33	34	33	33	33	34	IZS	33	37	39	38	37	37	39	39	39	39	39	35.3	24
23	40	40	41	38	38	43	43	42	45	44	40	42	40	IZS	39	45	48	51	48	48	45	27	24	29	51	40.9	24	
24	11	9	5	7	16	29	36	39	42	44	45	46	IZS	48	49	51	54	50	45	42	40	40	33	35	54	35.5	24	
25	31	27	21	19	15	13	22	37	44	45	45	IZS	48	48	49	51	50	52	51	48	40	40	31	27	52	37.1	24	
26	23	15	9	9	6	5	23	29	38	46	IZS	52	53	54	55	54	54	55	55	54	49	42	43	43	55	37.7	24	
27	36	24	19	16	13	15	39	40	49	IZS	51	52	53	53	54	54	53	53	53	48	33	30	23	35	54	39.0	24	
28	32	23	25	20	12	9	19	28	IZS	44	48	48	51	50	50	49	50	50	50	49	44	42	45	44	51	38.3	24	
29	37	30	28	20	14	29	33	IZS	33	37	47	50	51	52	53	56	55	57	57	54	46	35	42	41	57	41.6	24	
30	36	30	18	18	12	11	IZS	46	50	52	54	54	55	54	55	56	56	56	55	56	55	49	37	37	56	43.6	24	
31	39	28	26	25	20	IZS	28	33	34	40	47	51	56	55	53	52	51	53	51	50	53	49	25	31	56	41.3	24	
HOURLY MAX	49	49	45	43	48	50	53	56	58	59	61	64	64	60	62	62	63	63	60	58	57	51	50	52				
HOURLY AVG	35.3	32.5	29.1	28.0	26.4	27.9	34.1	37.9	42.2	44.7	46.1	47.3	48.4	47.8	48.5	48.6	49.3	50.1	48.7	47.0	43.4	39.2	37.5	37.6				

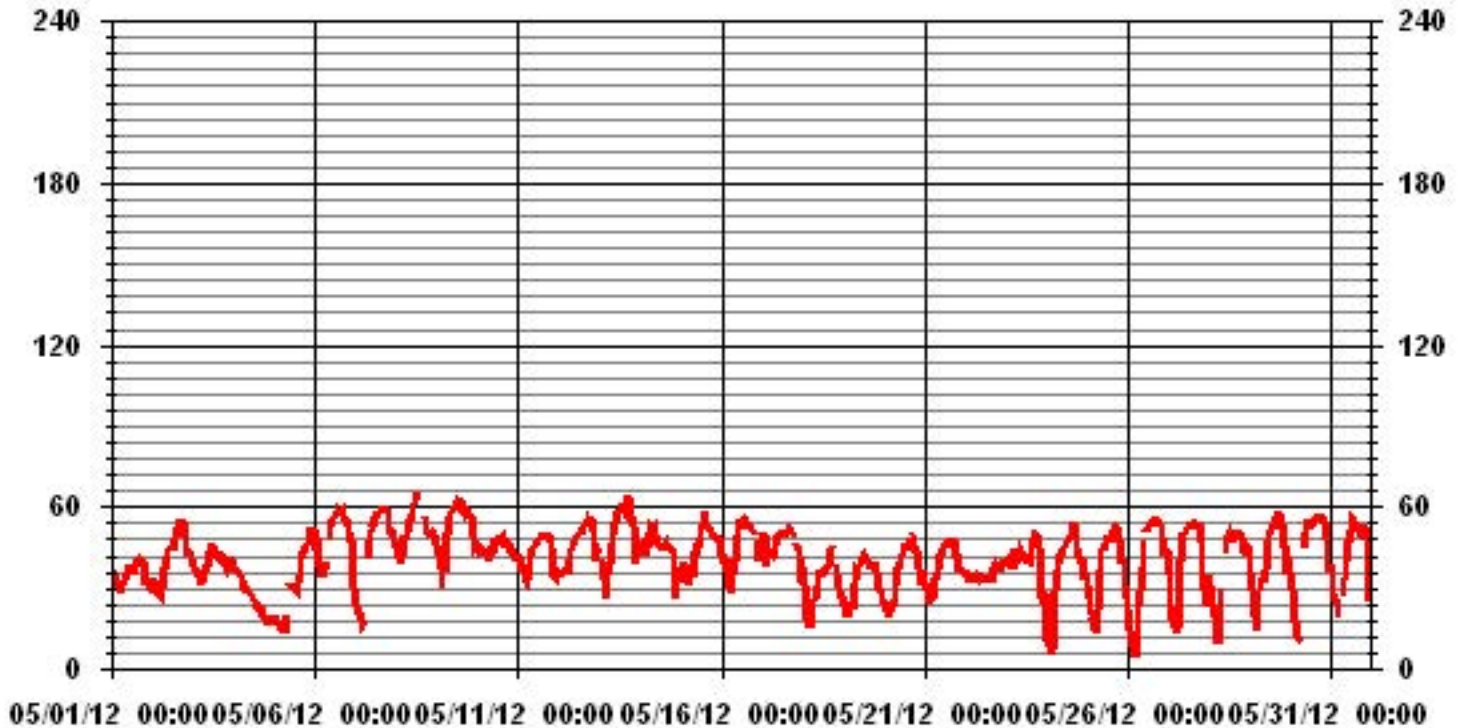
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	708					
MAXIMUM INSTANTANEOUS VALUE:	64	PPB	@ HOUR(S)	11, 12	ON DAY(S)	8
IZS CALIBRATION TIME:	32	HRS	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	4	HRS				
STANDARD DEVIATION:	11.71					

01 Hour Averages



LICA
O3_ / WD Joint Frequency Distribution (Percent)

May 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	1.97	6.21	6.63	5.36	9.60	6.49	9.03	1.83	.70	1.97	4.94	9.03	8.19	4.51	3.81	1.27	81.63
< 110	.56	.42	.98	.70	.84	1.27	1.69	1.41	.84	.70	.98	.98	2.54	1.27	1.69	1.41	18.36
< 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 210	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.54	6.63	7.62	6.07	10.45	7.76	10.73	3.24	1.55	2.68	5.93	10.02	10.73	5.79	5.50	2.68	

Calm : .00 %

Total # Operational Hours : 708

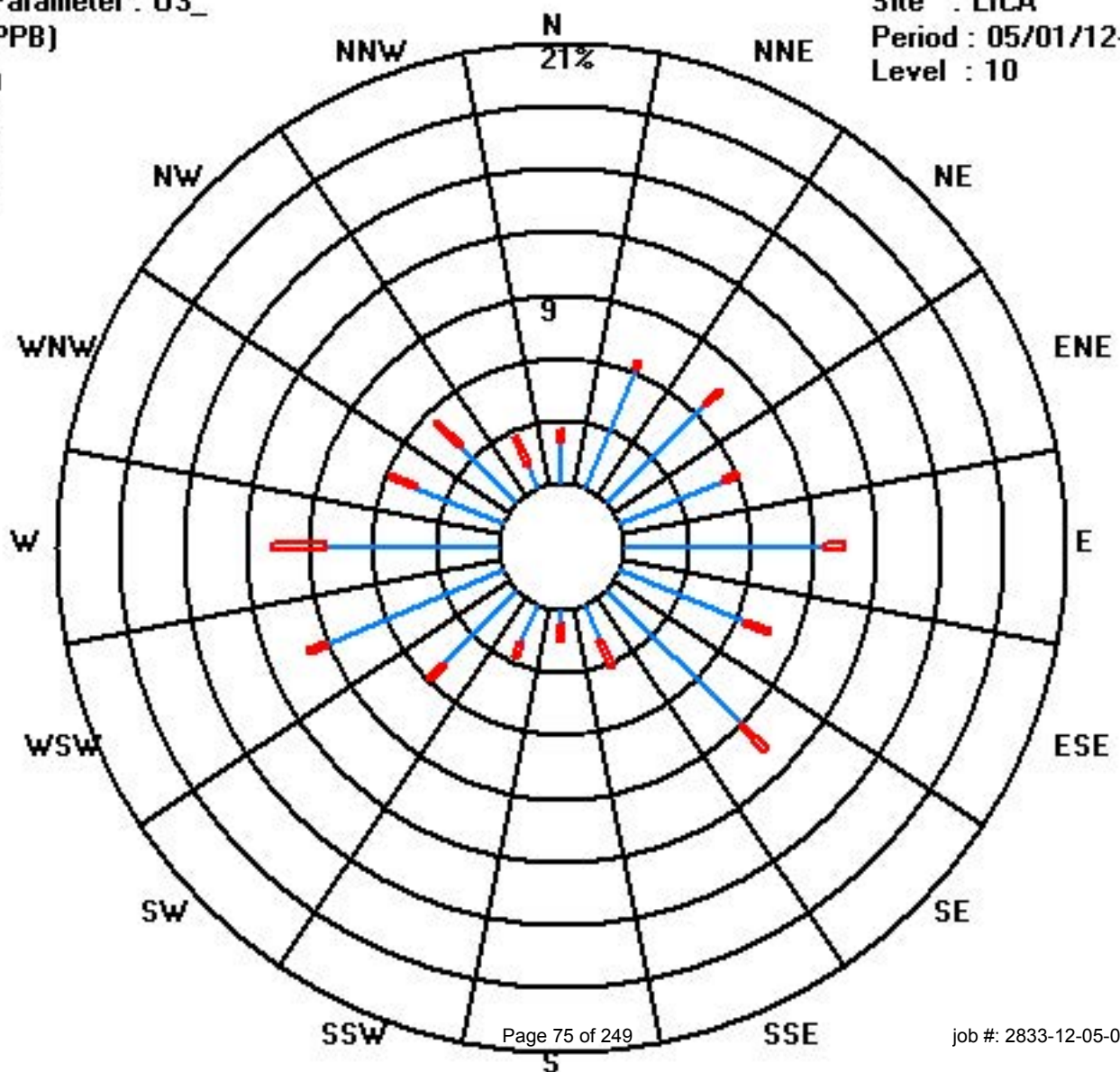
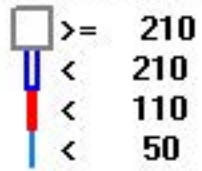
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 50	14	44	47	38	68	46	64	13	5	14	35	64	58	32	27	9	578
< 110	4	3	7	5	6	9	12	10	6	5	7	7	18	9	12	10	130
< 210																	
>= 210																	
Totals	18	47	54	43	74	55	76	23	11	19	42	71	76	41	39	19	

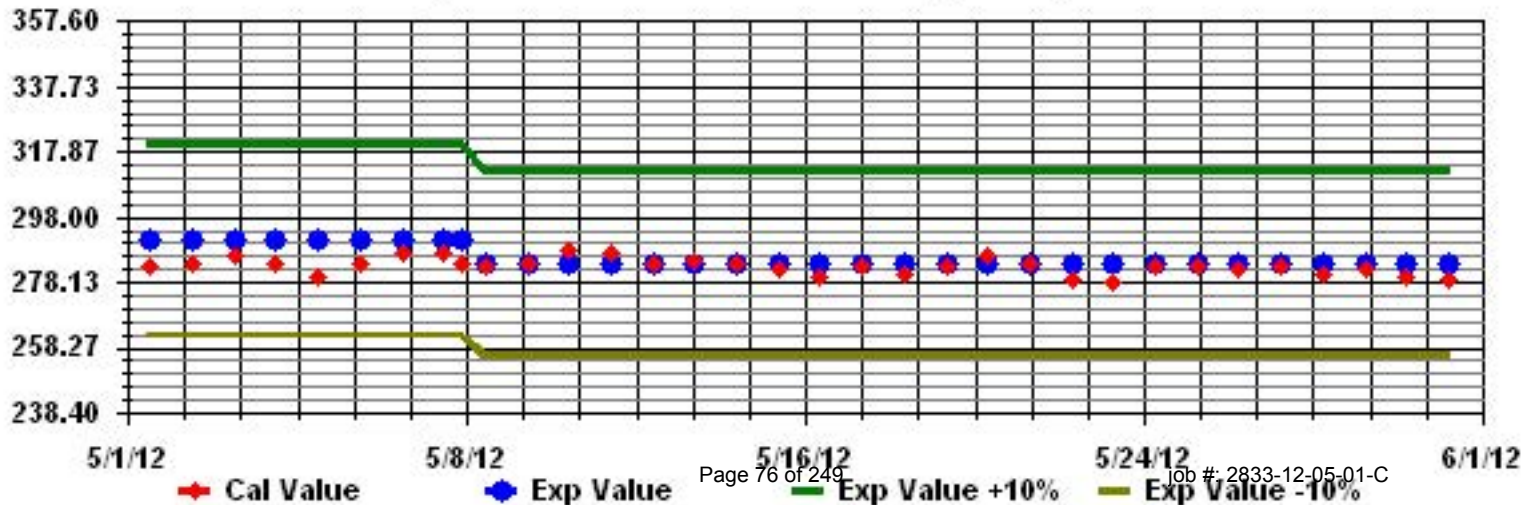
Calm : .00 %

Total # Operational Hours : 708

Class Limits (PPB)



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



Ambient Temperature

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 2012

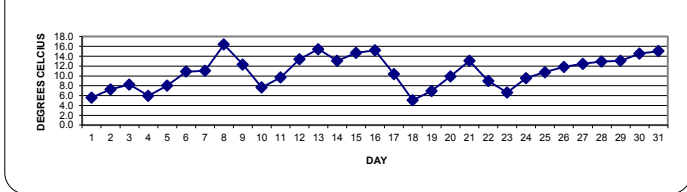
AMBIENT TEMPERATURE hourly averages (Degrees C)

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	23:00	DAILY	24-HOUR	RDGS.
DAY	DAY	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.		
1	1	4.5	2.6	-0.1	-0.2	1.2	1.1	2	2.6	3.7	5.9	7.5	7.9	8.2	9.1	9.6	9.7	9.6	10	9.7	8.6	6.8	5.7	4.6	3.7	10.0	5.6	24	
2	2	2.3	3.4	2.6	1.6	0.2	0.5	2.3	4.6	6.9	7.8	8.9	9.8	10.8	11.7	12.5	13	12.8	12.8	12.4	10.8	7.2	6.8	6.5	5.8	13.0	7.3	24	
3	3	5.1	4	3	1.2	0.1	1.6	3.7	6.1	8.5	10.2	11.7	12.4	12.7	12.5	11.4	11.4	11.9	12	11.9	11.5	10.2	8.2	8.2	8.3	12.7	8.2	24	
4	4	7.7	7.1	6.2	5.9	5.4	4.9	4.3	4	4.6	5.4	5.9	6.1	6.1	6.4	6.7	6.9	7	6.8	6.5	6.3	6	5.4	5.8	5.5	7.7	6.0	24	
5	5	5.2	5	5	4.9	4.9	5.1	5.3	5.7	6.5	6.6	7.6	9.5	10.4	11.3	12.2	12.8	12.4	11.5	11	9.7	7.9	7.8	6.9	7.4	12.8	8.0	24	
6	6	7.1	7.1	6.3	6.4	6	6.2	7	9.4	11.9	13.4	14.3	14.9	15.5	16.1	16.7	15.7	14.9	15.4	14.9	13.4	11	8.8	5.6	3	16.7	10.9	24	
7	7	1.7	0.1	-0.8	-1.4	-1.8	-0.2	4.1	8.5	12.3	14.6	15.7	16.8	17.6	18.2	18.8	19.2	19.4	19.5	18.6	16.4	13.5	12.7	11.5	10.1	19.5	11.0	24	
8	8	7.4	6.1	6.6	5.2	9.1	10.6	12.2	13.9	16.5	17.9	20.2	21.4	21.9	22.5	22.2	22.4	23	23.1	22.9	21.4	18.8	17.1	16	15.1	23.1	16.4	24	
9	9	14.7	13.3	11.8	10	8.4	8.9	12.8	14.3	13.9	14.6	14.8	15.2	14.9	16.2	16.2	15.7	15.3	13.7	11.2	9	9.3	7.7	7	6.6	16.2	12.3	24	
10	10	6.8	6.1	5.3	4.8	3.8	2.7	3.9	6.1	7.4	8.7	10.2	10.6	11.2	10.7	9.9	10	9.4	10.3	8.6	7.5	6.5	6.7	6.5	11.2	7.7	24		
11	11	5.9	4.7	4.7	4	3.5	4.2	5.9	7.7	9.6	11.4	12.6	13.7	14	14.2	14.7	15	15.1	15.2	14.7	13.8	10.3	6.3	5.2	6.1	15.2	9.7	24	
12	12	6.1	5.7	5.2	4.9	4.4	5.4	8.2	11	13.1	15	16	17	17.9	19.1	19.7	20.1	20.4	20.7	20.4	19.4	16.4	11.3	11.7	12.2	20.7	13.4	24	
13	13	10.6	8.3	5.2	4.5	3.2	6.5	10.2	13.3	15.8	17.8	19.7	21.2	22.3	23.3	23.8	24.2	23.8	22.9	22.3	21	15.7	11.6	10.9	12.4	24.2	15.4	24	
14	14	12.2	12	11.1	10.8	10.6	11.1	12.8	13.3	13.8	13.9	14	14.1	14.4	15.7	16.4	16.7	16	16.8	16.1	14.1	11.6	10	8.6	7.3	16.8	13.1	24	
15	15	7.2	8	8.3	7.4	6.4	7.1	8.8	10.7	13.2	15.6	15.9	18	19.2	20.1	20.5	20.8	20.6	20.9	20.4	19	17.7	16.5	15.7	14.7	20.9	14.7	24	
16	16	13.1	10.9	9.9	9.1	8.4	8.8	11.3	14.6	16.5	18.4	19.6	19.6	20.5	20.9	21.5	21	20.7	19.4	17.6	16.2	14.5	12.1	10.4	9.4	21.5	15.2	24	
17	17	8.9	8.9	8.8	8.6	7.7	7.7	7.6	8.6	9.6	10.3	11.2	12.2	13.2	13.5	14.2	14.5	14.6	14.8	13.6	11.9	10.1	7.7	5.3	5.4	14.8	10.4	24	
18	18	4.4	2	0.5	0	0.4	1.5	3.1	4.5	5.2	6.3	7.2	7.8	8.2	7.6	6.9	7.1	7.7	7.1	6.4	6	5.6	5.5	5.4	5.3	8.2	5.1	24	
19	19	4.8	4	3.8	3	2.2	2.1	3.8	4.8	6	6.4	7	7.5	9.6	9.9	10.1	10.9	11.7	12.2	11.5	10.8	9.3	6.2	5.2	3.5	12.2	6.9	24	
20	20	2.3	0.4	0.2	-1.2	-0.5	1.7	4.9	8.5	11.7	13.3	14.6	15.4	16.2	16.7	16.6	17.1	17.4	17.6	15.7	15.1	11	7.4	7.2	8.9	17.6	9.9	24	
21	21	6.6	4.8	3.1	1.6	2.2	4	7	10.4	12.7	15.6	17.2	18.3	19.1	19.4	20	20	19.9	19.6	18.7	17.4	15.9	14.8	13.5	12.2	20.0	13.1	24	
22	22	11.5	10.8	10.1	9.5	9.2	9.3	9	8.8	9.3	9.2	8.8	9.7	10	9.9	9.2	9.5	9.6	8.6	8	7.5	7.2	7.1	7	6.8	11.5	9.0	24	
23	23	6.7	6.6	6.1	5.2	5	4.8	4.7	4.7	4.8	5.5	6.4	6.7	6.9	7.6	8.3	9.8	10	10.7	10.6	9.7	8	4.9	3.5	2.4	10.7	6.7	24	
24	24	1.6	1.1	1	1.1	1.7	3.3	6.4	8.2	9.9	11.3	12.4	13.4	14.2	15.1	15.8	16.2	16.6	16.2	15.4	13.7	10.6	9.1	7.9	7.2	16.6	9.6	24	
25	25	6.6	6.2	5.4	4.9	4.9	5.6	7.6	11.4	13.4	13.7	13.4	15	15.6	14.1	14.3	16.4	15.2	14.3	14.7	14.1	10.7	9.1	6.8	4.7	16.4	10.8	24	
26	26	3.4	2.3	1.4	0.6	0.2	1	6.3	10.4	14.1	16.1	17.4	17.2	18.1	18.6	19.2	19.7	19.5	19.1	18.1	16.9	13.5	10.9	10.4	9.4	19.7	11.8	24	
27	27	6.9	4.5	3	1.9	2	5.2	10	12	14.4	15.7	16.8	17.8	18.1	19.1	19.2	19.4	19.4	19.5	18.3	16.4	12.5	9.8	8.3	8.7	19.5	12.5	24	
28	28	6.8	4.3	2.6	1.6	1.4	2.7	6	10.8	14.1	15.8	17.8	18.9	19.5	19.8	20.4	20.4	20.5	20.3	20.2	18.5	15	12.4	11.4	9.2	20.5	12.9	24	
29	29	6.1	3.7	2.2	1.4	1.4	6.2	9.4	10.7	13.1	15.3	17.4	18.8	19.5	20.2	19.7	20.3	20.5	21.2	20.6	18.9	15	11.2	9.8	11.3	21.2	13.1	24	
30	30	8.6	6	4.4	3.3	3.1	6.7	11.4	13.8	16	17.9	19.2	19.7	20.8	20.2	21	22	22	21.8	21.3	19.3	16.5	13.3	10.1	10.4	22.0	14.5	24	
31	31	11	9.7	7.8	7.1	6.5	9.7	12.3	14.9	15.6	17.7	19.2	19.9	20.8	21.2	21.7	21.1	20.9	20.5	19.8	17.9	16.4	11.4	9	8.7	21.7	15.0	24	
HOURLY MAX		14.7	13.3	11.8	10.8	10.6	11.1	12.8	14.9	16.5	18.4	20.2	21.4	22.3	23.3	23.8	24.2	23.8	23.1	22.9	21.4	18.8	17.1	16.0	15.1				
HOURLY AVG		6.9	5.8	4.9	4.1	3.9	5.0	7.2	9.3	11.1	12.5	13.6	14.4	15.1	15.5	15.8	16.1	16.1	16.0	15.3	14.0	11.7	9.5	8.5	8.0				

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 MAY 2012

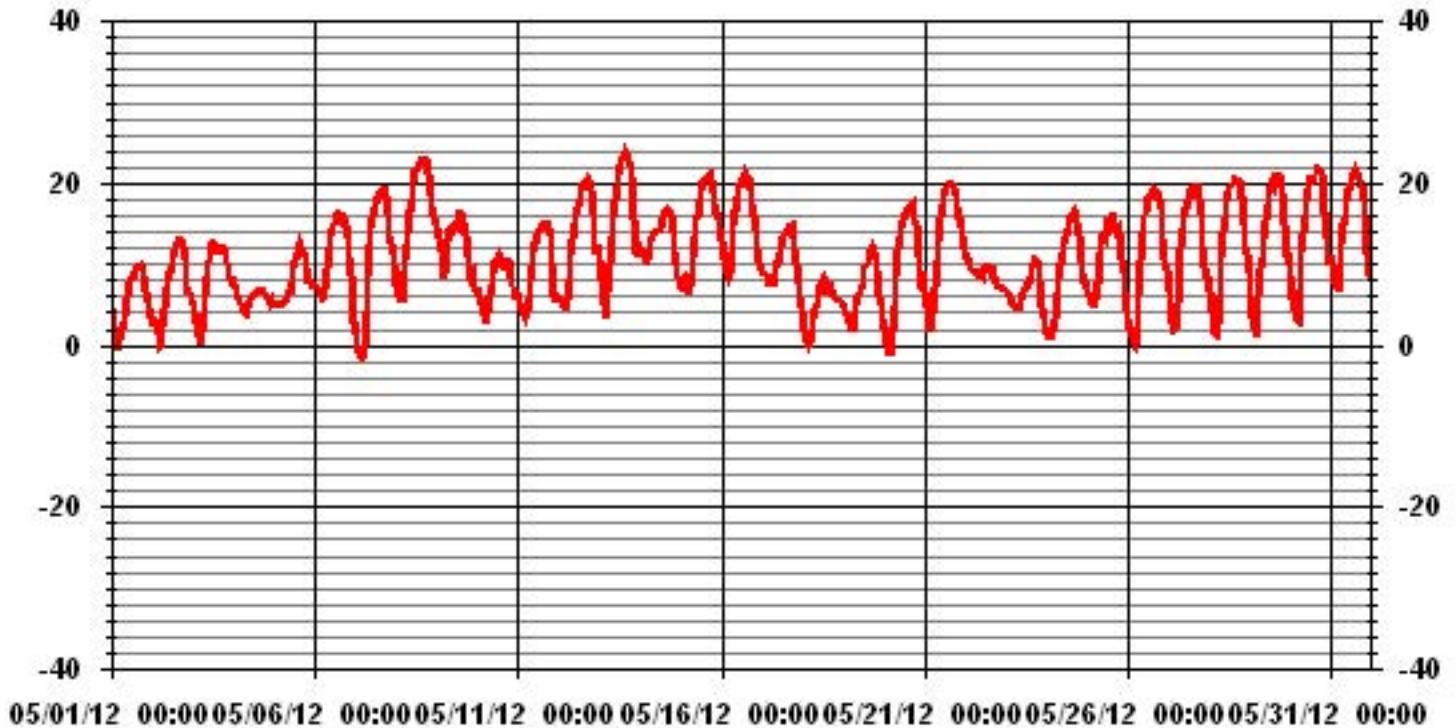


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-1.8 °C	@ HOUR(S)	4	ON DAY(S)	7
MAXIMUM 1-HR AVERAGE:	24.2 °C	@ HOUR(S)	15	ON DAY(S)	13
MAXIMUM 24-HR AVERAGE:	16.4 °C			ON DAY(S)	8
				VAR- VARIOUS	
CALIBRATION TIME:	0	HRS		OPERATIONAL TIME:	744
				AMD OPERATION UPTIME:	100.0
STANDARD DEVIATION:	5.81			MONTHLY AVERAGE:	10.84 °C

* Outside detection limits of sensor.

01 Hour Averages



Relative Humidity

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 2012

RELATIVE HUMIDITY hourly averages (%)

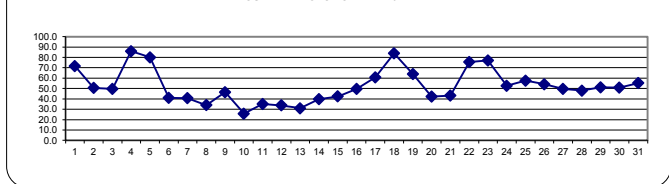
MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	24-HOUR		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	MAX.	AVG.	RDGS.	
DAY																												
1	75	81	89	92	94	96	95	89	84	72	63	61	60	56	54	54	55	52	52	58	65	70	76	78	96	71.7	24	
2	84	82	85	87	90	88	80	68	56	43	38	35	34	30	25	22	21	21	23	28	42	42	43	47	90	50.6	24	
3	49	53	59	68	72	67	64	60	57	48	35	36	35	38	44	43	42	40	39	40	45	50	53	57	72	49.8	24	
4	58	61	61	63	64	73	81	90	92	93	94	95	95	96	96	94	93	94	94	95	94	95	95	98	98	86.0	24	
5	100	100	100	100	100	100	100	100	100	92	86	81	74	70	67	62	59	57	56	51	62	79	72	81	73	100	80.1	24
6	76	73	77	70	70	60	52	43	35	28	24	22	21	19	18	19	21	20	22	24	31	39	54	64	77	40.9	24	
7	70	75	82	82	82	75	61	47	34	26	22	19	18	18	18	19	19	19	21	27	33	34	37	42	82	40.8	24	
8	53	57	54	59	43	40	37	33	29	27	24	22	21	21	22	22	23	23	25	29	34	36	40	43	59	34.0	24	
9	44	50	57	65	72	69	45	36	40	43	44	43	45	41	38	35	31	31	46	57	51	57	46	31	72	46.5	24	
10	23	23	26	27	32	38	38	33	30	26	21	18	15	15	18	19	25	22	19	25	26	29	32	38	38	25.8	24	
11	44	49	51	56	57	52	42	35	30	27	25	23	21	21	21	20	20	20	21	24	34	47	53	47	57	35.0	24	
12	47	49	50	51	55	54	45	37	33	29	27	25	24	23	22	21	20	19	19	20	26	42	37	35	55	33.8	24	
13	39	47	61	62	68	53	43	34	28	25	22	17	13	11	10	11	12	13	14	16	30	41	41	33	68	31.0	24	
14	31	33	36	38	38	39	36	31	28	33	37	41	42	38	35	34	36	33	34	40	52	59	64	68	68	39.8	24	
15	65	62	61	65	70	67	59	54	46	36	36	32	27	26	26	26	27	27	28	31	33	36	37	40	70	42.4	24	
16	46	54	57	61	65	67	59	47	41	36	32	32	31	29	29	31	32	38	44	45	53	76	90	94	94	49.5	24	
17	95	91	97	81	84	72	68	66	63	59	51	47	42	42	38	34	31	32	42	49	57	67	77	75	97	60.8	24	
18	81	91	93	94	95	94	93	88	85	76	70	66	63	74	81	82	76	78	82	84	88	92	94	95	95	84.0	24	
19	96	97	97	96	96	96	88	81	75	70	65	58	47	47	45	41	36	33	32	35	40	52	52	58	97	63.9	24	
20	63	72	72	81	76	69	57	44	35	29	26	23	21	20	21	20	20	24	27	38	54	54	47	81	42.2	24		
21	56	66	75	82	78	73	61	48	44	37	31	28	26	24	23	23	23	24	26	30	34	37	41	47	82	43.2	24	
22	51	56	60	62	61	61	66	67	66	71	78	74	73	77	86	86	81	88	89	91	92	92	92	92	92	75.5	24	
23	91	91	92	95	96	96	95	95	92	88	84	78	75	72	69	57	50	38	43	44	57	79	85	88	96	77.1	24	
24	91	92	93	92	89	83	66	60	50	42	38	33	31	27	24	22	19	24	29	36	45	51	60	65	93	52.6	24	
25	72	75	82	85	85	84	74	55	44	43	43	35	30	42	45	32	37	42	39	44	61	69	79	86	86	57.6	24	
26	90	91	92	92	90	82	67	53	43	35	32	28	27	25	25	26	29	31	33	48	56	55	57	92	54.1	24		
27	67	79	84	86	85	73	58	51	38	31	29	28	27	25	25	25	25	25	28	40	58	68	73	65	86	49.7	24	
28	71	81	85	88	88	88	79	64	52	40	31	27	24	22	22	22	21	22	22	27	38	44	43	50	88	48.0	24	
29	65	74	78	81	81	66	67	65	58	51	41	33	31	28	29	28	27	25	26	33	52	65	68	57	81	51.2	24	
30	70	81	85	88	87	76	59	48	45	37	32	30	27	28	27	23	23	23	24	36	51	64	78	77	88	50.8	24	
31	76	83	90	92	91	81	70	55	51	45	35	28	23	24	25	26	29	29	31	38	44	82	92	86	92	55.3	24	
HOURLY MAX	100	100	100	100	100	100	100	100	100	92	93	94	95	95	96	96	94	93	94	94	95	94	95	95	98			
HOURLY AVG	65.774	69.968	73.581	75.516	76	72.258	65.161	57.774	51.806	46.452	42.387	39.194	36.774	36.387	36.226	34.645	34.129	34.194	36.129	40.903	49.387	57.968	62	62.355				

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

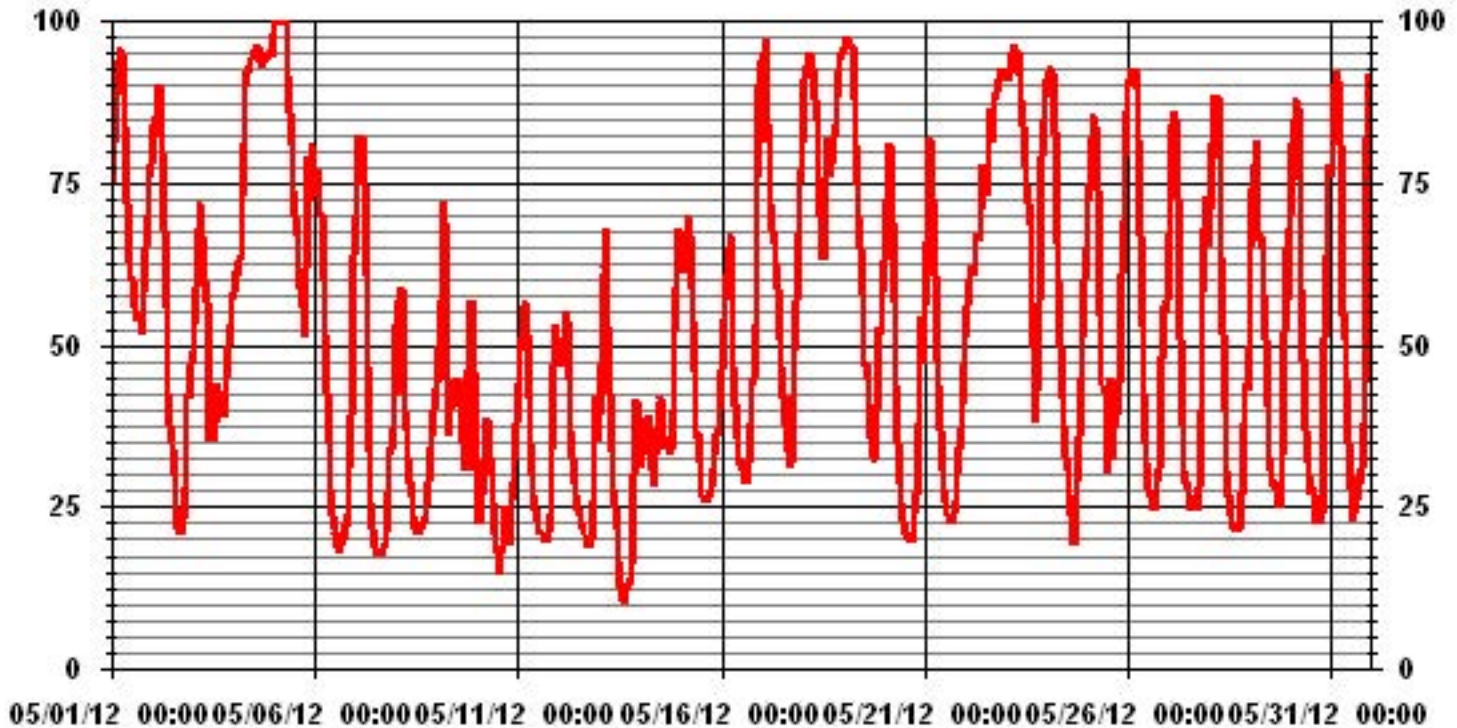
24 HOUR AVERAGES FOR MAY 2012



MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	100	%	@ HOUR(S)	VAR	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	86.0	%			ON DAY(S)	4
CALIBRATION TIME:	0	HRS	OPERATIONAL TIME:		744	HRS
STANDARD DEVIATION:	24.41		AMD OPERATION UPTIME:		100.0	%
			MONTHLY AVERAGE:		52.37	%

01 Hour Averages



Vector Wind Speed

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 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	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	2.9	1.9	1.5	3.2	4.6	6.3	8.6	9.3	10.3	10.5	12.4	14	15.3	13.4	9.7	10.4	9.1	7.6	6.4	5.8	4.4	6.6	6.8	3.8	15.3	7.2	24	
2	2.7	4.9	5.2	3.9	4	4.2	4.5	6.8	8.1	11.3	9	7.4	6.8	7.6	6	6.7	7.6	6.8	6.3	4.4	2.2	4.4	5.6	6.8	11.3	5.2	24	
3	5.8	5	4.6	2	3	3.6	4.7	8.6	8.4	11.4	14.1	14.3	15.9	17	16.2	14.9	14.2	13.1	10.3	6.7	4.5	3.4	7.6	7.5	17	8.9	24	
4	7.1	7.8	8.6	8.7	9.2	7.9	9.1	9	9.9	7.8	7.8	8.3	8	8.4	8.4	8	7.8	7.1	6.7	4.8	4.3	1.8	4.2	5.4	9.9	7.2	24	
5	3.8	2.8	1.8	2.8	1.8	0.3	2.2	2.9	5.2	4.8	5.5	6.5	6.2	4.9	4.6	5.6	11.4	10.4	9.1	3.6	4	8.8	4.5	4.7	11.4	4.9	24	
6	1	2.4	3	6.1	5.1	7.5	7.1	10.8	12.4	14.5	14.4	15.6	14.6	15.3	14.3	15.8	13.6	11.2	10.5	10.4	5.2	4.2	2.5	0.6	15.8	9.1	24	
7	0.6	1.2	1.2	0.5	0.6	0.4	1.5	3.2	4.1	3.1	2	3.3	5.8	6	7.1	7.9	9.4	8.1	5.1	2.1	4.2	4.2	3.6	1.8	9.4	3.6	24	
8	1.3	2.2	1.9	2.4	2.4	2.6	3.7	5.2	6.4	8.6	9.3	10.6	11.9	10.6	9.7	9.5	8.7	8.4	6.2	5.1	5.5	7.1	8.2	7.8	11.9	6.5	24	
9	5.6	2.6	1.5	0.5	1.7	6	15.2	17.2	19	17	17.3	13.3	8.8	13	13.5	9.5	9.7	14.1	15.3	11.2	2.2	3.5	4.2	7	19.0	9.5	24	
10	6	6	9	13.3	8.1	5.3	8.6	12.8	15	15.4	16.1	17.3	17.2	16.1	19.2	14.5	14.9	11.5	12.9	7.1	6.9	6.6	8.3	7.2	19.2	11.5	24	
11	6.5	7.6	9.7	7.6	8	9.3	12.6	16.5	17	16.4	16.6	19.2	19.8	20.2	19.2	19.9	16	16.4	13.2	8.6	2.6	2.1	2.6	4.7	20.2	12.2	24	
12	5.3	5.8	5.9	6.1	5.9	6.7	8.3	12	14.2	14.2	15.6	16.8	17.1	15.5	17.3	18.4	16.3	17.3	12.1	8	4.4	3.4	6.7	5.8	18.4	10.8	24	
13	6	5.2	0.6	3.4	1.5	5.1	4.8	6.6	6.4	10.1	12.4	14.1	15.4	17	20.2	16	16.3	13.3	8.5	4.7	2.8	3.2	5.1	6.2	20.2	8.5	24	
14	6.9	7.2	6.1	9.4	8	7	12.3	17	22	23.8	21.4	20.5	20.4	18.5	14.7	8.3	7.3	6.7	5.7	3.1	0.7	0.5	1.5	2	23.8	10.5	24	
15	4.1	4.8	7	3.6	3.7	5	8.2	9.9	10	10.7	13.8	14.9	17.3	16.6	16.8	17.8	12.6	13.1	13.6	13.4	11.2	11.6	8.4	4.8	17.8	10.5	24	
16	3.3	2.9	2.7	1.5	1.3	0.6	1.8	2.4	2.5	5.1	7.1	5.9	6	10.4	7.6	9.4	9.9	11.4	15	11.1	7.5	6.1	5.2	7.1	15.0	6.0	24	
17	2.5	4.1	4.5	9	4.3	7.6	5.4	3.5	7	8.7	8.9	7.9	8	10	9.4	10	8.7	7.8	9.1	8.6	6.2	1	1.7	4.3	10.0	6.6	24	
18	2.9	0.7	1.1	0.4	0	1.8	4.4	2.3	2.8	4.9	3	2	0.8	3.4	3	3.7	5	6.5	5.8	4.8	3.1	2.8	2.8	4.1	6.5	3.0	24	
19	3.4	4.3	5.4	6.7	4.8	5.7	9.5	11.1	11.3	12.6	13	13.6	15.8	16.1	14.8	13.3	13	13.7	12.7	7.2	4.7	4	5.1	4.2	16.1	9.4	24	
20	4.2	4	4.2	1.9	3.6	3.1	4.7	4.1	4.4	7.5	7.6	8.6	9.3	9.7	7.1	5.8	3.7	3.8	4	2.8	2.3	1.1	2.5	2.6	9.7	4.7	24	
21	2.4	1.9	0.7	0.3	2.4	2.4	4.8	5.9	6.9	9.5	11.6	12.7	11.2	13.5	11.3	12.5	12.5	13	15.2	13.4	12.8	13.3	14	10.9	15.2	9.0	24	
22	11.9	12.5	12.4	12.9	12.7	13.1	14.1	13.9	12.7	13.1	12	12.7	11.9	12	8.6	7.2	13.2	14.2	12.6	13.8	12.8	12.3	12.9	11.7	14.2	12.4	24	
23	13.7	13.3	11	7.9	6.4	8.1	9.2	9	10.3	9.3	8.2	8	6.5	4.3	5.7	8.6	6.9	6.6	5.4	5.6	1.4	0.8	0.6	0.4	13.7	7.0	24	
24	0.4	0.4	0.7	0.7	1.2	1.4	5	6.6	7.3	8.8	9.2	9.1	9.5	9.6	10	9.9	10.1	11.1	7.2	4.1	3.7	2.1	1.8	1.5	11.1	5.5	24	
25	1.1	1	0.8	1.4	0.8	0.6	0.5	3.7	3.6	6.4	7.1	5.6	6.1	9	8	6.2	1.7	4.3	3.7	3.1	2.4	1.3	0.5	0.3	9.0	3.3	24	
26	0.3	0.5	0.7	0.5	0.4	0.7	1.9	2.5	3.5	2.5	3.4	1.4	2	5.7	2	7.5	6.9	8.9	7	4.7	3	4.4	3.8	2.1	8.9	3.2	24	
27	1.5	0.5	0.5	0.5	1.2	0.9	1.8	3.3	4.9	8.9	9.7	8.4	8.5	8.8	8.5	9.9	5.3	3.7	5.5	0.7	0.2	0.1	1.3	2.3	9.9	4.0	24	
28	0.7	0.4	0.8	0.1	0.6	0.5	0.1	2.3	2.7	5.8	8.6	8.2	8.7	9.4	8.4	7.9	6.3	7.6	4.9	6.1	6.1	5.2	5.4	3.4	9.4	4.6	24	
29	0.1	0.5	0.5	0.8	0.9	1.6	7.7	6.7	7.7	8.7	10.4	9.2	8.4	5.4	7.2	6.6	6.1	4.6	4.8	4.2	1.5	1.1	1.8	3.5	10.4	4.6	24	
30	0.7	0.6	0.3	1	0.5	0	1.4	2.1	3.3	3.5	4.5	6.6	5.1	4.8	5.4	5.7	5.4	5.3	4.5	7.6	8.2	1.5	2.1	2.4	8.2	3.4	24	
31	1.7	1.5	2.8	2.7	1.1	2.8	4.1	7.6	8.5	6.9	11	13.1	13	13.9	13	12.2	16.5	15.5	12	9.9	8.2	2	1.5	3.6	16.5	7.7	24	
HOURLY MAX	13.7	13.3	12.4	13.3	12.7	13.1	15.2	17.2	22.0	23.8	21.4	20.5	20.4	20.2	20.2	19.9	16.5	17.3	15.3	13.8	12.8	13.3	14.0	11.7				
HOURLY AVG	3.8	3.8	3.8	3.9	3.5	4.1	6.1	7.6	8.6	9.7	10.4	10.6	10.7	11.2	10.5	10.3	9.9	9.8	8.8	6.7	4.8	4.2	4.6	4.5				

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

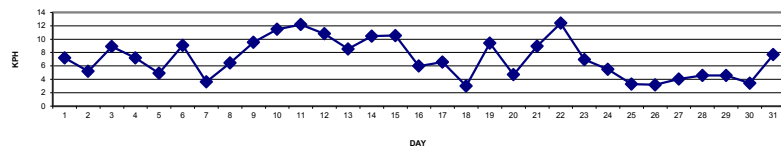
LAST CALIBRATION:

December 16, 2010

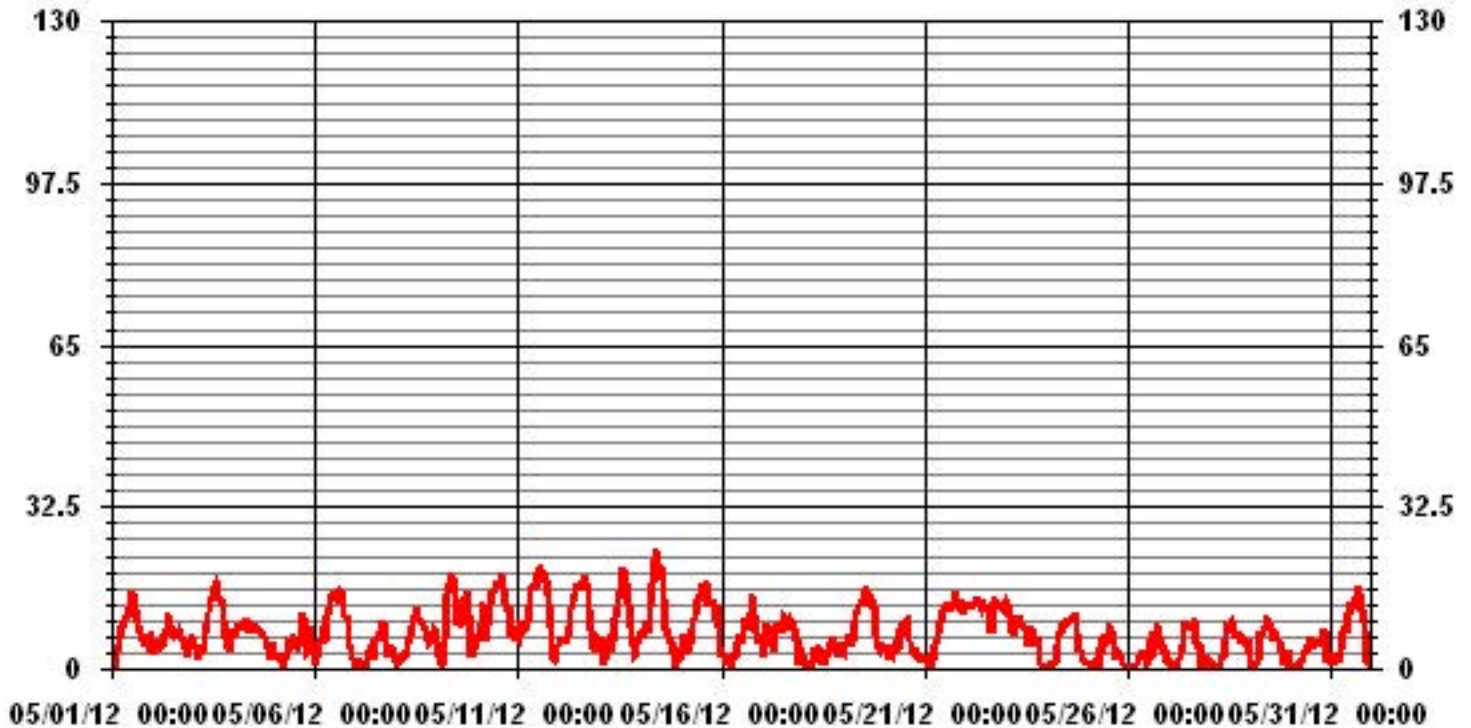
MONTHLY SUMMARY

MAXIMUM 1-HR AVERAGE:	23.8	KPH	@ HOUR(S)	9	ON DAY(S)	14
MAXIMUM 24-HR AVERAGE:	12.4	KPH			ON DAY(S)	22
CALMS (≤ 0 KPH)	1.61	%	OPERATIONAL TIME:	744	HRS	
MONTHLY CALIBRATION TIME:	0	HRS	AMD OPERATION UPTIME:	100.0	%	
STANDARD DEVIATION:	4.86		MONTHLY AVERAGE:	7.16	KPH	

24 HOUR AVERAGES FOR MAY 2012



01 Hour Averages



— LICA WSP KPH

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 2012

VECTOR WIND SPEED MAX instantaneous maximum in km/hr

MST																								DAILY	
HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	MAX.
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	
DAY																									
1	7	5.2	4.1	5.8	10.5	11.2	14	14.8	15	16.8	19.6	21.2	20	22	14.6	20.6	15.3	11.9	11.1	11.2	6.6	9.1	10.3	9	22
2	5.7	9.5	8.6	7.9	5.6	6.5	7.2	11.6	14.6	19.2	15	15.3	13.2	14.8	12	20.7	17.4	14.7	12	7.7	4.1	7.4	11.7	11	20.7
3	10	8.3	7.5	7.3	7	6	8.6	12	14.9	19.3	22	23.1	25.6	29.3	23.8	22.8	23.8	19.7	15.6	10	6.9	5.7	12.3	16.7	29.3
4	11.4	12.3	12.4	12.3	13.1	11.9	15.4	16.6	16.3	11.8	12.9	13.4	13.6	16.6	17.3	12.8	12.6	11.4	10.6	8.8	6.8	7.3	8.8	8.6	17.3
5	8	6.4	5.1	6.2	5.8	3.4	6.3	6.3	9.1	9.5	10.6	13.1	11.5	10	11.6	11.6	19.8	17.3	15.4	11.1	17.4	19.9	9.9	20	20
6	8.1	9.6	6	9.7	8.4	10.7	10.8	17	18.1	21.8	21.7	24.2	29.5	25.2	27.1	27	20.8	18.5	16.5	17.9	7.7	6.4	4.1	2.7	29.5
7	7.1	4	3.8	4.2	5.2	2	3.6	5.7	7.9	9.3	12	13.1	13.9	16.4	16.6	16.4	17.6	14.3	13.4	5.5	6.3	5.7	5.6	4.5	17.6
8	3.4	3.8	3.9	4.9	5	6.5	8	11.2	15.4	14.8	15.4	21.3	22	21.8	20.1	17.6	17.5	16.3	12.4	8	7.7	9.2	10.5	10.2	22
9	9.7	4	2.9	2.8	5	16.6	24.1	29.2	27.6	26	26.5	22.8	16	23.1	20.6	18.2	14.9	20.9	24.3	22.4	5.4	6.1	7.7	10.1	29.2
10	8.4	9.2	19.2	20.9	14	8.2	15.5	18.6	23.6	25.1	29.4	25.6	26	26.7	29	27.3	30.5	20.4	19.4	12.9	12.5	9.7	11.2	13.5	30.5
11	12.8	10.4	12.9	10.5	12.3	13.7	19.7	24.3	23.8	25.5	25.6	30.4	28.9	30.2	29	30.3	26.9	25.9	19.3	17.9	4.9	4.3	5.7	7.6	30.4
12	7.8	8.4	8	10.2	11	9.4	14.7	18.4	20.6	21.2	23.4	25.5	23.2	24	27.5	31.9	25	27.4	21.3	16.2	7.4	5.1	8.6	8.5	31.9
13	8.4	8	3.7	6.6	5	7.4	8	11.3	11.4	18.8	20.4	23.5	23.8	26.1	30.7	27.4	27.6	20.4	14.9	9.2	5.1	4.6	8.4	8.2	30.7
14	9	9.6	8.2	12.9	10.9	13.4	19.6	25.4	36.9	31.7	31.8	31	29.1	26.3	22.6	15.9	14.1	15.2	9.6	9.5	3	2	3.2	4.4	36.9
15	6.1	9.7	9.6	6.7	5.9	10.6	14	15.5	16.5	19	23.1	24.8	25.2	23.8	23.9	25.2	21	23.4	22.6	20.5	16.3	16.1	12.7	10.5	25.2
16	6.9	5.7	6.3	3.6	3.3	4.5	4.9	7.1	7.8	12.9	14.2	11.2	11.5	16.2	15.8	17.6	15.5	20.6	22.5	20.5	14.1	10.8	8.6	11.9	22.5
17	10.9	13.3	8.9	14.9	13	14.4	7.8	5.9	13	13.3	14.7	13.6	14.5	16.6	18.2	17.6	15.1	13.3	14.4	15.3	9.2	7.2	5.4	7.1	18.2
18	7.8	4.5	3.1	4.2	3.6	5.6	7.6	6	7.3	9.9	7.4	7.9	7.9	7.6	7.1	11	8.6	11.4	9.6	7.7	7	4.5	5.6	6.4	11.4
19	5.2	7.9	8.4	9.7	7.9	10.9	18	17.2	17.7	19.2	21.7	23.4	25.7	24.9	21.4	22.1	24	23	21.7	15.1	9.3	5.5	6.9	6.2	25.7
20	5.7	5.3	5.9	3.5	6.2	6.7	8	7.6	12.2	15.7	16.7	19.9	19.1	21.9	16.2	13.9	10.4	9.9	9	6.9	6.6	3.3	7	5.4	21.9
21	6.1	4.3	3.5	2	5.1	5.2	9.4	12.2	12.3	17.8	23.1	20.4	17.7	22.2	20.6	19.6	21.5	23	25.5	19.9	19.5	20.9	19.8	16	25.5
22	20.3	19	21.2	20.2	22.9	19.5	22.2	21.8	21.5	23.5	20	19.2	18.8	18.1	14.8	12.5	21.4	23.2	22.9	22.9	20.2	17.4	18.5	15.9	23.5
23	20.3	22.3	21.8	12.4	9.1	12.4	14.3	15.1	15.5	13.9	12.3	13.6	10.5	6.8	11.2	13.9	13.4	13.8	10.1	9.8	5.3	1.6	2.6	1.8	22.3
24	2.1	1.9	2.6	1.6	3.7	3.9	8.6	10	12.5	13.6	17.6	15.5	15.6	15.6	17.8	15.7	14.8	18.9	13.2	8.6	5.4	4.6	3.7	4.3	18.9
25	2.6	3.1	3.7	3.2	2.9	2.8	7.4	9.9	8.8	15.3	12.3	11.8	12	16.9	14.7	12.2	12.4	22.6	7.4	7	5.8	3.5	2.2	2.6	22.6
26	3.7	2.3	2.7	2.4	1.2	2	6.8	6.9	7.7	7.7	9.5	6.3	10.9	12.5	10.5	17.1	14.1	18.2	12.1	9.1	6	6.3	5.4	3.9	18.2
27	3.9	2.1	2.5	2.4	3.6	2.5	6	6.2	11.2	15.6	17.1	19.5	17.5	16.1	14.8	17	17.1	8.6	11	4.1	1.2	2.5	5.4	5.5	19.5
28	4.9	4	3.2	2.5	3	1.6	2	7.4	6.5	12.3	14.5	16.3	13.9	15.2	17.3	14	13.5	12.7	10.3	11.3	7.9	6.9	8.3	4.8	17.3
29	2.2	2.3	1.8	1.6	2.1	6.7	12.8	13.3	13.7	15.6	17.1	16.9	17.9	17.5	13	12.8	11.8	10.5	11.9	8.1	2.8	3.3	5.4	7.4	17.9
30	3.2	2.1	1.3	2.8	2.2	1	3.3	6.2	8.5	8.7	13	20.2	15	11.6	10.8	17.5	12.6	10.5	8.4	15.5	15.9	4.9	8.5	4.8	20.2
31	4.1	3	5.5	5.2	4.6	7	6.6	13.7	13.5	13.1	18.6	21.5	21.5	22.5	22.9	21.4	23.7	23.4	21.5	16.2	22.2	5.8	3	5.5	23.7
PEAK	20.3	22.3	21.8	20.9	22.9	19.5	24.1	29.2	36.9	31.7	31.8	31.0	29.5	30.2	30.7	31.9	30.5	27.4	25.5	22.9	22.2	20.9	19.8	20.0	

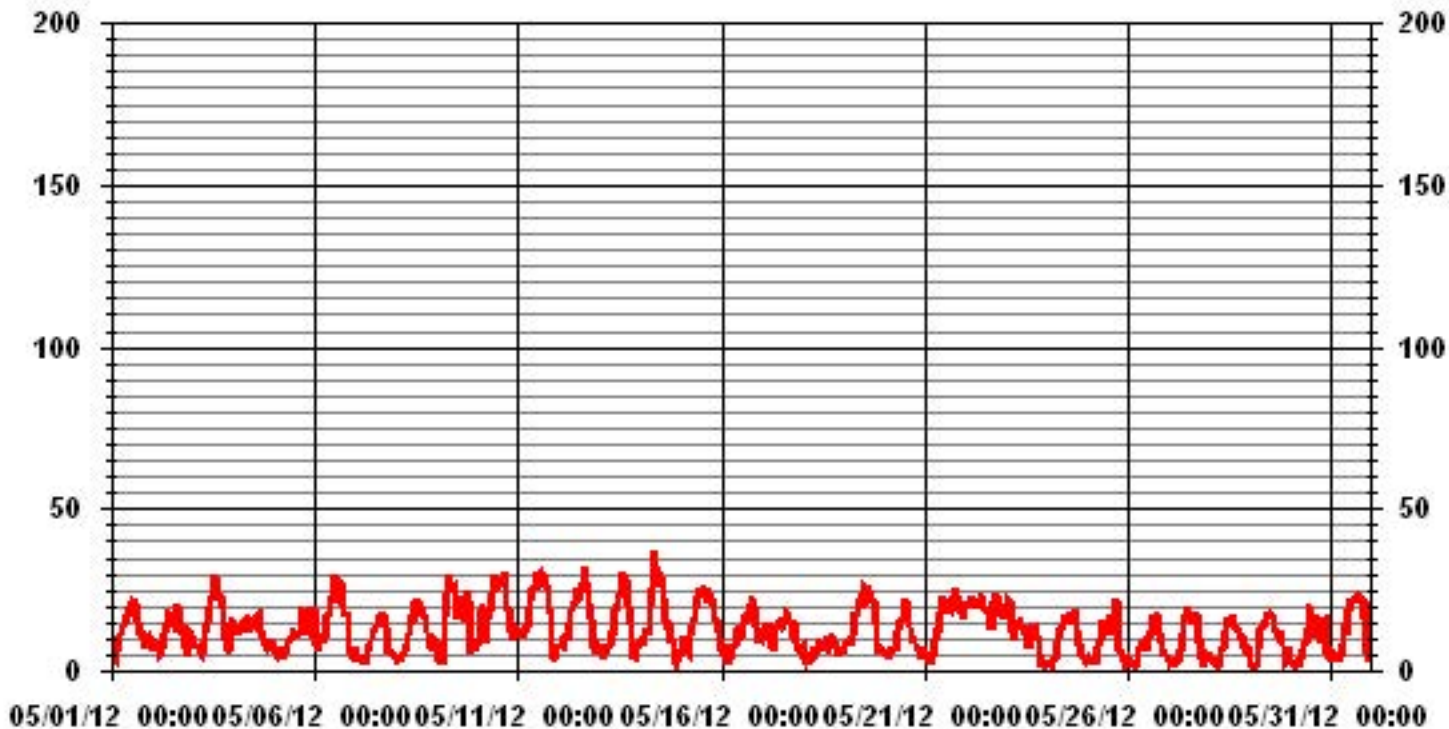
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS READING	36.9	KPH	@ HOUR(S)	8
			ON DAY(S)	14

01 Hour Averages



— LICA WSMAX KPH

LICA
WSP / WD Joint Frequency Distribution (Percent)

May 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	1.61	2.15	2.55	3.76	2.55	4.30	4.83	2.28	1.20	2.41	4.43	5.77	2.82	1.07	1.88	.80	44.48
< 12.0	.40	4.16	4.16	1.61	4.56	3.22	2.95	.80	.67	.26	1.47	3.22	2.28	2.55	1.20	.80	34.40
< 20.0	.26	.13	.94	.40	3.09	.40	2.15	.00	.00	.00	.00	1.34	5.24	1.88	1.61	1.07	18.54
< 29.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.26	.53	.00	.94
< 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
>= 39.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Totals	2.28	6.45	7.66	5.77	10.21	7.93	9.94	3.09	1.88	2.68	5.91	10.34	10.48	5.77	5.24	2.68	

Calm : 1.61 %

Total # Operational Hours : 744

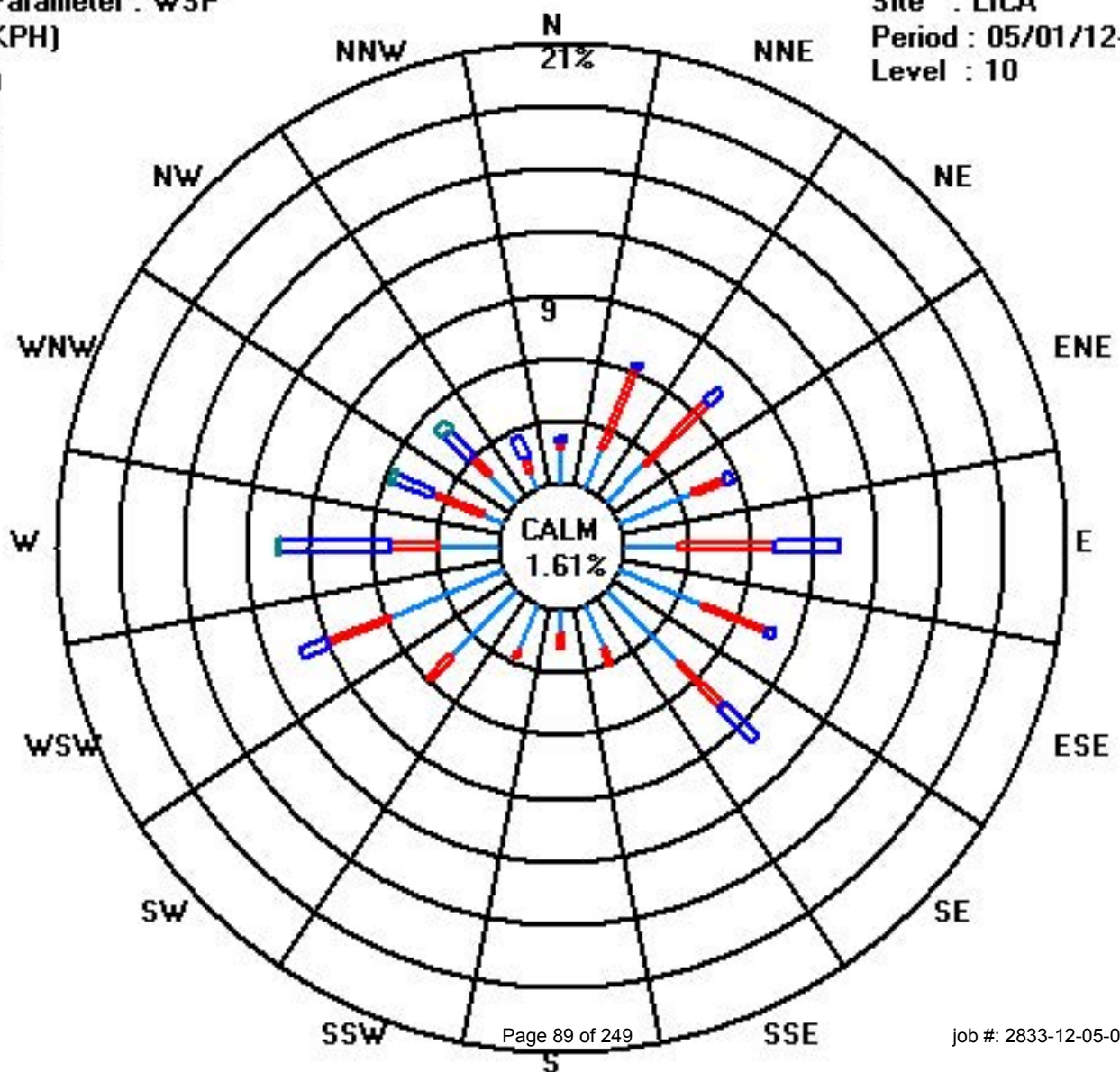
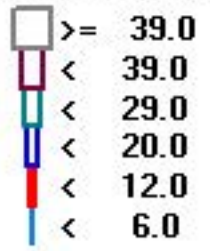
Distribution By Samples

	Direction																
Limit	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Freq
< 6.0	12	16	19	28	19	32	36	17	9	18	33	43	21	8	14	6	331
< 12.0	3	31	31	12	34	24	22	6	5	2	11	24	17	19	9	6	256
< 20.0	2	1	7	3	23	3	16					10	39	14	12	8	138
< 29.0													1	2	4		7
< 39.0																	
>= 39.0																	
Totals	17	48	57	43	76	59	74	23	14	20	44	77	78	43	39	20	

Calm : 1.61 %

Total # Operational Hours : 744

Class Limits (KPH)



Vector Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 2012

VECTOR WIND DIRECTION (WD) hourly averages in degrees

MST

HOUR START	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24-HOUR	24-HOUR AVG		
HOUR END	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	0:00	AVG.	QUADRANT	RDGS.	
DAY																												
1	103	35	352	11	26	22	41	41	38	26	39	36	41	27	30	33	34	34	70	87	69	90	89	75	43	NE	24	
2	356	60	22	41	45	43	39	56	94	105	81	82	37	48	56	107	113	116	97	74	90	101	99	102	77	ENE	24	
3	109	105	127	106	91	95	116	124	114	120	114	118	128	135	136	135	126	127	124	109	110	124	126	119	123	ESE	24	
4	115	95	94	96	95	96	91	93	99	105	112	102	102	93	96	100	99	92	94	106	72	82	121	125	99	E	24	
5	126	115	159	121	102	16	39	21	19	20	4	301	288	276	241	259	302	325	319	18	319	319	306	323	321	NW	24	
6	266	253	270	284	292	302	304	309	320	317	317	313	321	333	346	349	346	352	353	334	340	311	278	210	325	NW	24	
7	181	231	241	198	206	107	230	238	228	247	251	272	249	229	236	239	237	229	214	148	139	140	144	141	222	SW	24	
8	131	133	129	126	153	197	181	183	202	173	166	173	190	196	176	177	160	159	166	137	124	126	129	129	165	SSE	24	
9	127	105	75	151	246	285	323	316	322	340	344	352	33	322	322	331	310	302	293	301	304	258	274	295	321	NW	24	
10	291	287	284	298	290	230	259	271	278	266	264	266	257	256	272	272	247	250	245	229	248	249	255	258	264	W	24	
11	245	231	251	236	237	235	249	265	273	265	267	262	273	273	280	272	283	284	294	291	233	199	248	247	266	W	24	
12	248	236	241	234	226	231	246	257	259	244	248	250	253	269	270	278	276	280	272	269	248	246	249	255	258	258	WSW	24
13	249	246	233	235	223	235	249	262	249	253	268	266	269	280	291	275	305	311	297	291	225	250	250	252	272	W	24	
14	248	251	253	253	263	280	288	290	295	309	308	320	326	335	327	356	46	27	45	63	112	69	92	120	310	NW	24	
15	130	123	131	105	98	120	127	131	130	144	134	128	135	136	134	132	124	124	127	125	127	128	123	92	128	SE	24	
16	54	35	24	68	77	277	296	318	267	316	19	34	29	38	50	46	45	340	328	337	337	309	268	280	358	N	24	
17	111	317	262	330	313	323	315	328	31	44	48	60	68	79	74	76	66	49	93	88	71	72	68	82	50	NE	24	
18	78	203	317	303	133	235	289	279	342	46	23	76	53	159	139	285	296	288	271	271	267	252	256	252	284	WNW	24	
19	259	249	253	259	244	244	272	289	267	270	262	285	268	283	287	283	287	286	279	273	258	237	241	233	272	W	24	
20	231	241	232	231	236	244	236	262	249	267	260	265	270	281	300	276	280	275	59	63	34	60	125	71	265	W	24	
21	30	36	30	311	58	56	59	73	70	89	99	92	101	101	95	102	94	93	89	87	88	90	88	91	89	E	24	
22	94	94	96	94	87	93	93	87	86	84	79	81	79	84	78	61	82	80	70	56	54	53	54	50	78	ENE	24	
23	57	63	51	35	32	37	41	34	40	31	26	36	40	31	7	21	32	57	4	15	2	216	161	216	38	NE	24	
24	104	16	116	60	75	55	41	25	26	25	14	22	39	20	33	28	39	14	19	6	357	20	70	34	27	NNE	24	
25	318	184	249	242	164	331	345	274	300	19	63	46	45	316	233	251	21	358	189	210	208	205	145	122	316	NW	24	
26	193	137	131	218	141	133	168	208	225	222	255	317	68	106	194	84	125	149	146	142	138	136	140	145	142	SE	24	
27	96	356	72	72	112	111	96	109	105	121	121	98	80	84	108	123	87	78	119	99	84	146	87	145	105	ESE	24	
28	136	219	158	60	120	320	150	337	6	33	36	26	27	33	27	16	26	47	90	121	138	131	131	123	52	NE	24	
29	352	129	142	86	102	99	124	117	118	120	130	125	126	153	139	120	142	204	161	146	157	139	201	216	135	SE	24	
30	166	114	132	115	163	11	173	237	255	236	210	155	183	174	159	221	168	175	192	224	252	204	239	224	200	SSW	24	
31	199	166	235	243	226	239	235	249	244	259	277	272	268	278	273	273	265	262	262	292	300	200	246	246	265	W	24	
HOURLY AVG	356	356	352	330	313	331	345	337	342	340	344	352	326	335	346	356	346	358	353	337	357	319	306	323				

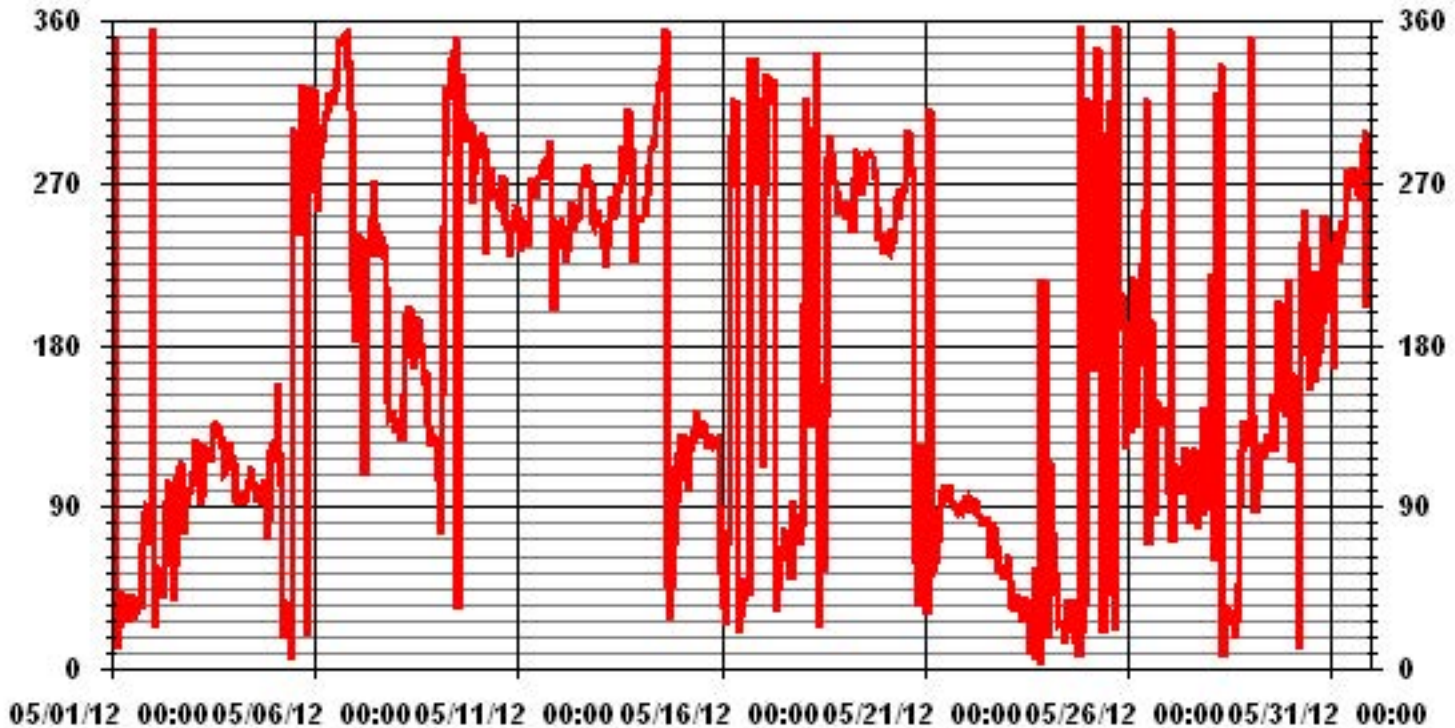
STATUS FLAG CODES

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:	744 HRS
STANDARD DEVIATION:	98.90	AMD OPERATION UPTIME:	100.0 %
		MONTHLY AVERAGE:	334 DEG

01 Hour Averages



— LICA WDR DEG

Standard Deviation Wind Direction

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION - COLD LAKE

MAY 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	37	43	45	20	18	19	19	17	19	23	20	19	19	20	22	19	20	19	21	18	14	18	17	22
2	34	23	18	17	17	18	18	20	27	25	26	33	41	35	45	33	33	28	25	17	16	19	22	23
3	25	25	20	18	21	20	22	20	23	23	23	23	20	18	16	15	19	18	18	23	20	14	14	21
4	22	21	19	22	20	21	18	21	22	23	23	24	24	24	24	22	23	23	22	27	24	38	25	21
5	27	25	34	28	53	37	27	28	23	26	32	30	33	36	31	27	19	17	17	42	41	18	35	44
6	49	43	29	17	15	12	13	15	17	20	22	23	22	25	23	19	20	22	18	14	16	11	18	60
7	35	50	56	46	56	52	31	32	41	54	66	70	51	39	45	33	27	26	27	33	13	16	22	52
8	59	38	50	33	45	50	41	42	42	40	38	35	40	39	40	37	37	35	38	18	13	12	11	11
9	20	16	23	47	46	17	14	16	16	19	18	24	25	22	23	21	19	17	19	28	25	19	14	15
10	17	18	18	16	19	17	18	23	22	23	25	23	25	23	21	23	22	30	20	19	16	15	16	17
11	17	19	16	18	19	20	20	21	20	21	24	22	23	22	24	22	23	22	21	18	15	23	31	14
12	16	16	14	16	19	19	21	21	22	23	23	22	23	23	23	22	22	23	21	20	13	11	10	14
13	10	11	55	30	35	15	23	26	29	26	25	27	25	22	21	24	17	18	20	17	13	11	10	12
14	12	14	15	16	19	22	20	21	19	18	17	17	17	21	23	28	25	29	22	20	60	45	30	20
15	14	15	12	16	17	18	18	17	16	28	16	20	16	19	17	16	20	20	17	16	14	15	19	26
16	25	22	25	31	29	47	47	51	60	38	29	32	31	25	30	25	21	22	16	21	17	18	20	19
17	40	29	24	18	27	23	16	24	27	21	24	28	30	25	24	25	27	24	25	21	19	38	31	19
18	25	60	49	59	34	34	18	35	21	29	48	64	52	48	41	23	23	22	22	22	22	17	17	17
19	20	18	19	19	15	20	21	23	23	22	23	23	23	22	21	23	24	23	21	22	20	14	14	14
20	13	8	15	22	22	20	23	32	38	34	37	35	28	31	40	42	39	35	21	33	27	45	23	24
21	19	34	46	64	28	27	18	27	26	28	24	25	27	28	27	25	23	22	20	20	19	19	19	21
22	21	22	22	22	21	22	21	21	23	21	22	21	20	21	21	19	20	20	20	16	16	17	17	17
23	16	18	19	20	20	19	19	21	20	21	22	21	20	24	24	21	22	22	21	19	33	26	61	36
24	62	50	46	42	33	27	18	23	23	24	27	27	31	27	26	24	23	21	31	20	17	30	34	42
25	30	51	53	44	49	68	62	39	45	41	29	45	37	39	30	34	57	38	31	28	43	50	54	67
26	55	51	45	58	47	48	42	40	45	63	56	67	64	36	55	30	31	33	26	20	14	10	22	39
27	25	41	44	45	45	44	40	31	30	26	27	37	35	29	29	25	32	47	22	26	68	41	32	46
28	43	56	39	64	52	68	60	50	43	32	25	30	29	25	30	33	42	25	35	18	10	11	11	11
29	44	44	51	28	32	30	18	23	24	25	23	29	26	45	32	34	34	44	32	21	18	38	47	28
30	51	40	43	40	29	74	43	53	52	53	46	44	54	39	42	47	42	41	37	27	19	19	30	34
31	31	24	17	14	45	25	23	27	28	32	26	27	25	25	27	24	21	20	21	20	33	43	31	17

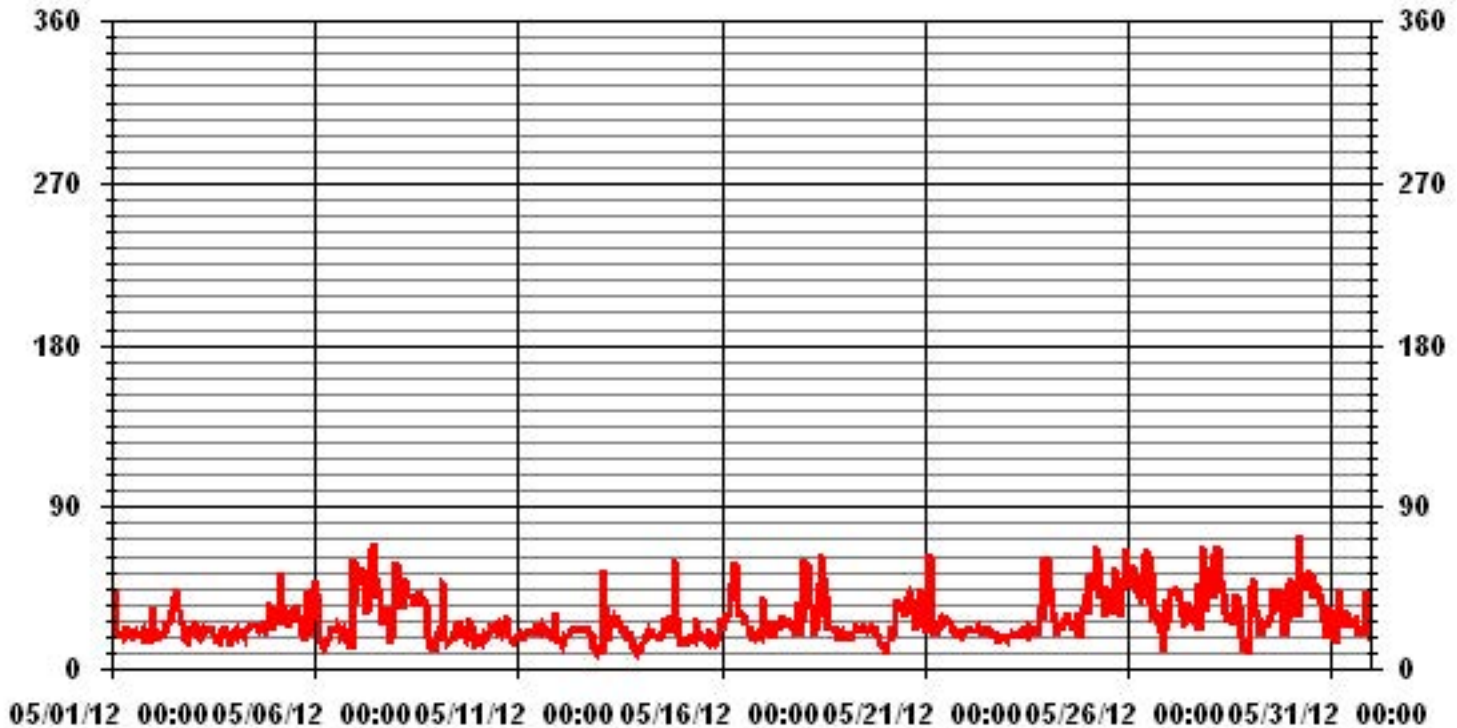
STATUS FLAG CODES

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: 744 HRS

01 Hour Averages



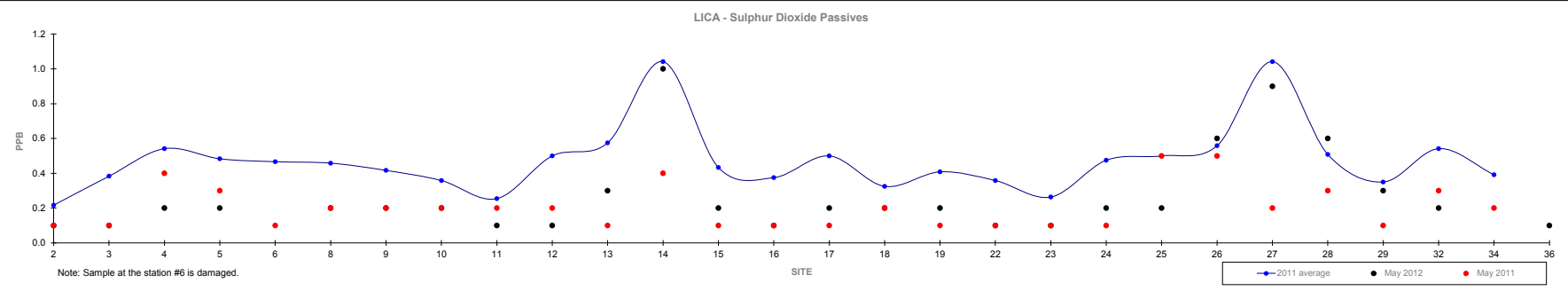
— LICA STDWDIR DEG

Non-Continuous Monitoring

Passive Summary Results for May 2012

Lakeland Industry & Community Association

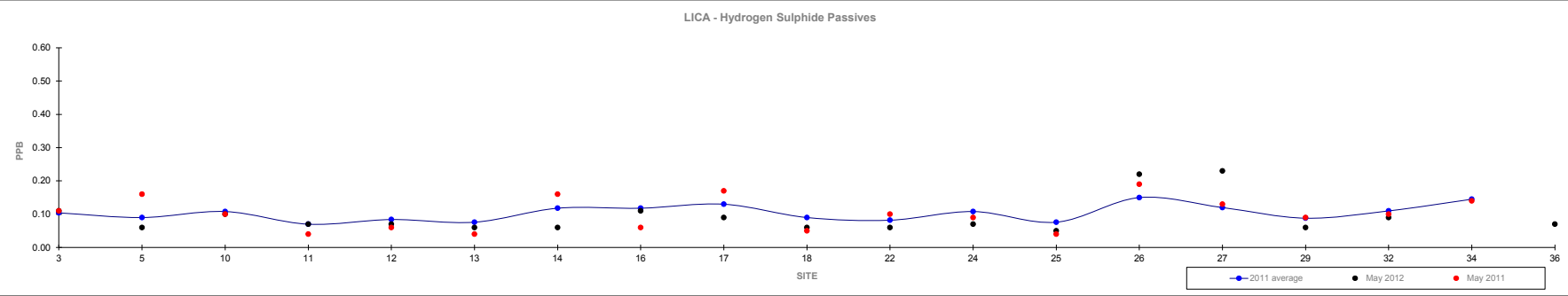
	Sulphur Dioxide ppb																												Reading	Site
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	25	26	27	28	29	32	34	0.27	-	
Mean	0.2	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.5	0.6	1.0	0.4	0.4	0.5	0.3	0.4	0.4	0.3	0.5	0.5	0.6	1.0	0.5	0.4	0.4	0.4	0.4		
Minimum	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	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	<0.1		#02
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 May 2012

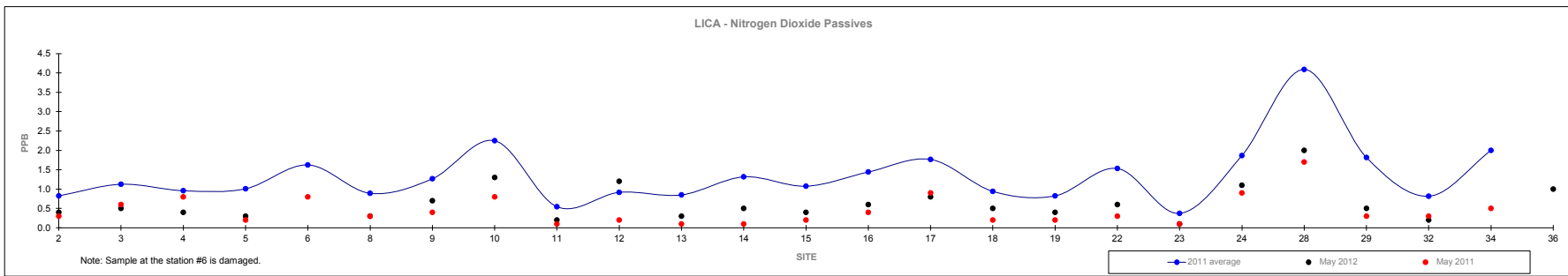
Lakeland Industry & Community Association

	Hydrogen Sulphide ppb																Reading	May 2012	Site	
	3	5	10	11	12	13	14	2011 16	17	18	22	24	25	26	27	29	32	34	0.09	-
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	0.05	#25
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	0.23	#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		



Passive Summary Results for May 2012 Lakeland Industry & Community Association

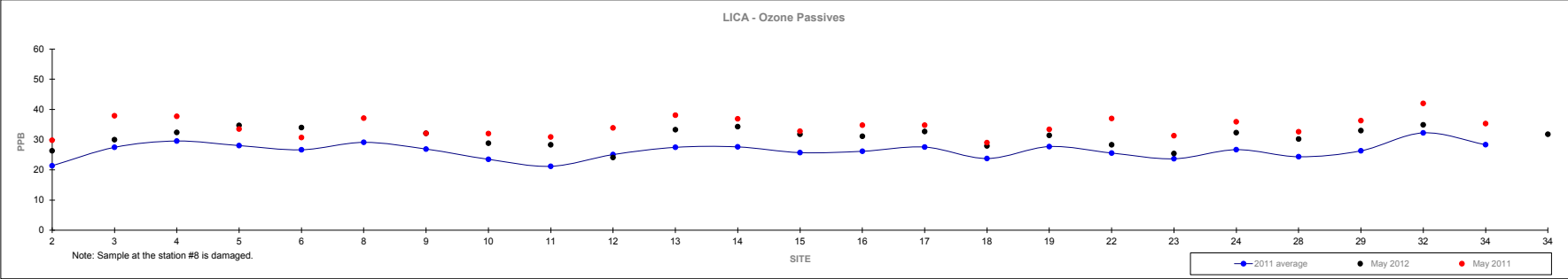
	Nitrogen Dioxide ppb																												May 2012	Site
	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	18	19	22	23	24	28	29	32	34	Reading					
Mean	0.8	1.1	1.0	1.0	1.6	0.9	1.3	2.3	0.5	0.9	0.9	1.3	1.1	1.4	1.8	0.9	0.8	1.5	0.4	1.9	4.1	1.8	0.8	2.0	0.6	-				
Minimum	0.1	0.4	0.1	0.2	0.6	0.2	0.4	0.7	0.1	0.2	0.1	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	2.0	#28				



Passive Summary Results for May 2012

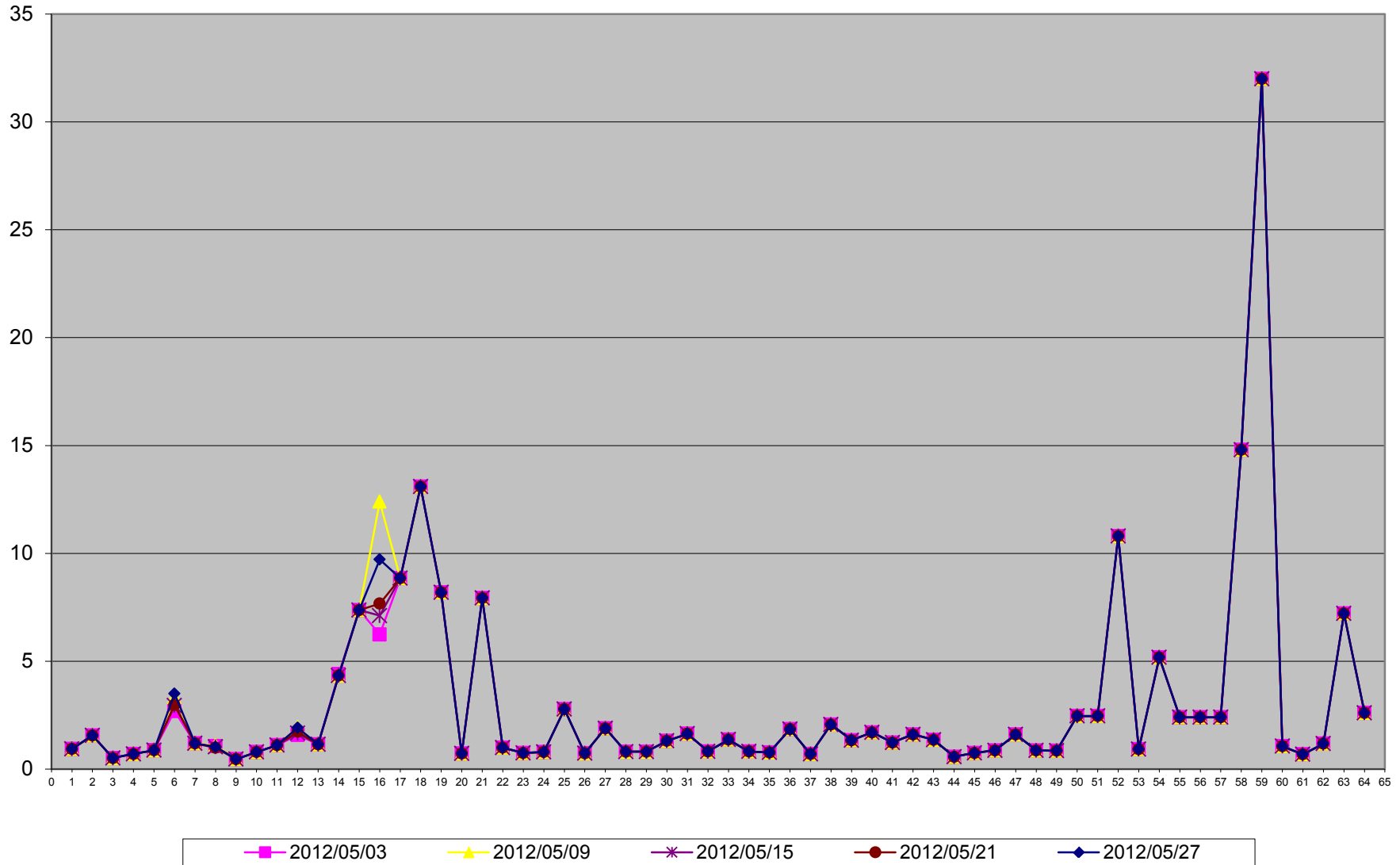
Lakeland Industry & Community Association

	Ozone ppb																												Reading	May 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	30.8	-					
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	24.1	#12					
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	34.9	#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)

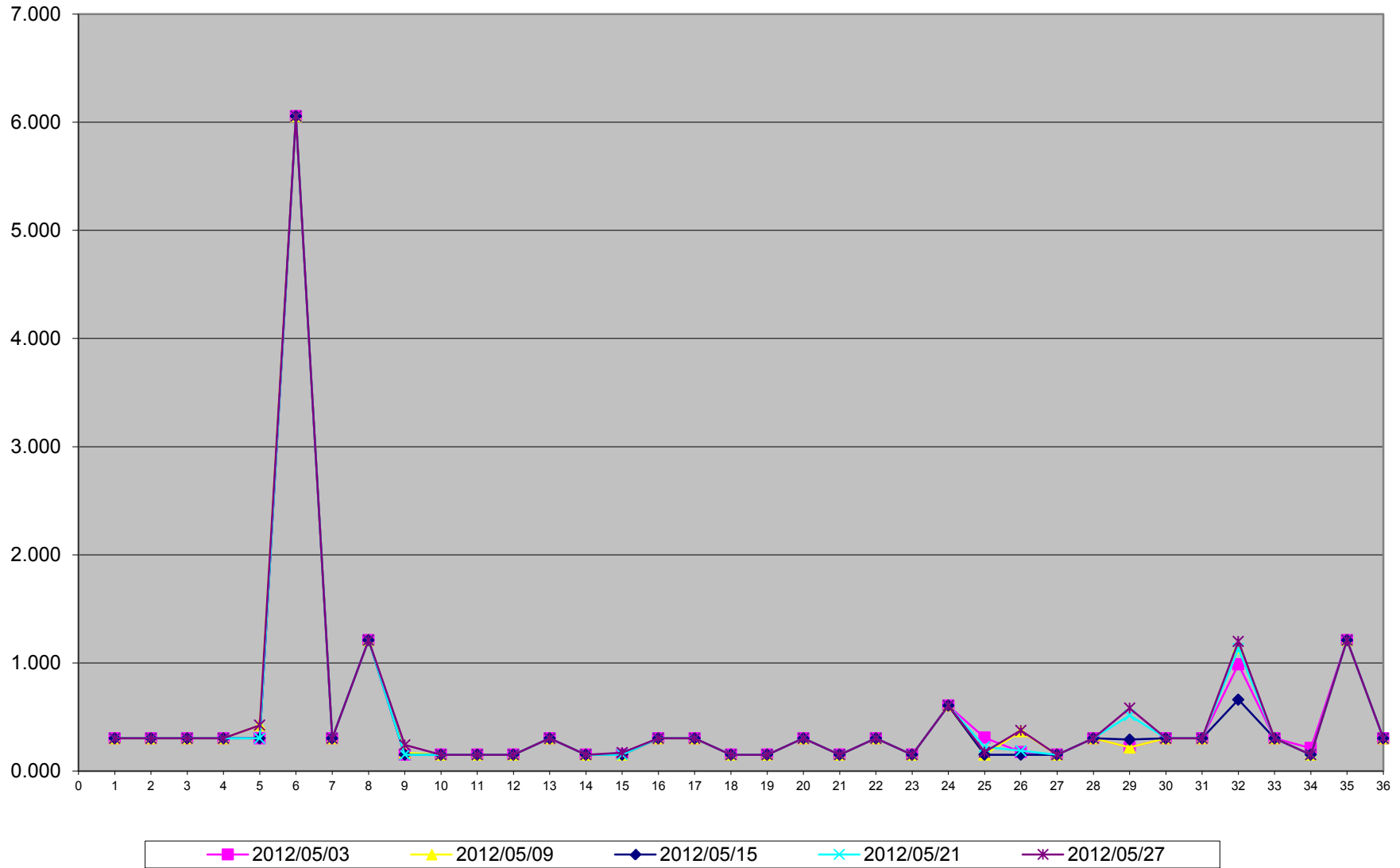
Polycyclic Aromatic Hydrocarbons

Polycyclic Aromatic Hydrocarbons (PAHs) Results for May 2012
LICA- Cold Lake South Site
Unit: ng/m3

PAHs	2012/05/03	2012/05/09	2012/05/15	2012/05/21	2012/05/27
Sample Volume (unit: m3)	330.36	330.34	330.33	330.33	330.33
1 1-Methylnaphthalene	0.303	0.303	0.303	0.303	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	0.424	0.303	0.303	0.424
6 3-Methylcholanthrene	6.055	6.055	6.055	6.055	6.055
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	0.170	0.151	0.151	0.242
10 Acenaphthylene	0.151	0.151	0.151	0.151	0.151
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	0.170
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	0.303	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	0.309	0.151	0.151	0.224	0.176
26 Fluorene	0.176	0.369	0.151	0.188	0.375
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	0.218	0.218	0.291	0.515	0.581
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	0.987	1.138	0.660	1.132	1.199
33 p-Terphenyl	0.303	0.303	0.303	0.303	0.303
34 Pyrene	0.212	0.151	0.151	0.151	0.151
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	May 8, 2012	Previous Calibration	April 10, 2012
Company	Lakeland Community and Industry Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	13:26	End Time (MST)	16:49
Reason:	Monthly Calibration		
Barometric Pressure	0.918 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	446 ccm	30.4 Deg C	445 ccm	31.6 Deg C	
HVPS / Lamp Setting	-632	740	-632	742	
PMT / RxCell Temp	OK Deg C	44.9 Deg C	OK Deg C	45.1 Deg C	
Converter / IZS Temp	NA Deg C	45 Deg C	NA Deg C	45.0 Deg C	
Offset / Slope	6	1.024	6	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	403	0.9933
	No Span Adj.			
4976	22.7	225	228	0.9879
4987	12.6	125	128	0.9766
4995	0	0	0	N/A
Sum of Least Squares				0.9909
New Correction Factor				0.9933

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	0.0	Auto Zero	0.1
Auto Span	371.0	Auto Span	376.0
Sample Lines Connected		Sample Lines Connected	YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9958
Current Correction Factor Before Span Adjust:	0.9933
Percent Change:	0.2%

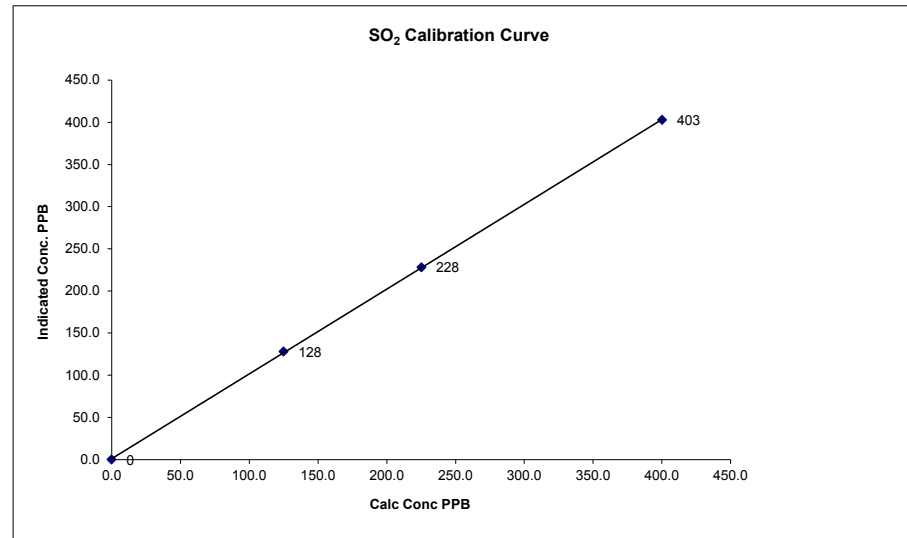
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

SO2 Calibration Curve

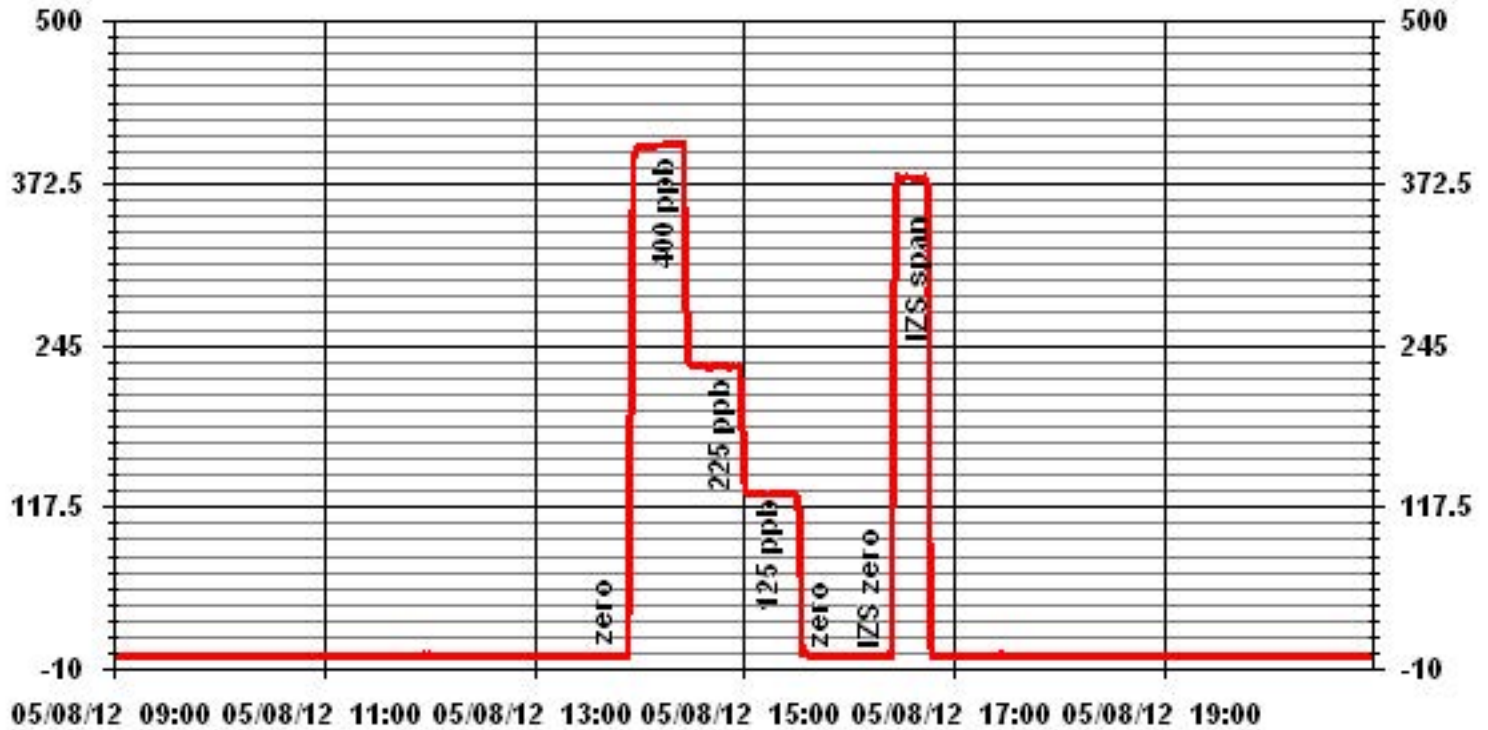
Calibration Date	May 8, 2012
Company	Lakeland Community and Industry Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	13:26
End Time (MST)	16:49

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		0.999963
125	128	0.9766		1.005683
225	228	0.9879		1.044368
400	403	0.9933		



Notes:

01 Minute Averages



— LICA SO2_ PPB

Total Reduced Sulphur

TRS Calibration Report

Station Information

Calibration Date	May 8, 2012	Previous Calibration	April 9, 2012
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	7:52	End Time (MST)	11:15
Reason:	Monthly Calibration		
Barometric Pressure	0.923 atm	Station Temperature	24 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		
Sample Flow / Box Temp	355 ccm, 33.6 Deg C	353 ccm, 33.5 Deg C	
HVPS / Lamp Setting	-623.1, 750	-622.7, 752	
PMT / RxCell Temp	OK, 45.1 Deg C	OK, 44.9 Deg C	
Converter / IZS Temp	810, 45 Deg C	810, 45.0 Deg C	
Offset / Slope	13.9, 1.356	13.9, 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	81	0.9875
	No Span Adj.			
4976	20.0	40	41	0.9764
4985	11.5	23	23	1.0000
4996	0.0	0	0	N/A
Sum of Least Squares				0.9862
New Correction Factor				

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	-0.2		0.0
Auto Span	65.1		67.0
Sample Lines Connected			YES

Percent Change

Previous Month's Calibration Correction Factor:	0.9875
Current Correction Factor Before Span Adjust:	0.9875
Percent Change:	0.0%

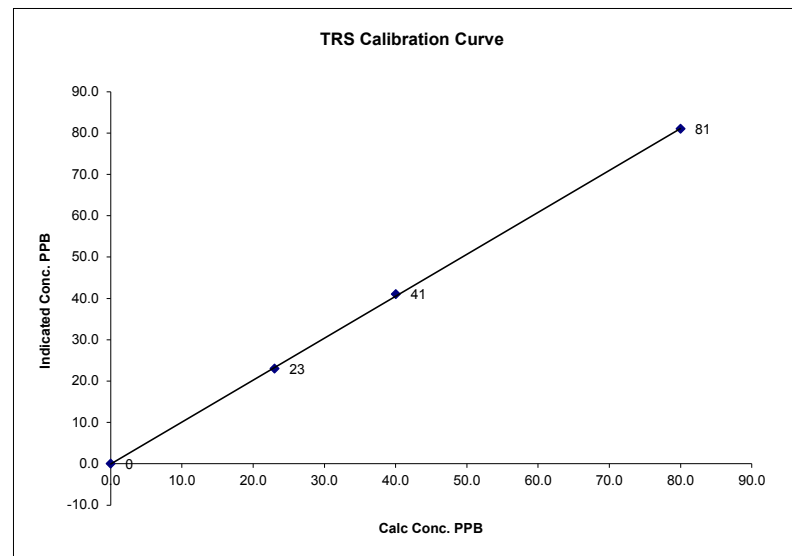
Notes: **N/A : Not applicable**

Calibration Performed by: Ting Xu

TRS Calibration Curve

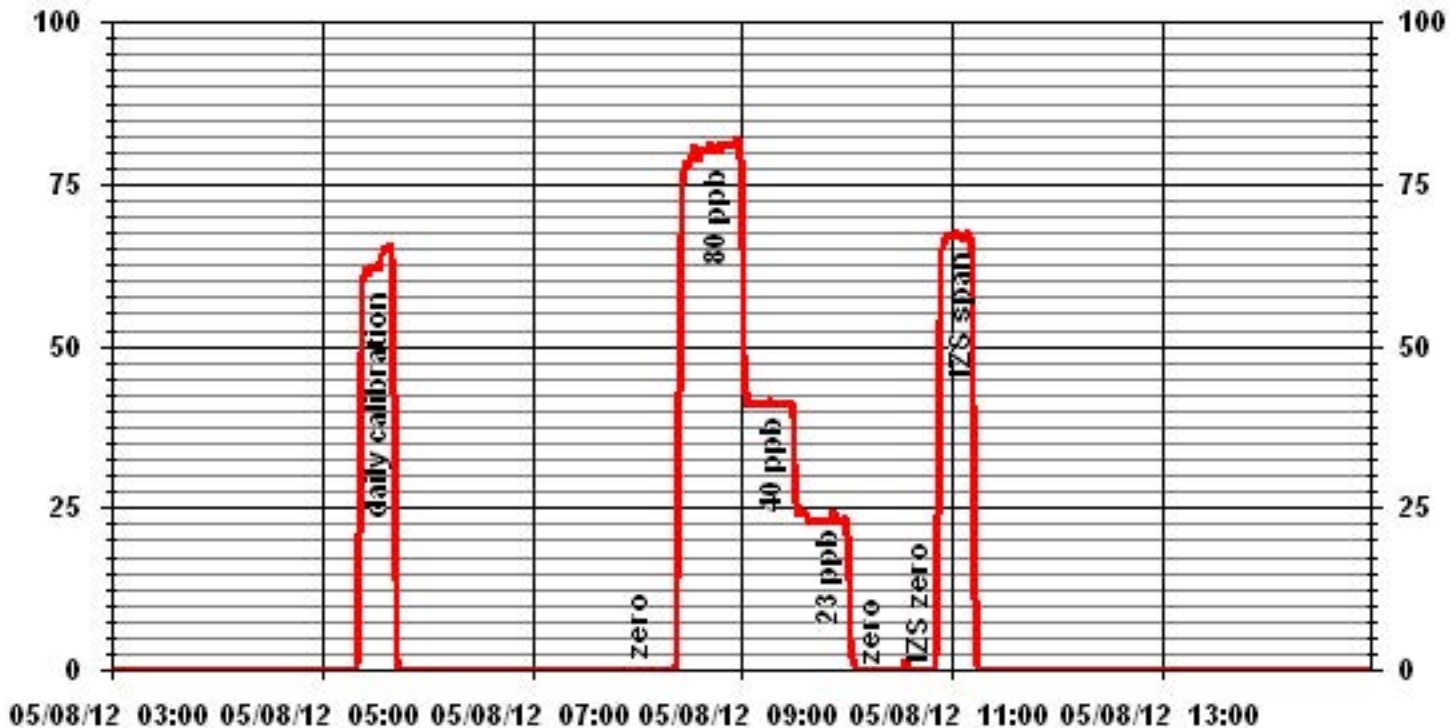
Calibration Date	May 8, 2012
Company	Lakeland Industry & Community Association
Plant / Location	LICA 1 - Cold Lake South
Start Time (MST)	7:52
End Time (MST)	11:15

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999917
0	0	n/a	Slope	(0.85 to 1.15)	1.014428
23	23	0.0000	Intercept	(± 3% F.S.)	-0.023966
40	41	0.5614			
80	81	0.4942			



Notes:

01 Minute Averages



Total Hydrocarbons

THC Calibration Report

Station Information			
Calibration Date:	May 8, 2012	Previous Calibration	April 9, 2012
Company:	Lakeland Industry and Community Association		
Plant / Location:	LICA1/Cold Lake		
Start Time (MST)	10:37	End Time (MST)	14:07
Reason:	Monthly Calibration		
Barometric Pressure:	0.947 atm	Station Temperature:	23 Deg C
Calibrator:	API 700	S/N:	831
Cal Gas Concentration:	CH4 600 PPM	C3H8 204 PPM	
	TOTAL CH4 1161.0 PPM	Gas Cyl. # LL55310	Cal Gas Expiry Date: September 9, 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
2000	0.0	0.0	-0.5	NA
	No Zero Adj.			
2000	74.0	41.4	40.2	1.0305
2000	74.0	41.4	41.6	0.9958
2000	37.0	21.1	20.8	1.0139
2000	20.0	11.5	11.3	1.0173
2000	0.0	0.0	-0.1	NA
New Correction Factor:				0.9958

Percent Change

Previous Calibration Correction Factor:	0.9954
Current Correction Factor Before Span Adjust:	1.0305
Percent Change:	-3.4%

IZS Calibration Data

	Before Calibration	After Calibration
Auto Zero	0.1	0.0
Auto Span	35.1	35.9
Sample Lines Connected	YES	

Cylinder Pressures			
Span	500 psi	Hydrogen 350 psi	Zero Air 32 psi

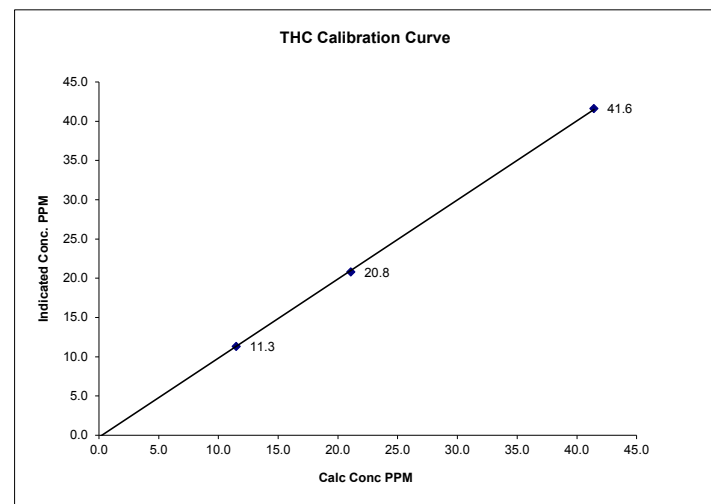
Notes: NA : Not Applicable

Calibration Performed by: Ting Xu

THC Calibration Curve

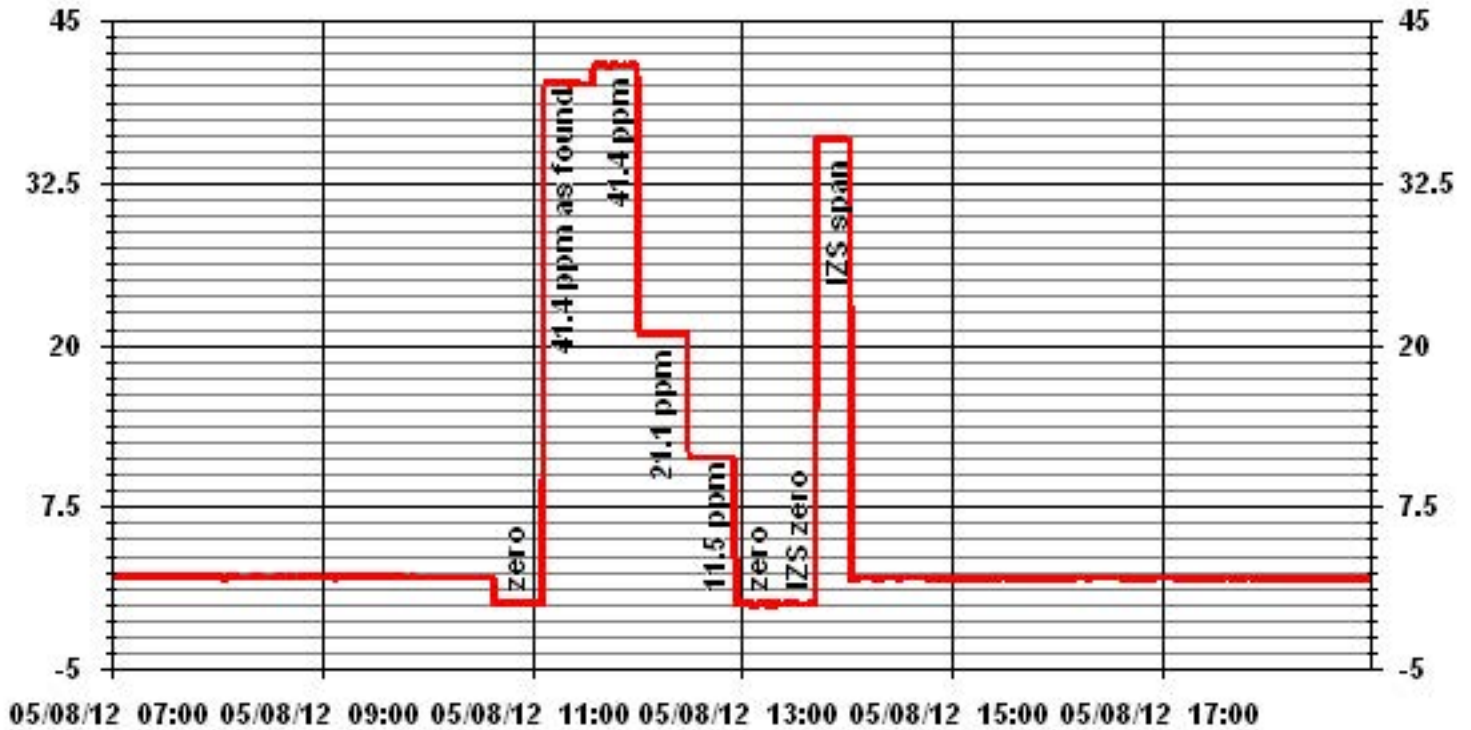
Calibration Date	May 8, 2012
Company	Lakeland Industry and Community Association
Plant / Location	LICA1/Cold Lake
Start Time (MST)	10:37
End Time (MST)	14:07

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	0.999920	1.007036	-0.23212
11.5	11.3	1.0173			
21.1	20.8	1.0139			
41.4	41.6	0.9958			



Notes:

01 Minute Averages



Particulate Matter 2.5

TEOM 1405F Audit

	<u>Station</u>		<u>Audit Transfer Standard</u>
Date:	May 8, 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 (%)	33.7%
Firmware Ver.	1.52	K _o Factor	14578.0
Parameter	PM 2.5 (with FDMS)	Temp (°C)	22.9
		Press (ATM)	0.921

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)	22.5	Δ °C	0.4
Measured Press (± 0.01atm)	0.927	DATM	-0.006
Flow Audit			
Indicated Main Flow (l/min)	3.00	Main Flow Drift (±10.0%)	2.88%
Measured Main Flow (l/min)	2.93	Flow Adjusted to Measured?	Yes
Indicated Bypass Flow (l/min)	13.67	Bypass Flow Drift (±10.0%)	2.85%
Measured Bypass Flow (l/min)	13.25	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: 12:10 **Finish Time:** 13:50

Sample Inlet Cleaned: Yes **New Filters Installed:** YES
New Filter Loading %: 25.1%

Comments:

Nitrogen Dioxide

NOx - NO- NO2 Calibration Report

Station Information

Calibration Date	May 8, 2012		Previous Calibration		April 20, 2012	
Company	LICA		Plant/Location		Cold Lake South	
Start Time (MST)	7:52		End Time (MST)		13:52	
Reason:	Monthly Calibration					
Barometric Pressure	0.923 atm	Station Temperature	24 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	737 ccm	317 Deg C		730 ccm	317 Deg C		
Ozone Flow / Vacuum	OK ccm	178.0 *Hg-A		OK ccm	177 *Hg-A		
HVPS / A ZERO	-821 Volts	NA MV		-821 Volts	NA MV		
Rx/ Temp / PMT Temp	49.9 Deg C	-2.5 Deg C		49.9 Deg C	-2.5 Deg C		
Box Temp / IZS Temp	30.6 Deg C	OK Deg C		29.7 Deg C	OK Deg C		
Offset	3.8 NOx	3.5 NO		3.9 NOx	3.6 NO		
Slope	1.004 NOx	0.908 NO		1.006 NOx	0.920 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	395	394	1	1.0132	1.0138
4954	40.3	NA	400	399	NA	401	399	1	0.9981	1.0000
4974	20.2	NA	201	200	NA	201	200	1	1.0000	1.0000
4985	10.1	NA	100	100	NA	101	101	1	0.9930	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	399	398	2	NA	NA
	No NO2 Adj.									
4954	40.3	350	400	NA	323	400	77	323	1.0000	100.00%
4954	40.3	150	400	NA	141	400	259	141	1.0000	100.00%
4954	40.3	70	400	NA	71	400	329	71	1.0000	100.00%

Linearity	Yes	No	Sum of Least Squares	NOx= 0.998	NO= 1.001	NO2= 1.000
OK?			Correction Factors:	NOx= 0.9981	NO= 1.0000	NO2= 1.0000
			Average Converter Efficiency=	100.00%		

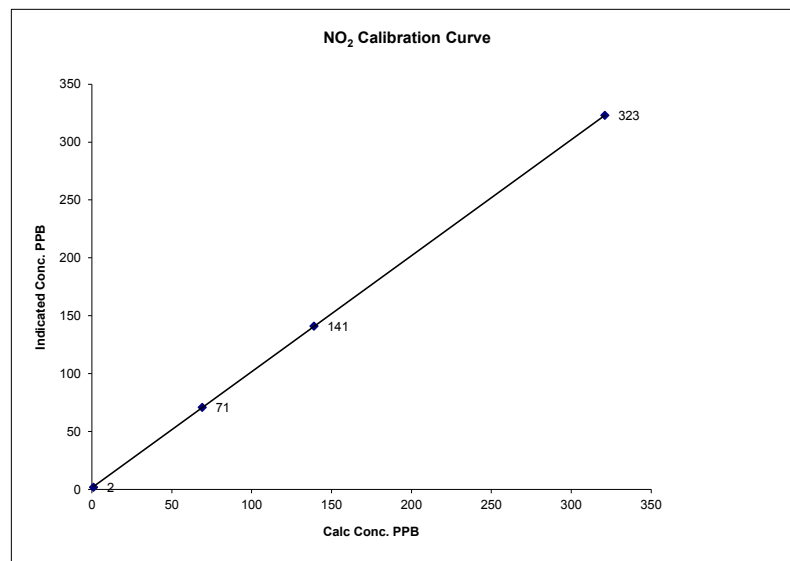
IZS Calibration Data

Before Calibration				After Calibration			
Auto Zero	0.1 NOx	0.2 NO2		0.1 NOx	0.2 NO2		
Auto Span	345 NOx	343 NO2		345 NOx	342 NO2		
Sample Lines Connected				YES			
Percent Change from Previous Calibration		NOx -0.3%	NO -0.3%	NO2 0.0%			
Notes	NA : Not Applicable						
Rebuilt the pump for the daily calibration system.							
Calibration Performed by: Ting Xu							

NO2 Calibration Curve

Calibration Date	May 8, 2012	
Company	LICA	
Plant / Location	Cold Lake South	
Start Time (MST)	7:52	End Time (MST) 13:52

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient Slope	(≥ 0.995) (0.85 to 1.15)	0.999992
1	2	N/A	Intercept	(± 3% F.S.)	1.002311
69	71	0.9718			1.44378
139	141	0.9858			
321	323	0.9938			

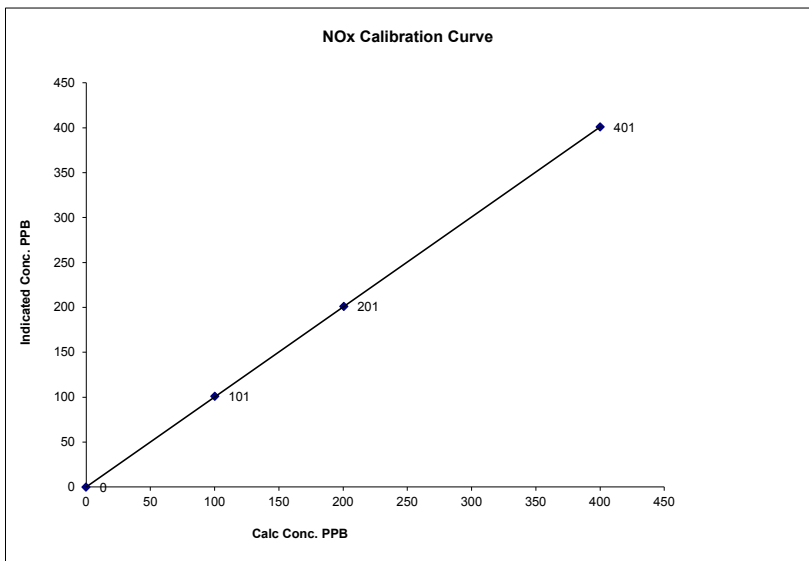


Notes:

NOx Calibration Curve

Calibration Date	May 8, 2012	
Company	LICA	
Plant / Location	Cold Lake South	
Start Time (MST)	7:52	End Time (MST) 13:52

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999998
0	0	N/A	Slope	(0.85 to 1.15)	1.001475
100	101	0.9930	Intercept	(± 3% F.S.)	0.20667
201	201	0.9981			
400	401	0.9981			

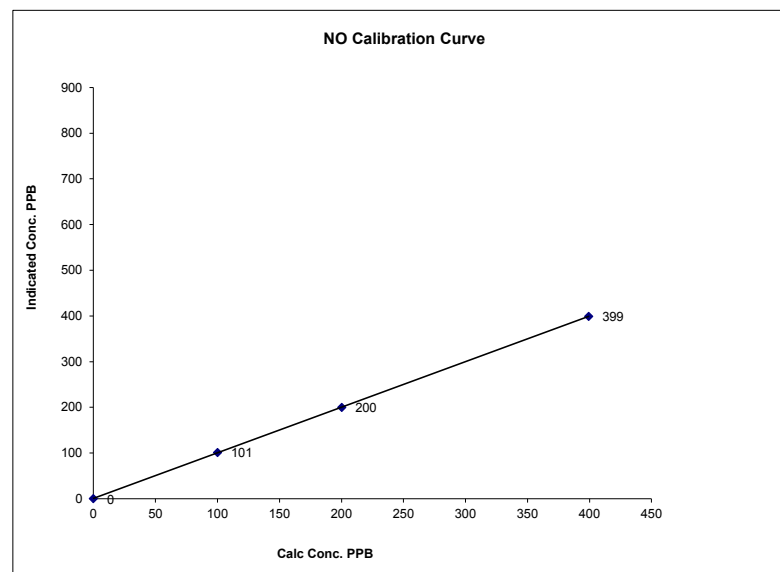


Notes:

NO Calibration Curve

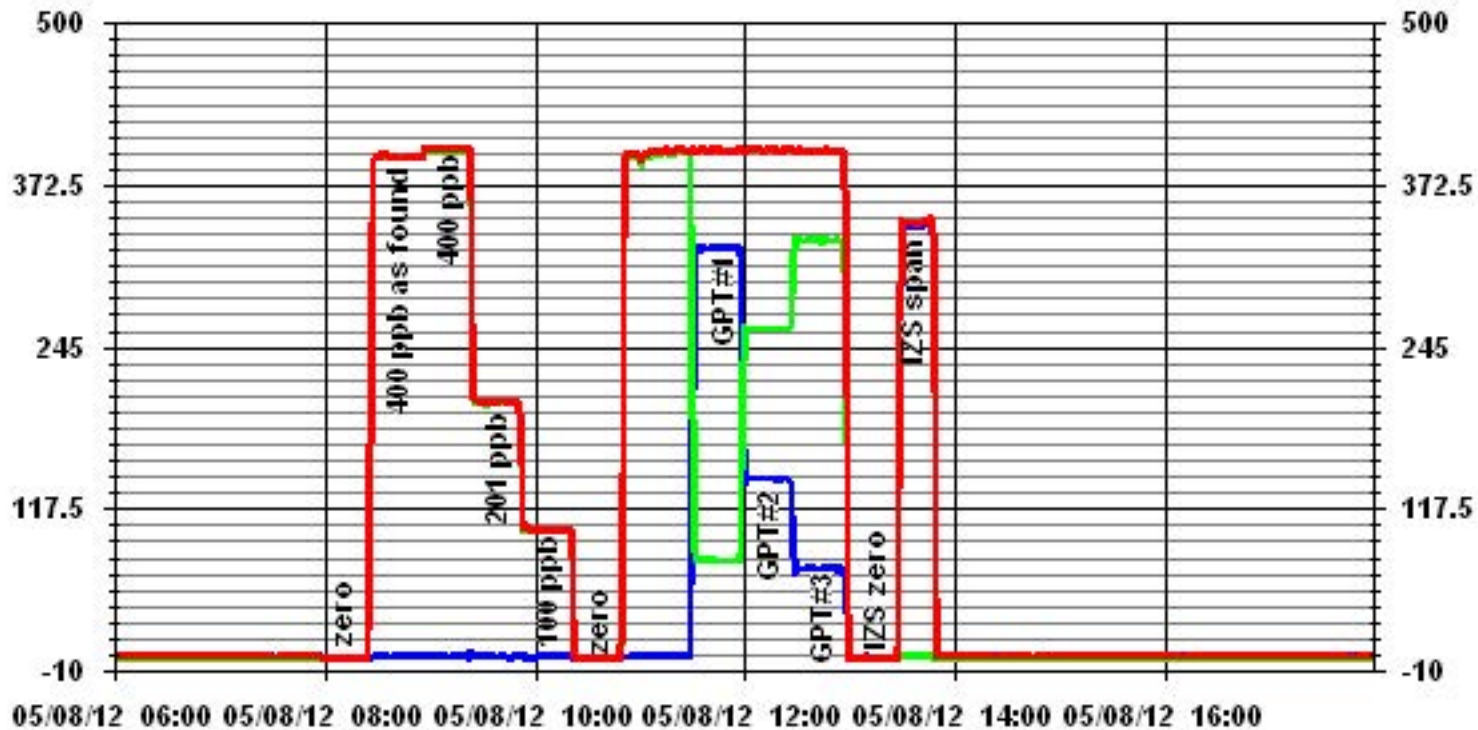
Calibration Date	May 8, 2012	
Company	LICA	
Plant / Location	Cold Lake South	
Start Time (MST)	7:52	End Time (MST) 13:52

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient	(≥ 0.995)	0.999992
0	0	N/A	Slope	(0.85 to 1.15)	0.996014
100	101	0.9910	Intercept	(± 3% F.S.)	0.0019
200	200	1.0011			
399	399	1.0011			



Notes:

01 Minute Averages



— LICA

NOX_

PPB

— LICA

Page 123 of 249

NO_

PPB

— LICA

job #: 2833-12-05-01-C

NO2_

PPB

Ozone

O₃ Calibration Report

Station Information

Calibration Date	May 8, 2012	Previous Calibration	April 10, 2012
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	13:09	End Time (MST)	16:20
Reason:	Monthly Calibration		
Barometric Pressure	0.919 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:	Enviroics 6100	S/N :	4760	Method:	GPT
DAS Make / Model:	ESC 8832	S/N :	3485		

Analyzer Settings

Before Calibration				After Calibration			
Concentration Range	0 - 500			ppb			
Cell A Flow / Cell B Flow	694 LPM	733 LPM		707 LPM	747 LPM		
O ₃ Set Level	677 mmHg			699 mmHg			
Bench Lamp	53.5 Deg C			53.5 Deg C			
O ₃ Lamp / Box Temp	67.5 Deg	28.7 Deg C		67.5 Deg C	29.2 Deg C		
Offset / Slope	-0.2 1.038			-0.1 1.038			

Calibration Data

Dilution Flow Rate	Ozone Set Point	Calculated Concentration	Indicated Conc. (DAS)	Correction Factor
4995	0	0	0	NA
	No Zero Adj			
4994	350	321	322	0.9969
	No Span Adj.			
4994	150	139	139	1.0000
4994	75	69	72	0.9583
4994	0	0	0	NA
Sum of Least Squares				0.9959
New Correction Factor				0.9969

IZS Calibration Data

Before Calibration		After Calibration	
Auto Zero	0.3	Auto Zero	0.2
Auto Span	287	Auto Span	284
Sample Lines Connected		YES	
Previous Calibration Correction Factor:		0.9970	
Current Correctio Factor Before Span Adjust:		0.9969	
Percent Change:		0.0%	

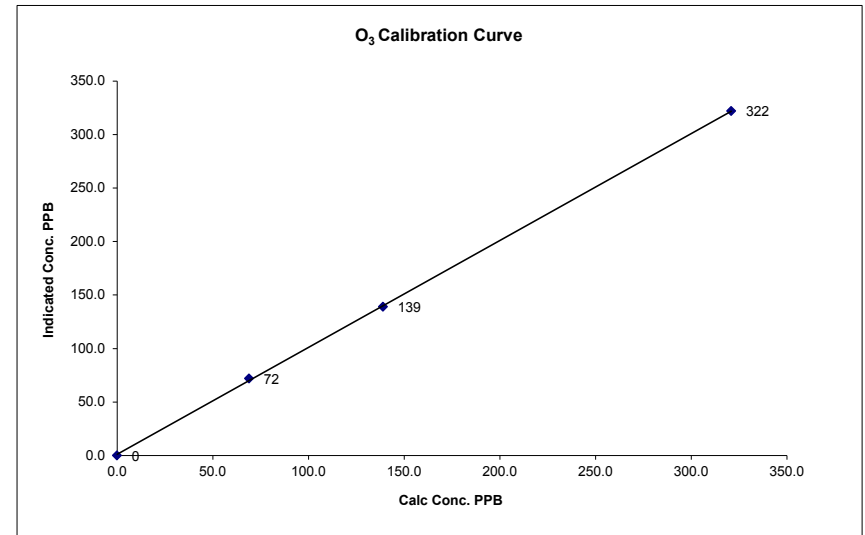
Note: NA : Not Applicable

Calibration Performed by: Ting Xu

O₃ Calibration Curve

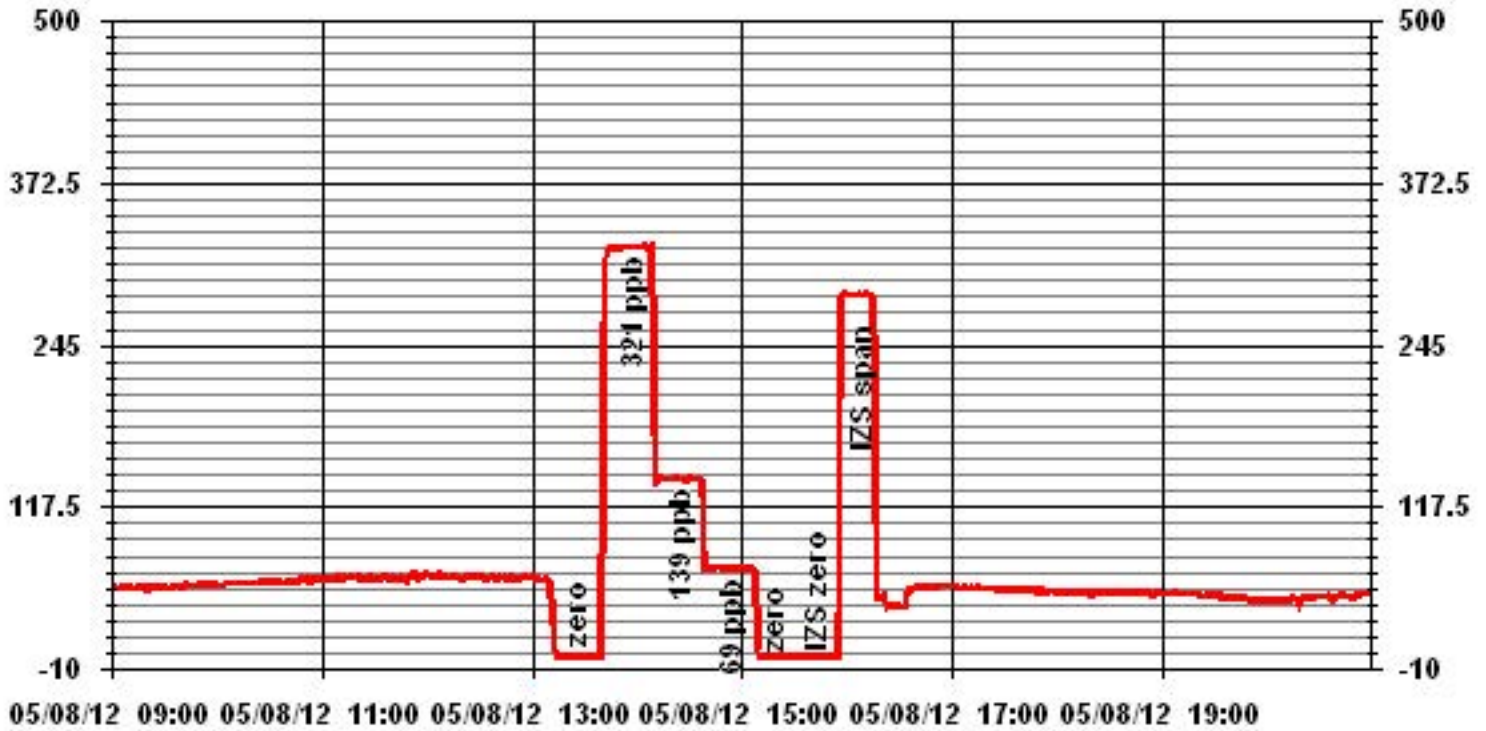
Calibration Date	May 8, 2012		
Company	Lakeland Industry & Community Association		
Plant / Location	LICA 1 - Cold Lake South		
Start Time (MST)	13:09	End Time (MST)	16:20

Calculated Conc. ppb	Indicated Response ppb	Correction Factor	Correlation Coefficient (≥ 0.995)	Slope (0.85 to 1.15)	Intercept (± 3% F.S.)
0	0	n/a	0.999895	0.999983	1.002314
69	72	0.9583			
139	139	1.0000			
321	322	0.9969			



Notes:

01 Minute Averages



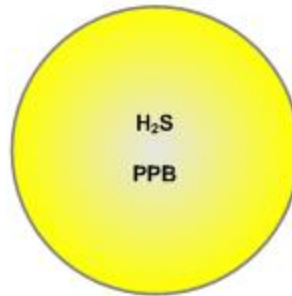
Passive Bubble Maps

Lakeland Industry & Community Association H₂S Passive Bubble Map

MAY 2012

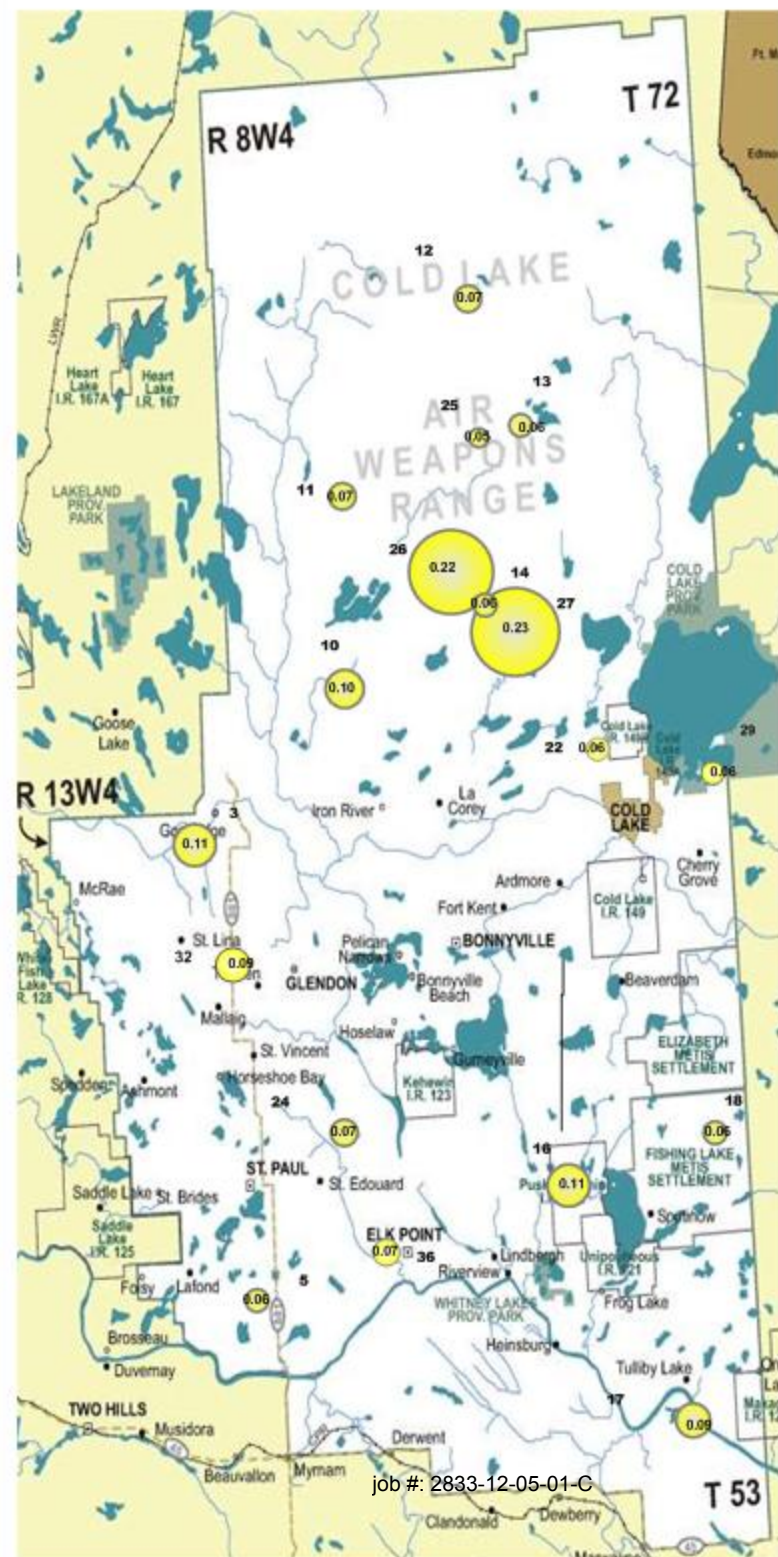
PASSIVE STATIONS

Station Name	Reading	Duplicate
3 – Therien	0.11 PPB	NA
5 – Lake Eliza	0.06 PPB	NA
10 – La Corey	0.10 PPB	NA
11 – Wolf Lake	0.07 PPB	NA
12 – Foster Creek	0.07 PPB	NA
13 – Primrose	0.06 PPB	NA
14 – Maskwa	0.06 PPB	NA
16 – Frog Lake	0.11 PPB	NA
17 – Clear Range	0.09 PPB	NA
18 – Fishing Lake	0.06 PPB	NA
22 – Cold Lake South	0.06 PPB	NA
24 – Fort George	0.07 PPB	NA
25 – Burnt Lake	0.04 PPB	0.06 PPB
26 – Mahihkan	0.20 PPB	0.24 PPB
27 – Mahkeses	0.23 PPB	NA
29 – Cold Lake South 2	0.06 PPB	NA
32 – St. Lina	0.09 PPB	NA
36 – Portable	0.07 PPB	NA



Summary

Minimum : 0.05 PPB – Burnt Lake
 Maximum: 0.23 PPB – Mahkeses
 Average: 0.09 PPB *Includes Duplicates

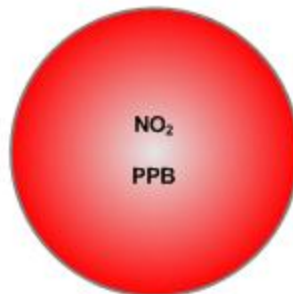


Lakeland Industry & Community Association NO₂ Passive Bubble Map

MAY 2012

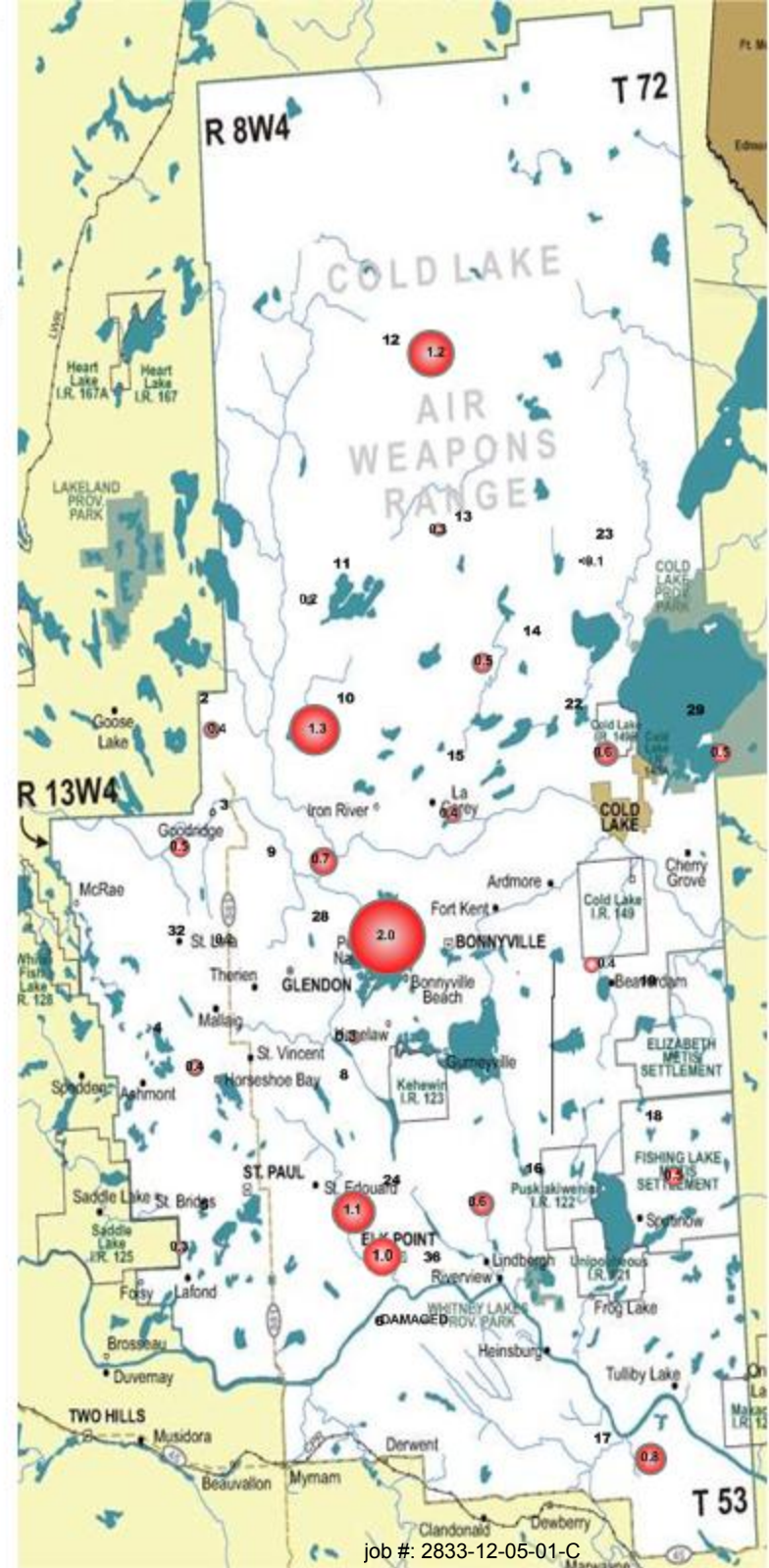
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	0.4 PPB	NA
3 – Therien	0.5 PPB	NA
4 – Flat Lake	0.4 PPB	NA
5 – Lake Eliza	0.3 PPB	NA
6 – Telegraph Creek	DAMAGED	NA
8 – Muriel-Kehewin	0.3 PPB	NA
9 – Dupre	0.7 PPB	NA
10 – La Corey	1.3 PPB	NA
11 – Wolf Lake	0.2 PPB	NA
12 – Foster Creek	1.2 PPB	NA
13 – Primrose	0.3 PPB	NA
14 – Maskwa	0.5 PPB	NA
15 – Ardmore	0.4 PPB	0.4 PPB
16 – Frog Lake	0.6 PPB	0.6 PPB
17 – Clear Range	0.8 PPB	NA
18 – Fishing Lake	0.5 PPB	NA
19 – Beaverdam	0.4 PPB	NA
22 – Cold Lake South	0.6 PPB	NA
23 – Medley-Martineau	<0.1 PPB	NA
24 – Fort George	1.1 PPB	NA
28 – Town of Bonnyville	2.0 PPB	NA
29 – Cold Lake South 2	0.5 PPB	NA
32 – St. Lina	0.2 PPB	NA
36 – Portable	1.0 PPB	NA



Summary

Minimum : <0.1 PPB – Medley-Martineau
Maximum: 2.0 PPB – Town of Bonnyville
Average: 0.6 PPB *Includes Duplicates



Lakeland Industry & Community Association O₃ Passive Bubble Map

MAY 2012

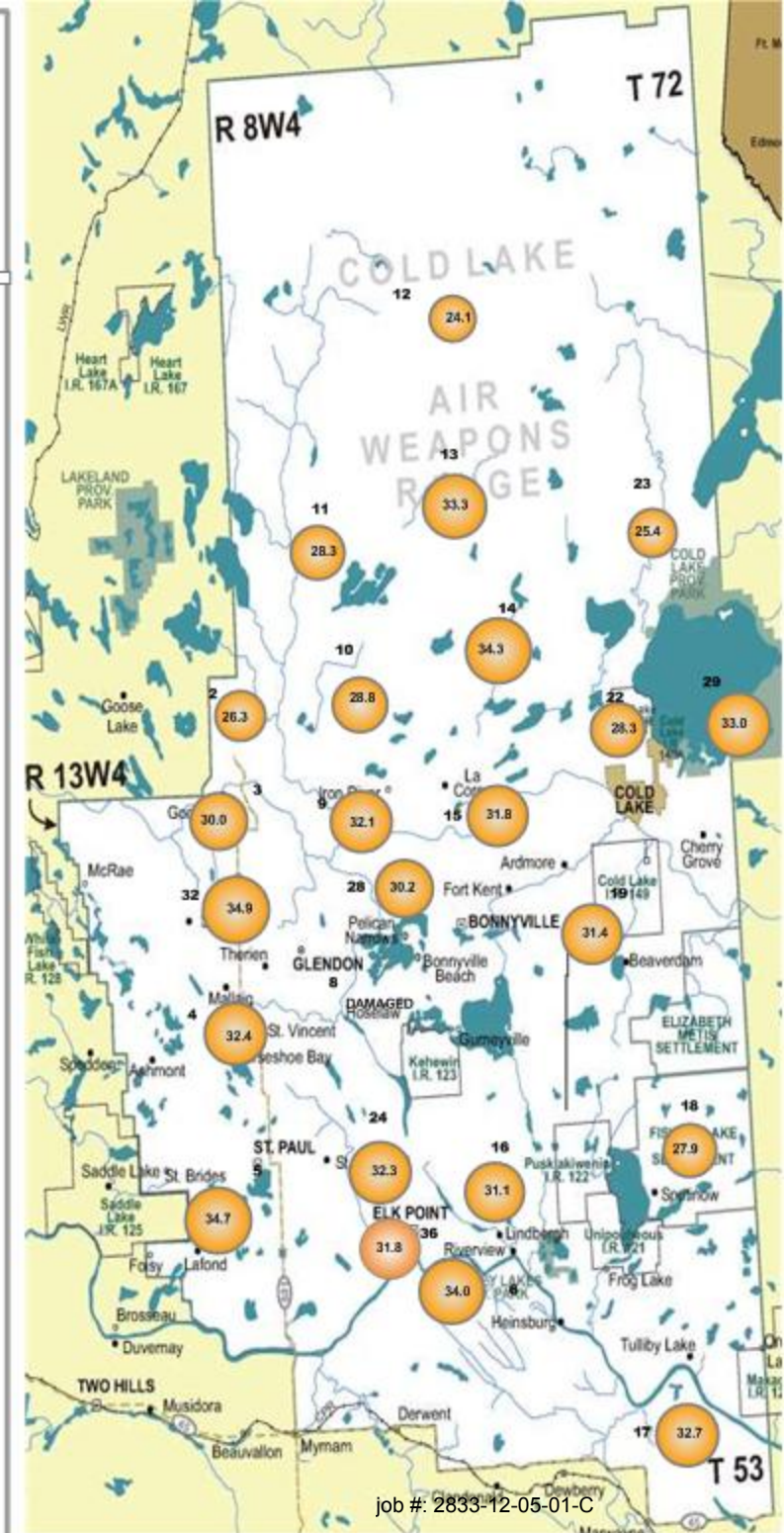
PASSIVE STATIONS

		DUPLICATE
2 – Sand River	26.3 PPB	NA
3 – Therien	30.0 PPB	NA
4 – Flat Lake	32.4 PPB	NA
5 – Lake Eliza	34.7 PPB	NA
6 – Telegraph Creek	34.0 PPB	NA
8 – Muriel-Kehewin	DAMAGED	NA
9 – Dupre	32.1 PPB	NA
10 – La Corey	28.8 PPB	NA
11 – Wolf Lake	28.3 PPB	NA
12 – Foster Creek	24.1 PPB	NA
13 – Primrose	33.3 PPB	NA
14 – Maskwa	34.3 PPB	NA
15 – Ardmore	31.1 PPB	32.4 PPB
16 – Frog Lake	30.7 PPB	31.4 PPB
17 – Clear Range	32.7 PPB	NA
18 – Fishing Lake	27.9 PPB	NA
19 – Beaverdam	31.4 PPB	NA
22 – Cold Lake South	28.3 PPB	NA
23 – Medley-Martineau	25.4 PPB	NA
24 – Fort George	32.3 PPB	NA
28 – Town of Bonnyville	30.2 PPB	NA
29 – Cold Lake South 2	33.0 PPB	NA
32 – St. Lina	34.9 PPB	NA
36 – Portable	31.8 PPB	NA



Summary

Minimum : 24.1 PPB – Foster Creek
 Maximum: 34.9 PPB – St. Lina
 Average: 30.8 PPB *Includes Duplicates



Lakeland Industry & Community Association SO₂ Passive Bubble Map

MAY 2012

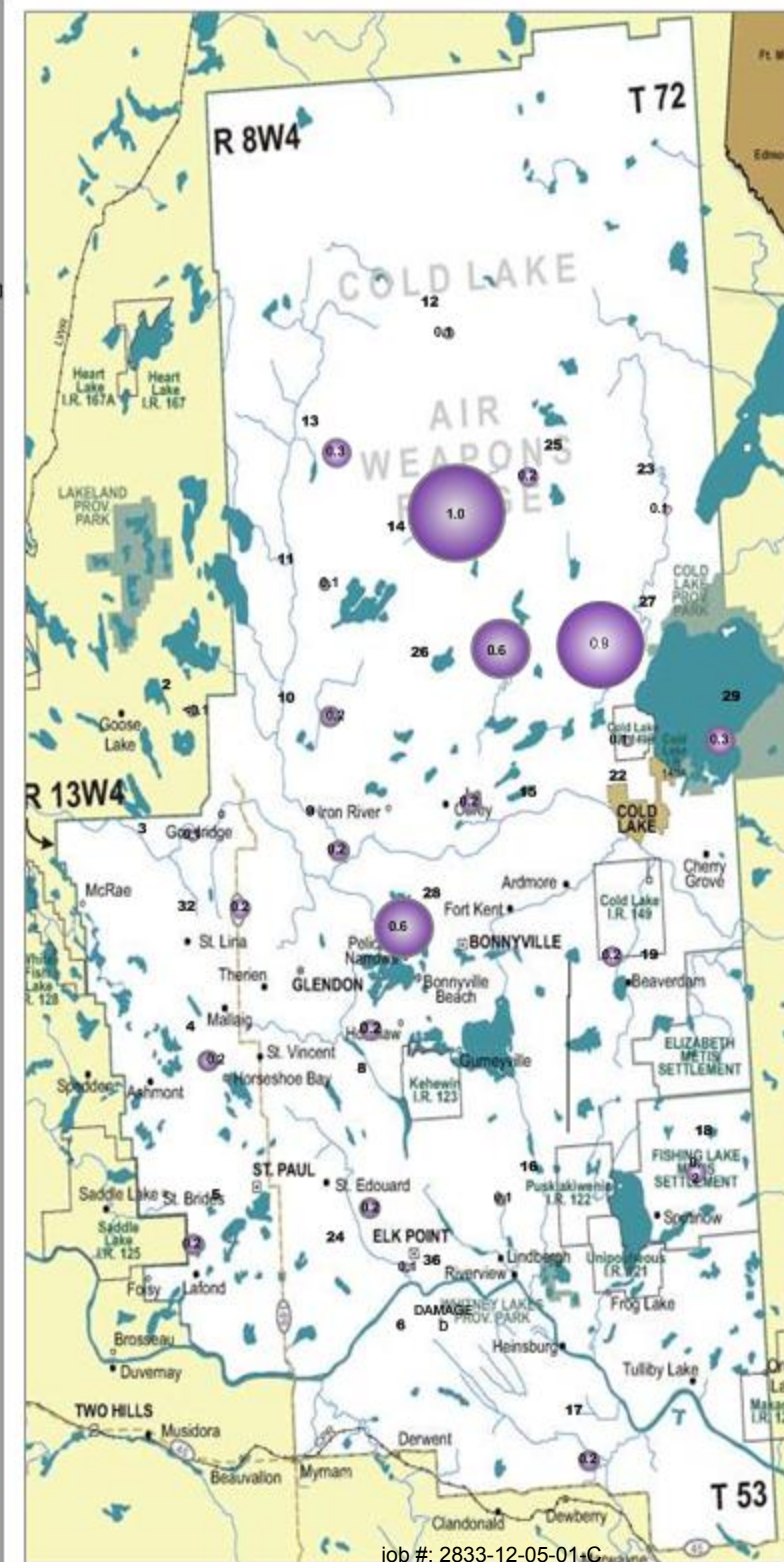
PASSIVE STATIONS

Station	SO ₂ Concentration	Duplicate
2 – Sand River	<0.1 PPB	NA
3 – Therien	0.1 PPB	NA
4 – Flat Lake	0.2 PPB	NA
5 – Lake Eliza	0.2 PPB	NA
6 – Telegraph Creek	DAMAGED	NA
8 – Muriel-Kehewin	0.2 PPB	NA
9 – Dupre	0.2 PPB	NA
10 – La Corey	0.2 PPB	NA
11 – Wolf Lake	0.1 PPB	NA
12 – Foster Creek	0.1 PPB	NA
13 – Primrose	0.3 PPB	NA
14 – Maskwa	1.0 PPB	NA
15 – Ardmore	0.2 PPB	NA
16 – Frog Lake	0.1 PPB	NA
17 – Clear Range	0.2 PPB	NA
18 – Fishing Lake	0.2 PPB	NA
19 – Beaverdam	0.2 PPB	NA
22 – Cold Lake South	0.1 PPB	0.1 PPB
23 – Medley-Martineau	<0.1 PPB	0.2 PPB
24 – Fort George	0.2 PPB	0.1 PPB
25 – Burnt Lake	0.2 PPB	NA
26 – Mahikan	0.6 PPB	NA
27 – Mahkeses	0.9 PPB	NA
28 – Town of Bonnyville	0.6 PPB	NA
29 – Cold Lake South 2	0.3 PPB	NA
32 – St. Lina	0.2 PPB	NA
36 – Portable	0.1 PPB	NA



Summary

Minimum : <0.1 PPB –Sand River
Maximum: 1.0 PPB –Maskwa
Average: 0.27 PPB *Includes Duplicates



Passive Field Data

Field Notes

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
2	SO ₂ /NO ₂ /O ₃	04/27/2012	16:20	05/30/2012	17:32	
3	H ₂ S/SO ₂ /NO ₂ /O ₃	04/27/2012	15:20	05/30/2012	16:45	
4	SO ₂ /NO ₂ /O ₃	04/27/2012	14:02	05/30/2012	15:40	
5	H ₂ S/SO ₂ /NO ₂ /O ₃	04/27/2012	13:10	05/30/2012	14:50	
6	SO ₂ /NO ₂ /O ₃	04/27/2012	11:50	05/30/2012	12:30	SO ₂ /NO ₂ filter were broken.
8	SO ₂ /NO ₂ /O ₃	02/26/2012	16:00	05/31/2012	13:15	O ₃ filter was broken.
9	SO ₂ /NO ₂ /O ₃	04/26/2012	18:20	05/31/2012	11:40	
10	H ₂ S/SO ₂ /NO ₂ /O ₃	04/26/2012	12:45	05/31/2012	17:44	
11	H ₂ S/SO ₂ /NO ₂ /O ₃	04/26/2012	14:25	05/31/2012	14:20	
12	H ₂ S/SO ₂ /NO ₂ /O ₃	04/30/2010	16:20	05/31/2012	16:25	
13	H ₂ S/SO ₂ /NO ₂ /O ₃	04/26/2012	11:40	05/31/2012	09:55	
14	H ₂ S/SO ₂ /NO ₂ /O ₃	04/26/2012	0:20	05/31/2012	08:25	
15	SO ₂ /NO ₂ /O ₃	04/26/2012	19:00	05/31/2012	11:00	
16	H ₂ S/SO ₂ /NO ₂ /O ₃	04/27/2012	10:18	05/30/2012	10:45	
17	H ₂ S/SO ₂ /NO ₂ /O ₃	04/27/2012	11:15	05/30/2012	11:40	
18	H ₂ S/SO ₂ /NO ₂ /O ₃	04/27/2012	09:34	05/30/2012	09:55	
19	SO ₂ /NO ₂ /O ₃	04/27/2012	08:25	05/30/2012	09:00	
22	H ₂ S/SO ₂ /NO ₂ /O ₃	04/28/2012	08:19	05/30/2012	07:50	
23	SO ₂ /NO ₂ /O ₃	04/28/2012	09:25	05/31/2012	18:58	
24	H ₂ S/SO ₂ /NO ₂ /O ₃	04/28/2012	17:00	05/30/2012	13:10	
25	H ₂ S/SO ₂	04/28/2012	17:40	05/31/2012	15:15	
26	H ₂ S/SO ₂	04/26/2012	11:00	05/31/2012	09:25	
27	H ₂ S/SO ₂	04/26/2012	13:00	05/31/2012	08:05	
28	SO ₂ /NO ₂ /O ₃	04/26/2012	15:20	05/30/2012	11:55	
29	H ₂ S/SO ₂ /NO ₂ /O ₃	04/26/2012	0835	05/30/2012	08:05	
32	H ₂ S/SO ₂ /NO ₂ /O ₃	04/28/2012	14:40	05/30/2012	16:15	
36	H ₂ S/SO ₂ /NO ₂ /O ₃	04/26/2012	17:25	05/30/2012	14:00	

ID	SAMPLER	START		END		NOTES
		DATE	TIME	DATE	TIME	
Duplicate # 22	SO ₂	04/26/2012	08:14	05/30/2012	07:50	
Duplicate # 23	SO ₂	04/30/2012	09:25	05/30/2012	18:58	
Duplicate # 24	SO ₂	04/26/2012	17:00	05/30/2012	13:10	
Duplicate # 25	H ₂ S	04/30/2012	17:40	05/31/2012	15:15	
Duplicate # 26	H ₂ S	04/26/2012	11:00	05/31/2012	09:25	
Duplicate # 15	NO ₂	04/26/2012	19:00	05/31/2012	11:00	
Duplicate # 16	NO ₂	04/27/2012	10:18	05/30/2012	10:45	
Duplicate # 15	O ₃	04/26/2012	19:00	05/31/2012	11:00	
Duplicate # 16	O ₃	04/27/2012	10:18	05/30/2012	10:45	

Passive Network Laboratory Analysis



Your Project #: 2012/04/26 - 2012/05/30
Site Location: LICA

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

Report Date: 2012/06/13

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B245957
Received: 2012/06/04, 09:42

Sample Matrix: Air
Samples Received: 34

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis (1)	20	2012/06/07	2012/06/13	EINDSOP-00150	Tang.Passive H2S in
NO2 Passive Analysis (1)	26	2012/06/10	2012/06/13	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	26	2012/06/09	2012/06/13	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	13	2012/06/07	2012/06/13	EINDSOP-00149	Tang Passive SO2 in
SO2 Passive Analysis (1)	17	2012/06/09	2012/06/13	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 #: B245957
 Report Date: 2012/06/13

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2012/04/26 - 2012/05/30
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		DO6644	DO6645	DO6646	DO6647	DO6648		
Sampling Date		2012/04/27 16:20	2012/04/27 15:20	2012/04/27 14:02	2012/04/27 13:10	2012/04/27 11:50		
	UNITS	2	3	4	5	6	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb		0.11		0.06		0.02	5902532
Calculated NO2	ppb	0.4	0.5	0.4	0.3	DAMAGED	0.1	5908516
Calculated O3	ppb	26.3	30.0	32.4	34.7	34.0	0.1	5907828
Calculated SO2	ppb	<0.1	0.1	0.2	0.2	DAMAGED	0.1	5908108
RDL = Reportable Detection Limit								

Maxxam ID		DO6649	DO6650	DO6651	DO6662	DO6663		
Sampling Date		2012/04/26 16:00	2012/04/26 18:20	2012/04/26 13:45	2012/04/26 14:25	2012/04/27 16:20		
	UNITS	8	9	10	11	12	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb			0.10	0.07	0.07	0.02	5902532
Calculated NO2	ppb	0.3	0.7	1.3	0.2	1.2	0.1	5908516
Calculated O3	ppb	DAMAGED	32.1	28.8	28.3	24.1	0.1	5907828
Calculated SO2	ppb	0.2	0.2	0.2	0.1	0.1	0.1	5908108
RDL = Reportable Detection Limit								

Maxxam ID		DO6664	DO6665	DO6666	DO6667		
Sampling Date		2012/04/26 11:40	2012/04/26 10:20	2012/04/26 19:00	2012/04/27 10:18		
	UNITS	13	14	15	16	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb	0.06	0.06		0.11	0.02		5902532
Calculated NO2	ppb	0.3	0.5	0.4	0.6	0.1		5908516
Calculated O3	ppb	33.3	34.3	31.1	30.7	0.1		5907828
Calculated SO2	ppb	0.3	1.0	0.2	0.1	0.1		5908108
RDL = Reportable Detection Limit								



Maxxam Job #: B245957
 Report Date: 2012/06/13

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2012/04/26 - 2012/05/30
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		DO6668		DO6669	DO6670		DO6671		
Sampling Date		2012/04/27 11:15		2012/04/27 09:34	2012/04/27 08:15		2012/04/26 08:19		
	UNITS	17	QC Batch	18	19	QC Batch	22	RDL	QC Batch

Passive Monitoring									
Calculated H2S	ppb	0.09	5902532	0.06		5902532	0.06	0.02	5902532
Calculated NO2	ppb	0.8	5908517	0.5	0.4	5908517	0.6	0.1	5908517
Calculated O3	ppb	32.7	5907828	27.9	31.4	5907834	28.3	0.1	5907834
Calculated SO2	ppb	0.2	5908108	0.2	0.2	5908108	0.1	0.1	5900912

RDL = Reportable Detection Limit

Maxxam ID		DO6672	DO6673	DO6674	DO6675	DO6676		
Sampling Date		2012/04/30 09:25	2012/04/26 17:00	2012/04/30 17:40	2012/04/26 11:00	2012/04/26 13:00		
	UNITS	23	24	25	26	27	RDL	QC Batch

Passive Monitoring								
Calculated H2S	ppb		0.07	0.04	0.20	0.23	0.02	5902532
Calculated NO2	ppb	<0.1	1.1				0.1	5908517
Calculated O3	ppb	25.4	32.3				0.1	5907834
Calculated SO2	ppb	<0.1	0.2	0.2	0.6	0.9	0.1	5900912

RDL = Reportable Detection Limit

Maxxam ID		DO6677	DO6678	DO6679	DO6680		
Sampling Date		2012/04/26 15:20	2012/04/26 08:35	2012/04/27 14:40	2012/04/26 17:25		
	UNITS	28	29	32	36	RDL	QC Batch

Passive Monitoring							
Calculated H2S	ppb		0.06	0.09	0.07	0.02	5902532
Calculated NO2	ppb	2.0	0.5	0.2	1.0	0.1	5908517
Calculated O3	ppb	30.2	33.0	34.9	31.8	0.1	5907834
Calculated SO2	ppb	0.6	0.3	0.2	0.1	0.1	5900912

RDL = Reportable Detection Limit



Maxxam Job #: B245957
 Report Date: 2012/06/13

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Client Project #: 2012/04/26 - 2012/05/30
 Site Location: LICA
 Sampler Initials: SB

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		DO6683	DO6684	DO6685	DO6686	DO6687		
Sampling Date		2012/04/26 19:00	2012/04/27 10:18	2012/04/26 08:19	2012/04/30 09:25	2012/04/26 17:00		
	UNITS	15 DUP	16 DUP	22 DUP	23 DUP	24 DUP	RDL	QC Batch

Passive Monitoring								
Calculated NO2	ppb	0.4	0.6				0.1	5908516
Calculated O3	ppb	32.4	31.4				0.1	5907834
Calculated SO2	ppb			0.1	0.2	0.1	0.1	5900912

RDL = Reportable Detection Limit

Maxxam ID		DO6688	DO6879		
Sampling Date		2012/04/30 17:40	2012/04/26 11:00		
	UNITS	25 DUP	26 DUP	RDL	QC Batch

Passive Monitoring					
Calculated H2S	ppb	0.06	0.24	0.02	5902532

RDL = Reportable Detection Limit



Maxxam Job #: B245957
Report Date: 2012/06/13

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: 2012/04/26 - 2012/05/30
Site Location: LICA
Sampler Initials: SB

General Comments

Sample DO6649 (#8) for O3 parameter was returned to the lab damaged. - OZ
Sample DO6648 (#6) for SO2 and NO2 parameter were returned to the lab damaged. - DF

Results relate only to the items tested.



LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
 Attention: MICHAEL BISAGA
 Client Project #: 2012/04/26 - 2012/05/30
 P.O. #:
 Site Location: LICA

Quality Assurance Report
 Maxxam Job Number: PB245957

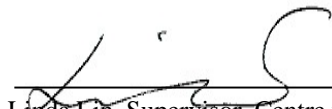
QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
5900912 DF4	Calibration Check	Calculated SO2	2012/06/07		99	%	95 - 105
	Spiked Blank	Calculated SO2	2012/06/07		99	%	N/A
	Method Blank	Calculated SO2	2012/06/07	<0.1		ppb	
5902532 WC6	Calibration Check	Calculated H2S	2012/06/07		99	%	80 - 120
	Spiked Blank	Calculated H2S	2012/06/07		101	%	N/A
5907828 OZ	Calibration Check	Calculated O3	2012/06/09		103	%	91 - 107
	Spiked Blank	Calculated O3	2012/06/09		97	%	N/A
	Method Blank	Calculated O3	2012/06/09	<0.1		ppb	
5907834 OZ	Calibration Check	Calculated O3	2012/06/09		102	%	91 - 107
	Spiked Blank	Calculated O3	2012/06/09		97	%	N/A
	Method Blank	Calculated O3	2012/06/09	<0.1		ppb	
5908108 DF4	Calibration Check	Calculated SO2	2012/06/09		100	%	95 - 105
	Spiked Blank	Calculated SO2	2012/06/09		96	%	N/A
	Method Blank	Calculated SO2	2012/06/09	<0.1		ppb	
5908516 DF4	Calibration Check	Calculated NO2	2012/06/10		99	%	76 - 118
	Spiked Blank	Calculated NO2	2012/06/10		101	%	N/A
	Method Blank	Calculated NO2	2012/06/10	<0.1		ppb	
5908517 DF4	Calibration Check	Calculated NO2	2012/06/10		101	%	76 - 118
	Spiked Blank	Calculated NO2	2012/06/10		99	%	N/A
	Method Blank	Calculated NO2	2012/06/10	<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 #: B245957

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: 116
Station ID: Lica 1 Canister Installation Date/Time: Apr 30, 2012 @ 08:13 mst
Field Sample ID: LICA VOC/ CLS /May 03, 2012 Canister Removal Date/Time: May 07, 2012 @ 9:22 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
03-May-12	05/03/2012 0:00	05/04/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	640	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 # 08703

Technician Signiture: Ting Xu_____

Your C.O.C. #: 08703

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

Report Date: 2012/05/17

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B266627****Received: 2012/05/09, 11:30**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/05/10	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/10	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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 14

Maxxam Job #: B266627
 Report Date: 2012/05/17

RESULTS OF ANALYSES OF AIR

Maxxam ID		NJ8413	NJ8414	
Sampling Date		2012/05/03	2012/05/03	
COC Number		08703	08703	
	Units	LICA VOC\CLSMAY 03,12	LICA VOC\PORTMAY 03,12	QC Batch

Volatile Organics				
Pressure on Receipt	psig	24	21	2848582

QC Batch = Quality Control Batch

Maxxam Job #: B266627
 Report Date: 2012/05/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NJ8413				
Sampling Date		2012/05/03				
COC Number		08703				
	Units	LICA VOC\CLSMAY 03,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2848218
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2848218
Propene	ppbv	<0.30	0.30	<0.516	0.516	2848218
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2848218
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2848218
Dichlorodifluoromethane (FREON 12)	ppbv	0.54	0.20	2.69	0.989	2848218
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2848218
Chloromethane	ppbv	0.52	0.30	1.07	0.620	2848218
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2848218
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2848218
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2848218
Trichlorofluoromethane (FREON 11)	ppbv	0.28	0.20	1.58	1.12	2848218
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2848218
Ethanol (ethyl alcohol)	ppbv	2.3	2.3	4.40	4.33	2848218
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2848218
2-Propanone	ppbv	2.63	0.80	6.24	1.90	2848218
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2848218
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2848218
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2848218
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2848218
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2848218
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2848218
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2848218
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2848218
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2848218
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2848218
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2848218
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2848218
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2848218
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2848218
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2848218

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NJ8413				
Sampling Date		2012/05/03				
COC Number		08703				
	Units	LICA VOC\CLSMAY 03,12	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2848218
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2848218
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2848218
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2848218
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2848218
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2848218
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2848218
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2848218
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2848218
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2848218
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2848218
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2848218
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2848218
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2848218
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2848218
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2848218
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2848218
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2848218
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2848218
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2848218
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2848218
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2848218
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2848218
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2848218
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2848218
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2848218
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2848218
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2848218
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2848218
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2848218
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2848218
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2848218
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2848218
QC Batch = Quality Control Batch						

Maxxam Job #: B266627
 Report Date: 2012/05/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NJ8413				
Sampling Date		2012/05/03				
COC Number		08703				
	Units	LICA VOC\CLSMAY 03,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	86		N/A	N/A	2848218
D5-Chlorobenzene	%	93		N/A	N/A	2848218
Difluorobenzene	%	91		N/A	N/A	2848218

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

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NJ8414				
Sampling Date		2012/05/03				
COC Number		08703				
	Units	LICA VOCI PORTMAY 03,12	RDL	ug/m3	DL (ug/m3)	QC Batch
Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2848218
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2848218
Propene	ppbv	<1.3	1.3	<2.24	2.24	2848218
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2848218
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2848218
Dichlorodifluoromethane (FREON 12)	ppbv	0.63	0.20	3.11	0.989	2848218
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2848218
Chloromethane	ppbv	0.65	0.30	1.34	0.620	2848218
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2848218
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2848218
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2848218
Trichlorofluoromethane (FREON 11)	ppbv	0.27	0.20	1.52	1.12	2848218
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2848218
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2848218
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2848218
2-Propanone	ppbv	2.76	0.80	6.55	1.90	2848218
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2848218
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2848218
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2848218
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2848218
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2848218
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2848218
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2848218
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2848218
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2848218
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2848218
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2848218
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2848218
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2848218
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2848218
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2848218
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B266627
 Report Date: 2012/05/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NJ8414				
Sampling Date		2012/05/03				
COC Number		08703				
	Units	LICA VOC/PORTMAY 03,12	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2848218
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2848218
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2848218
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2848218
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2848218
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2848218
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2848218
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2848218
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2848218
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2848218
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2848218
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2848218
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2848218
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2848218
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2848218
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2848218
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2848218
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2848218
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2848218
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2848218
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2848218
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2848218
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2848218
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2848218
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2848218
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2848218
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2848218
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2848218
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2848218
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2848218
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2848218
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2848218
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2848218
QC Batch = Quality Control Batch						

Maxxam Job #: B266627
 Report Date: 2012/05/17

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NJ8414				
Sampling Date		2012/05/03				
COC Number		08703				
	Units	LICA VOC/PORTMAY 03,12	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)						
Bromochloromethane	%	82		N/A	N/A	2848218
D5-Chlorobenzene	%	91		N/A	N/A	2848218
Difluorobenzene	%	88		N/A	N/A	2848218

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

Maxxam Job #: B266627
 Report Date: 2012/05/17

Test Summary

Maxxam ID NJ8413
Sample ID LICA VOC\CLSMAY 03,12
Matrix AIR

Collected 2012/05/03
Shipped
Received 2012/05/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2848582	N/A	2012/05/10	DIANE TEMNUIK
Volatile Organics in Air (TO-15)	GC/MS	2848218	N/A	2012/05/10	DIANE TEMNUIK

Maxxam ID NJ8414
Sample ID LICA VOC\PORTMAY 03,12
Matrix AIR

Collected 2012/05/03
Shipped
Received 2012/05/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2848582	N/A	2012/05/10	DIANE TEMNUIK
Volatile Organics in Air (TO-15)	GC/MS	2848218	N/A	2012/05/10	DIANE TEMNUIK

Maxxam Job #: B266627
Report Date: 2012/05/17

GENERAL COMMENTS

WS# 2848218

1,2,4-Trichlorobenzene was above 40%RSD in the continuing calibration. No positives were found, therefore data was not affected.

Sample NJ8414-01: DL was raised for Propene due to matrix interference.

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB266627

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2848218 DVO	Spiked Blank	Bromochloromethane	2012/05/10		101	%	60 - 140
		D5-Chlorobenzene	2012/05/10		105	%	60 - 140
		Difluorobenzene	2012/05/10		104	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/10		97	%	70 - 130
		Carbon Disulfide	2012/05/10		102	%	70 - 130
		Propene	2012/05/10		90	%	70 - 130
		Vinyl Acetate	2012/05/10		116	%	70 - 130
		Vinyl Bromide	2012/05/10		102	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/10		101	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/10		105	%	70 - 130
		Chloromethane	2012/05/10		99	%	70 - 130
		Vinyl Chloride	2012/05/10		87	%	70 - 130
		Chloroethane	2012/05/10		86	%	70 - 130
		1,3-Butadiene	2012/05/10		93	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/10		94	%	70 - 130
		Trichlorotrifluoroethane	2012/05/10		95	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/10		96	%	70 - 130
		2-propanol	2012/05/10		108	%	70 - 130
		2-Propanone	2012/05/10		112	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/10		126	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/10		108	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/10		109	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/10		95	%	70 - 130
		Ethyl Acetate	2012/05/10		113	%	70 - 130
		1,1-Dichloroethylene	2012/05/10		101	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/10		102	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/10		96	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/10		99	%	70 - 130
		Chloroform	2012/05/10		97	%	70 - 130
		Carbon Tetrachloride	2012/05/10		96	%	70 - 130
		1,1-Dichloroethane	2012/05/10		96	%	70 - 130
		1,2-Dichloroethane	2012/05/10		102	%	70 - 130
		Ethylene Dibromide	2012/05/10		95	%	70 - 130
		1,1,1-Trichloroethane	2012/05/10		95	%	70 - 130
		1,1,2-Trichloroethane	2012/05/10		95	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/10		92	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/10		102	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/10		103	%	70 - 130
		1,2-Dichloropropane	2012/05/10		99	%	70 - 130
		Bromomethane	2012/05/10		84	%	70 - 130
		Bromoform	2012/05/10		97	%	70 - 130
		Bromodichloromethane	2012/05/10		97	%	70 - 130
		Dibromochloromethane	2012/05/10		92	%	70 - 130
		Heptane	2012/05/10		103	%	70 - 130
		Trichloroethylene	2012/05/10		93	%	70 - 130
		Tetrachloroethylene	2012/05/10		83	%	70 - 130
		Benzene	2012/05/10		97	%	70 - 130
		Toluene	2012/05/10		97	%	70 - 130
		Ethylbenzene	2012/05/10		98	%	70 - 130
		p+m-Xylene	2012/05/10		95	%	70 - 130
		o-Xylene	2012/05/10		96	%	70 - 130
		Styrene	2012/05/10		80	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/10		91	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/10		89	%	70 - 130
		4-ethyltoluene	2012/05/10		90	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB266627

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2848218 DVO	Spiked Blank	Chlorobenzene	2012/05/10		96	%	70 - 130
		Benzyl chloride	2012/05/10		95	%	70 - 130
		1,3-Dichlorobenzene	2012/05/10		89	%	70 - 130
		1,4-Dichlorobenzene	2012/05/10		88	%	70 - 130
		1,2-Dichlorobenzene	2012/05/10		84	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/10		114	%	70 - 130
		Hexachlorobutadiene	2012/05/10		101	%	70 - 130
		Hexane	2012/05/10		98	%	70 - 130
		Cyclohexane	2012/05/10		93	%	70 - 130
		Tetrahydrofuran	2012/05/10		114	%	70 - 130
		1,4-Dioxane	2012/05/10		101	%	70 - 130
		Xylene (Total)	2012/05/10		95	%	70 - 130
	Method Blank	Bromochloromethane	2012/05/10		89	%	60 - 140
		D5-Chlorobenzene	2012/05/10		102	%	60 - 140
		Difluorobenzene	2012/05/10		96	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/10	<0.20		ppbv	
		Carbon Disulfide	2012/05/10	<0.50		ppbv	
		Propene	2012/05/10	<0.30		ppbv	
		Vinyl Acetate	2012/05/10	<0.20		ppbv	
		Vinyl Bromide	2012/05/10	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/10	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/10	<0.17		ppbv	
		Chloromethane	2012/05/10	<0.30		ppbv	
		Vinyl Chloride	2012/05/10	<0.18		ppbv	
		Chloroethane	2012/05/10	<0.30		ppbv	
		1,3-Butadiene	2012/05/10	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/10	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/10	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/10	<2.3		ppbv	
		2-propanol	2012/05/10	<3.0		ppbv	
		2-Propanone	2012/05/10	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/10	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/10	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/10	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/10	<0.20		ppbv	
		Ethyl Acetate	2012/05/10	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/10	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/10	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/10	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/10	<0.80		ppbv	
		Chloroform	2012/05/10	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/10	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/10	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/10	<0.20		ppbv	
		Ethylene Dibromide	2012/05/10	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/10	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/10	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/10	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/10	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/10	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/10	<0.40		ppbv	
		Bromomethane	2012/05/10	<0.18		ppbv	
		Bromoform	2012/05/10	<0.20		ppbv	
		Bromodichloromethane	2012/05/10	<0.20		ppbv	
		Dibromochloromethane	2012/05/10	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB266627

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2848218	DVO	Method Blank					
		Heptane	2012/05/10	<0.30		ppbv	
		Trichloroethylene	2012/05/10	<0.30		ppbv	
		Tetrachloroethylene	2012/05/10	<0.20		ppbv	
		Benzene	2012/05/10	<0.18		ppbv	
		Toluene	2012/05/10	<0.20		ppbv	
		Ethylbenzene	2012/05/10	<0.20		ppbv	
		p+m-Xylene	2012/05/10	<0.37		ppbv	
		o-Xylene	2012/05/10	<0.20		ppbv	
		Styrene	2012/05/10	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/10	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/10	<0.50		ppbv	
		4-ethyltoluene	2012/05/10	<2.2		ppbv	
		Chlorobenzene	2012/05/10	<0.20		ppbv	
		Benzyl chloride	2012/05/10	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/10	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/10	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/10	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/10	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/10	<3.0		ppbv	
		Hexane	2012/05/10	<0.30		ppbv	
		Cyclohexane	2012/05/10	<0.20		ppbv	
		Tetrahydrofuran	2012/05/10	<0.40		ppbv	
		1,4-Dioxane	2012/05/10	<2.0		ppbv	
		Xylene (Total)	2012/05/10	<0.60		ppbv	
	RPD - Sample/Sample Dup	2,2,4-Trimethylpentane	2012/05/10	NC		%	25
		Carbon Disulfide	2012/05/10	NC		%	25
		Propene	2012/05/10	NC		%	25
		Vinyl Acetate	2012/05/10	NC		%	25
		Vinyl Bromide	2012/05/10	NC		%	25
		Dichlorodifluoromethane (FREON 12)	2012/05/10	2.9		%	25
		1,2-Dichlorotetrafluoroethane	2012/05/10	NC		%	25
		Chloromethane	2012/05/10	NC		%	25
		Vinyl Chloride	2012/05/10	NC		%	25
		Chloroethane	2012/05/10	NC		%	25
		1,3-Butadiene	2012/05/10	NC		%	25
		Trichlorofluoromethane (FREON 11)	2012/05/10	NC		%	25
		Trichlorotrifluoroethane	2012/05/10	NC		%	25
		Ethanol (ethyl alcohol)	2012/05/10	3.7		%	25
		2-propanol	2012/05/10	NC		%	25
		2-Propanone	2012/05/10	2.0		%	25
		Methyl Ethyl Ketone (2-Butanone)	2012/05/10	NC		%	25
		Methyl Isobutyl Ketone	2012/05/10	NC		%	25
		Methyl Butyl Ketone (2-Hexanone)	2012/05/10	NC		%	25
		Methyl t-butyl ether (MTBE)	2012/05/10	NC		%	25
		Ethyl Acetate	2012/05/10	NC		%	25
		1,1-Dichloroethylene	2012/05/10	NC		%	25
		cis-1,2-Dichloroethylene	2012/05/10	NC		%	25
		trans-1,2-Dichloroethylene	2012/05/10	NC		%	25
		Methylene Chloride(Dichloromethane)	2012/05/10	NC		%	25
		Chloroform	2012/05/10	NC		%	25
		Carbon Tetrachloride	2012/05/10	NC		%	25
		1,1-Dichloroethane	2012/05/10	NC		%	25
		1,2-Dichloroethane	2012/05/10	NC		%	25

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB266627

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2848218 DVO	RPD - Sample/Sample Dup	Ethylene Dibromide	2012/05/10	NC		%	25
		1,1,1-Trichloroethane	2012/05/10	NC		%	25
		1,1,2-Trichloroethane	2012/05/10	NC		%	25
		1,1,2,2-Tetrachloroethane	2012/05/10	NC		%	25
		cis-1,3-Dichloropropene	2012/05/10	NC		%	25
		trans-1,3-Dichloropropene	2012/05/10	NC		%	25
		1,2-Dichloropropane	2012/05/10	NC		%	25
		Bromomethane	2012/05/10	NC		%	25
		Bromoform	2012/05/10	NC		%	25
		Bromodichloromethane	2012/05/10	NC		%	25
		Dibromochloromethane	2012/05/10	NC		%	25
		Heptane	2012/05/10	NC		%	25
		Trichloroethylene	2012/05/10	NC		%	25
		Tetrachloroethylene	2012/05/10	5.5		%	25
		Benzene	2012/05/10	4.2		%	25
		Toluene	2012/05/10	5.8		%	25
		Ethylbenzene	2012/05/10	0.7		%	25
		p+m-Xylene	2012/05/10	2.8		%	25
		o-Xylene	2012/05/10	4.3		%	25
		Styrene	2012/05/10	NC		%	25
		1,3,5-Trimethylbenzene	2012/05/10	NC		%	25
		1,2,4-Trimethylbenzene	2012/05/10	NC		%	25
		4-ethyltoluene	2012/05/10	NC		%	25
		Chlorobenzene	2012/05/10	NC		%	25
		Benzyl chloride	2012/05/10	NC		%	25
		1,3-Dichlorobenzene	2012/05/10	NC		%	25
		1,4-Dichlorobenzene	2012/05/10	3.1		%	25
		1,2-Dichlorobenzene	2012/05/10	NC		%	25
		1,2,4-Trichlorobenzene	2012/05/10	NC		%	25
		Hexachlorobutadiene	2012/05/10	NC		%	25
		Hexane	2012/05/10	NC		%	25
		Cyclohexane	2012/05/10	7.2		%	25
		Tetrahydrofuran	2012/05/10	NC		%	25
		1,4-Dioxane	2012/05/10	NC		%	25
		Xylene (Total)	2012/05/10	3.1		%	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: 317
Station ID: Lica 1 Canister Installation Date/Time: May 07, 2012 @ 9:28 mst
Field Sample ID: LICA VOC/ CLS /May 09, 2012 Canister Removal Date/Time: May 10, 2012 @ 7:25 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
09-May-12	05/09/2012 0:00	05/10/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	640	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	23

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

Comments: System leak check prior to sampling. COC # 11203

Technician Signiture: Ting Xu_____

Your C.O.C. #: na

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

Report Date: 2012/05/25

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B270516****Received: 2012/05/16, 10:09**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/05/17	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/17	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.

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 10

Maxxam Job #: B270516
 Report Date: 2012/05/25

RESULTS OF ANALYSES OF AIR

Maxxam ID		NL8149	NL8150	
Sampling Date		2012/05/09	2012/05/09	
COC Number		na	na	
	Units	LICA VOC/CLS/MAY 09,12 - 317	LICA VOC/PORT/MAY 09,12 - 7825	QC Batch

Volatile Organics				
Pressure on Receipt	psig	22	22	2854190

QC Batch = Quality Control Batch

Maxxam Job #: B270516
 Report Date: 2012/05/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NL8149			NL8150				
Sampling Date		2012/05/09			2012/05/09				
COC Number		na			na				
	Units	LICA VOC/CLS/MAY 09,12 - 317	ug/m3	DL (ug/m3)	LICA VOC/PORT/MAY 09,12 - 7825	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	2854207
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2854207
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2854207
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2854207
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2854207
Dichlorodifluoromethane (FREON 12)	ppbv	0.68	3.34	0.989	0.67	0.20	3.33	0.989	2854207
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2854207
Chloromethane	ppbv	0.53	1.10	0.620	0.59	0.30	1.21	0.620	2854207
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2854207
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2854207
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2854207
Trichlorofluoromethane (FREON 11)	ppbv	0.34	1.93	1.12	0.33	0.20	1.86	1.12	2854207
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2854207
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2854207
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2854207
2-Propanone	ppbv	5.23	12.4	1.90	5.67	0.80	13.5	1.90	2854207
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2854207
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2854207
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2854207
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2854207
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2854207
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2854207
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2854207
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2854207
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2854207
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2854207
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2854207
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2854207
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2854207
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2854207
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2854207
RDL = Reportable Detection Limit QC Batch = Quality Control Batch									

Maxxam Job #: B270516
 Report Date: 2012/05/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NL8149			NL8150				
Sampling Date		2012/05/09			2012/05/09				
COC Number		na			na				
	Units	LICA VOC/CLS/MAY 09,12 - 317	ug/m3	DL (ug/m3)	LICA VOC/PORT/MAY 09,12 - 7825	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	2854207
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2854207
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2854207
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2854207
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2854207
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2854207
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2854207
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2854207
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2854207
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2854207
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2854207
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2854207
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2854207
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2854207
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2854207
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2854207
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2854207
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2854207
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2854207
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2854207
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2854207
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2854207
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2854207
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2854207
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2854207
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2854207
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2854207
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2854207
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2854207
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2854207
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2854207
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2854207
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2854207
QC Batch = Quality Control Batch									

Maxxam Job #: B270516
 Report Date: 2012/05/25

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NL8149			NL8150				
Sampling Date		2012/05/09			2012/05/09				
COC Number		na			na				
	Units	LICA VOC/CLS/MAY 09,12 - 317	ug/m3	DL (ug/m3)	LICA VOC/PORT/MAY 09,12 - 7825	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	68	N/A	N/A	66		N/A	N/A	2854207
D5-Chlorobenzene	%	63	N/A	N/A	63		N/A	N/A	2854207
Difluorobenzene	%	69	N/A	N/A	67		N/A	N/A	2854207

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

Maxxam Job #: B270516
 Report Date: 2012/05/25

Test Summary

Maxxam ID NL8149
Sample ID LICA VOC/CLS/MAY 09,12 - 317
Matrix AIR

Collected 2012/05/09
Shipped
Received 2012/05/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2854190	N/A	2012/05/17	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2854207	N/A	2012/05/17	SPOMENKA SMILJANIC

Maxxam ID NL8150
Sample ID LICA VOC/PORT/MAY 09,12 - 7825
Matrix AIR

Collected 2012/05/09
Shipped
Received 2012/05/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2854190	N/A	2012/05/17	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2854207	N/A	2012/05/17	SPOMENKA SMILJANIC

Maxxam Job #: B270516
Report Date: 2012/05/25

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: GB270516

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2854207 S_S	Spiked Blank	Bromochloromethane	2012/05/17		107	%	60 - 140
		D5-Chlorobenzene	2012/05/17		108	%	60 - 140
		Difluorobenzene	2012/05/17		109	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/17		93	%	70 - 130
		Carbon Disulfide	2012/05/17		96	%	70 - 130
		Propene	2012/05/17		89	%	70 - 130
		Vinyl Acetate	2012/05/17		99	%	70 - 130
		Vinyl Bromide	2012/05/17		94	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/17		96	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/17		107	%	70 - 130
		Chloromethane	2012/05/17		95	%	70 - 130
		Vinyl Chloride	2012/05/17		94	%	70 - 130
		Chloroethane	2012/05/17		93	%	70 - 130
		1,3-Butadiene	2012/05/17		95	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/17		92	%	70 - 130
		Trichlorotrifluoroethane	2012/05/17		94	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/17		81	%	70 - 130
		2-propanol	2012/05/17		97	%	70 - 130
		2-Propanone	2012/05/17		105	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/17		90	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/17		96	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/17		98	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/17		98	%	70 - 130
		Ethyl Acetate	2012/05/17		100	%	70 - 130
		1,1-Dichloroethylene	2012/05/17		95	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/17		96	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/17		94	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/17		86	%	70 - 130
		Chloroform	2012/05/17		94	%	70 - 130
		Carbon Tetrachloride	2012/05/17		95	%	70 - 130
		1,1-Dichloroethane	2012/05/17		93	%	70 - 130
		1,2-Dichloroethane	2012/05/17		94	%	70 - 130
		Ethylene Dibromide	2012/05/17		98	%	70 - 130
		1,1,1-Trichloroethane	2012/05/17		94	%	70 - 130
		1,1,2-Trichloroethane	2012/05/17		96	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/17		93	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/17		98	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/17		101	%	70 - 130
		1,2-Dichloropropane	2012/05/17		95	%	70 - 130
		Bromomethane	2012/05/17		93	%	70 - 130
		Bromoform	2012/05/17		102	%	70 - 130
		Bromodichloromethane	2012/05/17		96	%	70 - 130
		Dibromochloromethane	2012/05/17		100	%	70 - 130
		Heptane	2012/05/17		91	%	70 - 130
		Trichloroethylene	2012/05/17		94	%	70 - 130
		Tetrachloroethylene	2012/05/17		97	%	70 - 130
		Benzene	2012/05/17		95	%	70 - 130
		Toluene	2012/05/17		97	%	70 - 130
		Ethylbenzene	2012/05/17		95	%	70 - 130
		p+m-Xylene	2012/05/17		93	%	70 - 130
		o-Xylene	2012/05/17		94	%	70 - 130
		Styrene	2012/05/17		86	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/17		94	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/17		95	%	70 - 130
		4-ethyltoluene	2012/05/17		97	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB270516

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2854207 S_S	Spiked Blank	Chlorobenzene	2012/05/17		92	%	70 - 130
		Benzyl chloride	2012/05/17		98	%	70 - 130
		1,3-Dichlorobenzene	2012/05/17		93	%	70 - 130
		1,4-Dichlorobenzene	2012/05/17		91	%	70 - 130
		1,2-Dichlorobenzene	2012/05/17		90	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/17		81	%	70 - 130
		Hexachlorobutadiene	2012/05/17		85	%	70 - 130
		Hexane	2012/05/17		97	%	70 - 130
		Cyclohexane	2012/05/17		93	%	70 - 130
		Tetrahydrofuran	2012/05/17		100	%	70 - 130
		1,4-Dioxane	2012/05/17		102	%	70 - 130
	Method Blank	Xylene (Total)	2012/05/17		94	%	70 - 130
		Bromochloromethane	2012/05/17		95	%	60 - 140
		D5-Chlorobenzene	2012/05/17		88	%	60 - 140
		Difluorobenzene	2012/05/17		97	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/17	<0.20		ppbv	
		Carbon Disulfide	2012/05/17	<0.50		ppbv	
		Propene	2012/05/17	<0.30		ppbv	
		Vinyl Acetate	2012/05/17	<0.20		ppbv	
		Vinyl Bromide	2012/05/17	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/17	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/17	<0.17		ppbv	
		Chloromethane	2012/05/17	<0.30		ppbv	
		Vinyl Chloride	2012/05/17	<0.18		ppbv	
		Chloroethane	2012/05/17	<0.30		ppbv	
		1,3-Butadiene	2012/05/17	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/17	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/17	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/17	<2.3		ppbv	
		2-propanol	2012/05/17	<3.0		ppbv	
		2-Propanone	2012/05/17	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/17	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/17	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/17	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/17	<0.20		ppbv	
		Ethyl Acetate	2012/05/17	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/17	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/17	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/17	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/17	<0.80		ppbv	
		Chloroform	2012/05/17	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/17	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/17	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/17	<0.20		ppbv	
		Ethylene Dibromide	2012/05/17	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/17	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/17	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/17	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/17	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/17	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/17	<0.40		ppbv	
		Bromomethane	2012/05/17	<0.18		ppbv	
		Bromoform	2012/05/17	<0.20		ppbv	
		Bromodichloromethane	2012/05/17	<0.20		ppbv	
		Dibromochloromethane	2012/05/17	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB270516

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2854207 S_S	Method Blank	Heptane	2012/05/17	<0.30		ppbv	
		Trichloroethylene	2012/05/17	<0.30		ppbv	
		Tetrachloroethylene	2012/05/17	<0.20		ppbv	
		Benzene	2012/05/17	<0.18		ppbv	
		Toluene	2012/05/17	<0.20		ppbv	
		Ethylbenzene	2012/05/17	<0.20		ppbv	
		p+m-Xylene	2012/05/17	<0.37		ppbv	
		o-Xylene	2012/05/17	<0.20		ppbv	
		Styrene	2012/05/17	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/17	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/17	<0.50		ppbv	
		4-ethyltoluene	2012/05/17	<2.2		ppbv	
		Chlorobenzene	2012/05/17	<0.20		ppbv	
		Benzyl chloride	2012/05/17	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/17	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/17	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/17	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/17	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/17	<3.0		ppbv	
		Hexane	2012/05/17	<0.30		ppbv	
		Cyclohexane	2012/05/17	<0.20		ppbv	
		Tetrahydrofuran	2012/05/17	<0.40		ppbv	
		1,4-Dioxane	2012/05/17	<2.0		ppbv	
		Xylene (Total)	2012/05/17	<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: 113
Station ID: Lica 1 Canister Installation Date/Time: May 14, 2012 @ 9:40 mst
Field Sample ID: LICA VOC/ CLS /May 15, 2012 Canister Removal Date/Time: May 17, 2012 @ 8:38 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
15-May-12	05/15/2012 0:00	05/16/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	640	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 # 11064

Technician Signiture: Ting Xu

Your C.O.C. #: 11064

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

Report Date: 2012/06/01

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B273742****Received: 2012/05/22, 18:30**Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/05/30	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/30	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

=====

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

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 13

Maxxam Job #: B273742
 Report Date: 2012/06/01

RESULTS OF ANALYSES OF AIR

Maxxam ID		NN4075	NN4076	
Sampling Date		2012/05/15 00:00	2012/05/15 00:00	
COC Number		11064	11064	
	Units	LICA VOC/CLS/MAY 15,12 / 113	LICA VOC/PORT/MAY 15,12 / 283	QC Batch

Volatile Organics				
Pressure on Receipt	psig	23	22	2866381
QC Batch = Quality Control Batch				

Maxxam Job #: B273742
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NN4075				
Sampling Date		2012/05/15 00:00				
COC Number		11064				
	Units	LICA VOC/CLS/MAY 15,12 / 113	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2866695
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2866695
Propene	ppbv	<0.30	0.30	<0.516	0.516	2866695
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2866695
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2866695
Dichlorodifluoromethane (FREON 12)	ppbv	0.60	0.20	2.95	0.989	2866695
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2866695
Chloromethane	ppbv	0.50	0.30	1.03	0.620	2866695
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2866695
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2866695
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2866695
Trichlorofluoromethane (FREON 11)	ppbv	0.30	0.20	1.67	1.12	2866695
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2866695
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2866695
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2866695
2-Propanone	ppbv	2.99	0.80	7.11	1.90	2866695
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2866695
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2866695
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2866695
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2866695
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2866695
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2866695
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2866695
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2866695
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2866695
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2866695
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2866695
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2866695
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2866695
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2866695
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B273742
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NN4075				
Sampling Date		2012/05/15 00:00				
COC Number		11064				
	Units	LICA VOC/CLS/MAY 15,12 / 113	RDL	ug/m3	DL (ug/m3)	QC Batch

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2866695
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2866695
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2866695
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2866695
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2866695
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2866695
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2866695
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2866695
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2866695
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2866695
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2866695
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2866695
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2866695
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2866695
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2866695
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2866695
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2866695
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2866695
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2866695
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2866695
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2866695
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2866695
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2866695
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2866695
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2866695
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2866695
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2866695
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2866695
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2866695
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2866695
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2866695
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2866695
QC Batch = Quality Control Batch						

Maxxam Job #: B273742
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NN4075				
Sampling Date		2012/05/15 00:00				
COC Number		11064				
	Units	LICA VOC/CLS/MAY 15,12 / 113	RDL	ug/m3	DL (ug/m3)	QC Batch
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2866695
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2866695
Surrogate Recovery (%)						
Bromochloromethane	%	88		N/A	N/A	2866695
D5-Chlorobenzene	%	78		N/A	N/A	2866695
Difluorobenzene	%	89		N/A	N/A	2866695
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B273742
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NN4076				
Sampling Date		2012/05/15 00:00				
COC Number		11064				
	Units	LICA VOC/PORT/MAY 15,12 / 283	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2866695
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2866695
Propene	ppbv	<0.30	0.30	<0.516	0.516	2866695
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2866695
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2866695
Dichlorodifluoromethane (FREON 12)	ppbv	0.61	0.20	3.04	0.989	2866695
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2866695
Chloromethane	ppbv	0.50	0.30	1.03	0.620	2866695
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2866695
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2866695
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2866695
Trichlorofluoromethane (FREON 11)	ppbv	0.31	0.20	1.76	1.12	2866695
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2866695
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2866695
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2866695
2-Propanone	ppbv	4.44	0.80	10.5	1.90	2866695
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2866695
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2866695
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2866695
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2866695
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2866695
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2866695
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2866695
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2866695
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2866695
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2866695
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2866695
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2866695
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2866695
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2866695
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B273742
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NN4076				
Sampling Date		2012/05/15 00:00				
COC Number		11064				
	Units	LICA VOC/PORT/MAY 15,12 / 283	RDL	ug/m3	DL (ug/m3)	QC Batch

1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2866695
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2866695
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2866695
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2866695
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2866695
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2866695
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2866695
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2866695
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2866695
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2866695
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2866695
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2866695
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2866695
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2866695
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2866695
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2866695
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2866695
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2866695
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2866695
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2866695
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2866695
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2866695
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2866695
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2866695
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2866695
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2866695
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2866695
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2866695
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2866695
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2866695
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2866695
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2866695

QC Batch = Quality Control Batch

Maxxam Job #: B273742
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NN4076				
Sampling Date		2012/05/15 00:00				
COC Number		11064				
	Units	LICA VOC/PORT/MAY 15,12 / 283	RDL	ug/m3	DL (ug/m3)	QC Batch
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2866695
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2866695
Surrogate Recovery (%)						
Bromochloromethane	%	86		N/A	N/A	2866695
D5-Chlorobenzene	%	76		N/A	N/A	2866695
Difluorobenzene	%	87		N/A	N/A	2866695
N/A = Not Applicable QC Batch = Quality Control Batch						

Maxxam Job #: B273742
 Report Date: 2012/06/01

Test Summary

Maxxam ID NN4075
Sample ID LICA VOC/CLS/MAY 15,12 / 113
Matrix AIR

Collected 2012/05/15
Shipped
Received 2012/05/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2866381	N/A	2012/05/30	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2866695	N/A	2012/05/30	SPOMENKA SMILJANIC

Maxxam ID NN4076
Sample ID LICA VOC/PORT/MAY 15,12 / 283
Matrix AIR

Collected 2012/05/15
Shipped
Received 2012/05/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2866381	N/A	2012/05/30	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2866695	N/A	2012/05/30	SPOMENKA SMILJANIC

Maxxam Job #: B273742
Report Date: 2012/06/01

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report

Maxxam Job Number: GB273742

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2866695 S_S	Spiked Blank	Bromochloromethane	2012/05/30		104	%	60 - 140
		D5-Chlorobenzene	2012/05/30		102	%	60 - 140
		Difluorobenzene	2012/05/30		105	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/30		107	%	70 - 130
		Carbon Disulfide	2012/05/30		102	%	70 - 130
		Propene	2012/05/30		99	%	70 - 130
		Vinyl Acetate	2012/05/30		116	%	70 - 130
		Vinyl Bromide	2012/05/30		104	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/30		111	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/30		127	%	70 - 130
		Chloromethane	2012/05/30		119	%	70 - 130
		Vinyl Chloride	2012/05/30		112	%	70 - 130
		Chloroethane	2012/05/30		110	%	70 - 130
		1,3-Butadiene	2012/05/30		115	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/30		109	%	70 - 130
		Trichlorotrifluoroethane	2012/05/30		102	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/30		102	%	70 - 130
		2-propanol	2012/05/30		109	%	70 - 130
		2-Propanone	2012/05/30		130	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/30		109	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/30		120	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/30		122	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/30		107	%	70 - 130
		Ethyl Acetate	2012/05/30		117	%	70 - 130
		1,1-Dichloroethylene	2012/05/30		108	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/30		108	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/30		106	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/30		101	%	70 - 130
		Chloroform	2012/05/30		105	%	70 - 130
		Carbon Tetrachloride	2012/05/30		115	%	70 - 130
		1,1-Dichloroethane	2012/05/30		109	%	70 - 130
		1,2-Dichloroethane	2012/05/30		114	%	70 - 130
		Ethylene Dibromide	2012/05/30		104	%	70 - 130
		1,1,1-Trichloroethane	2012/05/30		112	%	70 - 130
		1,1,2-Trichloroethane	2012/05/30		104	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/30		102	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/30		112	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/30		113	%	70 - 130
		1,2-Dichloropropane	2012/05/30		107	%	70 - 130
		Bromomethane	2012/05/30		107	%	70 - 130
		Bromoform	2012/05/30		115	%	70 - 130
		Bromodichloromethane	2012/05/30		118	%	70 - 130
		Dibromochloromethane	2012/05/30		116	%	70 - 130
		Heptane	2012/05/30		114	%	70 - 130
		Trichloroethylene	2012/05/30		100	%	70 - 130
		Tetrachloroethylene	2012/05/30		105	%	70 - 130
		Benzene	2012/05/30		102	%	70 - 130
		Toluene	2012/05/30		105	%	70 - 130
		Ethylbenzene	2012/05/30		103	%	70 - 130
		p+m-Xylene	2012/05/30		103	%	70 - 130
		o-Xylene	2012/05/30		105	%	70 - 130
		Styrene	2012/05/30		84	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/30		103	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/30		102	%	70 - 130
		4-ethyltoluene	2012/05/30		108	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB273742

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2866695 S_S	Spiked Blank	Chlorobenzene	2012/05/30		96	%	70 - 130
		Benzyl chloride	2012/05/30		107	%	70 - 130
		1,3-Dichlorobenzene	2012/05/30		93	%	70 - 130
		1,4-Dichlorobenzene	2012/05/30		91	%	70 - 130
		1,2-Dichlorobenzene	2012/05/30		93	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/30		89	%	70 - 130
		Hexachlorobutadiene	2012/05/30		105	%	70 - 130
		Hexane	2012/05/30		112	%	70 - 130
		Cyclohexane	2012/05/30		110	%	70 - 130
		Tetrahydrofuran	2012/05/30		115	%	70 - 130
		1,4-Dioxane	2012/05/30		111	%	70 - 130
		Xylene (Total)	2012/05/30		104	%	70 - 130
	Method Blank	Bromochloromethane	2012/05/30		97	%	60 - 140
		D5-Chlorobenzene	2012/05/30		85	%	60 - 140
		Difluorobenzene	2012/05/30		100	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/30	<0.20		ppbv	
		Carbon Disulfide	2012/05/30	<0.50		ppbv	
		Propene	2012/05/30	<0.30		ppbv	
		Vinyl Acetate	2012/05/30	<0.20		ppbv	
		Vinyl Bromide	2012/05/30	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/30	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/30	<0.17		ppbv	
		Chloromethane	2012/05/30	<0.30		ppbv	
		Vinyl Chloride	2012/05/30	<0.18		ppbv	
		Chloroethane	2012/05/30	<0.30		ppbv	
		1,3-Butadiene	2012/05/30	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/30	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/30	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/30	<2.3		ppbv	
		2-propanol	2012/05/30	<3.0		ppbv	
		2-Propanone	2012/05/30	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/30	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/30	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/30	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/30	<0.20		ppbv	
		Ethyl Acetate	2012/05/30	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/30	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/30	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/30	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/30	<0.80		ppbv	
		Chloroform	2012/05/30	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/30	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/30	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/30	<0.20		ppbv	
		Ethylene Dibromide	2012/05/30	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/30	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/30	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/30	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/30	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/30	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/30	<0.40		ppbv	
		Bromomethane	2012/05/30	<0.18		ppbv	
		Bromoform	2012/05/30	<0.20		ppbv	
		Bromodichloromethane	2012/05/30	<0.20		ppbv	
		Dibromochloromethane	2012/05/30	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB273742

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2866695 S_S	Method Blank	Heptane	2012/05/30	<0.30		ppbv	
		Trichloroethylene	2012/05/30	<0.30		ppbv	
		Tetrachloroethylene	2012/05/30	<0.20		ppbv	
		Benzene	2012/05/30	<0.18		ppbv	
		Toluene	2012/05/30	<0.20		ppbv	
		Ethylbenzene	2012/05/30	<0.20		ppbv	
		p+m-Xylene	2012/05/30	<0.37		ppbv	
		o-Xylene	2012/05/30	<0.20		ppbv	
		Styrene	2012/05/30	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/30	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/30	<0.50		ppbv	
		4-ethyltoluene	2012/05/30	<2.2		ppbv	
		Chlorobenzene	2012/05/30	<0.20		ppbv	
		Benzyl chloride	2012/05/30	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/30	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/30	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/30	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/30	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/30	<3.0		ppbv	
		Hexane	2012/05/30	<0.30		ppbv	
		Cyclohexane	2012/05/30	<0.20		ppbv	
		Tetrahydrofuran	2012/05/30	<0.40		ppbv	
		1,4-Dioxane	2012/05/30	<2.0		ppbv	
		Xylene (Total)	2012/05/30	<0.60		ppbv	
	RPD - Sample/Sample Dup	2-propanol	2012/05/30	NC		%	25
		Benzene	2012/05/30	NC		%	25
		Toluene	2012/05/30	NC		%	25
		Ethylbenzene	2012/05/30	NC		%	25
		p+m-Xylene	2012/05/30	NC		%	25
		o-Xylene	2012/05/30	NC		%	25
		Xylene (Total)	2012/05/30	NC		%	25

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 319
Station ID: Lica 1 Canister Installation Date/Time: May 17, 2012 @ 8:53 mst
Field Sample ID: LICA VOC/ CLS /May 21, 2012 Canister Removal Date/Time: May 25, 2012 @ 7:35 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
21-May-12	05/21/2012 0:00	05/22/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	640	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 # 12073

Technician Signature: Ting Xu_____



Your C.O.C. #: na

Attention: Michael Bisaga

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

Report Date: 2012/06/01

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B277461

Received: 2012/05/29, 10:32

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/05/30	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/05/30	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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

Maxxam Job #: B277461
 Report Date: 2012/06/01

RESULTS OF ANALYSES OF AIR

Maxxam ID		NP2543	NP2544	
Sampling Date		2012/05/21	2012/05/21	
COC Number		na	na	
	Units	LICA VOC\CLSIMAY 21,12 / 319	LICA VOC\PORTMAY 21,12 / 278	QC Batch

Volatile Organics				
Pressure on Receipt	psig	24	22	2866381

QC Batch = Quality Control Batch

Maxxam Job #: B277461
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NP2543			NP2544				
Sampling Date		2012/05/21			2012/05/21				
COC Number		na			na				
	Units	LICA VOC\CLSMAY 21,12 / 319	ug/m3	DL (ug/m3)	LICA VOC\PORTMAY 21,12 / 278	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	2866695
Carbon Disulfide	ppbv	<0.50	<1.56	1.56	<0.50	0.50	<1.56	1.56	2866695
Propene	ppbv	<0.30	<0.516	0.516	<0.30	0.30	<0.516	0.516	2866695
Vinyl Acetate	ppbv	<0.20	<0.704	0.704	<0.20	0.20	<0.704	0.704	2866695
Vinyl Bromide	ppbv	<0.20	<0.875	0.875	<0.20	0.20	<0.875	0.875	2866695
Dichlorodifluoromethane (FREON 12)	ppbv	0.60	2.97	0.989	0.62	0.20	3.07	0.989	2866695
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	<1.19	1.19	<0.17	0.17	<1.19	1.19	2866695
Chloromethane	ppbv	0.48	0.989	0.620	0.50	0.30	1.04	0.620	2866695
Vinyl Chloride	ppbv	<0.18	<0.460	0.460	<0.18	0.18	<0.460	0.460	2866695
Chloroethane	ppbv	<0.30	<0.792	0.792	<0.30	0.30	<0.792	0.792	2866695
1,3-Butadiene	ppbv	<0.50	<1.11	1.11	<0.50	0.50	<1.11	1.11	2866695
Trichlorofluoromethane (FREON 11)	ppbv	0.31	1.73	1.12	0.30	0.20	1.71	1.12	2866695
Trichlorotrifluoroethane	ppbv	<0.15	<1.15	1.15	<0.15	0.15	<1.15	1.15	2866695
Ethanol (ethyl alcohol)	ppbv	<2.3	<4.33	4.33	<2.3	2.3	<4.33	4.33	2866695
2-propanol	ppbv	<3.0	<7.37	7.37	<3.0	3.0	<7.37	7.37	2866695
2-Propanone	ppbv	3.23	7.67	1.90	3.59	0.80	8.53	1.90	2866695
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	<8.85	8.85	<3.0	3.0	<8.85	8.85	2866695
Methyl Isobutyl Ketone	ppbv	<3.2	<13.1	13.1	<3.2	3.2	<13.1	13.1	2866695
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	<8.19	8.19	<2.0	2.0	<8.19	8.19	2866695
Methyl t-butyl ether (MTBE)	ppbv	<0.20	<0.721	0.721	<0.20	0.20	<0.721	0.721	2866695
Ethyl Acetate	ppbv	<2.2	<7.93	7.93	<2.2	2.2	<7.93	7.93	2866695
1,1-Dichloroethylene	ppbv	<0.25	<0.991	0.991	<0.25	0.25	<0.991	0.991	2866695
cis-1,2-Dichloroethylene	ppbv	<0.19	<0.753	0.753	<0.19	0.19	<0.753	0.753	2866695
trans-1,2-Dichloroethylene	ppbv	<0.20	<0.793	0.793	<0.20	0.20	<0.793	0.793	2866695
Methylene Chloride(Dichloromethane)	ppbv	<0.80	<2.78	2.78	<0.80	0.80	<2.78	2.78	2866695
Chloroform	ppbv	<0.15	<0.732	0.732	<0.15	0.15	<0.732	0.732	2866695
Carbon Tetrachloride	ppbv	<0.30	<1.89	1.89	<0.30	0.30	<1.89	1.89	2866695
1,1-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2866695
1,2-Dichloroethane	ppbv	<0.20	<0.809	0.809	<0.20	0.20	<0.809	0.809	2866695
Ethylene Dibromide	ppbv	<0.17	<1.31	1.31	<0.17	0.17	<1.31	1.31	2866695
1,1,1-Trichloroethane	ppbv	<0.30	<1.64	1.64	<0.30	0.30	<1.64	1.64	2866695

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B277461
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NP2543			NP2544				
Sampling Date		2012/05/21			2012/05/21				
COC Number		na			na				
	Units	LICA VOC\CLSMAY 21,12 / 319	ug/m3	DL (ug/m3)	LICA VOC\PORTMAY 21,12 / 278	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	2866695
1,1,2,2-Tetrachloroethane	ppbv	<0.20	<1.37	1.37	<0.20	0.20	<1.37	1.37	2866695
cis-1,3-Dichloropropene	ppbv	<0.18	<0.817	0.817	<0.18	0.18	<0.817	0.817	2866695
trans-1,3-Dichloropropene	ppbv	<0.17	<0.772	0.772	<0.17	0.17	<0.772	0.772	2866695
1,2-Dichloropropane	ppbv	<0.40	<1.85	1.85	<0.40	0.40	<1.85	1.85	2866695
Bromomethane	ppbv	<0.18	<0.699	0.699	<0.18	0.18	<0.699	0.699	2866695
Bromoform	ppbv	<0.20	<2.07	2.07	<0.20	0.20	<2.07	2.07	2866695
Bromodichloromethane	ppbv	<0.20	<1.34	1.34	<0.20	0.20	<1.34	1.34	2866695
Dibromochloromethane	ppbv	<0.20	<1.70	1.70	<0.20	0.20	<1.70	1.70	2866695
Heptane	ppbv	<0.30	<1.23	1.23	<0.30	0.30	<1.23	1.23	2866695
Trichloroethylene	ppbv	<0.30	<1.61	1.61	<0.30	0.30	<1.61	1.61	2866695
Tetrachloroethylene	ppbv	<0.20	<1.36	1.36	<0.20	0.20	<1.36	1.36	2866695
Benzene	ppbv	<0.18	<0.575	0.575	<0.18	0.18	<0.575	0.575	2866695
Toluene	ppbv	<0.20	<0.753	0.753	<0.20	0.20	<0.753	0.753	2866695
Ethylbenzene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2866695
p+m-Xylene	ppbv	<0.37	<1.61	1.61	<0.37	0.37	<1.61	1.61	2866695
o-Xylene	ppbv	<0.20	<0.868	0.868	<0.20	0.20	<0.868	0.868	2866695
Styrene	ppbv	<0.20	<0.852	0.852	<0.20	0.20	<0.852	0.852	2866695
1,3,5-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2866695
1,2,4-Trimethylbenzene	ppbv	<0.50	<2.46	2.46	<0.50	0.50	<2.46	2.46	2866695
4-ethyltoluene	ppbv	<2.2	<10.8	10.8	<2.2	2.2	<10.8	10.8	2866695
Chlorobenzene	ppbv	<0.20	<0.921	0.921	<0.20	0.20	<0.921	0.921	2866695
Benzyl chloride	ppbv	<1.0	<5.18	5.18	<1.0	1.0	<5.18	5.18	2866695
1,3-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2866695
1,4-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2866695
1,2-Dichlorobenzene	ppbv	<0.40	<2.40	2.40	<0.40	0.40	<2.40	2.40	2866695
1,2,4-Trichlorobenzene	ppbv	<2.0	<14.8	14.8	<2.0	2.0	<14.8	14.8	2866695
Hexachlorobutadiene	ppbv	<3.0	<32.0	32.0	<3.0	3.0	<32.0	32.0	2866695
Hexane	ppbv	<0.30	<1.06	1.06	<0.30	0.30	<1.06	1.06	2866695
Cyclohexane	ppbv	<0.20	<0.688	0.688	<0.20	0.20	<0.688	0.688	2866695
Tetrahydrofuran	ppbv	<0.40	<1.18	1.18	<0.40	0.40	<1.18	1.18	2866695
1,4-Dioxane	ppbv	<2.0	<7.21	7.21	<2.0	2.0	<7.21	7.21	2866695
Xylene (Total)	ppbv	<0.60	<2.61	2.61	<0.60	0.60	<2.61	2.61	2866695
QC Batch = Quality Control Batch									

Maxxam Job #: B277461
 Report Date: 2012/06/01

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NP2543			NP2544				
Sampling Date		2012/05/21			2012/05/21				
COC Number		na			na				
	Units	LICA VOC\CLSMAY 21,12 / 319	ug/m3	DL (ug/m3)	LICA VOC\PORTMAY 21,12 / 278	RDL	ug/m3	DL (ug/m3)	QC Batch

Surrogate Recovery (%)									
Bromochloromethane	%	88	N/A	N/A	85		N/A	N/A	2866695
D5-Chlorobenzene	%	78	N/A	N/A	77		N/A	N/A	2866695
Difluorobenzene	%	90	N/A	N/A	88		N/A	N/A	2866695

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

Maxxam Job #: B277461
 Report Date: 2012/06/01

Test Summary

Maxxam ID NP2543
Sample ID LICA VOC\CLSMAY 21,12 / 319
Matrix AIR

Collected 2012/05/21
Shipped
Received 2012/05/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2866381	N/A	2012/05/30	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2866695	N/A	2012/05/30	SPOMENKA SMILJANIC

Maxxam ID NP2544
Sample ID LICA VOC\PORTMAY 21,12 / 278
Matrix AIR

Collected 2012/05/21
Shipped
Received 2012/05/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2866381	N/A	2012/05/30	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2866695	N/A	2012/05/30	SPOMENKA SMILJANIC

Maxxam Job #: B277461
Report Date: 2012/06/01

GENERAL COMMENTS

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB277461

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2866695 S_S	Spiked Blank	Bromochloromethane	2012/05/30		104	%	60 - 140
		D5-Chlorobenzene	2012/05/30		102	%	60 - 140
		Difluorobenzene	2012/05/30		105	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/30		107	%	70 - 130
		Carbon Disulfide	2012/05/30		102	%	70 - 130
		Propene	2012/05/30		99	%	70 - 130
		Vinyl Acetate	2012/05/30		116	%	70 - 130
		Vinyl Bromide	2012/05/30		104	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/05/30		111	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/05/30		127	%	70 - 130
		Chloromethane	2012/05/30		119	%	70 - 130
		Vinyl Chloride	2012/05/30		112	%	70 - 130
		Chloroethane	2012/05/30		110	%	70 - 130
		1,3-Butadiene	2012/05/30		115	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/05/30		109	%	70 - 130
		Trichlorotrifluoroethane	2012/05/30		102	%	70 - 130
		Ethanol (ethyl alcohol)	2012/05/30		102	%	70 - 130
		2-propanol	2012/05/30		109	%	70 - 130
		2-Propanone	2012/05/30		130	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/05/30		109	%	70 - 130
		Methyl Isobutyl Ketone	2012/05/30		120	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/05/30		122	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/05/30		107	%	70 - 130
		Ethyl Acetate	2012/05/30		117	%	70 - 130
		1,1-Dichloroethylene	2012/05/30		108	%	70 - 130
		cis-1,2-Dichloroethylene	2012/05/30		108	%	70 - 130
		trans-1,2-Dichloroethylene	2012/05/30		106	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/05/30		101	%	70 - 130
		Chloroform	2012/05/30		105	%	70 - 130
		Carbon Tetrachloride	2012/05/30		115	%	70 - 130
		1,1-Dichloroethane	2012/05/30		109	%	70 - 130
		1,2-Dichloroethane	2012/05/30		114	%	70 - 130
		Ethylene Dibromide	2012/05/30		104	%	70 - 130
		1,1,1-Trichloroethane	2012/05/30		112	%	70 - 130
		1,1,2-Trichloroethane	2012/05/30		104	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/05/30		102	%	70 - 130
		cis-1,3-Dichloropropene	2012/05/30		112	%	70 - 130
		trans-1,3-Dichloropropene	2012/05/30		113	%	70 - 130
		1,2-Dichloropropane	2012/05/30		107	%	70 - 130
		Bromomethane	2012/05/30		107	%	70 - 130
		Bromoform	2012/05/30		115	%	70 - 130
		Bromodichloromethane	2012/05/30		118	%	70 - 130
		Dibromochloromethane	2012/05/30		116	%	70 - 130
		Heptane	2012/05/30		114	%	70 - 130
		Trichloroethylene	2012/05/30		100	%	70 - 130
		Tetrachloroethylene	2012/05/30		105	%	70 - 130
		Benzene	2012/05/30		102	%	70 - 130
		Toluene	2012/05/30		105	%	70 - 130
		Ethylbenzene	2012/05/30		103	%	70 - 130
		p+m-Xylene	2012/05/30		103	%	70 - 130
		o-Xylene	2012/05/30		105	%	70 - 130
		Styrene	2012/05/30		84	%	70 - 130
		1,3,5-Trimethylbenzene	2012/05/30		103	%	70 - 130
		1,2,4-Trimethylbenzene	2012/05/30		102	%	70 - 130
		4-ethyltoluene	2012/05/30		108	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB277461

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2866695 S_S	Spiked Blank	Chlorobenzene	2012/05/30		96	%	70 - 130
		Benzyl chloride	2012/05/30		107	%	70 - 130
		1,3-Dichlorobenzene	2012/05/30		93	%	70 - 130
		1,4-Dichlorobenzene	2012/05/30		91	%	70 - 130
		1,2-Dichlorobenzene	2012/05/30		93	%	70 - 130
		1,2,4-Trichlorobenzene	2012/05/30		89	%	70 - 130
		Hexachlorobutadiene	2012/05/30		105	%	70 - 130
		Hexane	2012/05/30		112	%	70 - 130
		Cyclohexane	2012/05/30		110	%	70 - 130
		Tetrahydrofuran	2012/05/30		115	%	70 - 130
		1,4-Dioxane	2012/05/30		111	%	70 - 130
		Xylene (Total)	2012/05/30		104	%	70 - 130
	Method Blank	Bromochloromethane	2012/05/30		97	%	60 - 140
		D5-Chlorobenzene	2012/05/30		85	%	60 - 140
		Difluorobenzene	2012/05/30		100	%	60 - 140
		2,2,4-Trimethylpentane	2012/05/30	<0.20		ppbv	
		Carbon Disulfide	2012/05/30	<0.50		ppbv	
		Propene	2012/05/30	<0.30		ppbv	
		Vinyl Acetate	2012/05/30	<0.20		ppbv	
		Vinyl Bromide	2012/05/30	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/05/30	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/05/30	<0.17		ppbv	
		Chloromethane	2012/05/30	<0.30		ppbv	
		Vinyl Chloride	2012/05/30	<0.18		ppbv	
		Chloroethane	2012/05/30	<0.30		ppbv	
		1,3-Butadiene	2012/05/30	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/05/30	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/05/30	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/05/30	<2.3		ppbv	
		2-propanol	2012/05/30	<3.0		ppbv	
		2-Propanone	2012/05/30	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/05/30	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/05/30	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/05/30	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/05/30	<0.20		ppbv	
		Ethyl Acetate	2012/05/30	<2.2		ppbv	
		1,1-Dichloroethylene	2012/05/30	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/05/30	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/05/30	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/05/30	<0.80		ppbv	
		Chloroform	2012/05/30	<0.15		ppbv	
		Carbon Tetrachloride	2012/05/30	<0.30		ppbv	
		1,1-Dichloroethane	2012/05/30	<0.20		ppbv	
		1,2-Dichloroethane	2012/05/30	<0.20		ppbv	
		Ethylene Dibromide	2012/05/30	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/05/30	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/05/30	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/05/30	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/05/30	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/05/30	<0.17		ppbv	
		1,2-Dichloropropane	2012/05/30	<0.40		ppbv	
		Bromomethane	2012/05/30	<0.18		ppbv	
		Bromoform	2012/05/30	<0.20		ppbv	
		Bromodichloromethane	2012/05/30	<0.20		ppbv	
		Dibromochloromethane	2012/05/30	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB277461

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2866695 S_S	Method Blank	Heptane	2012/05/30	<0.30		ppbv	
		Trichloroethylene	2012/05/30	<0.30		ppbv	
		Tetrachloroethylene	2012/05/30	<0.20		ppbv	
		Benzene	2012/05/30	<0.18		ppbv	
		Toluene	2012/05/30	<0.20		ppbv	
		Ethylbenzene	2012/05/30	<0.20		ppbv	
		p+m-Xylene	2012/05/30	<0.37		ppbv	
		o-Xylene	2012/05/30	<0.20		ppbv	
		Styrene	2012/05/30	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/05/30	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/05/30	<0.50		ppbv	
		4-ethyltoluene	2012/05/30	<2.2		ppbv	
		Chlorobenzene	2012/05/30	<0.20		ppbv	
		Benzyl chloride	2012/05/30	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/05/30	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/05/30	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/05/30	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/05/30	<2.0		ppbv	
		Hexachlorobutadiene	2012/05/30	<3.0		ppbv	
		Hexane	2012/05/30	<0.30		ppbv	
		Cyclohexane	2012/05/30	<0.20		ppbv	
		Tetrahydrofuran	2012/05/30	<0.40		ppbv	
		1,4-Dioxane	2012/05/30	<2.0		ppbv	
		Xylene (Total)	2012/05/30	<0.60		ppbv	
	RPD - Sample/Sample Dup	2-propanol	2012/05/30	NC		%	25
		Benzene	2012/05/30	NC		%	25
		Toluene	2012/05/30	NC		%	25
		Ethylbenzene	2012/05/30	NC		%	25
		p+m-Xylene	2012/05/30	NC		%	25
		o-Xylene	2012/05/30	NC		%	25
		Xylene (Total)	2012/05/30	NC		%	25

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

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

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

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

MAXXAM

Xontech Model 910A VOC Sample Collection Data Sheet

Client: LICA Sampler s/n: 6167
Location: Cold Lake South Canister ID: 7864
Station ID: Lica 1 Canister Installation Date/Time: May 25, 2012 @ 7:40 mst
Field Sample ID: LICA VOC/ CLS /May 27, 2012 Canister Removal Date/Time: May 29, 2012 @ 9:50 mst

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
27-May-12	05/27/2012 0:00	05/28/2012 0:00	24.00

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
10.0	640	25

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Pressure (psig)
-28	23

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

Comments: System leak check prior to sampling. COC # 11224

Technician Signiture: Ting Xu_____

Polycyclic Aromatic Hydrocarbons Laboratory Analysis



Your C.O.C. #: 11224

Attention: Michael Bisaga

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

Report Date: 2012/06/11

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B280111

Received: 2012/06/01, 09:00

Sample Matrix: AIR
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Canister Pressure (TO-15)	2	N/A	2012/06/05	BRL SOP-00304	EPA TO-15
Volatile Organics in Air (TO-15) (1)	2	N/A	2012/06/05	BRL SOP-00304	EPA TO-15

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

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

Encryption Key

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

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

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

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

Maxxam Job #: B280111
 Report Date: 2012/06/11

RESULTS OF ANALYSES OF AIR

Maxxam ID		NQ7875	NQ7876	
Sampling Date		2012/05/27	2012/05/27	
COC Number		11224	11224	
	Units	LICA	LICA	QC Batch
		VOC\CLS\MAY27,12 / 7864	VOC\PORT\MAY27,12 / 7802	

Volatile Organics				
Pressure on Receipt	psig	22	22	2872691

QC Batch = Quality Control Batch

Maxxam Job #: B280111
 Report Date: 2012/06/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NQ7875				
Sampling Date		2012/05/27				
COC Number		11224				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOCICLSMAY27,12				
		/7864				

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2874022
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2874022
Propene	ppbv	<0.30	0.30	<0.516	0.516	2874022
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2874022
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2874022
Dichlorodifluoromethane (FREON 12)	ppbv	0.71	0.20	3.50	0.989	2874022
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2874022
Chloromethane	ppbv	0.50	0.30	1.03	0.620	2874022
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2874022
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2874022
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2874022
Trichlorofluoromethane (FREON 11)	ppbv	0.34	0.20	1.92	1.12	2874022
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2874022
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2874022
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2874022
2-Propanone	ppbv	4.09	0.80	9.72	1.90	2874022
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2874022
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2874022
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2874022
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2874022
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2874022
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2874022
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2874022
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2874022
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2874022
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2874022
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2874022
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2874022
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2874022
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2874022
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2874022

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NQ7875				
Sampling Date		2012/05/27				
COC Number		11224				
	Units	LICA VOC/CLSMAY27,12 /7864	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2874022
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2874022
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2874022
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2874022
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2874022
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2874022
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2874022
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2874022
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2874022
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2874022
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2874022
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2874022
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2874022
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2874022
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2874022
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2874022
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2874022
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2874022
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2874022
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2874022
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2874022
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2874022
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2874022
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2874022
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2874022
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2874022
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2874022
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2874022
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2874022
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2874022
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2874022
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2874022
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2874022
QC Batch = Quality Control Batch						

Maxxam Job #: B280111
 Report Date: 2012/06/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NQ7875				
Sampling Date		2012/05/27				
COC Number		11224				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\CLSMAY27,12				
		/ 7864				

Surrogate Recovery (%)						
Bromochloromethane	%	70		N/A	N/A	2874022
D5-Chlorobenzene	%	63		N/A	N/A	2874022
Difluorobenzene	%	73		N/A	N/A	2874022

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

Maxxam Job #: B280111
 Report Date: 2012/06/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NQ7876				
Sampling Date		2012/05/27				
COC Number		11224				
	Units	LICA VOC\PORT\MAY27,12 /7802	RDL	ug/m3	DL (ug/m3)	QC Batch

Volatile Organics						
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.934	0.934	2874022
Carbon Disulfide	ppbv	<0.50	0.50	<1.56	1.56	2874022
Propene	ppbv	<0.30	0.30	<0.516	0.516	2874022
Vinyl Acetate	ppbv	<0.20	0.20	<0.704	0.704	2874022
Vinyl Bromide	ppbv	<0.20	0.20	<0.875	0.875	2874022
Dichlorodifluoromethane (FREON 12)	ppbv	0.64	0.20	3.19	0.989	2874022
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<1.19	1.19	2874022
Chloromethane	ppbv	0.46	0.30	0.949	0.620	2874022
Vinyl Chloride	ppbv	<0.18	0.18	<0.460	0.460	2874022
Chloroethane	ppbv	<0.30	0.30	<0.792	0.792	2874022
1,3-Butadiene	ppbv	<0.50	0.50	<1.11	1.11	2874022
Trichlorofluoromethane (FREON 11)	ppbv	0.34	0.20	1.89	1.12	2874022
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<1.15	1.15	2874022
Ethanol (ethyl alcohol)	ppbv	<2.3	2.3	<4.33	4.33	2874022
2-propanol	ppbv	<3.0	3.0	<7.37	7.37	2874022
2-Propanone	ppbv	3.22	0.80	7.64	1.90	2874022
Methyl Ethyl Ketone (2-Butanone)	ppbv	<3.0	3.0	<8.85	8.85	2874022
Methyl Isobutyl Ketone	ppbv	<3.2	3.2	<13.1	13.1	2874022
Methyl Butyl Ketone (2-Hexanone)	ppbv	<2.0	2.0	<8.19	8.19	2874022
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.721	0.721	2874022
Ethyl Acetate	ppbv	<2.2	2.2	<7.93	7.93	2874022
1,1-Dichloroethylene	ppbv	<0.25	0.25	<0.991	0.991	2874022
cis-1,2-Dichloroethylene	ppbv	<0.19	0.19	<0.753	0.753	2874022
trans-1,2-Dichloroethylene	ppbv	<0.20	0.20	<0.793	0.793	2874022
Methylene Chloride(Dichloromethane)	ppbv	<0.80	0.80	<2.78	2.78	2874022
Chloroform	ppbv	<0.15	0.15	<0.732	0.732	2874022
Carbon Tetrachloride	ppbv	<0.30	0.30	<1.89	1.89	2874022
1,1-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2874022
1,2-Dichloroethane	ppbv	<0.20	0.20	<0.809	0.809	2874022
Ethylene Dibromide	ppbv	<0.17	0.17	<1.31	1.31	2874022
1,1,1-Trichloroethane	ppbv	<0.30	0.30	<1.64	1.64	2874022
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B280111
 Report Date: 2012/06/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NQ7876				
Sampling Date		2012/05/27				
COC Number		11224				
	Units	LICA VOC\PORT\MAY27,12 /7802	RDL	ug/m3	DL (ug/m3)	QC Batch
1,1,2-Trichloroethane	ppbv	<0.15	0.15	<0.818	0.818	2874022
1,1,2,2-Tetrachloroethane	ppbv	<0.20	0.20	<1.37	1.37	2874022
cis-1,3-Dichloropropene	ppbv	<0.18	0.18	<0.817	0.817	2874022
trans-1,3-Dichloropropene	ppbv	<0.17	0.17	<0.772	0.772	2874022
1,2-Dichloropropane	ppbv	<0.40	0.40	<1.85	1.85	2874022
Bromomethane	ppbv	<0.18	0.18	<0.699	0.699	2874022
Bromoform	ppbv	<0.20	0.20	<2.07	2.07	2874022
Bromodichloromethane	ppbv	<0.20	0.20	<1.34	1.34	2874022
Dibromochloromethane	ppbv	<0.20	0.20	<1.70	1.70	2874022
Heptane	ppbv	<0.30	0.30	<1.23	1.23	2874022
Trichloroethylene	ppbv	<0.30	0.30	<1.61	1.61	2874022
Tetrachloroethylene	ppbv	<0.20	0.20	<1.36	1.36	2874022
Benzene	ppbv	<0.18	0.18	<0.575	0.575	2874022
Toluene	ppbv	<0.20	0.20	<0.753	0.753	2874022
Ethylbenzene	ppbv	<0.20	0.20	<0.868	0.868	2874022
p+m-Xylene	ppbv	<0.37	0.37	<1.61	1.61	2874022
o-Xylene	ppbv	<0.20	0.20	<0.868	0.868	2874022
Styrene	ppbv	<0.20	0.20	<0.852	0.852	2874022
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2874022
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<2.46	2.46	2874022
4-ethyltoluene	ppbv	<2.2	2.2	<10.8	10.8	2874022
Chlorobenzene	ppbv	<0.20	0.20	<0.921	0.921	2874022
Benzyl chloride	ppbv	<1.0	1.0	<5.18	5.18	2874022
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2874022
1,4-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2874022
1,2-Dichlorobenzene	ppbv	<0.40	0.40	<2.40	2.40	2874022
1,2,4-Trichlorobenzene	ppbv	<2.0	2.0	<14.8	14.8	2874022
Hexachlorobutadiene	ppbv	<3.0	3.0	<32.0	32.0	2874022
Hexane	ppbv	<0.30	0.30	<1.06	1.06	2874022
Cyclohexane	ppbv	<0.20	0.20	<0.688	0.688	2874022
Tetrahydrofuran	ppbv	<0.40	0.40	<1.18	1.18	2874022
1,4-Dioxane	ppbv	<2.0	2.0	<7.21	7.21	2874022
Xylene (Total)	ppbv	<0.60	0.60	<2.61	2.61	2874022
QC Batch = Quality Control Batch						

Maxxam Job #: B280111
 Report Date: 2012/06/11

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		NQ7876				
Sampling Date		2012/05/27				
COC Number		11224				
	Units	LICA	RDL	ug/m3	DL (ug/m3)	QC Batch
		VOC\PORT\MAY27,12				
		/7802				

Surrogate Recovery (%)						
Bromochloromethane	%	69		N/A	N/A	2874022
D5-Chlorobenzene	%	63		N/A	N/A	2874022
Difluorobenzene	%	73		N/A	N/A	2874022

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

Maxxam Job #: B280111
 Report Date: 2012/06/11

Test Summary

Maxxam ID NQ7875
Sample ID LICA VOC\CLSMAY27,12 / 7864
Matrix AIR

Collected 2012/05/27
Shipped
Received 2012/06/01

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2872691	N/A	2012/06/05	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2874022	N/A	2012/06/05	SPOMENKA SMILJANIC

Maxxam ID NQ7876
Sample ID LICA VOC\PORTMAY27,12 / 7802
Matrix AIR

Collected 2012/05/27
Shipped
Received 2012/06/01

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Canister Pressure (TO-15)	PRES	2872691	N/A	2012/06/05	SPOMENKA SMILJANIC
Volatile Organics in Air (TO-15)	GC/MS	2874022	N/A	2012/06/05	SPOMENKA SMILJANIC

Maxxam Job #: B280111
Report Date: 2012/06/11

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: GB280111

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2874022 S_S	Spiked Blank	Bromochloromethane	2012/06/05		103	%	60 - 140
		D5-Chlorobenzene	2012/06/05		100	%	60 - 140
		Difluorobenzene	2012/06/05		106	%	60 - 140
		2,2,4-Trimethylpentane	2012/06/05		93	%	70 - 130
		Carbon Disulfide	2012/06/05		92	%	70 - 130
		Propene	2012/06/05		86	%	70 - 130
		Vinyl Acetate	2012/06/05		101	%	70 - 130
		Vinyl Bromide	2012/06/05		99	%	70 - 130
		Dichlorodifluoromethane (FREON 12)	2012/06/05		105	%	70 - 130
		1,2-Dichlorotetrafluoroethane	2012/06/05		120	%	70 - 130
		Chloromethane	2012/06/05		108	%	70 - 130
		Vinyl Chloride	2012/06/05		101	%	70 - 130
		Chloroethane	2012/06/05		100	%	70 - 130
		1,3-Butadiene	2012/06/05		104	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2012/06/05		104	%	70 - 130
		Trichlorotrifluoroethane	2012/06/05		95	%	70 - 130
		Ethanol (ethyl alcohol)	2012/06/05		88	%	70 - 130
		2-propanol	2012/06/05		95	%	70 - 130
		2-Propanone	2012/06/05		115	%	70 - 130
		Methyl Ethyl Ketone (2-Butanone)	2012/06/05		94	%	70 - 130
		Methyl Isobutyl Ketone	2012/06/05		103	%	70 - 130
		Methyl Butyl Ketone (2-Hexanone)	2012/06/05		104	%	70 - 130
		Methyl t-butyl ether (MTBE)	2012/06/05		101	%	70 - 130
		Ethyl Acetate	2012/06/05		101	%	70 - 130
		1,1-Dichloroethylene	2012/06/05		100	%	70 - 130
		cis-1,2-Dichloroethylene	2012/06/05		99	%	70 - 130
		trans-1,2-Dichloroethylene	2012/06/05		97	%	70 - 130
		Methylene Chloride(Dichloromethane)	2012/06/05		90	%	70 - 130
		Chloroform	2012/06/05		98	%	70 - 130
		Carbon Tetrachloride	2012/06/05		109	%	70 - 130
		1,1-Dichloroethane	2012/06/05		98	%	70 - 130
		1,2-Dichloroethane	2012/06/05		106	%	70 - 130
		Ethylene Dibromide	2012/06/05		93	%	70 - 130
		1,1,1-Trichloroethane	2012/06/05		105	%	70 - 130
		1,1,2-Trichloroethane	2012/06/05		93	%	70 - 130
		1,1,2,2-Tetrachloroethane	2012/06/05		91	%	70 - 130
		cis-1,3-Dichloropropene	2012/06/05		100	%	70 - 130
		trans-1,3-Dichloropropene	2012/06/05		103	%	70 - 130
		1,2-Dichloropropane	2012/06/05		93	%	70 - 130
		Bromomethane	2012/06/05		100	%	70 - 130
		Bromoform	2012/06/05		110	%	70 - 130
		Bromodichloromethane	2012/06/05		108	%	70 - 130
		Dibromochloromethane	2012/06/05		108	%	70 - 130
		Heptane	2012/06/05		98	%	70 - 130
		Trichloroethylene	2012/06/05		90	%	70 - 130
		Tetrachloroethylene	2012/06/05		95	%	70 - 130
		Benzene	2012/06/05		91	%	70 - 130
		Toluene	2012/06/05		94	%	70 - 130
		Ethylbenzene	2012/06/05		94	%	70 - 130
		p+m-Xylene	2012/06/05		95	%	70 - 130
		o-Xylene	2012/06/05		97	%	70 - 130
		Styrene	2012/06/05		75	%	70 - 130
		1,3,5-Trimethylbenzene	2012/06/05		96	%	70 - 130
		1,2,4-Trimethylbenzene	2012/06/05		96	%	70 - 130
		4-ethyltoluene	2012/06/05		100	%	70 - 130

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB280111

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2874022 S_S	Spiked Blank	Chlorobenzene	2012/06/05		87	%	70 - 130
		Benzyl chloride	2012/06/05		100	%	70 - 130
		1,3-Dichlorobenzene	2012/06/05		86	%	70 - 130
		1,4-Dichlorobenzene	2012/06/05		85	%	70 - 130
		1,2-Dichlorobenzene	2012/06/05		86	%	70 - 130
		1,2,4-Trichlorobenzene	2012/06/05		85	%	70 - 130
		Hexachlorobutadiene	2012/06/05		106	%	70 - 130
		Hexane	2012/06/05		99	%	70 - 130
		Cyclohexane	2012/06/05		95	%	70 - 130
		Tetrahydrofuran	2012/06/05		98	%	70 - 130
		1,4-Dioxane	2012/06/05		98	%	70 - 130
		Xylene (Total)	2012/06/05		96	%	70 - 130
	Method Blank	Bromochloromethane	2012/06/05		77	%	60 - 140
		D5-Chlorobenzene	2012/06/05		67	%	60 - 140
		Difluorobenzene	2012/06/05		79	%	60 - 140
		2,2,4-Trimethylpentane	2012/06/05	<0.20		ppbv	
		Carbon Disulfide	2012/06/05	<0.50		ppbv	
		Propene	2012/06/05	<0.30		ppbv	
		Vinyl Acetate	2012/06/05	<0.20		ppbv	
		Vinyl Bromide	2012/06/05	<0.20		ppbv	
		Dichlorodifluoromethane (FREON 12)	2012/06/05	<0.20		ppbv	
		1,2-Dichlorotetrafluoroethane	2012/06/05	<0.17		ppbv	
		Chloromethane	2012/06/05	<0.30		ppbv	
		Vinyl Chloride	2012/06/05	<0.18		ppbv	
		Chloroethane	2012/06/05	<0.30		ppbv	
		1,3-Butadiene	2012/06/05	<0.50		ppbv	
		Trichlorofluoromethane (FREON 11)	2012/06/05	<0.20		ppbv	
		Trichlorotrifluoroethane	2012/06/05	<0.15		ppbv	
		Ethanol (ethyl alcohol)	2012/06/05	<2.3		ppbv	
		2-propanol	2012/06/05	<3.0		ppbv	
		2-Propanone	2012/06/05	<0.80		ppbv	
		Methyl Ethyl Ketone (2-Butanone)	2012/06/05	<3.0		ppbv	
		Methyl Isobutyl Ketone	2012/06/05	<3.2		ppbv	
		Methyl Butyl Ketone (2-Hexanone)	2012/06/05	<2.0		ppbv	
		Methyl t-butyl ether (MTBE)	2012/06/05	<0.20		ppbv	
		Ethyl Acetate	2012/06/05	<2.2		ppbv	
		1,1-Dichloroethylene	2012/06/05	<0.25		ppbv	
		cis-1,2-Dichloroethylene	2012/06/05	<0.19		ppbv	
		trans-1,2-Dichloroethylene	2012/06/05	<0.20		ppbv	
		Methylene Chloride(Dichloromethane)	2012/06/05	<0.80		ppbv	
		Chloroform	2012/06/05	<0.15		ppbv	
		Carbon Tetrachloride	2012/06/05	<0.30		ppbv	
		1,1-Dichloroethane	2012/06/05	<0.20		ppbv	
		1,2-Dichloroethane	2012/06/05	<0.20		ppbv	
		Ethylene Dibromide	2012/06/05	<0.17		ppbv	
		1,1,1-Trichloroethane	2012/06/05	<0.30		ppbv	
		1,1,2-Trichloroethane	2012/06/05	<0.15		ppbv	
		1,1,2,2-Tetrachloroethane	2012/06/05	<0.20		ppbv	
		cis-1,3-Dichloropropene	2012/06/05	<0.18		ppbv	
		trans-1,3-Dichloropropene	2012/06/05	<0.17		ppbv	
		1,2-Dichloropropane	2012/06/05	<0.40		ppbv	
		Bromomethane	2012/06/05	<0.18		ppbv	
		Bromoform	2012/06/05	<0.20		ppbv	
		Bromodichloromethane	2012/06/05	<0.20		ppbv	
		Dibromochloromethane	2012/06/05	<0.20		ppbv	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB280111

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2874022 S_S	Method Blank	Heptane	2012/06/05	<0.30		ppbv	
		Trichloroethylene	2012/06/05	<0.30		ppbv	
		Tetrachloroethylene	2012/06/05	<0.20		ppbv	
		Benzene	2012/06/05	<0.18		ppbv	
		Toluene	2012/06/05	<0.20		ppbv	
		Ethylbenzene	2012/06/05	<0.20		ppbv	
		p+m-Xylene	2012/06/05	<0.37		ppbv	
		o-Xylene	2012/06/05	<0.20		ppbv	
		Styrene	2012/06/05	<0.20		ppbv	
		1,3,5-Trimethylbenzene	2012/06/05	<0.50		ppbv	
		1,2,4-Trimethylbenzene	2012/06/05	<0.50		ppbv	
		4-ethyltoluene	2012/06/05	<2.2		ppbv	
		Chlorobenzene	2012/06/05	<0.20		ppbv	
		Benzyl chloride	2012/06/05	<1.0		ppbv	
		1,3-Dichlorobenzene	2012/06/05	<0.40		ppbv	
		1,4-Dichlorobenzene	2012/06/05	<0.40		ppbv	
		1,2-Dichlorobenzene	2012/06/05	<0.40		ppbv	
		1,2,4-Trichlorobenzene	2012/06/05	<2.0		ppbv	
		Hexachlorobutadiene	2012/06/05	<3.0		ppbv	
		Hexane	2012/06/05	<0.30		ppbv	
		Cyclohexane	2012/06/05	<0.20		ppbv	
		Tetrahydrofuran	2012/06/05	<0.40		ppbv	
		1,4-Dioxane	2012/06/05	<2.0		ppbv	
		Xylene (Total)	2012/06/05	<0.60		ppbv	

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/May 03, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: Apr 30, 2012 @ 08:30 mst
 Removal Date/Time: May 07, 2012 @ 09:32 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
03-May-12	05/03/2012 0:00	05/04/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
27-Apr-12	07-May-12	08-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)
712	229	8.7	330.36

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

Comments: COC# 10644
GB234634 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/May 03, 2012

Technician Signature: Ting Xu

Your C.O.C. #: 10644

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

Report Date: 2012/05/14

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B266367****Received: 2012/05/09, 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	2012/05/09	2012/05/11	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

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 #: B266367
 Report Date: 2012/05/14

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

Maxxam ID		NJ6849	NJ6850		
Sampling Date		2012/05/03	2012/05/03		
COC Number		10644	10644		
	Units	LICA PUFF+QFF/CLS/MAY 03,12	LICA PUFF+QFF/PORT/MAY 03,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2844288
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2844288
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2844288
2-Methylantracene	ug	<0.10	<0.10	0.10	2844288
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2844288
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2844288
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2844288
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2844288
Acenaphthene	ug	<0.050	<0.050	0.050	2844288
Acenaphthylene	ug	<0.050	<0.050	0.050	2844288
Anthracene	ug	<0.050	<0.050	0.050	2844288
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2844288
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2844288
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2844288
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2844288
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2844288
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2844288
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2844288
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2844288
Biphenyl	ug	<0.10	<0.10	0.10	2844288
Chrysene	ug	<0.050	<0.050	0.050	2844288
Coronene	ug	<0.10	<0.10	0.10	2844288
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2844288
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2844288
Fluoranthene	ug	0.102	<0.050	0.050	2844288
Fluorene	ug	0.058	0.070	0.050	2844288
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2844288
m-Terphenyl	ug	<0.10	<0.10	0.10	2844288
Naphthalene	ug	<0.072	<0.072	0.072	2844288
o-Terphenyl	ug	<0.10	<0.10	0.10	2844288
Perylene	ug	<0.10	<0.10	0.10	2844288

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B266367
 Report Date: 2012/05/14

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

Maxxam ID		NJ6849	NJ6850		
Sampling Date		2012/05/03	2012/05/03		
COC Number		10644	10644		
	Units	LICA PUFF+QFF/CLS/MAY 03,12	LICA PUFF+QFF/PORT/MAY 03,12	RDL	QC Batch

Phenanthrene	ug	0.326	0.120	0.050	2844288
p-Terphenyl	ug	<0.10	<0.10	0.10	2844288
Pyrene	ug	0.070	<0.050	0.050	2844288
Quinoline	ug	<0.40	<0.40	0.40	2844288
Tetralin	ug	<0.10	<0.10	0.10	2844288
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	62	64		2844288
D10-Fluoranthene	%	102	98		2844288
D10-Fluorene (FS)	%	13 (1)	13 (1)		2844288
D10-Phenanthrene	%	90	86		2844288
D12-Benzo(a)anthracene	%	102	100		2844288
D12-Benzo(a)pyrene	%	96	96		2844288
D12-Benzo(b)fluoranthene	%	102	100		2844288
D12-Benzo(ghi)perylene	%	108	104		2844288
D12-Benzo(k)fluoranthene	%	92	92		2844288
D12-Chrysene	%	90	88		2844288
D12-Indeno(1,2,3-cd)pyrene	%	112	106		2844288
D12-Perylene	%	96	94		2844288
D14-Dibenzo(a,h)anthracene	%	114	108		2844288
D14-Terphenyl (FS)	%	99	95		2844288
D8-Acenaphthylene	%	66	70		2844288
D8-Naphthalene	%	60	62		2844288

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 #: B266367
Report Date: 2012/05/14

Test Summary

Maxxam ID NJ6849
Sample ID LICA PUFF+QFF/CLS/MAY 03,12
Matrix PUF AND FILTER

Collected 2012/05/03
Shipped
Received 2012/05/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2844288	2012/05/09	2012/05/11	WENDY ZHAO

Maxxam ID NJ6850
Sample ID LICA PUFF+QFF/PORT/MAY 03,12
Matrix PUF AND FILTER

Collected 2012/05/03
Shipped
Received 2012/05/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2844288	2012/05/09	2012/05/11	WENDY ZHAO

Maxxam Job #: B266367
Report Date: 2012/05/14

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.

Chrysene is statistically out of control at 88.5% recovery in the spike:dup and spike is OK. Acceptance criteria met for both spike and dup. Data reported and flagged.

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 NJ6849-01: PAHMS-F

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

Sample NJ6850-01: 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: GB266367

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2844288 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/05/11		66	%	50 - 150
		D10-Fluoranthene	2012/05/11		96	%	50 - 150
		D10-Phenanthrene	2012/05/11		84	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/11		102	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/11		100	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/11		106	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/11		110	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/11		92	%	50 - 150
		D12-Chrysene	2012/05/11		92	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/05/11		114	%	50 - 150
		D12-Perylene	2012/05/11		96	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/11		116	%	50 - 150
		D8-Acenaphthylene	2012/05/11		72	%	50 - 150
		D8-Naphthalene	2012/05/11		66	%	50 - 150
		Acenaphthene	2012/05/11		70	%	60 - 130
	RPD	Acenaphthene	2012/05/11	0.7		%	50
	Spiked Blank	Acenaphthylene	2012/05/11		71	%	60 - 130
	RPD	Acenaphthylene	2012/05/11	0		%	50
	Spiked Blank	Anthracene	2012/05/11		81	%	60 - 130
	RPD	Anthracene	2012/05/11	1.2		%	50
	Spiked Blank	Benzo(a)anthracene	2012/05/11		101	%	60 - 130
	RPD	Benzo(a)anthracene	2012/05/11	3.5		%	50
	Spiked Blank	Benzo(a)pyrene	2012/05/11		86	%	60 - 130
	RPD	Benzo(a)pyrene	2012/05/11	2.7		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/05/11		95	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/05/11	4.6		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/05/11		103	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/05/11	4.0		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/05/11		104	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/05/11	8.0		%	50
	Spiked Blank	Chrysene	2012/05/11		89	%	60 - 130
	RPD	Chrysene	2012/05/11	0.6		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/05/11		116	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/05/11	3.1		%	50
	Spiked Blank	Fluoranthene	2012/05/11		96	%	60 - 130
	RPD	Fluoranthene	2012/05/11	2.1		%	50
	Spiked Blank	Fluorene	2012/05/11		75	%	60 - 130
	RPD	Fluorene	2012/05/11	0.3		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/05/11		108	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/05/11	3.0		%	50
	Spiked Blank	Naphthalene	2012/05/11		67	%	60 - 130
	RPD	Naphthalene	2012/05/11	0.7		%	50
	Spiked Blank	Phenanthrene	2012/05/11		80	%	60 - 130
	RPD	Phenanthrene	2012/05/11	1.2		%	50
	Spiked Blank	Pyrene	2012/05/11		85	%	60 - 130
	RPD	Pyrene	2012/05/11	1.8		%	50
	Method Blank	D10-2-Methylnaphthalene	2012/05/11		54	%	50 - 150
		D10-Fluoranthene	2012/05/11		92	%	50 - 150
		D10-Phenanthrene	2012/05/11		72	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/11		96	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/11		96	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/11		102	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/11		104	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/11		86	%	50 - 150
		D12-Chrysene	2012/05/11		90	%	50 - 150

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB266367

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2844288 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/05/11		108	%	50 - 150
		D12-Perylene	2012/05/11		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/11		110	%	50 - 150
		D8-Acenaphthylene	2012/05/11		60	%	50 - 150
		D8-Naphthalene	2012/05/11		54	%	50 - 150
		1-Methylnaphthalene	2012/05/11	<0.10		ug	
		1-Methylphenanthrene	2012/05/11	<0.10		ug	
		2-Chloronaphthalene	2012/05/11	<0.10		ug	
		2-Methylantracene	2012/05/11	<0.10		ug	
		2-Methylnaphthalene	2012/05/11	<0.10		ug	
		3-Methylcholanthrene	2012/05/11	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/05/11	<0.10		ug	
		9,10-Dimethylantracene	2012/05/11	<0.40		ug	
		Acenaphthene	2012/05/11	<0.050		ug	
		Acenaphthylene	2012/05/11	<0.050		ug	
		Anthracene	2012/05/11	<0.050		ug	
		Benzo(a)anthracene	2012/05/11	<0.050		ug	
		Benzo(a)fluorene	2012/05/11	<0.10		ug	
		Benzo(a)pyrene	2012/05/11	<0.050		ug	
		Benzo(b)fluoranthene	2012/05/11	<0.050		ug	
		Benzo(b)fluorene	2012/05/11	<0.10		ug	
		Benzo(e)pyrene	2012/05/11	<0.10		ug	
		Benzo(g,h,i)perylene	2012/05/11	<0.050		ug	
		Benzo(k)fluoranthene	2012/05/11	<0.050		ug	
		Biphenyl	2012/05/11	<0.10		ug	
		Chrysene	2012/05/11	<0.050		ug	
		Coronene	2012/05/11	<0.10		ug	
		Dibenz(a,h)anthracene	2012/05/11	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/05/11	<0.20		ug	
		Fluoranthene	2012/05/11	<0.050		ug	
		Fluorene	2012/05/11	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/05/11	<0.050		ug	
		m-Terphenyl	2012/05/11	<0.10		ug	
		Naphthalene	2012/05/11	<0.072		ug	
		o-Terphenyl	2012/05/11	<0.10		ug	
		Perylene	2012/05/11	<0.10		ug	
		Phenanthrene	2012/05/11	<0.050		ug	
		p-Terphenyl	2012/05/11	<0.10		ug	
		Pyrene	2012/05/11	<0.050		ug	
		Quinoline	2012/05/11	<0.40		ug	
		Tetralin	2012/05/11	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
Location: Cold Lake South
Station ID: Lica1
Field Sample ID: LICA PUF/CLS/May 09, 2012

Puf+ s/n: 100-1020
Motor s/n: 1138
Installation Date/Time: May 07, 2012 @ 9:48 mst
Removal Date/Time: May 10, 2012 @ 7:32 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
09-May-12	05/09/2012 0:00	05/10/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
04-May-12	10-May-12	16-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)
704	229	13.7	330.34

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

Comments: COC# 11241
GB234642 PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/May 09, 2012

Technician Signature: Ting Xu

Your C.O.C. #: 11241

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

Report Date: 2012/05/25

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B270595****Received: 2012/05/16, 09:25**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/05/16	2012/05/19	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

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

Maxxam ID		NL8503	NL8504		
Sampling Date		2012/05/09	2012/05/09		
COC Number		11241	11241		
	Units	LICA PUFF+QFF/CLS/MAY 09,12	LICA PUFF+QFF/PORT/MAY 09,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2851816
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2851816
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2851816
2-Methylantracene	ug	<0.10	<0.10	0.10	2851816
2-Methylnaphthalene	ug	0.14	<0.10	0.10	2851816
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2851816
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2851816
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2851816
Acenaphthene	ug	0.056	<0.050	0.050	2851816
Acenaphthylene	ug	<0.050	<0.050	0.050	2851816
Anthracene	ug	<0.050	<0.050	0.050	2851816
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2851816
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2851816
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2851816
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2851816
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2851816
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2851816
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2851816
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2851816
Biphenyl	ug	<0.10	<0.10	0.10	2851816
Chrysene	ug	<0.050	<0.050	0.050	2851816
Coronene	ug	<0.10	<0.10	0.10	2851816
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2851816
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2851816
Fluoranthene	ug	<0.050	<0.050	0.050	2851816
Fluorene	ug	0.122	<0.050	0.050	2851816
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2851816
m-Terphenyl	ug	<0.10	<0.10	0.10	2851816
Naphthalene	ug	<0.072	<0.072	0.072	2851816
o-Terphenyl	ug	<0.10	<0.10	0.10	2851816
Perylene	ug	<0.10	<0.10	0.10	2851816

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B270595
 Report Date: 2012/05/25

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

Maxxam ID		NL8503	NL8504		
Sampling Date		2012/05/09	2012/05/09		
COC Number		11241	11241		
	Units	LICA PUFF+QFF/CLS/MAY 09,12	LICA PUFF+QFF/PORT/MAY 09,12	RDL	QC Batch

Phenanthrene	ug	0.376	0.088	0.050	2851816
p-Terphenyl	ug	<0.10	<0.10	0.10	2851816
Pyrene	ug	<0.050	<0.050	0.050	2851816
Quinoline	ug	<0.40	<0.40	0.40	2851816
Tetralin	ug	<0.10	<0.10	0.10	2851816
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	68	72		2851816
D10-Fluoranthene	%	82	78		2851816
D10-Fluorene (FS)	%	17 (1)	14 (1)		2851816
D10-Phenanthrene	%	78	74		2851816
D12-Benzo(a)anthracene	%	84	86		2851816
D12-Benzo(a)pyrene	%	90	92		2851816
D12-Benzo(b)fluoranthene	%	88	90		2851816
D12-Benzo(ghi)perylene	%	92	94		2851816
D12-Benzo(k)fluoranthene	%	94	92		2851816
D12-Chrysene	%	92	90		2851816
D12-Indeno(1,2,3-cd)pyrene	%	92	92		2851816
D12-Perylene	%	90	90		2851816
D14-Dibenzo(a,h)anthracene	%	92	90		2851816
D14-Terphenyl (FS)	%	79	76		2851816
D8-Acenaphthylene	%	70	74		2851816
D8-Naphthalene	%	70	74		2851816

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 #: B270595
 Report Date: 2012/05/25

Test Summary

Maxxam ID NL8503
Sample ID LICA PUFF+QFF/CLS/MAY 09,12
Matrix PUF AND FILTER

Collected 2012/05/09
Shipped
Received 2012/05/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2851816	2012/05/16	2012/05/19	WENDY ZHAO

Maxxam ID NL8504
Sample ID LICA PUFF+QFF/PORT/MAY 09,12
Matrix PUF AND FILTER

Collected 2012/05/09
Shipped
Received 2012/05/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2851816	2012/05/16	2012/05/19	WENDY ZHAO

Maxxam Job #: B270595
Report Date: 2012/05/25

GENERAL COMMENTS

PAHMS-F

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

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

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

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

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

Results relate only to the items tested.

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

Quality Assurance Report
 Maxxam Job Number: GB270595

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2851816 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/05/19		74	%	50 - 150
		D10-Fluoranthene	2012/05/19		76	%	50 - 150
		D10-Phenanthrene	2012/05/19		72	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/19		90	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/19		96	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/19		94	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/19		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/19		96	%	50 - 150
		D12-Chrysene	2012/05/19		94	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/05/19		92	%	50 - 150
		D12-Perylene	2012/05/19		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/19		92	%	50 - 150
		D8-Acenaphthylene	2012/05/19		76	%	50 - 150
		D8-Naphthalene	2012/05/19		80	%	50 - 150
		Acenaphthene	2012/05/19		72	%	60 - 130
	RPD	Acenaphthene	2012/05/19	5.7		%	50
	Spiked Blank	Acenaphthylene	2012/05/19		72	%	60 - 130
	RPD	Acenaphthylene	2012/05/19	3.9		%	50
	Spiked Blank	Anthracene	2012/05/19		73	%	60 - 130
	RPD	Anthracene	2012/05/19	1.7		%	50
	Spiked Blank	Benzo(a)anthracene	2012/05/19		86	%	60 - 130
	RPD	Benzo(a)anthracene	2012/05/19	2.7		%	50
	Spiked Blank	Benzo(a)pyrene	2012/05/19		75	%	60 - 130
	RPD	Benzo(a)pyrene	2012/05/19	0.3		%	50
	Spiked Blank	Benzo(b)fluoranthene	2012/05/19		86	%	60 - 130
	RPD	Benzo(b)fluoranthene	2012/05/19	0.9		%	50
	Spiked Blank	Benzo(g,h,i)perylene	2012/05/19		84	%	60 - 130
	RPD	Benzo(g,h,i)perylene	2012/05/19	2.4		%	50
	Spiked Blank	Benzo(k)fluoranthene	2012/05/19		97	%	60 - 130
	RPD	Benzo(k)fluoranthene	2012/05/19	0.8		%	50
	Spiked Blank	Chrysene	2012/05/19		88	%	60 - 130
	RPD	Chrysene	2012/05/19	2.9		%	50
	Spiked Blank	Dibenz(a,h)anthracene	2012/05/19		88	%	60 - 130
	RPD	Dibenz(a,h)anthracene	2012/05/19	2.3		%	50
	Spiked Blank	Fluoranthene	2012/05/19		74	%	60 - 130
	RPD	Fluoranthene	2012/05/19	7.2		%	50
	Spiked Blank	Fluorene	2012/05/19		71	%	60 - 130
	RPD	Fluorene	2012/05/19	16.0		%	50
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/05/19		83	%	60 - 130
	RPD	Indeno(1,2,3-cd)pyrene	2012/05/19	2.4		%	50
	Spiked Blank	Naphthalene	2012/05/19		77	%	60 - 130
	RPD	Naphthalene	2012/05/19	7.7		%	50
	Spiked Blank	Phenanthrene	2012/05/19		65	%	60 - 130
	RPD	Phenanthrene	2012/05/19	1.9		%	50
	Spiked Blank	Pyrene	2012/05/19		66	%	60 - 130
RPD	Pyrene	2012/05/19	7.0		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/05/19		78	%	50 - 150	
	D10-Fluoranthene	2012/05/19		82	%	50 - 150	
	D10-Phenanthrene	2012/05/19		74	%	50 - 150	
	D12-Benzo(a)anthracene	2012/05/19		84	%	50 - 150	
	D12-Benzo(a)pyrene	2012/05/19		94	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/05/19		92	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/05/19		92	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/05/19		94	%	50 - 150	
	D12-Chrysene	2012/05/19		92	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB270595

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2851816 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/05/19		92	%	50 - 150
		D12-Perylene	2012/05/19		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/19		90	%	50 - 150
		D8-Acenaphthylene	2012/05/19		82	%	50 - 150
		D8-Naphthalene	2012/05/19		86	%	50 - 150
		1-Methylnaphthalene	2012/05/19	<0.10		ug	
		1-Methylphenanthrene	2012/05/19	<0.10		ug	
		2-Chloronaphthalene	2012/05/19	<0.10		ug	
		2-Methylanthracene	2012/05/19	<0.10		ug	
		2-Methylnaphthalene	2012/05/19	<0.10		ug	
		3-Methylcholanthrene	2012/05/19	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/05/19	<0.10		ug	
		9,10-Dimethylanthracene	2012/05/19	<0.40		ug	
		Acenaphthene	2012/05/19	<0.050		ug	
		Acenaphthylene	2012/05/19	<0.050		ug	
		Anthracene	2012/05/19	<0.050		ug	
		Benzo(a)anthracene	2012/05/19	<0.050		ug	
		Benzo(a)fluorene	2012/05/19	<0.10		ug	
		Benzo(a)pyrene	2012/05/19	<0.050		ug	
		Benzo(b)fluoranthene	2012/05/19	<0.050		ug	
		Benzo(b)fluorene	2012/05/19	<0.10		ug	
		Benzo(e)pyrene	2012/05/19	<0.10		ug	
		Benzo(g,h,i)perylene	2012/05/19	<0.050		ug	
		Benzo(k)fluoranthene	2012/05/19	<0.050		ug	
		Biphenyl	2012/05/19	<0.10		ug	
		Chrysene	2012/05/19	<0.050		ug	
		Coronene	2012/05/19	<0.10		ug	
		Dibenz(a,h)anthracene	2012/05/19	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/05/19	<0.20		ug	
		Fluoranthene	2012/05/19	<0.050		ug	
		Fluorene	2012/05/19	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/05/19	<0.050		ug	
		m-Terphenyl	2012/05/19	<0.10		ug	
		Naphthalene	2012/05/19	<0.072		ug	
		o-Terphenyl	2012/05/19	<0.10		ug	
		Perylene	2012/05/19	<0.10		ug	
		Phenanthrene	2012/05/19	<0.050		ug	
		p-Terphenyl	2012/05/19	<0.10		ug	
		Pyrene	2012/05/19	<0.050		ug	
		Quinoline	2012/05/19	<0.40		ug	
		Tetralin	2012/05/19	<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/May 15, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: May 14, 2012 @ 9:15 mst
 Removal Date/Time: May 17, 2012 @ 8:59 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
15-May-12	05/15/2012 0:00	05/16/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
10-May-12	17-May-12	22-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)
712	229	15.0	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# 11065
GB234711PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/May 15, 2012

Technician Signature: Ting Xu

Your C.O.C. #: 11065

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

Report Date: 2012/06/01

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B273663****Received: 2012/05/22, 08:53**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/05/26	2012/05/30	BRL SOP-00201	CARB429(ARBM1,M2)mod

Encryption Key

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

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

=====

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

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 #: B273663
 Report Date: 2012/06/01

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

Maxxam ID		NN3774	NN3775		
Sampling Date		2012/05/15 00:00	2012/05/15 00:00		
COC Number		11065	11065		
	Units	LICA PUFF+QFF/PORT/MAY 15,12	LICA PUFF+QFF/CLS/MAY15,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2861254
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2861254
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2861254
2-Methylantracene	ug	<0.10	<0.10	0.10	2861254
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2861254
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2861254
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2861254
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2861254
Acenaphthene	ug	<0.050	<0.050	0.050	2861254
Acenaphthylene	ug	<0.050	<0.050	0.050	2861254
Anthracene	ug	<0.050	<0.050	0.050	2861254
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2861254
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2861254
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2861254
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2861254
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2861254
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2861254
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2861254
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2861254
Biphenyl	ug	<0.10	<0.10	0.10	2861254
Chrysene	ug	<0.050	<0.050	0.050	2861254
Coronene	ug	<0.10	<0.10	0.10	2861254
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2861254
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2861254
Fluoranthene	ug	<0.050	<0.050	0.050	2861254
Fluorene	ug	0.068	<0.050	0.050	2861254
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2861254
m-Terphenyl	ug	<0.10	<0.10	0.10	2861254
Naphthalene	ug	<0.072	0.096	0.072	2861254
o-Terphenyl	ug	<0.10	<0.10	0.10	2861254
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					

Maxxam Job #: B273663
 Report Date: 2012/06/01

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

Maxxam ID		NN3774	NN3775		
Sampling Date		2012/05/15 00:00	2012/05/15 00:00		
COC Number		11065	11065		
	Units	LICA PUFF+QFF/PORT/MAY 15,12	LICA PUFF+QFF/CLS/MAY15,12	RDL	QC Batch

Perylene	ug	<0.10	<0.10	0.10	2861254
Phenanthrene	ug	0.244	0.218	0.050	2861254
p-Terphenyl	ug	<0.10	<0.10	0.10	2861254
Pyrene	ug	<0.050	<0.050	0.050	2861254
Quinoline	ug	<0.40	<0.40	0.40	2861254
Tetralin	ug	<0.10	<0.10	0.10	2861254
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	62	64		2861254
D10-Fluoranthene	%	94	94		2861254
D10-Fluorene (FS)	%	6.2 (1)	8.4 (1)		2861254
D10-Phenanthrene	%	84	84		2861254
D12-Benzo(a)anthracene	%	102	102		2861254
D12-Benzo(a)pyrene	%	96	94		2861254
D12-Benzo(b)fluoranthene	%	98	92		2861254
D12-Benzo(ghi)perylene	%	98	98		2861254
D12-Benzo(k)fluoranthene	%	88	94		2861254
D12-Chrysene	%	86	88		2861254
D12-Indeno(1,2,3-cd)pyrene	%	94	94		2861254
D12-Perylene	%	92	92		2861254
D14-Dibenzo(a,h)anthracene	%	94	94		2861254
D14-Terphenyl (FS)	%	91	91		2861254
D8-Acenaphthylene	%	72	74		2861254
D8-Naphthalene	%	62	62		2861254

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 #: B273663
Report Date: 2012/06/01

Test Summary

Maxxam ID NN3774
Sample ID LICA PUFF+QFF/PORT/MAY 15,12
Matrix PUF AND FILTER

Collected 2012/05/15
Shipped
Received 2012/05/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2861254	2012/05/26	2012/05/30	WENDY ZHAO

Maxxam ID NN3775
Sample ID LICA PUFF+QFF/CLS/MAY15,12
Matrix PUF AND FILTER

Collected 2012/05/15
Shipped
Received 2012/05/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2861254	2012/05/26	2012/05/30	WENDY ZHAO

Maxxam Job #: B273663
Report Date: 2012/06/01

GENERAL COMMENTS

PAHMS-F

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

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

Sample NN3774-01: PAHMS-F

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

Sample NN3775-01: 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: GB273663

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2861254 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/05/30		68	%	50 - 150
		D10-Fluoranthene	2012/05/30		88	%	50 - 150
		D10-Phenanthrene	2012/05/30		80	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/30		100	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/30		98	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/30		92	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/30		94	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/30		92	%	50 - 150
		D12-Chrysene	2012/05/30		88	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/05/30		90	%	50 - 150
		D12-Perylene	2012/05/30		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/30		90	%	50 - 150
		D8-Acenaphthylene	2012/05/30		78	%	50 - 150
		D8-Naphthalene	2012/05/30		66	%	50 - 150
		RPD	Acenaphthene	2012/05/30		66	%
	Spiked Blank	Acenaphthene	2012/05/30	14.1		%	50
	RPD	Acenaphthylene	2012/05/30		70	%	60 - 130
	Spiked Blank	Acenaphthylene	2012/05/30	16.1		%	50
	RPD	Anthracene	2012/05/30		77	%	60 - 130
	Spiked Blank	Anthracene	2012/05/30	14.8		%	50
	RPD	Benzo(a)anthracene	2012/05/30		91	%	60 - 130
	Spiked Blank	Benzo(a)anthracene	2012/05/30	0.6		%	50
	RPD	Benzo(a)pyrene	2012/05/30		75	%	60 - 130
	Spiked Blank	Benzo(a)pyrene	2012/05/30	2.3		%	50
	RPD	Benzo(b)fluoranthene	2012/05/30		90	%	60 - 130
	Spiked Blank	Benzo(b)fluoranthene	2012/05/30	1.1		%	50
	RPD	Benzo(g,h,i)perylene	2012/05/30		84	%	60 - 130
	Spiked Blank	Benzo(g,h,i)perylene	2012/05/30	3.8		%	50
	RPD	Benzo(k)fluoranthene	2012/05/30		84	%	60 - 130
	Spiked Blank	Benzo(k)fluoranthene	2012/05/30	1.8		%	50
	RPD	Chrysene	2012/05/30		82	%	60 - 130
	Spiked Blank	Chrysene	2012/05/30	2.8		%	50
	RPD	Dibenz(a,h)anthracene	2012/05/30		85	%	60 - 130
	Spiked Blank	Dibenz(a,h)anthracene	2012/05/30	6.3		%	50
	RPD	Fluoranthene	2012/05/30		84	%	60 - 130
	Spiked Blank	Fluoranthene	2012/05/30	8.0		%	50
	RPD	Fluorene	2012/05/30		68	%	60 - 130
	Spiked Blank	Fluorene	2012/05/30	16.0		%	50
	RPD	Indeno(1,2,3-cd)pyrene	2012/05/30		81	%	60 - 130
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/05/30	5.4		%	50
	RPD	Naphthalene	2012/05/30		66	%	60 - 130
	Spiked Blank	Naphthalene	2012/05/30	9.5		%	50
	RPD	Phenanthrene	2012/05/30		74	%	60 - 130
	Spiked Blank	Phenanthrene	2012/05/30	11.2		%	50
	RPD	Pyrene	2012/05/30		75	%	60 - 130
Spiked Blank	Pyrene	2012/05/30	7.7		%	50	
RPD	D10-2-Methylnaphthalene	2012/05/30		80	%	50 - 150	
Method Blank	D10-2-Methylnaphthalene	2012/05/30		94	%	50 - 150	
	D10-Fluoranthene	2012/05/30		90	%	50 - 150	
	D12-Benzo(a)anthracene	2012/05/30		102	%	50 - 150	
	D12-Benzo(a)pyrene	2012/05/30		96	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/05/30		96	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/05/30		96	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/05/30		90	%	50 - 150	
	D12-Chrysene	2012/05/30		88	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB273663

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2861254 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/05/30		92	%	50 - 150
		D12-Perylene	2012/05/30		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/30		92	%	50 - 150
		D8-Acenaphthylene	2012/05/30		92	%	50 - 150
		D8-Naphthalene	2012/05/30		78	%	50 - 150
		1-Methylnaphthalene	2012/05/30	<0.10		ug	
		1-Methylphenanthrene	2012/05/30	<0.10		ug	
		2-Chloronaphthalene	2012/05/30	<0.10		ug	
		2-Methylantracene	2012/05/30	<0.10		ug	
		2-Methylnaphthalene	2012/05/30	<0.10		ug	
		3-Methylcholanthrene	2012/05/30	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/05/30	<0.10		ug	
		9,10-Dimethylantracene	2012/05/30	<0.40		ug	
		Acenaphthene	2012/05/30	<0.050		ug	
		Acenaphthylene	2012/05/30	<0.050		ug	
		Anthracene	2012/05/30	<0.050		ug	
		Benzo(a)anthracene	2012/05/30	<0.050		ug	
		Benzo(a)fluorene	2012/05/30	<0.10		ug	
		Benzo(a)pyrene	2012/05/30	<0.050		ug	
		Benzo(b)fluoranthene	2012/05/30	<0.050		ug	
		Benzo(b)fluorene	2012/05/30	<0.10		ug	
		Benzo(e)pyrene	2012/05/30	<0.10		ug	
		Benzo(g,h,i)perylene	2012/05/30	<0.050		ug	
		Benzo(k)fluoranthene	2012/05/30	<0.050		ug	
		Biphenyl	2012/05/30	<0.10		ug	
		Chrysene	2012/05/30	<0.050		ug	
		Coronene	2012/05/30	<0.10		ug	
		Dibenz(a,h)anthracene	2012/05/30	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/05/30	<0.20		ug	
		Fluoranthene	2012/05/30	<0.050		ug	
		Fluorene	2012/05/30	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/05/30	<0.050		ug	
		m-Terphenyl	2012/05/30	<0.10		ug	
		Naphthalene	2012/05/30	<0.072		ug	
		o-Terphenyl	2012/05/30	<0.10		ug	
		Perylene	2012/05/30	<0.10		ug	
		Phenanthrene	2012/05/30	<0.050		ug	
		p-Terphenyl	2012/05/30	<0.10		ug	
		Pyrene	2012/05/30	<0.050		ug	
		Quinoline	2012/05/30	<0.40		ug	
		Tetralin	2012/05/30	<0.10		ug	

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

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

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

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

MAXXAM

Tisch Hi-Vol PUF+ Sample Collection Data Sheet

Client: Lica
 Location: Cold Lake South
 Station ID: Lica1
 Field Sample ID: LICA PUF/CLS/May 21, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: May 17, 2012 @ 9:10 mst
 Removal Date/Time: May 25, 2012 @ 7:45 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
21-May-12	05/21/2012 0:00	05/22/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
16-May-12	25-May-12	28-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)
710	229	13.9	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

d

Comments: COC#12074
GB234716PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/May 21, 2012

Technician Signature: Ting Xu

Your C.O.C. #: 12074

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

Report Date: 2012/06/01

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B277544****Received: 2012/05/29, 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	2012/05/30	2012/05/31	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 #: B277544
 Report Date: 2012/06/01

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

Maxxam ID		NP2873	NP2874		
Sampling Date		2012/05/21	2012/05/21		
COC Number		12074	12074		
	Units	LICA PUFF+QFF/CLS/MAY 21,12	LICA PUFF+QFF/PORT/MAY 21,12	RDL	QC Batch

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2864824
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2864824
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2864824
2-Methylantracene	ug	<0.10	<0.10	0.10	2864824
2-Methylnaphthalene	ug	<0.10	<0.10	0.10	2864824
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2864824
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2864824
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2864824
Acenaphthene	ug	<0.050	<0.050	0.050	2864824
Acenaphthylene	ug	<0.050	<0.050	0.050	2864824
Anthracene	ug	<0.050	<0.050	0.050	2864824
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2864824
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2864824
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2864824
Benzo(b)fluoranthene	ug	<0.050	<0.050	0.050	2864824
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2864824
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2864824
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2864824
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2864824
Biphenyl	ug	<0.10	<0.10	0.10	2864824
Chrysene	ug	<0.050	<0.050	0.050	2864824
Coronene	ug	<0.10	<0.10	0.10	2864824
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2864824
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2864824
Fluoranthene	ug	0.074	<0.050	0.050	2864824
Fluorene	ug	0.062	<0.050	0.050	2864824
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2864824
m-Terphenyl	ug	<0.10	<0.10	0.10	2864824
Naphthalene	ug	0.170	<0.072	0.072	2864824
o-Terphenyl	ug	<0.10	<0.10	0.10	2864824
Perylene	ug	<0.10	<0.10	0.10	2864824

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B277544
 Report Date: 2012/06/01

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

Maxxam ID		NP2873	NP2874		
Sampling Date		2012/05/21	2012/05/21		
COC Number		12074	12074		
	Units	LICA PUFF+QFF/CLS/MAY 21,12	LICA PUFF+QFF/PORT/MAY 21,12	RDL	QC Batch

Phenanthrene	ug	0.374	0.078	0.050	2864824
p-Terphenyl	ug	<0.10	<0.10	0.10	2864824
Pyrene	ug	<0.050	<0.050	0.050	2864824
Quinoline	ug	<0.40	<0.40	0.40	2864824
Tetralin	ug	<0.10	<0.10	0.10	2864824
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	72	74		2864824
D10-Fluoranthene	%	100	90		2864824
D10-Fluorene (FS)	%	11 (1)	13 (1)		2864824
D10-Phenanthrene	%	90	84		2864824
D12-Benzo(a)anthracene	%	100	102		2864824
D12-Benzo(a)pyrene	%	92	94		2864824
D12-Benzo(b)fluoranthene	%	94	96		2864824
D12-Benzo(ghi)perylene	%	98	96		2864824
D12-Benzo(k)fluoranthene	%	94	90		2864824
D12-Chrysene	%	86	90		2864824
D12-Indeno(1,2,3-cd)pyrene	%	92	90		2864824
D12-Perylene	%	90	90		2864824
D14-Dibenzo(a,h)anthracene	%	94	90		2864824
D14-Terphenyl (FS)	%	98	86		2864824
D8-Acenaphthylene	%	82	84		2864824
D8-Naphthalene	%	70	72		2864824

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 #: B277544
 Report Date: 2012/06/01

Test Summary

Maxxam ID NP2873
Sample ID LICA PUFF+QFF/CLS/MAY 21,12
Matrix PUF AND FILTER

Collected 2012/05/21
Shipped
Received 2012/05/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2864824	2012/05/30	2012/05/31	WENDY ZHAO

Maxxam ID NP2874
Sample ID LICA PUFF+QFF/PORT/MAY 21,12
Matrix PUF AND FILTER

Collected 2012/05/21
Shipped
Received 2012/05/29

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2864824	2012/05/30	2012/05/31	WENDY ZHAO

Maxxam Job #: B277544
Report Date: 2012/06/01

GENERAL COMMENTS

PAHMS-F

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

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

Sample received past holding time according to the tracking sheet.

Sample NP2873-01: PAHMS-F

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

Sample NP2874-01: 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: GB277544

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2864824 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/05/31		76	%	50 - 150
		D10-Fluoranthene	2012/05/31		96	%	50 - 150
		D10-Phenanthrene	2012/05/31		88	%	50 - 150
		D12-Benzo(a)anthracene	2012/05/31		100	%	50 - 150
		D12-Benzo(a)pyrene	2012/05/31		98	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/05/31		92	%	50 - 150
		D12-Benzo(ghi)perylene	2012/05/31		102	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/05/31		94	%	50 - 150
		D12-Chrysene	2012/05/31		88	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/05/31		94	%	50 - 150
		D12-Perylene	2012/05/31		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/31		96	%	50 - 150
		D8-Acenaphthylene	2012/05/31		88	%	50 - 150
		D8-Naphthalene	2012/05/31		74	%	50 - 150
		RPD	Acenaphthene	2012/05/31		73	%
	Spiked Blank	Acenaphthene	2012/05/31	1.7		%	50
	RPD	Acenaphthylene	2012/05/31		79	%	60 - 130
	Spiked Blank	Acenaphthylene	2012/05/31	0.3		%	50
	RPD	Anthracene	2012/05/31		86	%	60 - 130
	Spiked Blank	Anthracene	2012/05/31	6.6		%	50
	RPD	Benzo(a)anthracene	2012/05/31		94	%	60 - 130
	Spiked Blank	Benzo(a)anthracene	2012/05/31	0.8		%	50
	RPD	Benzo(a)pyrene	2012/05/31		79	%	60 - 130
	Spiked Blank	Benzo(a)pyrene	2012/05/31	0		%	50
	RPD	Benzo(b)fluoranthene	2012/05/31		87	%	60 - 130
	Spiked Blank	Benzo(b)fluoranthene	2012/05/31	11.4		%	50
	RPD	Benzo(g,h,i)perylene	2012/05/31		90	%	60 - 130
	Spiked Blank	Benzo(g,h,i)perylene	2012/05/31	1.1		%	50
	RPD	Benzo(k)fluoranthene	2012/05/31		95	%	60 - 130
	Spiked Blank	Benzo(k)fluoranthene	2012/05/31	8.0		%	50
	RPD	Chrysene	2012/05/31		83	%	60 - 130
	Spiked Blank	Chrysene	2012/05/31	2.4		%	50
	RPD	Dibenz(a,h)anthracene	2012/05/31		92	%	60 - 130
	Spiked Blank	Dibenz(a,h)anthracene	2012/05/31	1.6		%	50
	RPD	Fluoranthene	2012/05/31		90	%	60 - 130
	Spiked Blank	Fluoranthene	2012/05/31	7.2		%	50
	RPD	Fluorene	2012/05/31		76	%	60 - 130
	Spiked Blank	Fluorene	2012/05/31	1.3		%	50
	RPD	Indeno(1,2,3-cd)pyrene	2012/05/31		87	%	60 - 130
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/05/31	1.7		%	50
RPD	Naphthalene	2012/05/31		69	%	60 - 130	
Spiked Blank	Naphthalene	2012/05/31	0.7		%	50	
RPD	Phenanthrene	2012/05/31		80	%	60 - 130	
Spiked Blank	Phenanthrene	2012/05/31	3.8		%	50	
RPD	Pyrene	2012/05/31		80	%	60 - 130	
Spiked Blank	Pyrene	2012/05/31	6.5		%	50	
Method Blank	D10-2-Methylnaphthalene	2012/05/31		82	%	50 - 150	
	D10-Fluoranthene	2012/05/31		90	%	50 - 150	
	D10-Phenanthrene	2012/05/31		86	%	50 - 150	
	D12-Benzo(a)anthracene	2012/05/31		100	%	50 - 150	
	D12-Benzo(a)pyrene	2012/05/31		94	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/05/31		96	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/05/31		94	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/05/31		90	%	50 - 150	
	D12-Chrysene	2012/05/31		90	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB277544

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2864824 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/05/31		90	%	50 - 150
		D12-Perylene	2012/05/31		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/05/31		88	%	50 - 150
		D8-Acenaphthylene	2012/05/31		90	%	50 - 150
		D8-Naphthalene	2012/05/31		80	%	50 - 150
		1-Methylnaphthalene	2012/05/31	<0.10		ug	
		1-Methylphenanthrene	2012/05/31	<0.10		ug	
		2-Chloronaphthalene	2012/05/31	<0.10		ug	
		2-Methylantracene	2012/05/31	<0.10		ug	
		2-Methylnaphthalene	2012/05/31	<0.10		ug	
		3-Methylcholanthrene	2012/05/31	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/05/31	<0.10		ug	
		9,10-Dimethylantracene	2012/05/31	<0.40		ug	
		Acenaphthene	2012/05/31	<0.050		ug	
		Acenaphthylene	2012/05/31	<0.050		ug	
		Anthracene	2012/05/31	<0.050		ug	
		Benzo(a)anthracene	2012/05/31	<0.050		ug	
		Benzo(a)fluorene	2012/05/31	<0.10		ug	
		Benzo(a)pyrene	2012/05/31	<0.050		ug	
		Benzo(b)fluoranthene	2012/05/31	<0.050		ug	
		Benzo(b)fluorene	2012/05/31	<0.10		ug	
		Benzo(e)pyrene	2012/05/31	<0.10		ug	
		Benzo(g,h,i)perylene	2012/05/31	<0.050		ug	
		Benzo(k)fluoranthene	2012/05/31	<0.050		ug	
		Biphenyl	2012/05/31	<0.10		ug	
		Chrysene	2012/05/31	<0.050		ug	
		Coronene	2012/05/31	<0.10		ug	
		Dibenz(a,h)anthracene	2012/05/31	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/05/31	<0.20		ug	
		Fluoranthene	2012/05/31	<0.050		ug	
		Fluorene	2012/05/31	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/05/31	<0.050		ug	
		m-Terphenyl	2012/05/31	<0.10		ug	
		Naphthalene	2012/05/31	<0.072		ug	
		o-Terphenyl	2012/05/31	<0.10		ug	
		Perylene	2012/05/31	<0.10		ug	
		Phenanthrene	2012/05/31	<0.050		ug	
		p-Terphenyl	2012/05/31	<0.10		ug	
		Pyrene	2012/05/31	<0.050		ug	
		Quinoline	2012/05/31	<0.40		ug	
		Tetralin	2012/05/31	<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/May 27, 2012

Puf+ s/n: 100-1020
 Motor s/n: 1138
 Installation Date/Time: May 25, 2012 @ 8:01 mst
 Removal Date/Time: May 29, 2012 @ 9:56 mst

Date and Time Information			
Sample Date	Start Time (MST)	Finish Time (MST)	Elapsed Time (Hours)
27-May-12	05/27/2012 0:00	05/28/2012 0:00	24.000

PUF and QFF Information			
Date Received	Date Shipped	Puf Expiration Date	QFF Prep Date
23-May-12	30-May-12	05-Jun-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)
712	229	14.0	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

d

Comments: COC#11225
GB234714PUFF # 1
Ran with a 102mm Quartz Fiber Filter - Sample ID - LICA QFF/CLS/May 27, 2012

Technician Signature: Ting Xu

Your C.O.C. #: 11225

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

Report Date: 2012/06/08

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B280452****Received: 2012/06/01, 10:05**

Sample Matrix: PUF AND FILTER

Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
PAH's in Air (CARB429mod)	2	2012/06/04	2012/06/06	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 #: B280452
 Report Date: 2012/06/08

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

Maxxam ID		NQ9620	NQ9621		
Sampling Date		2012/05/27	2012/05/27		
COC Number		11225	11225		
	Units	LICAPUFF+QFF/CLS/MAY	LICAPUFF+QFF/PORT/MAY	RDL	QC Batch
		27,12	27,12		

Semivolatile Organics					
1-Methylnaphthalene	ug	<0.10	<0.10	0.10	2869051
1-Methylphenanthrene	ug	<0.10	<0.10	0.10	2869051
2-Chloronaphthalene	ug	<0.10	<0.10	0.10	2869051
2-Methylantracene	ug	<0.10	<0.10	0.10	2869051
2-Methylnaphthalene	ug	0.14	<0.10	0.10	2869051
3-Methylcholanthrene	ug	<2.0	<2.0	2.0	2869051
7,12-Dimethylbenzo(a)anthracene	ug	<0.10	<0.10	0.10	2869051
9,10-Dimethylantracene	ug	<0.40	<0.40	0.40	2869051
Acenaphthene	ug	0.080	<0.050	0.050	2869051
Acenaphthylene	ug	<0.050	<0.050	0.050	2869051
Anthracene	ug	<0.050	<0.050	0.050	2869051
Benzo(a)anthracene	ug	<0.050	<0.050	0.050	2869051
Benzo(a)fluorene	ug	<0.10	<0.10	0.10	2869051
Benzo(a)pyrene	ug	<0.050	<0.050	0.050	2869051
Benzo(b)fluoranthene	ug	0.056	<0.050	0.050	2869051
Benzo(b)fluorene	ug	<0.10	<0.10	0.10	2869051
Benzo(e)pyrene	ug	<0.10	<0.10	0.10	2869051
Benzo(g,h,i)perylene	ug	<0.050	<0.050	0.050	2869051
Benzo(k)fluoranthene	ug	<0.050	<0.050	0.050	2869051
Biphenyl	ug	<0.10	<0.10	0.10	2869051
Chrysene	ug	<0.050	<0.050	0.050	2869051
Coronene	ug	<0.10	<0.10	0.10	2869051
Dibenz(a,h)anthracene	ug	<0.050	<0.050	0.050	2869051
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	0.20	2869051
Fluoranthene	ug	0.058	<0.050	0.050	2869051
Fluorene	ug	0.124	<0.050	0.050	2869051
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	0.050	2869051
m-Terphenyl	ug	<0.10	<0.10	0.10	2869051
Naphthalene	ug	0.192	<0.072	0.072	2869051
o-Terphenyl	ug	<0.10	<0.10	0.10	2869051
Perylene	ug	<0.10	<0.10	0.10	2869051
Phenanthrene	ug	0.396	0.100	0.050	2869051

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B280452
 Report Date: 2012/06/08

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

Maxxam ID		NQ9620	NQ9621		
Sampling Date		2012/05/27	2012/05/27		
COC Number		11225	11225		
	Units	LICAPUFF+QFF/CLS/MAY	LICAPUFF+QFF/PORT/MAY	RDL	QC Batch
		27,12	27,12		

p-Terphenyl	ug	<0.10	<0.10	0.10	2869051
Pyrene	ug	<0.050	<0.050	0.050	2869051
Quinoline	ug	<0.40	<0.40	0.40	2869051
Tetralin	ug	<0.10	<0.10	0.10	2869051
Surrogate Recovery (%)					
D10-2-Methylnaphthalene	%	68	78		2869051
D10-Fluoranthene	%	86	82		2869051
D10-Fluorene (FS)	%	9.0 (1)	9.8 (1)		2869051
D10-Phenanthrene	%	80	80		2869051
D12-Benzo(a)anthracene	%	96	98		2869051
D12-Benzo(a)pyrene	%	90	90		2869051
D12-Benzo(b)fluoranthene	%	96	90		2869051
D12-Benzo(ghi)perylene	%	96	96		2869051
D12-Benzo(k)fluoranthene	%	88	94		2869051
D12-Chrysene	%	88	92		2869051
D12-Indeno(1,2,3-cd)pyrene	%	88	88		2869051
D12-Perylene	%	88	88		2869051
D14-Dibenzo(a,h)anthracene	%	88	88		2869051
D14-Terphenyl (FS)	%	81	78		2869051
D8-Acenaphthylene	%	72	78		2869051
D8-Naphthalene	%	68	78		2869051

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 #: B280452
 Report Date: 2012/06/08

Test Summary

Maxxam ID NQ9620
Sample ID LICAPUFF+QFF/CLS/MAY 27,12
Matrix PUF AND FILTER

Collected 2012/05/27
Shipped
Received 2012/06/01

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2869051	2012/06/04	2012/06/06	WENDY ZHAO

Maxxam ID NQ9621
Sample ID LICAPUFF+QFF/PORT/MAY 27,12
Matrix PUF AND FILTER

Collected 2012/05/27
Shipped
Received 2012/06/01

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH's in Air (CARB429mod)	GC/MS	2869051	2012/06/04	2012/06/06	WENDY ZHAO

Maxxam Job #: B280452
Report Date: 2012/06/08

GENERAL COMMENTS

PAHMS-F

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

Chryene is statistically out of control at 85.50% recovery in the spike:dup. Spike recovery is in control. Acceptance criteria met for both spike and dup. Data reported and flagged.

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 pass the holding time according to the tracking sheet.

Sample NQ9620-01: PAHMS-F

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

Sample NQ9621-01: 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: GB280452

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2869051 WZ	Spiked Blank	D10-2-Methylnaphthalene	2012/06/06		84	%	50 - 150
		D10-Fluoranthene	2012/06/06		82	%	50 - 150
		D10-Phenanthrene	2012/06/06		80	%	50 - 150
		D12-Benzo(a)anthracene	2012/06/06		94	%	50 - 150
		D12-Benzo(a)pyrene	2012/06/06		92	%	50 - 150
		D12-Benzo(b)fluoranthene	2012/06/06		94	%	50 - 150
		D12-Benzo(ghi)perylene	2012/06/06		96	%	50 - 150
		D12-Benzo(k)fluoranthene	2012/06/06		92	%	50 - 150
		D12-Chrysene	2012/06/06		96	%	50 - 150
		D12-Indeno(1,2,3-cd)pyrene	2012/06/06		88	%	50 - 150
		D12-Perylene	2012/06/06		92	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/06/06		88	%	50 - 150
		D8-Acenaphthylene	2012/06/06		84	%	50 - 150
		D8-Naphthalene	2012/06/06		84	%	50 - 150
		RPD	Acenaphthene	2012/06/06		76	%
	Spiked Blank	Acenaphthene	2012/06/06	4.8		%	50
	RPD	Acenaphthylene	2012/06/06		77	%	60 - 130
	Spiked Blank	Acenaphthylene	2012/06/06	5.7		%	50
	RPD	Anthracene	2012/06/06		75	%	60 - 130
	Spiked Blank	Anthracene	2012/06/06	11.3		%	50
	RPD	Anthracene	2012/06/06		90	%	60 - 130
	Spiked Blank	Benzo(a)anthracene	2012/06/06	1.4		%	50
	RPD	Benzo(a)anthracene	2012/06/06		74	%	60 - 130
	Spiked Blank	Benzo(a)pyrene	2012/06/06	6.9		%	50
	RPD	Benzo(a)pyrene	2012/06/06		92	%	60 - 130
	Spiked Blank	Benzo(b)fluoranthene	2012/06/06	2.2		%	50
	RPD	Benzo(b)fluoranthene	2012/06/06		84	%	60 - 130
	Spiked Blank	Benzo(g,h,i)perylene	2012/06/06	6.9		%	50
	RPD	Benzo(g,h,i)perylene	2012/06/06		90	%	60 - 130
	Spiked Blank	Benzo(k)fluoranthene	2012/06/06	1.9		%	50
	RPD	Benzo(k)fluoranthene	2012/06/06		88	%	60 - 130
	Spiked Blank	Chrysene	2012/06/06	2.3		%	50
	RPD	Chrysene	2012/06/06		84	%	60 - 130
	Spiked Blank	Dibenz(a,h)anthracene	2012/06/06	9.1		%	50
	RPD	Dibenz(a,h)anthracene	2012/06/06		78	%	60 - 130
	Spiked Blank	Fluoranthene	2012/06/06	11.2		%	50
	RPD	Fluoranthene	2012/06/06		75	%	60 - 130
	Spiked Blank	Fluorene	2012/06/06	7.4		%	50
	RPD	Fluorene	2012/06/06		80	%	60 - 130
	Spiked Blank	Indeno(1,2,3-cd)pyrene	2012/06/06	9.0		%	50
RPD	Indeno(1,2,3-cd)pyrene	2012/06/06		73	%	60 - 130	
Spiked Blank	Naphthalene	2012/06/06	5.6		%	50	
RPD	Naphthalene	2012/06/06		75	%	60 - 130	
Spiked Blank	Phenanthrene	2012/06/06	8.7		%	50	
RPD	Phenanthrene	2012/06/06		69	%	60 - 130	
Spiked Blank	Pyrene	2012/06/06	12.2		%	50	
RPD	Pyrene	2012/06/06		82	%	50 - 150	
Method Blank	D10-2-Methylnaphthalene	2012/06/06		88	%	50 - 150	
	D10-Fluoranthene	2012/06/06		86	%	50 - 150	
	D10-Phenanthrene	2012/06/06		94	%	50 - 150	
	D12-Benzo(a)anthracene	2012/06/06		94	%	50 - 150	
	D12-Benzo(a)pyrene	2012/06/06		94	%	50 - 150	
	D12-Benzo(b)fluoranthene	2012/06/06		94	%	50 - 150	
	D12-Benzo(ghi)perylene	2012/06/06		98	%	50 - 150	
	D12-Benzo(k)fluoranthene	2012/06/06		94	%	50 - 150	
	D12-Chrysene	2012/06/06		92	%	50 - 150	

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

Quality Assurance Report (Continued)

Maxxam Job Number: GB280452

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2869051 WZ	Method Blank	D12-Indeno(1,2,3-cd)pyrene	2012/06/06		92	%	50 - 150
		D12-Perylene	2012/06/06		94	%	50 - 150
		D14-Dibenzo(a,h)anthracene	2012/06/06		92	%	50 - 150
		D8-Acenaphthylene	2012/06/06		86	%	50 - 150
		D8-Naphthalene	2012/06/06		82	%	50 - 150
		1-Methylnaphthalene	2012/06/06	<0.10		ug	
		1-Methylphenanthrene	2012/06/06	<0.10		ug	
		2-Chloronaphthalene	2012/06/06	<0.10		ug	
		2-Methylanthracene	2012/06/06	<0.10		ug	
		2-Methylnaphthalene	2012/06/06	<0.10		ug	
		3-Methylcholanthrene	2012/06/06	<2.0		ug	
		7,12-Dimethylbenzo(a)anthracene	2012/06/06	<0.10		ug	
		9,10-Dimethylanthracene	2012/06/06	<0.40		ug	
		Acenaphthene	2012/06/06	<0.050		ug	
		Acenaphthylene	2012/06/06	<0.050		ug	
		Anthracene	2012/06/06	<0.050		ug	
		Benzo(a)anthracene	2012/06/06	<0.050		ug	
		Benzo(a)fluorene	2012/06/06	<0.10		ug	
		Benzo(a)pyrene	2012/06/06	<0.050		ug	
		Benzo(b)fluoranthene	2012/06/06	<0.050		ug	
		Benzo(b)fluorene	2012/06/06	<0.10		ug	
		Benzo(e)pyrene	2012/06/06	<0.10		ug	
		Benzo(g,h,i)perylene	2012/06/06	<0.050		ug	
		Benzo(k)fluoranthene	2012/06/06	<0.050		ug	
		Biphenyl	2012/06/06	<0.10		ug	
		Chrysene	2012/06/06	<0.050		ug	
		Coronene	2012/06/06	<0.10		ug	
		Dibenz(a,h)anthracene	2012/06/06	<0.050		ug	
		Dibenzo(a,e)pyrene	2012/06/06	<0.20		ug	
		Fluoranthene	2012/06/06	<0.050		ug	
		Fluorene	2012/06/06	<0.050		ug	
		Indeno(1,2,3-cd)pyrene	2012/06/06	<0.050		ug	
		m-Terphenyl	2012/06/06	<0.10		ug	
		Naphthalene	2012/06/06	<0.072		ug	
		o-Terphenyl	2012/06/06	<0.10		ug	
		Perylene	2012/06/06	<0.10		ug	
		Phenanthrene	2012/06/06	<0.050		ug	
		p-Terphenyl	2012/06/06	<0.10		ug	
		Pyrene	2012/06/06	<0.050		ug	
		Quinoline	2012/06/06	<0.40		ug	
		Tetralin	2012/06/06	<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.